



# Annex 1

## Methodology

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### Background

This report presents a special edition of the SDG Index and Dashboards for the EU and its 28 EU member states.<sup>1</sup> The report focuses on the most relevant policy issues for the EU, leaving aside some aspects of the Agenda 2030 and the SDGs that are less relevant (for instance mortality rate from malaria or access to contraception). It includes 113 indicators. Two-thirds of the indicators come from official statistics (primarily services of the European Commission) and one third from non-official data sources (NGOs, academia). Owing to the quantity and quality of data available in the European Statistical System (ESS), this assessment includes additional measures to track sustainable land use and agriculture, gaps in access to and quality of key services across population groups and the conservation of biodiversity and ecosystems. The difference in focus and data sources may lead to significant differences compared to the results presented in the global SDG Index and Dashboards (Sachs et al., 2019).

The EU SDG Index and Dashboards builds on the methodology developed by the SDSN and Bertelsmann Stiftung to track countries' performance on the 17 SDGs. The first global edition of the SDG Index and Dashboards was released in 2016. The report is updated annually. It is not an official report of the United Nations. Over time, continental editions were developed to leverage continental data sources. The [Africa SDG Index and Dashboards](#) uses, for instance, data from the African Union and the African Development Bank (among other continental data sources). Increasingly, the methodology is being used to track SDG performance at subnational levels (U.S. States, U.S. cities, European cities, Italian cities, Spanish cities).

This European edition was co-designed by civil society and aims to complement the reporting made by the European Commission on the SDGs. In July 2019, the EU presented its progress towards achieving the SDGs. The European Commission, via Eurostat, also releases annually since 2016 an SDG dataset and a report entitled "Sustainable development in the European Union". This is the lead SDG monitoring report in the EU.

Yet, Eurostat's report does not allow for the review of the performance of the EU as a whole against time-bound targets, and it does not estimate the "distance to targets" that individual EU member states have to travel to achieve the SDGs. Owing to its extensive reliance on official statistics, the report omits important dimensions of the SDGs, including international spillovers or aspects of the "Leave-No-One-Behind" commitment. Eurostat's mandate limits the

1. At the time of writing it was unclear if Brexit would be completed by 31 October 2019. We therefore refer to 28 member states in this report.

organisation's ability to address the shortcomings of an otherwise very strong report.

These limitations were documented in a study co-produced by the SDSN and EESC in January 2019 entitled "Exposing EU policy gaps to address the Sustainable Development Goals" (Lafortune and Schmidt-Traub, 2019). The study was based on extensive consultation with civil society organisations. The main recommendation was to launch an SDG "shadow reporting" process, co-designed by civil society, to monitor the performance of the EU and its member states.

The EU SDG Index and Dashboards complements the official SDG reporting conducted by the European Commission, via Eurostat, in five principle ways. The EU SDG Index and Dashboards:

1. Measures distance to pre-defined performance thresholds
2. Monitors both *current* performance (latest year available) and *trends* over time
3. Presents results on each of the 17 SDGs for all 28 EU member states
4. Uses in much greater proportion non-official data from peer reviewed papers and civil society
5. Covers extensively the issues of international spillovers and Leave-No-One-Behind

The selection of indicators and performance thresholds benefited from inputs submitted in various rounds of stakeholder consultations. Two online consultations were organized between April and June 2019 to collect feedback on the indicator selection and preliminary results. One workshop was organised at the EESC premises in Brussels on 21 June to collect feedback from civil society, expert groups and representatives from the European Commission on the preliminary findings. In addition, numerous informal consultations were conducted with various services of the European Commission and members of the EESC, IEEP and SDSN networks. The list of contributors is accessible in the acknowledgement section.

## Data gaps and limitations

The purpose of this report is also to identify gaps in data availability to track the SDGs. Compared to other regions, the EU is a data-rich environment. This is due to a large extent to the long standing European Statistical System (ESS) and collaboration across National Statistical Offices and also to the leadership of the European Commission, via Eurostat. The EU survey of income and living conditions (EU-SILC), which, since 2014, provides longitudinal multidimensional microdata on income, poverty, social exclusion and living conditions, is an example of a powerful instrument anchored in the ESS. The EU-SILC is highly relevant to track the "Leave-No-One-Behind" principle of the 2030 Agenda and SDGs.

Despite the strengths of the EU in data and statistics compared to other regions, there are gaps that need to be filled to track the SDGs at the national levels in a comprehensive and timely way. In particular, more geospatial data and real time estimates are needed. In addition, better estimates of biodiversity losses generated by the EU in the Union and around the world are also needed. Table 4 summarises these main data gaps. These are based on extensive consultations with the European Commission and non-governmental organisations.

As documented by the SDSN in the [2019 SDG Index and Dashboards for European Cities](#) (Lafortune et al., 2019), there are also important SDG data gaps at the sub-national level in the EU, including at Nuts 2 and Nuts 3<sup>2</sup> (Nomenclature of territorial units for statistics) and at the municipal level.

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2. The NUTS classification (Nomenclature of territorial units for statistics) is a hierarchical system for dividing up the economic territory of the EU. These help inform socio-economic analyses of the regions: NUTS 2: basic regions for the application of regional policies; NUTS 3: small regions for specific diagnoses.

**Table 4 |** Main data gaps to track the SDGs in the EU

<u>SDG</u>	<u>Desired metric</u>
SDG1	Robust international comparisons of homelessness
SDG2	Resource use efficiency (nutrients, water, energy) Risky pesticides Food loss and food waste Diets and nutrient balance
SDG3	More timely and better coverage for data on catastrophic health expenditure
SDG4	Quality of school teachers Student knowledge of sustainable development Quality of tertiary education
SDG5	More timely data on violence against women (including feminicides)
SDG11	Geospatial indicators of access to transports and green spaces
SDG12	Environmental impact of material flows Chemicals Recycling and re-use (circular economy) Transboundary shipments of waste
SDG13	New registrations of emission-free vehicles Decarbonisation of new marginal gigawatts
SDG14	Maximum sustainable yields for fisheries Impact of high-sea and cross-border fishing
SDG15	Make available publicly annual terrestrial biodiversity counts (e.g. for birds and butterflies) and collect data for other species Trade in endangered species
SDG16	Unmet needs for legal services and advice

Source: Authors

## Methods summary

The SDSN and Bertelsmann Stiftung developed the SDG Index and Dashboards to track country performance and identify policy priorities for the SDGs. The global report is updated annually since 2016. This is an unofficial process that complements the on-going efforts in UN Committees to track government commitments for the SDGs and harmonise data.

In 2019, the European Commission's Competence Centre on Composite Indicators and Scoreboards (COIN) at the Joint Research Centre (JRC) was invited by the SDSN to audit the 2019 edition and acknowledged this work as "a remarkable effort of synthesising the 17 SDGs into a single measure" and concluded that the "index ranks are robust enough, allowing meaningful conclusions to be drawn from the index." (Papadimitriou et al., 2019)

## Selection of Indicators

Five major criteria were retained to inform the final indicator set for the 2019 EU SDR:

1. Total number of indicators limited to 100 (plus or minus 15%)
2. Simple, single-variable indicators with straightforward policy implications
3. Allow for high frequency monitoring
4. Statistically valid and robust
5. Allow to measure distance to targets (what is best performance and what is worst performance)

### Method for defining performance thresholds (decision tree)

Performance thresholds (or “upper bound”) for each indicator were determined using a five-step decision tree:

1. **Use absolute quantitative thresholds in SDGs and targets: e.g. zero poverty,** universal school completion, universal access to water and sanitation, full gender equality. Some SDG targets propose relative changes (Target 3.4: [...] reduce by one third premature mortality from non-communicable diseases [...]) that cannot be translated into a global baseline today. Such targets are addressed through step 5 below.
2. Where no explicit SDG target is available, apply the principle of “**Leave-No-One-Behind**” to set upper bound to universal access or zero deprivation. This includes for instance zero performance gap across population groups in self-reported health or unmet care needs.
3. **Where science-based targets exist that must be achieved by 2030 or later,** use these to set 100% upper bound (e.g. zero greenhouse gas emissions from electricity as required by no later than 2070 to stay within 2°C, 100% sustainable management of fisheries, 80% yield gap closure).
4. Where several countries already exceed an SDG target, use the average of the top performers (e.g. child mortality).
5. **For all other indicators, use average top performers.** Either based on performance thresholds identified in the global edition of the SDG Index and Dashboards or, when not possible, the average of the top two performers among the 28 EU member states.

This approach is similar to the approach retained by the OECD in their report on [Measuring Distance to the SDG Targets](#) (OECD, 2019b). These principles interpret the SDGs as “stretch targets” and focus attention on the indicators where a country is lagging behind. The lower bound (0%) was defined at the lowest 2.5th percentile either from the global edition or, when

not possible, using the 28 EU member states. Global values were sometimes adjusted to make them more relevant to the European context. Each indicator distribution was censored, so that all values exceeding the upper bound scored 100, and values below the lower bound scored 0.

### Normalisation

To make the data comparable across indicators, each variable was rescaled from 0 to 100 with 0 denoting worst performance and 100 describing the optimum. After establishing the upper and lower bounds, variables were transformed linearly to a scale between 0 and 100 using the following rescaling formula for the range [0; 100]:

$$x' = \frac{x - \min(x)}{\max(x) - \min(x)} \quad (\text{Equation 1})$$

where  $x$  is raw data value;  $\max/\min$  denote the bounds for best and worst performance, respectively; and  $x'$  is the normalised value after rescaling. The rescaling equation ensured that higher values indicated better performance. In this way, the rescaled data became easy to interpret and compare across all indicators: a country that scores 50 on a variable is half-way towards achieving the optimum value; a country with a score of 75 has covered three quarters of the distance from worst to best.

### Weighting and Aggregation

To compute the SDG Index we first estimate scores for each goal using the arithmetic mean of indicators for that goal. These goal scores are then averaged across all 17 SDGs to obtain the SDG Index score. As a normative assumption, we opted for fixed, equal weight to every SDG to reflect policymakers’ commitment to treat all SDGs equally and as an “integrated and indivisible” set of goals (United Nations, 2015, para.5). At the indicator level equal weighting was retained because all other alternatives (mathematical weights, expert weights or user-driven weights)

were considered as being less satisfactory (Lafortune et al., 2018). This implies that to improve their SDG Index score countries need to place attention on all goals with a particular focus on goals where they are furthest from achieving the SDGs and where incremental progress might therefore be expected to be fastest.

Averaging across all indicators for an SDG might hide areas of policy concern if a country performs well on most indicators but faces serious shortfalls on one or two metrics within the same SDG (so called “substitutability” or “compensation” issue). As a result, the EU SDG Dashboards is based only on the two variables on which a country performed worst. We applied the added rule that in order to score green for the goal both indicators had to be green – otherwise the goal would be rated yellow. Similarly, a red score was applied only if both worst-performing indicators score red.

### Trends

Using historic data, we estimate how fast a country has been progressing towards an SDG and determine whether – if continued into the future – this pace will be sufficient to achieve the SDG by 2030. The difference in percentage points between the green threshold and the normalised country score denotes the gap that must be closed to meet that goal. To estimate SDG trends, we calculated the linear annual growth rates

needed to achieve the goal by 2030 (i.e. 2015-2030) which we compared to the average annual growth rate over the most recent period (usually 2015-2018). A 4-arrow system was developed. A green arrow going-up denotes “on track or maintaining performance above goal achievement”.

### Presentation of the results

The EU SDG Index score and scores by goal can be interpreted as the percentage of achievement. The difference between 100 and countries’ scores is therefore the distance in percentage that needs to be completed to achieving the SDGs and goals. The same basket of indicators is used for all countries to generate comparable scores and rankings. The “traffic light” color scheme (green, yellow, orange and red) illustrates how far a country is from achieving a particular goal.

### EU Aggregates

The EU aggregates include the 27 EU member states (excluding the United Kingdom). This follows the approach of Eurostat, which, since April 2018, presents an EU aggregate excluding the United Kingdom for key indicators due to growing demand from users. The EU aggregates presented in this report are population weighted.

Regarding the figures presented in section 2, countries are grouped in the following way:

<u>Western Europe</u>	<u>Northern Europe</u>	<u>Baltic States</u>	<u>Central and Eastern Europe</u>	<u>Southern Europe</u>
Austria	Denmark	Estonia	Bulgaria	Cyprus
Belgium	Finland	Latvia	Czech Republic	Greece
France	Sweden	Lithuania	Croatia	Italy
Germany			Hungary	Malta
Ireland			Poland	Portugal
Luxembourg			Romania	Spain
Netherlands			Slovak Republic	
United Kingdom			Slovenia	

Source: Adapted from Euvoc  
Each of these aggregates is population weighted.

### More information

Additional information and sensitivity tests can be found in the following documents:

- [Sustainable Development Report 2019](#)
- [European Commission JRC Statistical Audit](#)
- [Detailed Methodology paper](#)

Interactive online dashboards, downloadable databases and other supplementary material for the 2019 Europe SDR can be found at: <http://sustainabledevelopment.report>.

**Table 5 |** Spillover indicators and categories

<u>Environmental</u>	<u>Economy and finance</u>	<u>Social</u>	<u>Security</u>
Imported groundwater depletion (m <sup>3</sup> /capita/year)	Contribution to the international 100bn USD commitment on climate related expending (per 10,000€ of GDP)	Fatal work-related accidents embodied in imports (per 100,000 population)	Exports of major conventional weapons (TIV constant 1990 million USD per 100,000 population)
Imported SO <sub>2</sub> emissions (kg/capita)	Official development assistance (% of GNI)		
Net imported emissions of reactive nitrogen (kg/capita)	Shifted profits of multinationals (billion USD)		
Imported CO <sub>2</sub> emissions, technology-adjusted (tCO <sub>2</sub> /capita)	Corporate Tax Haven Score (best 0–100 worst)		
Imported biodiversity threats (threats per 1,000,000 population)			

Source: Authors

Table 6 | LNOB indicators and categories

<u>Extreme poverty and material deprivation</u>	<u>Income inequality</u>	<u>Access to and quality of services</u>	<u>Gender inequality</u>
People at risk of income poverty after social transfers (%)	Gini coefficient adjusted for top income	Gap in life expectancy at birth among regions (years)	Unadjusted gender pay gap (% of gross male earnings)
Severely materially deprived people (%)	Palma ratio	Gap in self-reported health, by income (p.p.)	Gender employment gap (p.p.)
Poverty headcount ratio at \$5.50/day (%)		Gap in self-reported unmet need for medical examination and care, by income (p.p.)	Population inactive due to caring responsibilities (% of population aged 20 to 64)
In work at-risk-of-poverty rate (%)		Gap in self-reported unmet need for medical examination and care, urban vs rural areas (p.p.)	Seats held by women in national parliaments (%)
People covered by health insurance for a core set of services (%)		Underachievers in science (% of population aged 15)	Positions held by women in senior management positions (%)
Population having neither a bath, nor a shower, nor indoor flushing toilet in their household (%)		Variation in science performance explained by students' socio-economic status (%)	Women who feel safe walking alone at night in the city or area where they live (%)
Population unable to keep home adequately warm (%)		Resilient students (%)	
Victims of modern slavery (per 1,000 population)		Youth not in employment, education or training (NEET) (% of population aged 15 to 29)	
Elderly poverty rate (%)		Gap in broadband access, urban vs rural areas (p.p.)	
Overcrowding rate among people living with below 60% of median equivalized income (%)		Individuals aged 55 to 74 years old who have basic or above basic digital skills (%)	
Population living in a dwelling with a leaking roof, damp walls, floors or foundation or rot in window frames or floor (%)		Gap in population reporting crime in their area, by income (p.p.)	

Source: Authors



**Table 7 |** Indicators used for SDG Trends and period for trend estimation

<u>SDG</u>	<u>Indicator</u>	<u>Period Covered</u>
1	People at risk of income poverty after social transfers (%)	2015–2018
1	Severely materially deprived people (%)	2015–2018
1	Poverty headcount ratio at \$5.50/day (%)	2015–2019
1	In work at-risk-of-poverty rate (%)	2015–2018
2	Prevalence of obesity, BMI $\geq 30$ (% of adult population)	2013–2016
2	Human Trophic Level (best 2–3 worst)	2008–2013
2	Gross nitrogen balance on agricultural land by nutrient (kg/hectare)	2013–2016
2	Ammonia emissions from agriculture (kg/hectare)	2014–2017
3	Life expectancy at birth (years)	2014–2017
3	Gap in life expectancy at birth among regions (years)	2014–2017
3	Population with good or very good perceived health (% of population aged 16 or over)	2015–2018
3	Gap in self-reported health, by income (p.p.)	2015–2018
3	Self-reported unmet need for medical examination and care (%)	2015–2018
3	Gap in self-reported unmet need for medical examination and care, by income (p.p.)	2015–2018
3	Gap in self-reported unmet need for medical examination and care, urban vs rural areas (p.p.)	2015–2018
3	New reported cases of HIV (per 100,000 population)	2014–2017
3	New reported cases of tuberculosis (per 100,000 population)	2014–2017
3	Age-standardised death rate due to cardiovascular disease, cancer, diabetes, and chronic respiratory disease (per 100,000 population aged 30 to 70)	2010–2016
3	Suicide rate (per 100,000 population)	2013–2016
3	Mortality rate, under-5 (per 1,000 live births)	2014–2017
3	People killed in road accidents (per 100,000 population)	2014–2017
3	Surviving infants who received 2 WHO-recommended vaccines (%)	2014–2017
3	Alcohol consumption (litre/capita/year)	2013–2016
3	Smoking prevalence (%)	2014–2017
3	Share of total health spending financed by out-of-pocket payments (%)	2014–2017
3	Subjective Wellbeing (average ladder score, worst 0–10 best)	2015–2018
4	Participation in early childhood education (% of population aged 4 to 6)	2014–2017
4	Early leavers from education and training (% of population aged 18 to 24)	2015–2018
4	PISA score (worst 0–600 best)	2012–2015
4	Underachievers in science (% of population aged 15)	2012–2015
4	Tertiary educational attainment (% of population aged 30 to 34)	2015–2018
4	Adult participation in learning (%)	2015–2018
5	Unadjusted gender pay gap (% of gross male earnings)	2014–2017
5	Gender employment gap (p.p.)	2015–2018
5	Population inactive due to caring responsibilities (% of population aged 20 to 64)	2015–2018

**Table 7 |** Indicators used for SDG Trends and period for trend estimation (cont.)

<u>SDG</u>	<u>Indicator</u>	<u>Period Covered</u>
5	Seats held by women in national parliaments (%)	2015–2019
5	Positions held by women in senior management positions (%)	2015–2018
5	Women who feel safe walking alone at night in the city or area where they live (%)	2015–2018
6	Population having neither a bath, nor a shower, nor indoor flushing toilet in their household (%)	2015–2018
6	Population connected to at least secondary wastewater treatment (%)	2014–2017
6	Freshwater abstraction (% of long-term average available water)	2013–2016
6	Population using safely managed water services (%)	2010–2015
6	Population using safely managed sanitation services (%)	2010–2015
7	Population unable to keep home adequately warm (%)	2015–2018
7	Share of renewable energy in gross final energy consumption (%)	2014–2017
7	CO <sub>2</sub> emissions from fuel combustion per electricity output (MtCO <sub>2</sub> /TWh)	2010–2015
8	Gross disposable income (€/capita)	2014–2017
8	Youth not in employment, education or training (NEET) (% of population aged 15 to 29)	2015–2018
8	Employment rate (%)	2015–2018
8	Long term unemployment rate (%)	2015–2018
8	People killed in accidents at work (per 100,000 population)	2014–2017
9	Gross domestic expenditure on R&D (% of GDP)	2014–2017
9	R&D personnel (% of active population)	2014–2017
9	Patent applications to the European Patent Office (per 1,000,000 population)	2014–2017
9	Households with broadband access (%)	2015–2018
9	Gap in broadband access, urban vs rural areas (p.p.)	2015–2018
9	Logistics performance index: Quality of trade and transport-related infrastructure (worst 1–5 best)	2014–2018
9	Scientific and technical journal articles (per 1,000 population)	2011–2016
10	Gini coefficient adjusted for top income	2010–2014
10	Palma ratio	2013–2016
10	Elderly poverty rate (%)	2012–2016
11	Overcrowding rate among people living with below 60% of median equivalized income (%)	2015–2018
11	Recycling rate of municipal waste (%)	2014–2017
11	Population living in a dwelling with a leaking roof, damp walls, floors or foundation or rot in window frames or floor (%)	2015–2018
11	Satisfaction with public transport (%)	2015–2018
11	Exposure to air pollution: PM <sub>2.5</sub> in urban areas (µg/m <sup>3</sup> )	2014–2017
11	Access to improved water source, piped (% of urban population)	2014–2017
13	Contribution to the international 100bn USD commitment on climate related expending (per 10,000€ of GDP)	2014–2017
13	Energy-related CO <sub>2</sub> emissions (tCO <sub>2</sub> /capita)	2013–2016

Table 7 | Indicators used for SDG Trends and period for trend estimation (cont.)

<u>SDG</u>	<u>Indicator</u>	<u>Period Covered</u>
14	Bathing sites of excellent quality (%)	2015–2018
14	Fish stocks overexploited or collapsed by EEZ (%)	2010–2014
14	Fish caught by trawling (%)	2010–2014
14	Mean area that is protected in marine sites important to biodiversity (%)	2015–2018
15	Mean area that is protected in terrestrial sites important to biodiversity (%)	2015–2018
15	Mean area that is protected in freshwater sites important to biodiversity (%)	2015–2018
15	Biochemical oxygen demand in rivers (mg O <sub>2</sub> /litre)	2012–2015
15	Nitrate in groundwater (mg NO <sub>3</sub> /litre)	2012–2015
15	Red List Index of species survival (worst 0–1 best)	2015–2019
16	Death rate due to homicide (per 100,000 population)	2013–2016
16	Population reporting crime in their area (%)	2015–2018
16	Gap in population reporting crime in their area, by income (p.p.)	2015–2018
16	Access to justice (worst 0–1 best)	2015–2019
16	Timeliness of administrative proceedings (worst 0–1 best)	2015–2019
16	Constraints on government power (worst 0–1 best)	2015–2019
16	Corruption Perception Index (worst 0–100 best)	2015–2018
16	Unsentenced detainees (% of prison population)	2013–2016
16	Press Freedom Index (best 0–100 worst)	2015–2018
17	Official development assistance (% of GNI)	2015–2018

Source: Authors

Table 8 | Indicator thresholds and justifications for the optimum values

SDG	Indicator	Optimum (value = 100)	Green	Yellow	Orange	Red	Lower bound (value = 0)	Justification for optimum
1	People at risk of income poverty after social transfers (%)	0	≤15	15 < x ≤ 18.5	18.5 < x ≤ 22	>22	25.6	SDG Target
1	Severely materially deprived people (%)	0	≤5	5 < x ≤ 12.5	12.5 < x ≤ 20	>20	31.4	SDG Target
1	Poverty headcount ratio at \$5.50/day (%)	0	≤1	1 < x ≤ 3	3 < x ≤ 5	>5	21	SDG Target
1	In work at-risk-of-poverty rate (%)	3.3	≤8	8 < x ≤ 11.5	11.5 < x ≤ 15	>15	18.6	Average top performers (EU)
2	Prevalence of obesity, BMI ≥ 30 (% of adult population)	3	≤10	10 < x ≤ 17.5	17.5 < x ≤ 25	>25	35.1	Average top performers (Global)
2	Human Trophic Level (best 2–3 worst)	2.04	≤2.2	2.2 < x ≤ 2.3	2.3 < x ≤ 2.4	>2.4	2.47	Average top performers (Global)
2	Yield gap closure (%)	80	≥75	75 > x ≥ 62.5	62.5 > x ≥ 50	>50	28	Science-based/technical optimum
2	Gross nitrogen balance on agricultural land by nutrient (kg/hectare)	10	≤50	50 < x ≤ 75	75 < x ≤ 100	>100	200	Average top performers (EU)
2	Ammonia emissions from agriculture (kg/hectare)	8	≤20	20 < x ≤ 32.5	32.5 < x ≤ 45	>45	60	Average top performers (EU) without outliers
3	Life expectancy at birth (years)	83	≥80	80 > x ≥ 75	75 > x ≥ 70	>70	54	Average top performers (Global)
3	Gap in life expectancy at birth among regions (years)	0	≤4	4 < x ≤ 5.5	5.5 < x ≤ 7	>7	11	Leave no one behind
3	Population with good or very good perceived health (% of population aged 16 or over)	80	≥65	65 > x ≥ 52.5	52.5 > x ≥ 40	>40	25	Average top performers (EU)
3	Gap in self-reported health, by income (p.p.)	0	≤20	20 < x ≤ 35	35 < x ≤ 50	>50	60	Leave no one behind
3	Self-reported unmet need for medical examination and care (%)	0	≤2	2 < x ≤ 11	11 < x ≤ 20	>20	30	Leave no one behind
3	Gap in self-reported unmet need for medical examination and care, by income (p.p.)	0	≤3	3 < x ≤ 9	9 < x ≤ 15	>15	20	Leave no one behind
3	Gap in self-reported unmet need for medical examination and care, urban vs rural areas (p.p.)	0	≤0.19	0.19 < x ≤ 0.595	0.595 < x ≤ 1	>1	1.2	Leave no one behind
3	New reported cases of HIV (per 100,000 population)	0	≤20	20 < x ≤ 60	60 < x ≤ 100	>100	165	Average top performers (Global)
3	New reported cases of tuberculosis (per 100,000 population)	3.6	≤10	10 < x ≤ 42.5	42.5 < x ≤ 75	>75	561	Average top performers (Global)
3	Age-standardised death rate due to cardiovascular disease, cancer, diabetes, and chronic respiratory disease (per 100,000 population aged 30 to 70)	9.3	≤15	15 < x ≤ 20	20 < x ≤ 25	>25	31	Average top performers (Global)
3	Suicide rate (per 100,000 population)	4	≤12	12 < x ≤ 17	17 < x ≤ 22	>22	30	Average top performers (EU)
3	Age-standardised death rate attributable to household air pollution and ambient air pollution (per 100,000 population)	0	≤18	18 < x ≤ 50	50 < x ≤ 82	>82	369	SDG Target
3	Mortality rate, under-5 (per 1,000 live births)	2.6	≤25	25 < x ≤ 37.5	37.5 < x ≤ 50	>50	130	Average top performers (Global)
3	People killed in road accidents (per 100,000 population)	3	≤8	8 < x ≤ 12.5	12.5 < x ≤ 17	>17	34	Average top performers (Global)
3	Surviving infants who received 2 WHO-recommended vaccines (%)	100	≥90	90 > x ≥ 85	85 > x ≥ 80	>80	41	Leave no one behind
3	Alcohol consumption (litre/capita/year)	7	≤10	10 < x ≤ 12.5	12.5 < x ≤ 15	>15	17	Average top performers (EU)
3	Smoking prevalence (%)	12	≤25	25 < x ≤ 35	35 < x ≤ 45	>45	50	Average top performers (EU)
3	People covered by health insurance for a core set of services (%)	100	≥98	98 > x ≥ 86.5	86.5 > x ≥ 75	>75	50	Leave no one behind
3	Share of total health spending financed by out-of-pocket payments (%)	10	≤25	25 < x ≤ 37.5	37.5 < x ≤ 50	>50	66	Average top performers (EU)
3	Subjective Wellbeing (average ladder score, worst 0–10 best)	7.6	≥6	6 > x ≥ 5.5	5.5 > x ≥ 5	>5	3.3	Average top performers (Global)
4	Participation in early childhood education (% of population aged 4 to 6)	100	≥85	85 > x ≥ 77.5	77.5 > x ≥ 70	>70	35	SDG Target
4	Early leavers from education and training (% of population aged 18 to 24)	4	≤10	10 < x ≤ 12.5	12.5 < x ≤ 15	>15	31	Average top performers (EU)
4	PISA score (worst 0–600 best)	525.6	≥493	493 > x ≥ 446.5	446.5 > x ≥ 400	>400	350	Average top performers (OECD)
4	Underachievers in science (% of population aged 15)	12	≤20	20 < x ≤ 26.5	26.5 < x ≤ 33	>33	53	Average top performers (EU)
4	Variation in science performance explained by students' socio-economic status (%)	8.3	≤10.5	10.5 < x ≤ 15.25	15.25 < x ≤ 20	>20	21.4	Average top performers (OECD)
4	Resilient students (%)	46.6	≥38	38 > x ≥ 24	24 > x ≥ 10	>10	5	Average top performers (OECD)
4	Tertiary educational attainment (% of population aged 30 to 34)	52	≥40	40 > x ≥ 30	30 > x ≥ 20	>20	0	Average top performers (Global)
4	Adult participation in learning (%)	28	≥11	11 > x ≥ 6.5	6.5 > x ≥ 2	>2	0	Average top performers (EU)

Table 8 | Indicator thresholds and justifications for the optimum values (cont.)

SDG	Indicator	Optimum				Lower bound		Justification for optimum
		(value = 100)	Green	Yellow	Orange	Red	(value = 0)	
4	Numeracy score in the Survey of Adult Skills (PIAAC) (worst 0–500 best)	280	≥270	270 > x ≥ 250	250 > x ≥ 230	>230	200	Average top performers (EU)
5	Unadjusted gender pay gap (% of gross male earnings)	0	≤14	14 < x ≤ 22	22 < x ≤ 30	>30	40	Leave no one behind
5	Gender employment gap (p.p.)	0	≤10	10 < x ≤ 17.5	17.5 < x ≤ 25	>25	41	Leave no one behind
5	Population inactive due to caring responsibilities (% of population aged 20 to 64)	6	≤20	20 < x ≤ 35	35 < x ≤ 50	>50	66	Average top performers (EU)
5	Seats held by women in national parliaments (%)	50	≥40	40 > x ≥ 30	30 > x ≥ 20	>20	12	Leave no one behind
5	Positions held by women in senior management positions (%)	50	≥40	40 > x ≥ 25	25 > x ≥ 10	>10	0	Leave no one behind
5	Women who feel safe walking alone at night in the city or area where they live (%)	90	≥80	80 > x ≥ 65	65 > x ≥ 50	>50	33	Average top performers (Global)
6	Population having neither a bath, nor a shower, nor indoor flushing toilet in their household (%)	0	≤1	1 < x ≤ 5.5	5.5 < x ≤ 10	>10	30	Leave no one behind
6	Population connected to at least secondary wastewater treatment (%)	100	≥80	80 > x ≥ 55	55 > x ≥ 30	>30	20	Leave no one behind
6	Freshwater abstraction (% of long-term average available water)	1	≤20	20 < x ≤ 30	30 < x ≤ 40	>40	80	Average top performers (EU)
6	Imported groundwater depletion (m <sup>3</sup> /capita/year)	0.1	≤6	6 < x ≤ 13	13 < x ≤ 20	>20	42.6	Average top performers (Global)
6	Population using safely managed water services (%)	100	≥95	95 > x ≥ 87.5	87.5 > x ≥ 80	>80	10.5	Leave no one behind
6	Population using safely managed sanitation services (%)	100	≥90	90 > x ≥ 77.5	77.5 > x ≥ 65	>65	14.1	Leave no one behind
7	Population unable to keep home adequately warm (%)	0	≤4	4 < x ≤ 9.5	9.5 < x ≤ 15	>15	35	Leave no one behind
7	Share of renewable energy in gross final energy consumption (%)	50	≥30	30 > x ≥ 20	20 > x ≥ 10	>10	3	Average top performers (OECD)
7	CO <sub>2</sub> emissions from fuel combustion per electricity output (MtCO <sub>2</sub> /TWh)	0	≤1	1 < x ≤ 1.25	1.25 < x ≤ 1.5	>1.5	5.9	Science-based/technical optimum
8	Protection of fundamental labour rights (worst 0–1 best)	0.9	≥0.7	0.7 > x ≥ 0.6	0.6 > x ≥ 0.5	>0.5	0.15	Average top performers (EU)
8	Gross disposable income (€/capita)	30000	≥20000	20000 > x ≥ 15000	15000 > x ≥ 10000	>10000	5000	Mean
8	Youth not in employment, education or training (NEET) (% of population aged 15 to 29)	8	≤12	12 < x ≤ 13.5	13.5 < x ≤ 15	>15	27	Average top performers (OECD)
8	Employment rate (%)	80	≥75	75 > x ≥ 67.5	67.5 > x ≥ 60	>60	55	Average top performers (EU)
8	Long term unemployment rate (%)	1	≤2	2 < x ≤ 3.5	3.5 < x ≤ 5	>5	14	Average top performers (EU)
8	People killed in accidents at work (per 100,000 population)	0	≤2.5	2.5 < x ≤ 3.5	3.5 < x ≤ 4.5	>4.5	5	Science-based/Technical optimum
8	Victims of modern slavery (per 1,000 population)	0	≤4	4 < x ≤ 7	7 < x ≤ 10	>10	22	Leave no one behind
8	Fatal work-related accidents embodied in imports (per 100,000 population)	0	≤1.8	1.8 < x ≤ 2.15	2.15 < x ≤ 2.5	>2.5	6	Science-based/Technical optimum
9	Gross domestic expenditure on R&D (% of GDP)	3.3	≥1.5	1.5 > x ≥ 1.25	1.25 > x ≥ 1	>1	0.4	Average top performers (EU)
9	R&D personnel (% of active population)	2	≥1	1 > x ≥ 0.75	0.75 > x ≥ 0.5	>0.5	0.3	Average top performers (EU)
9	Patent applications to the European Patent Office (per 1,000,000 population)	240	≥80	80 > x ≥ 45	45 > x ≥ 10	>10	3	Average top performers (EU) without outliers
9	Households with broadband access (%)	96	≥80	80 > x ≥ 75	75 > x ≥ 70	>70	60	Average top performers (EU)
9	Gap in broadband access, urban vs rural areas (p.p.)	0	≤10	10 < x ≤ 15	15 < x ≤ 20	>20	26	Leave no one behind
9	Individuals aged 55 to 74 years old who have basic or above basic digital skills (%)	65	≥35	35 > x ≥ 27.5	27.5 > x ≥ 20	>20	5	Average top performers (EU)
9	Logistics performance index: Quality of trade and transport-related infrastructure (worst 1–5 best)	4.2	≥3	3 > x ≥ 2.5	2.5 > x ≥ 2	>2	1.8	Average top performers (Global)
9	The Times Higher Education Universities Ranking: Average score of top 3 universities (worst 0–100 best)	91	≥20	20 > x ≥ 10	10 > x ≥ 0	>0	0	Average top performers (Global)
9	Scientific and technical journal articles (per 1,000 population)	2.2	≥1	1 > x ≥ 0.525	0.525 > x ≥ 0.05	>0.05	0	Average top performers (Global)
10	Gini coefficient adjusted for top income	27.5	≤30	30 < x ≤ 35	35 < x ≤ 40	>40	63	Average top performers (Global)
10	Palma ratio	0.9	≤1	1 < x ≤ 1.15	1.15 < x ≤ 1.3	>1.3	2.5	Average top performers (OECD)
10	Elderly poverty rate (%)	3.2	≤7.5	7.5 < x ≤ 16.25	16.25 < x ≤ 25	>25	45.7	Average top performers (OECD)
11	Share of green space in urban areas (%)	50	≥25	25 > x ≥ 15	15 > x ≥ 5	>5	0	Average top performers (EU) without outliers

Table 8 | Indicator thresholds and justifications for the optimum values (cont.)

SDG	Indicator	Optimum (value = 100)				Lower bound (value = 0)		Justification for optimum
		Green	Yellow	Orange	Red			
11	Overcrowding rate among people living with below 60% of median equivalized income (%)	6	≤35	35 < x ≤ 42.5	42.5 < x ≤ 50	>50	65	Average top performers (EU)
11	Recycling rate of municipal waste (%)	62	≥40	40 > x ≥ 30	30 > x ≥ 20	>20	0	Average top performers (EU)
11	Population living in a dwelling with a leaking roof, damp walls, floors or foundation or rot in window frames or floor (%)	6	≤15	15 < x ≤ 20	20 < x ≤ 25	>25	30	Average top performers (EU)
11	Satisfaction with public transport (%)	82.6	≥65	65 > x ≥ 52.5	52.5 > x ≥ 40	>40	21	Average top performers (Global)
11	Exposure to air pollution: PM2.5 in urban areas (µg/m³)	5	≤10	10 < x ≤ 15	15 < x ≤ 20	>20	26	Average top performers (EU)
11	Access to improved water source, piped (% of urban population)	100	≥98	98 > x ≥ 86.5	86.5 > x ≥ 75	>75	6.1	Leave no one behind
12	Circular material use rate (%)	19	≥25	25 > x ≥ 15	15 > x ≥ 5	>5	1	Average top performers (EU) without outliers
12	Production-based SO <sub>2</sub> emissions (kg/capita)	0.5	≤10	10 < x ≤ 20	20 < x ≤ 30	>30	68.3	Average top performers (Global)
12	Imported SO <sub>2</sub> emissions (kg/capita)	0	≤1	1 < x ≤ 8	8 < x ≤ 15	>15	30.1	Science-based/Technical optimum
12	Nitrogen production footprint (kg/capita)	2.3	≤8.9	8.9 < x ≤ 29.45	29.45 < x ≤ 50	>50	86.5	Average top performers (Global)
12	Net imported emissions of reactive nitrogen (kg/capita)	0	≤1.5	1.5 < x ≤ 75.75	75.75 < x ≤ 150	>150	432.4	Science-based/Technical optimum
13	Contribution to the international 100bn USD commitment on climate related expending (per 10,000€ of GDP)	20	≥10	10 > x ≥ 5.5	5.5 > x ≥ 1	>1	0	Average top performers (EU)
13	Energy-related CO <sub>2</sub> emissions (tCO <sub>2</sub> /capita)	0	≤2	2 < x ≤ 3.5	3.5 < x ≤ 5	>5	23.7	Science-based/Technical optimum
13	Imported CO <sub>2</sub> emissions, technology-adjusted (tCO <sub>2</sub> /capita)	0	≤0.5	0.5 < x ≤ 0.75	0.75 < x ≤ 1	>1	3.2	Science-based/Technical optimum
13	CO <sub>2</sub> emissions embodied in fossil fuel exports (kg/capita)	0	≤100	100 < x ≤ 4050	4050 < x ≤ 8000	>8000	44000	Science-based/Technical optimum
14	Bathing sites of excellent quality (%)	100	≥80	80 > x ≥ 65	65 > x ≥ 50	>50	25	Science-based/Technical optimum
14	Fish stocks overexploited or collapsed by EEZ (%)	0	≤10	10 < x ≤ 15	15 < x ≤ 20	>20	90.7	Science-based/Technical optimum
14	Fish caught by trawling (%)	1	≤5	5 < x ≤ 15	15 < x ≤ 25	>25	90	Average top performers (Global)
14	Mean area that is protected in marine sites important to biodiversity (%)	100	≥90	90 > x ≥ 80	80 > x ≥ 70	>70	0	Science-based/Technical optimum
15	Mean area that is protected in terrestrial sites important to biodiversity (%)	100	≥90	90 > x ≥ 80	80 > x ≥ 70	>70	4.6	Science-based/Technical optimum
15	Mean area that is protected in freshwater sites important to biodiversity (%)	100	≥90	90 > x ≥ 80	80 > x ≥ 70	>70	0	Science-based/Technical optimum
15	Biochemical oxygen demand in rivers (mg O <sub>2</sub> /litre)	1	≤2	2 < x ≤ 2.5	2.5 < x ≤ 3	>3	10	Science-based/Technical optimum
15	Nitrate in groundwater (mg NO <sub>3</sub> /litre)	10	≤25	25 < x ≤ 37.5	37.5 < x ≤ 50	>50	60	Science-based/Technical optimum
15	Imported biodiversity threats (threats per 1,000,000 population)	0	≤0	0 < x ≤ 5	5 < x ≤ 10	>10	26.4	Science-based/Technical optimum
15	Red List Index of species survival (worst 0–1 best)	1	≥0.99	0.99 > x ≥ 0.975	0.975 > x ≥ 0.96	>0.96	0.6	Science-based/Technical optimum
16	Death rate due to homicide (per 100,000 population)	0.3	≤1.5	1.5 < x ≤ 2.75	2.75 < x ≤ 4	>4	23	Average top performers (Global)
16	Population reporting crime in their area (%)	4	≤10	10 < x ≤ 15	15 < x ≤ 20	>20	24	Average top performers (EU)
16	Gap in population reporting crime in their area, by income (p.p.)	0	≤2	2 < x ≤ 6	6 < x ≤ 10	>10	15	Leave no one behind
16	Access to justice (worst 0–1 best)	0.8	≥0.65	0.65 > x ≥ 0.575	0.575 > x ≥ 0.5	>0.5	0.1	Average top performers (EU)
16	Timeliness of administrative proceedings (worst 0–1 best)	0.85	≥0.7	0.7 > x ≥ 0.55	0.55 > x ≥ 0.4	>0.4	0.15	Average top performers (EU)
16	Constraints on government power (worst 0–1 best)	0.93	≥0.7	0.7 > x ≥ 0.6	0.6 > x ≥ 0.5	>0.5	0.4	Average top performers (EU)
16	Corruption Perception Index (worst 0–100 best)	88.6	≥60	60 > x ≥ 50	50 > x ≥ 40	>40	13	Average top performers (Global)
16	Unsentenced detainees (% of prison population)	7	≤30	30 < x ≤ 40	40 < x ≤ 50	>50	75	Average top performers (Global)
16	Property Rights (worst 1–7 best)	6.3	≥4.5	4.5 > x ≥ 3.75	3.75 > x ≥ 3	>3	2.5	Average top performers (Global)
16	Exports of major conventional weapons (TIV constant 1990 million USD per 100,000 population)	0	≤1	1 < x ≤ 1.75	1.75 < x ≤ 2.5	>2.5	3.4	Science-based/Technical optimum
16	Press Freedom Index (best 0–100 worst)	10	≤25	25 < x ≤ 37.5	37.5 < x ≤ 50	>50	80	Average top performers (Global)
17	Official development assistance (% of GNI)	1	≥0.7	0.7 > x ≥ 0.55	0.55 > x ≥ 0.4	>0.4	0.1	Average top performers (Global)
17	Shifted profits of multinationals (billion USD)	0	≥0	0 > x ≥ -15	-15 > x ≥ -30	>-30	-70	Science-based/Technical optimum
17	Corporate Tax Haven Score (best 0–100 worst)	40	≤60	60 < x ≤ 65	65 < x ≤ 70	>70	100	Average top performers (EU)

Source: Authors