

The Innovation, Volume 4

Supplemental Information

Three main dimensions reflected by national SDG performance

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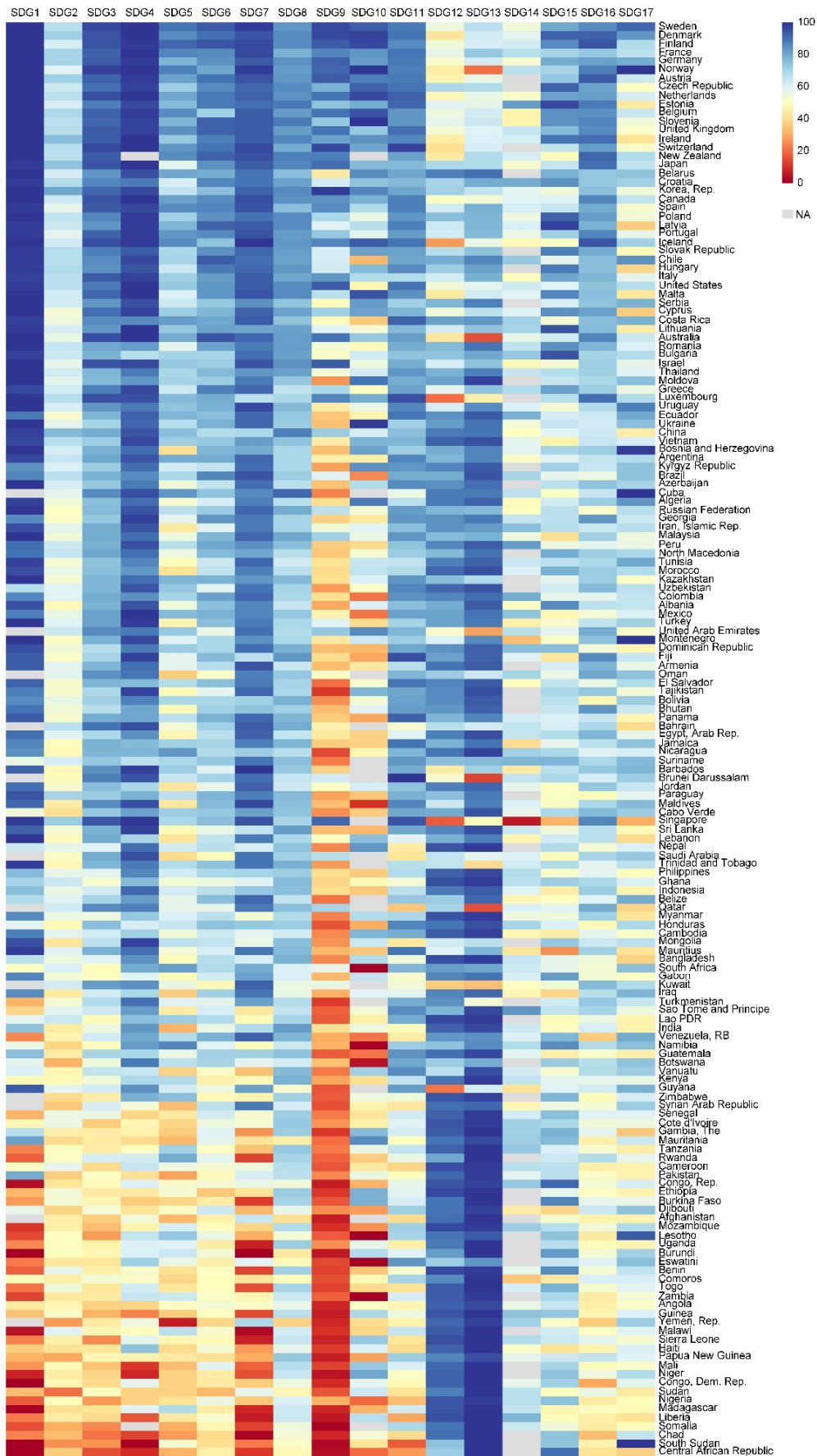


Fig. S1 SDG performances of 166 countries from the Sustainable Development Report 2020.

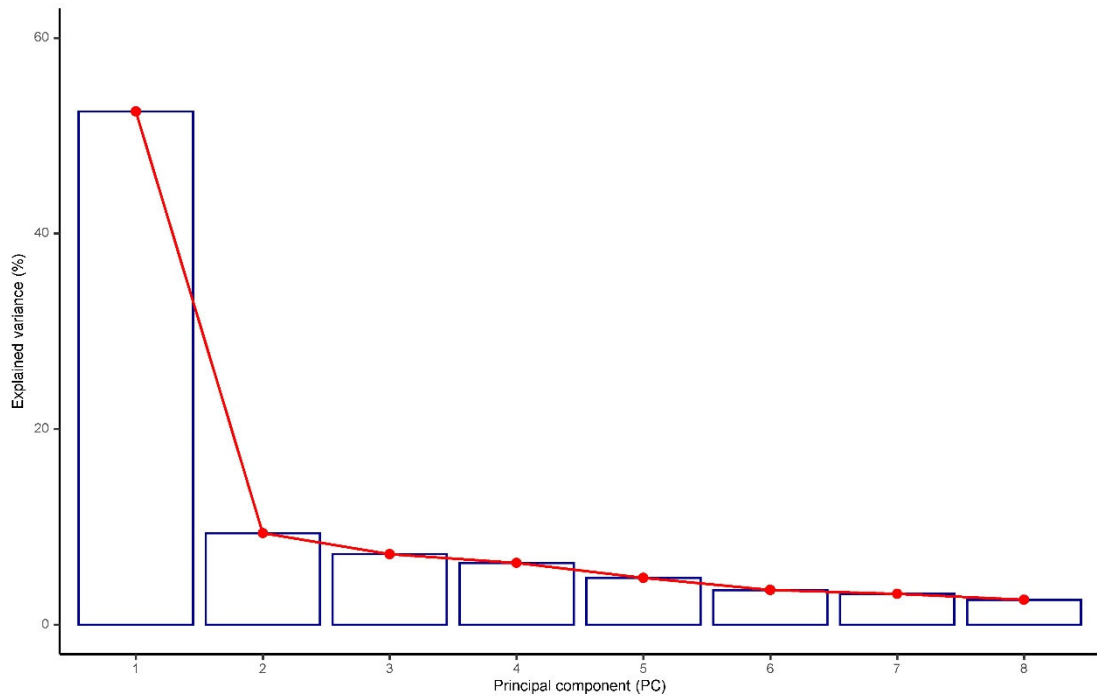


Fig. S2 Explained variance for each principal component.

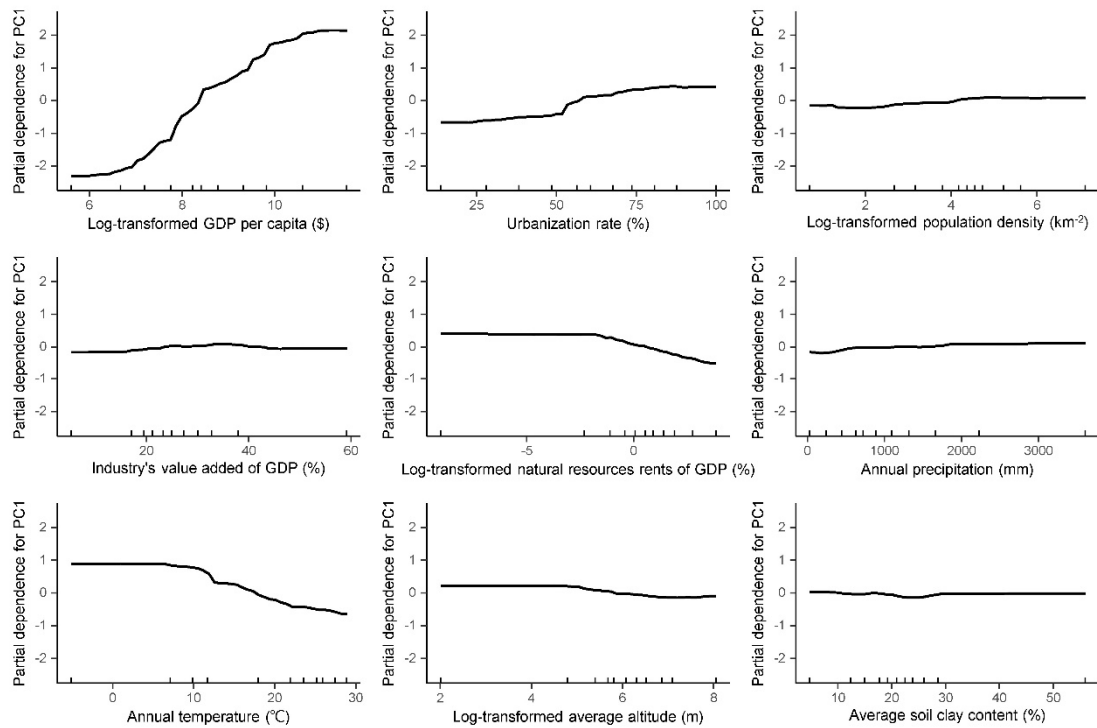


Fig. S3 Partial dependence plots of the predictors for PC1. The slopes of the partial dependence plots indicate the sensitivity of PC1 to the specific predictor. Tick marks in the x-axis represent the minimum, maximum, and deciles of the variable distribution.

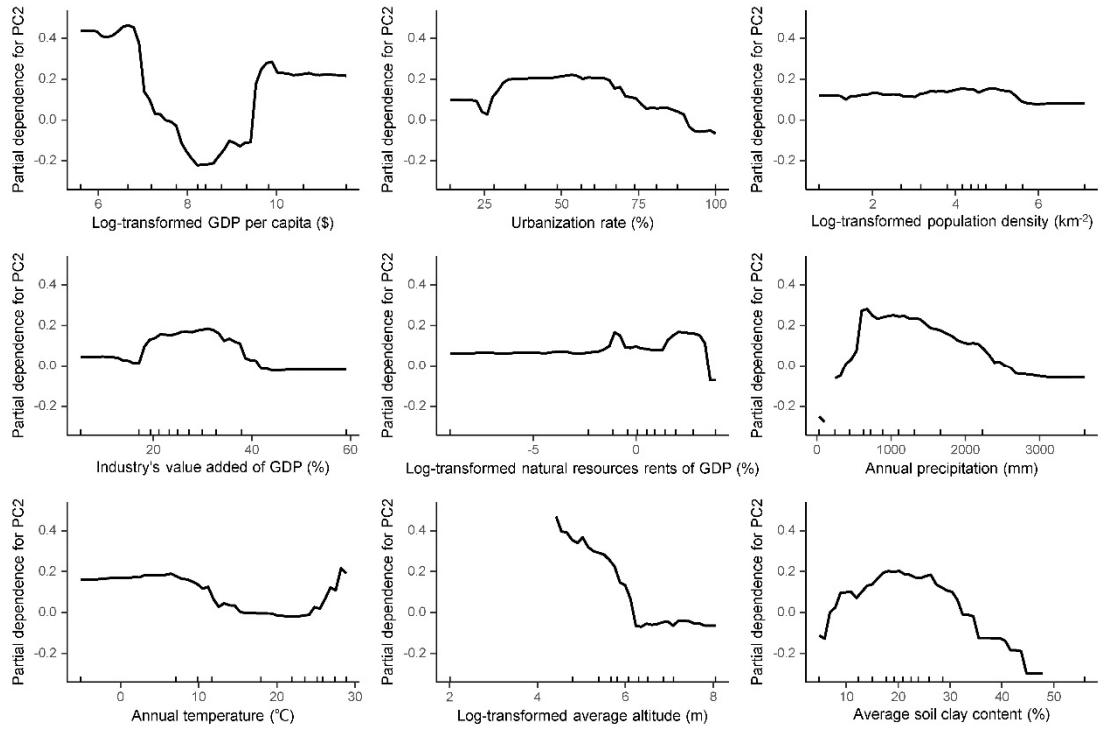


Fig. S4 Partial dependence plots of the predictors for PC2. The slopes of the partial dependence plot indicate the sensitivity of PC2 to the specific predictor. Tick marks in the x-axis represent the minimum, maximum, and deciles of the variable distribution.

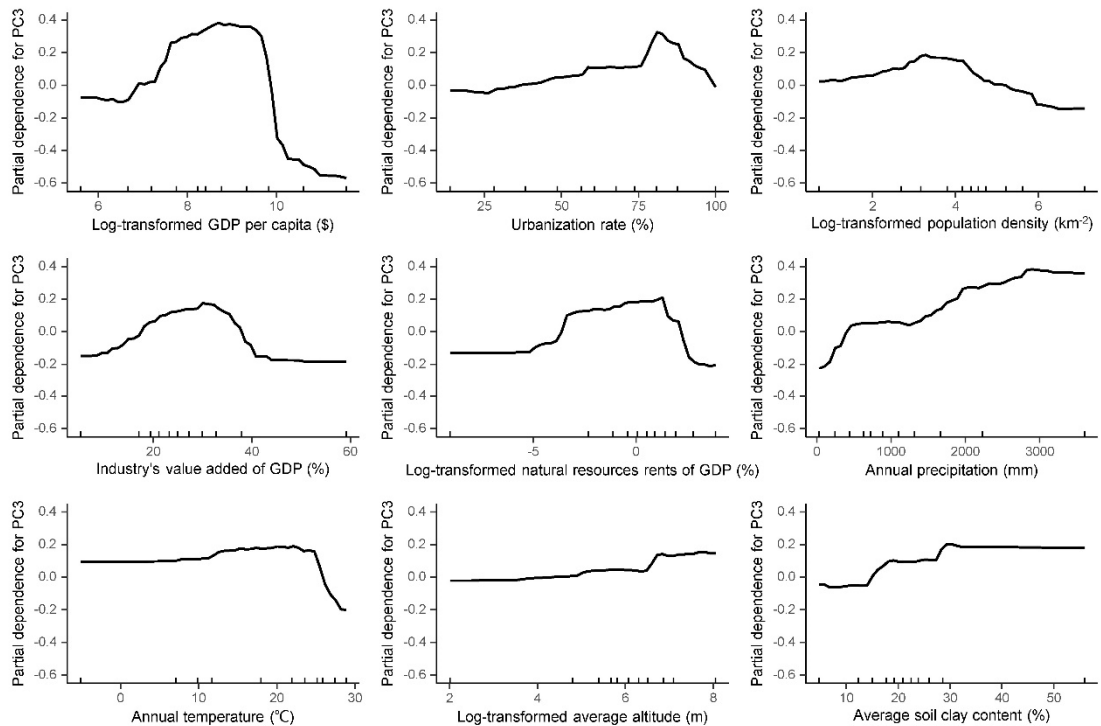


Fig. S5 Partial dependence plots of the predictors for PC3. The slopes of the partial dependence plot indicate the sensitivity of PC3 to the specific predictor. Tick marks in the x-axis represent the minimum, maximum, and deciles of the variable distribution.

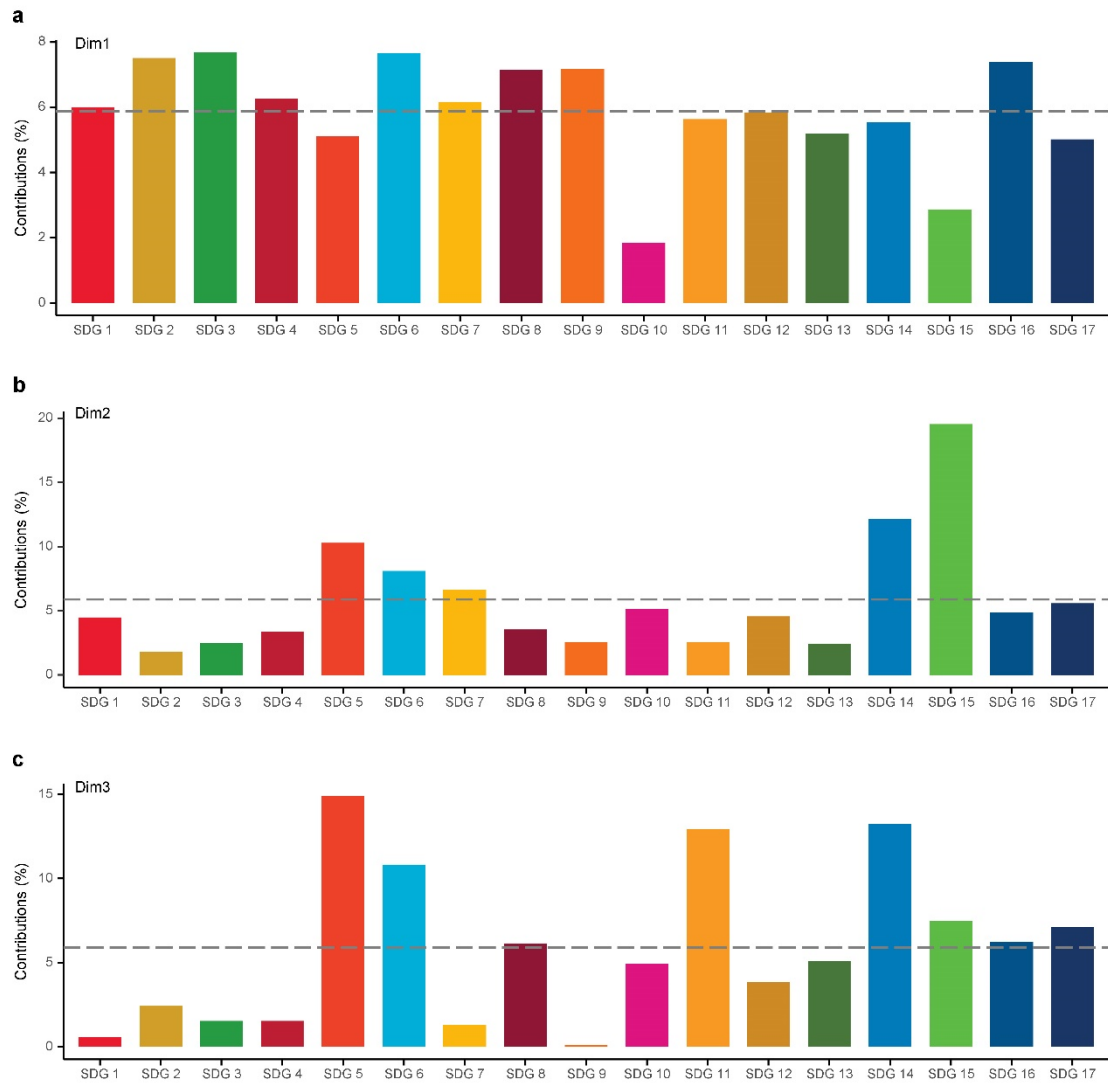


Fig. S6 Contributions of each SDG to the three dimensions identified by SDR SDG indicator data. Gray dashed line represents the average contribution of all SDGs.

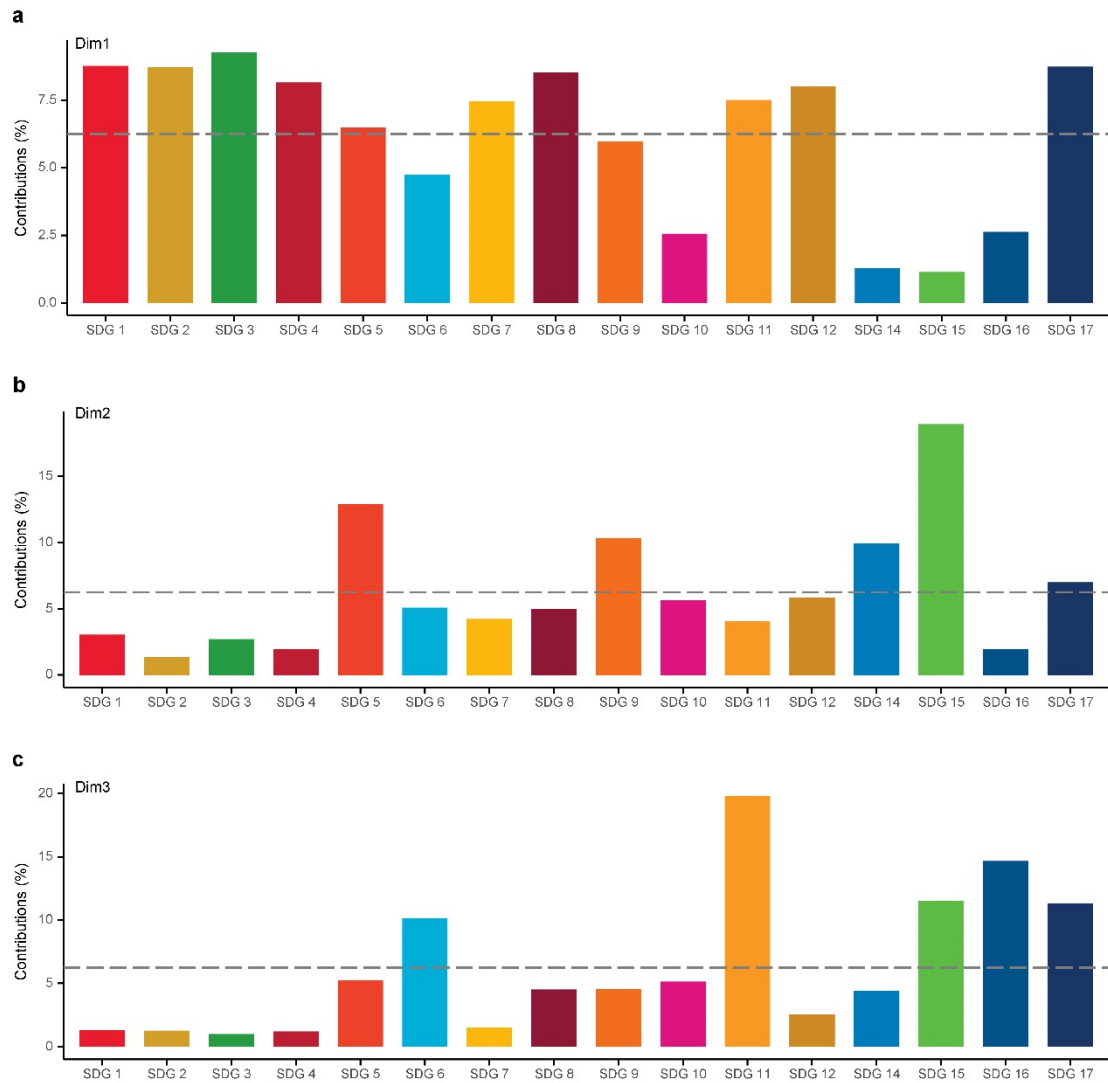


Fig. S7 Contributions of each SDG to the three dimensions identified by United Nations' official SDG indicator data. Gray dashed line represents the average contribution of all SDGs.

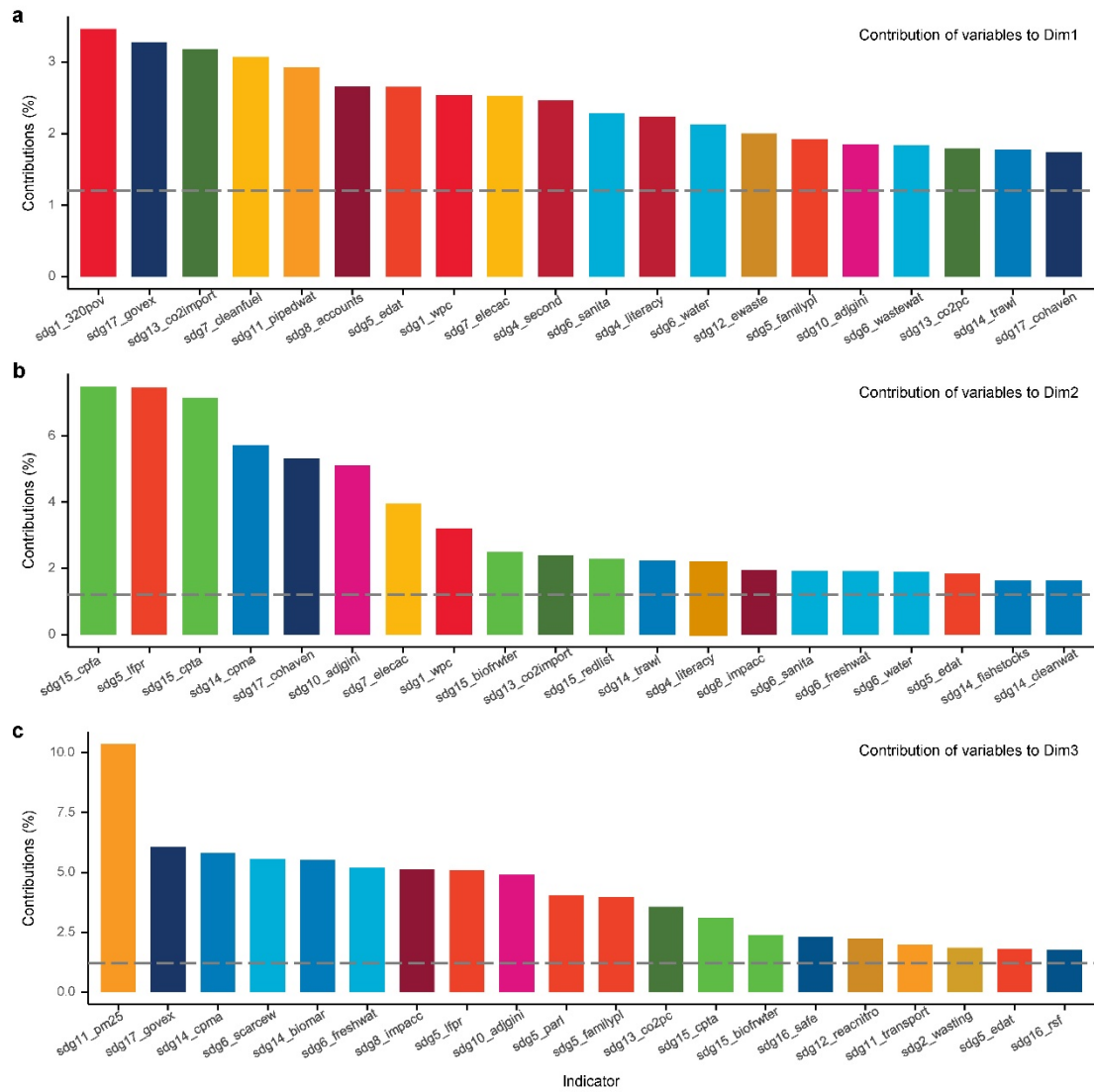


Fig. S8 Contributions of the top 20 contributing indicators to the three dimensions identified by SDR SDG indicator data. Gray dashed line represents the average contribution of all indicators.

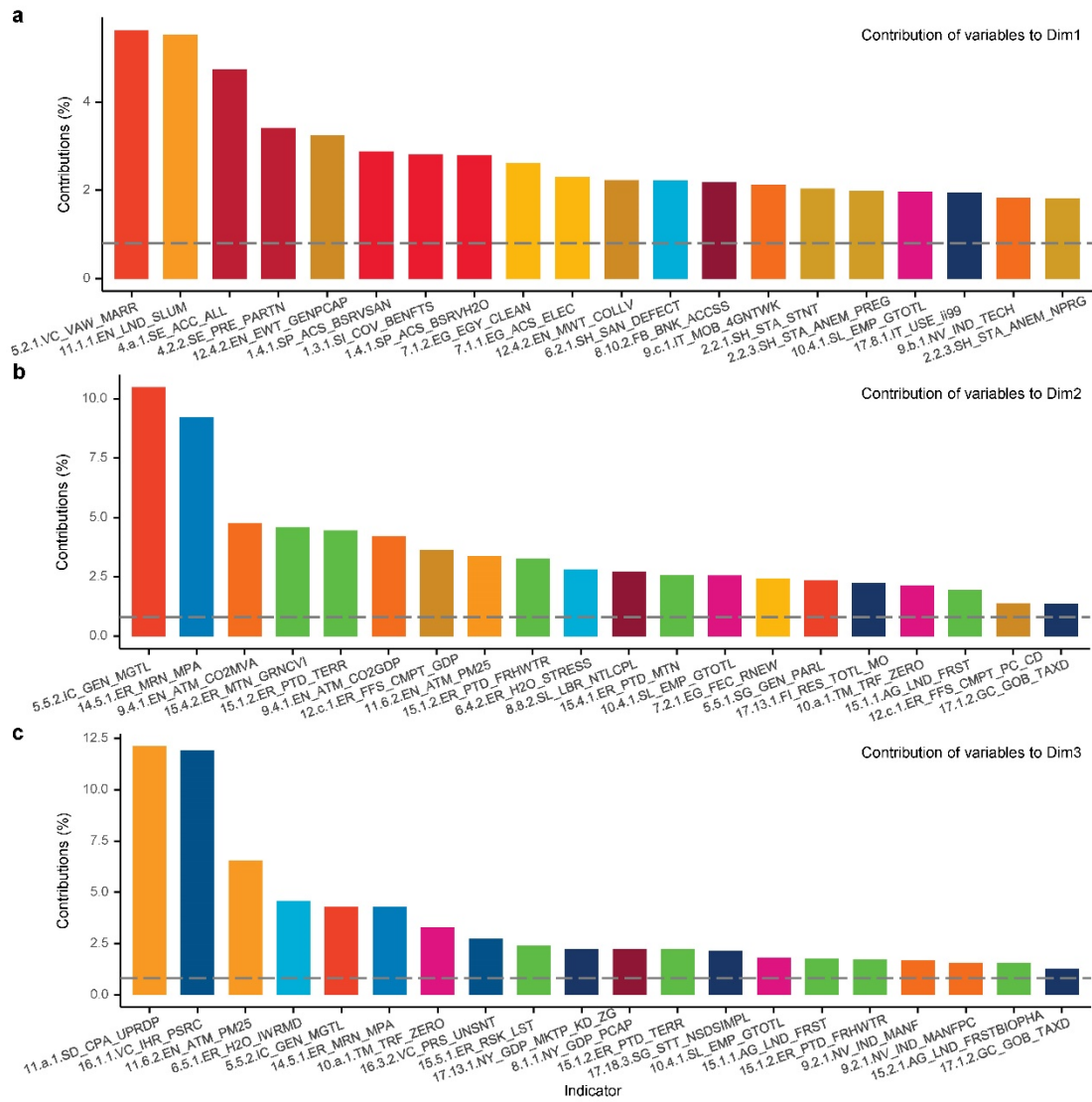


Fig. S9 Contributions of the top 20 contributing indicators to the three dimensions identified by United Nations' official SDG indicator data. Gray dashed line represents the average contribution of all indicators.

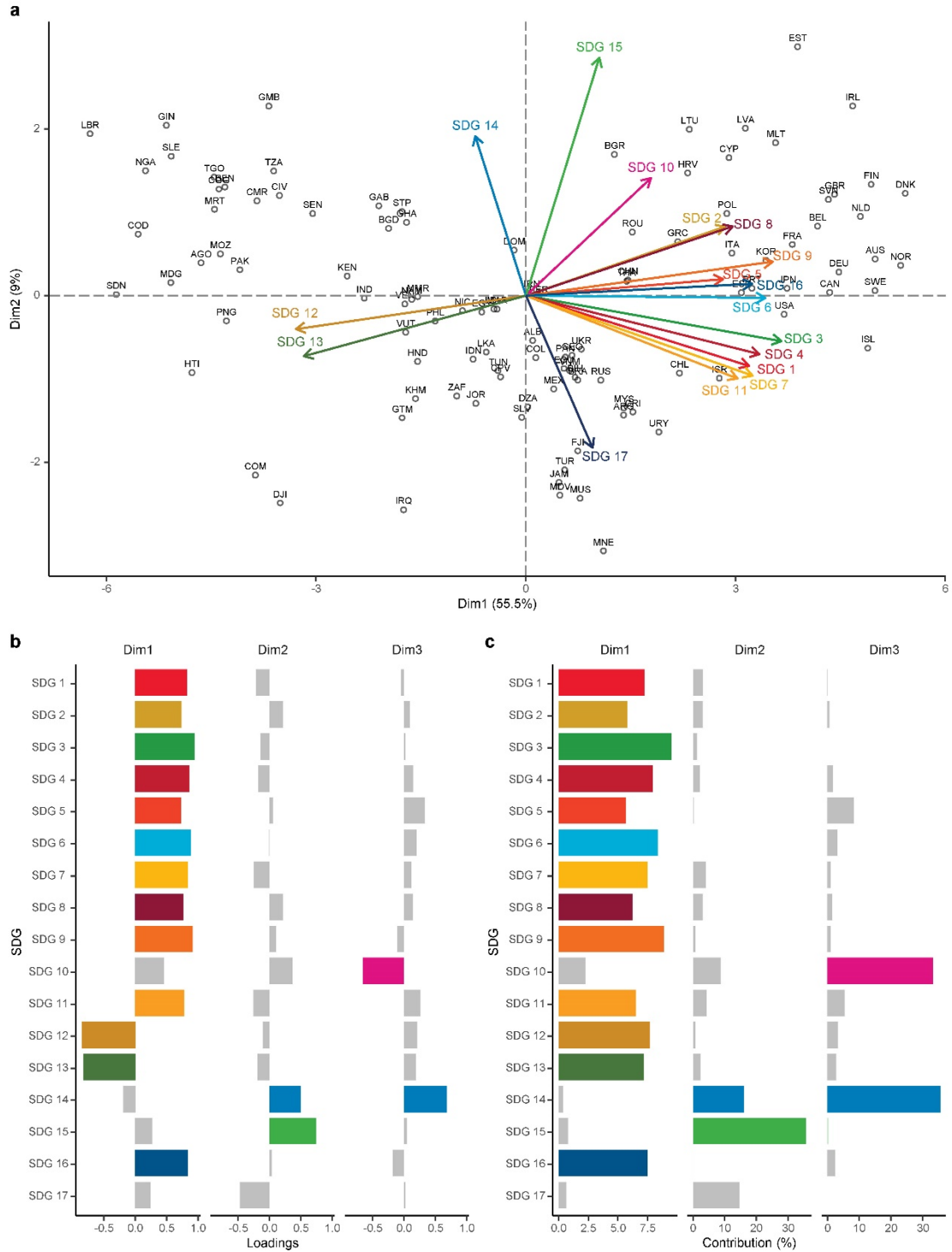


Fig. S10 Main dimensions identified by non-imputed national SDG performances. **a**, Biplot of PCA results. The full names and principal component values of the countries are shown in Table S1. **b**, Loading of each SDG to each dimension. **c**, Contribution of each SDG to each dimension. Non-gray bars indicate the SDGs with significant loadings (i.e., with an absolute value > 0.5).

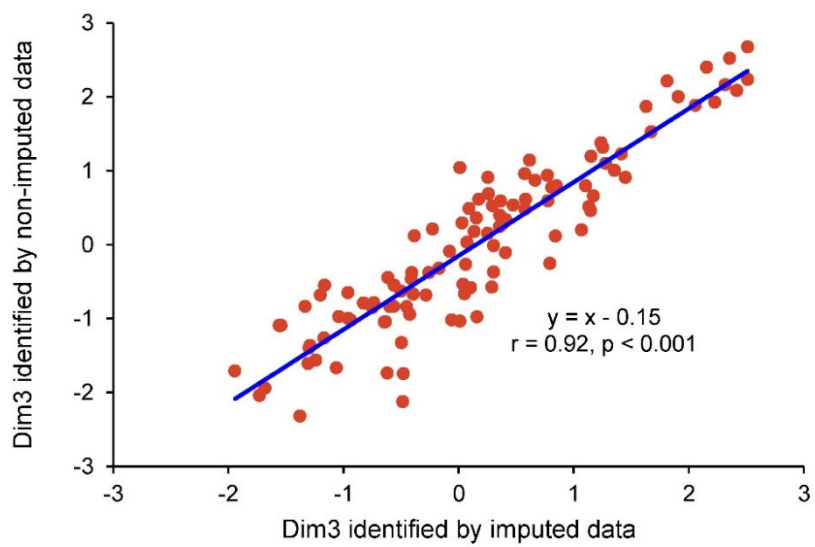
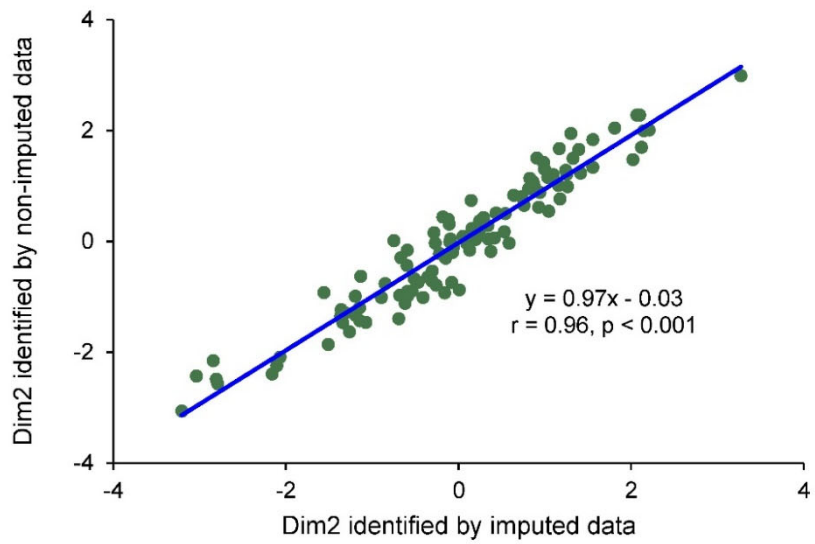
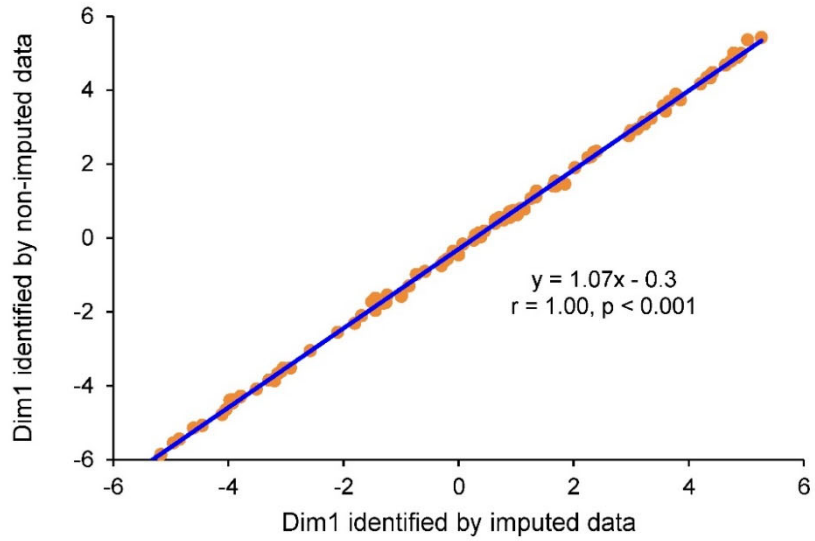


Fig. S11 Comparisons between the dimensions identified by imputed SDR SDG data and non-imputed SDR SDG data.

Table S1 Principal component values of the analyzed countries.

Order	Abbreviation	Country name	UN regional grouping	PC1	PC2	PC3
1	AFG	Afghanistan	Central and Southern Asia	-4.99	-1.15	-1.00
2	AGO	Angola	Sub-Saharan Africa	-4.04	-0.12	-0.75
3	ALB	Albania	Europe and North America	0.38	-0.31	0.10
4	ARE	United Arab Emirates	Northern Africa and Western Asia	2.71	0.20	-2.18
5	ARG	Argentina	Latin America and the Caribbean	1.65	-1.15	1.13
6	ARM	Armenia	Northern Africa and Western Asia	0.24	-0.77	0.49
7	AUS	Australia	Australia and New Zealand	4.78	-0.18	-1.56
8	AUT	Austria	Europe and North America	4.86	0.88	-0.81
9	AZE	Azerbaijan	Northern Africa and Western Asia	0.72	-0.52	0.33
10	BDI	Burundi	Sub-Saharan Africa	-4.04	1.30	-0.39
11	BEL	Belgium	Europe and North America	4.20	0.64	-1.31
12	BEN	Benin	Sub-Saharan Africa	-3.80	0.99	-0.17
13	BFA	Burkina Faso	Sub-Saharan Africa	-3.72	2.53	-0.95
14	BGD	Bangladesh	Central and Southern Asia	-1.45	0.73	-0.08
15	BGR	Bulgaria	Europe and North America	1.35	2.12	0.66
16	BHR	Bahrain	Northern Africa and Western Asia	1.42	0.60	-1.08
17	BIH	Bosnia and Herzegovina	Europe and North America	0.88	-0.59	0.16
18	BLR	Belarus	Europe and North America	1.91	0.81	1.02
19	BLZ	Belize	Latin America and the Caribbean	0.00	-2.14	0.51
20	BOL	Bolivia	Latin America and the Caribbean	-0.07	-0.19	1.43
21	BRA	Brazil	Latin America and the Caribbean	0.96	-0.41	2.32
22	BRB	Barbados	Latin America and the Caribbean	1.84	-1.87	-0.70
23	BRN	Brunei Darussalam	Eastern and Southeastern Asia	2.49	-0.60	-1.11
24	BTN	Bhutan	Central and Southern Asia	0.27	-0.28	0.18
25	BWA	Botswana	Sub-Saharan Africa	-1.08	-1.30	1.04
26	CAF	Central African Republic	Sub-Saharan Africa	-7.00	1.99	-1.59
27	CAN	Canada	Europe and North America	4.31	-0.10	-0.56
28	CHE	Switzerland	Europe and North America	4.72	0.31	-0.76
29	CHL	Chile	Latin America and the Caribbean	2.30	-0.16	2.42
30	CHN	China	Eastern and Southeastern Asia	1.84	0.24	0.30
31	CIV	Cote d'Ivoire	Sub-Saharan Africa	-3.05	1.10	0.15
32	CMR	Cameroon	Sub-Saharan Africa	-3.30	0.82	0.03
33	COD	Congo, Dem. Rep.	Sub-Saharan Africa	-4.96	0.14	-0.94
34	COG	Congo, Rep.	Sub-Saharan Africa	-3.98	1.24	0.57
35	COL	Colombia	Latin America and the Caribbean	0.36	-0.08	2.51
36	COM	Comoros	Sub-Saharan Africa	-3.20	-2.85	-1.38
37	CPV	Cabo Verde	Sub-Saharan Africa	-0.09	-0.68	1.17
38	CRI	Costa Rica	Latin America and the Caribbean	1.68	-0.70	2.23
39	CUB	Cuba	Latin America and the Caribbean	1.02	-0.53	2.15
40	CYP	Cyprus	Northern Africa and Western Asia	2.99	1.39	-1.33
41	CZE	Czech Republic	Europe and North America	3.59	2.34	-0.28
42	DEU	Germany	Europe and North America	4.42	0.34	-0.45

Order	Abbreviation	Country name	UN regional grouping	PC1	PC2	PC3
43	DJI	Djibouti	Sub-Saharan Africa	-2.92	-2.81	-0.06
44	DNK	Denmark	Europe and North America	5.26	1.41	-0.56
45	DOM	Dominican Republic	Latin America and the Caribbean	0.07	1.04	1.81
46	DZA	Algeria	Northern Africa and Western Asia	0.38	-1.19	-0.48
47	ECU	Ecuador	Latin America and the Caribbean	0.70	0.01	2.51
48	EGY	Egypt, Arab Rep.	Northern Africa and Western Asia	-0.25	-0.07	0.41
49	ESP	Spain	Europe and North America	3.23	0.20	0.13
50	EST	Estonia	Europe and North America	3.78	3.27	0.01
51	ETH	Ethiopia	Sub-Saharan Africa	-3.64	1.03	-0.76
52	FIN	Finland	Europe and North America	4.85	1.55	-0.41
53	FJI	Fiji	Oceania	1.04	-1.51	1.45
54	FRA	France	Europe and North America	3.83	0.93	0.36
55	GAB	Gabon	Sub-Saharan Africa	-1.69	0.86	-0.83
56	GBR	United Kingdom	Europe and North America	4.38	1.25	-0.23
57	GEO	Georgia	Northern Africa and Western Asia	0.91	-0.31	1.10
58	GHA	Ghana	Sub-Saharan Africa	-1.28	0.94	0.38
59	GIN	Guinea	Sub-Saharan Africa	-4.61	1.81	-0.62
60	GMB	Gambia, The	Sub-Saharan Africa	-3.14	2.10	-0.96
61	GRC	Greece	Europe and North America	2.25	0.76	0.18
62	GTM	Guatemala	Latin America and the Caribbean	-1.31	-1.34	1.28
63	GUY	Guyana	Latin America and the Caribbean	0.66	-2.79	-1.66
64	HND	Honduras	Latin America and the Caribbean	-1.24	-0.26	2.06
65	HRV	Croatia	Europe and North America	2.35	2.02	0.77
66	HTI	Haiti	Latin America and the Caribbean	-4.11	-1.56	-1.06
67	HUN	Hungary	Europe and North America	2.67	2.26	0.11
68	IDN	Indonesia	Eastern and Southeastern Asia	-0.30	-0.85	0.58
69	IND	India	Central and Southern Asia	-1.81	-0.27	-0.50
70	IRL	Ireland	Europe and North America	4.63	2.07	-1.17
71	IRN	Iran, Islamic Rep.	Central and Southern Asia	0.29	0.35	0.47
72	IRQ	Iraq	Northern Africa and Western Asia	-1.26	-2.79	-0.62
73	ISL	Iceland	Europe and North America	4.85	-1.14	-1.68
74	ISR	Israel	Northern Africa and Western Asia	2.96	-1.20	-0.40
75	ITA	Italy	Europe and North America	3.10	0.43	-0.59
76	JAM	Jamaica	Latin America and the Caribbean	0.77	-2.11	0.79
77	JOR	Jordan	Northern Africa and Western Asia	-0.30	-1.32	-0.43
78	JPN	Japan	Eastern and Southeastern Asia	3.86	0.05	-0.65
79	KAZ	Kazakhstan	Central and Southern Asia	1.67	-0.30	0.17
80	KEN	Kenya	Sub-Saharan Africa	-2.10	0.16	0.58
81	KGZ	Kyrgyz Republic	Central and Southern Asia	0.50	0.09	0.53
82	KHM	Cambodia	Eastern and Southeastern Asia	-1.00	-1.36	-0.50
83	KOR	Korea, Rep.	Eastern and Southeastern Asia	3.60	0.29	-0.74
84	KWT	Kuwait	Northern Africa and Western Asia	1.41	-1.90	-2.83
85	LAO	Lao PDR	Eastern and Southeastern Asia	-1.36	-0.04	1.15

Order	Abbreviation	Country name	UN regional grouping	PC1	PC2	PC3
86	LBN	Lebanon	Northern Africa and Western Asia	0.00	-0.59	-1.73
87	LBR	Liberia	Sub-Saharan Africa	-5.52	1.30	-1.20
88	LKA	Sri Lanka	Central and Southern Asia	-0.19	-0.51	0.85
89	LSO	Lesotho	Sub-Saharan Africa	-3.74	-0.73	1.89
90	LTU	Lithuania	Europe and North America	2.39	2.15	0.25
91	LUX	Luxembourg	Europe and North America	4.37	-0.29	-1.87
92	LVA	Latvia	Europe and North America	3.22	2.21	0.09
93	MAR	Morocco	Northern Africa and Western Asia	-0.07	0.13	0.04
94	MDA	Moldova	Europe and North America	0.94	-0.09	0.59
95	MDG	Madagascar	Sub-Saharan Africa	-4.46	-0.28	0.29
96	MDV	Maldives	Central and Southern Asia	0.64	-2.16	1.35
97	MEX	Mexico	Latin America and the Caribbean	0.63	-0.62	2.36
98	MKD	North Macedonia	Europe and North America	0.81	0.33	0.52
99	MLI	Mali	Sub-Saharan Africa	-4.46	1.82	-0.96
100	MLT	Malta	Europe and North America	3.56	1.55	-1.54
101	MMR	Myanmar	Eastern and Southeastern Asia	-0.99	-0.10	-0.29
102	MNE	Montenegro	Europe and North America	1.34	-3.21	-0.49
103	MNG	Mongolia	Eastern and Southeastern Asia	-0.10	0.31	-0.88
104	MOZ	Mozambique	Sub-Saharan Africa	-3.93	0.54	1.24
105	MRT	Mauritania	Sub-Saharan Africa	-3.95	0.87	-1.29
106	MUS	Mauritius	Sub-Saharan Africa	1.14	-3.04	-0.60
107	MWI	Malawi	Sub-Saharan Africa	-3.83	0.74	0.53
108	MYS	Malaysia	Eastern and Southeastern Asia	1.69	-1.37	0.06
109	NAM	Namibia	Sub-Saharan Africa	-1.45	0.10	1.63
110	NER	Niger	Sub-Saharan Africa	-5.06	1.69	-1.21
111	NGA	Nigeria	Sub-Saharan Africa	-4.85	0.91	-0.39
112	NIC	Nicaragua	Latin America and the Caribbean	-0.58	0.37	1.67
113	NLD	Netherlands	Europe and North America	4.73	0.81	-1.17
114	NOR	Norway	Europe and North America	5.02	0.24	-0.96
115	NPL	Nepal	Central and Southern Asia	-1.24	1.16	0.16
116	NZL	New Zealand	Australia and New Zealand	4.59	-0.39	0.06
117	OMN	Oman	Northern Africa and Western Asia	0.77	-0.58	-0.51
118	PAK	Pakistan	Central and Southern Asia	-3.51	-0.11	-1.30
119	PAN	Panama	Latin America and the Caribbean	0.82	-0.47	1.25
120	PER	Peru	Latin America and the Caribbean	0.45	0.59	2.15
121	PHL	Philippines	Eastern and Southeastern Asia	-0.86	-0.15	1.15
122	PNG	Papua New Guinea	Oceania	-3.79	-0.67	-0.26
123	POL	Poland	Europe and North America	2.99	1.26	0.36
124	PRT	Portugal	Europe and North America	3.34	0.23	0.25
125	PRY	Paraguay	Latin America and the Caribbean	0.52	-0.88	1.21
126	QAT	Qatar	Northern Africa and Western Asia	1.63	0.25	-2.97
127	ROU	Romania	Europe and North America	1.69	1.17	0.81
128	RUS	Russian Federation	Europe and North America	1.26	-0.90	0.41

Order	Abbreviation	Country name	UN regional grouping	PC1	PC2	PC3
129	RWA	Rwanda	Sub-Saharan Africa	-2.37	0.67	0.44
130	SAU	Saudi Arabia	Northern Africa and Western Asia	0.17	-1.49	-1.54
131	SDN	Sudan	Northern Africa and Western Asia	-5.18	-0.75	-1.94
132	SEN	Senegal	Sub-Saharan Africa	-2.58	0.88	0.07
133	SGP	Singapore	Eastern and Southeastern Asia	4.65	-4.27	-3.57
134	SLE	Sierra Leone	Sub-Saharan Africa	-4.46	1.17	-1.04
135	SLV	El Salvador	Latin America and the Caribbean	0.26	-1.07	1.07
136	SOM	Somalia	Sub-Saharan Africa	-5.65	-0.67	-0.57
137	SRB	Serbia	Europe and North America	1.60	-0.37	0.14
138	SSD	South Sudan	Sub-Saharan Africa	-6.54	-0.06	-1.00
139	STP	Sao Tome and Principe	Sub-Saharan Africa	-1.45	1.16	0.62
140	SUR	Suriname	Latin America and the Caribbean	0.52	1.32	0.98
141	SVK	Slovak Republic	Europe and North America	2.96	2.00	-0.19
142	SVN	Slovenia	Europe and North America	4.37	1.03	-1.24
143	SWE	Sweden	Europe and North America	4.90	0.42	0.05
144	SWZ	Eswatini	Sub-Saharan Africa	-2.97	-1.95	0.52
145	SYR	Syrian Arab Republic	Northern Africa and Western Asia	-2.84	-1.96	-0.71
146	TCD	Chad	Sub-Saharan Africa	-6.77	0.91	-1.28
147	TGO	Togo	Sub-Saharan Africa	-3.93	0.99	-0.41
148	THA	Thailand	Eastern and Southeastern Asia	1.66	0.53	0.77
149	TJK	Tajikistan	Central and Southern Asia	-0.15	0.06	-0.07
150	TKM	Turkmenistan	Central and Southern Asia	-0.28	-0.54	-0.29
151	TTO	Trinidad and Tobago	Latin America and the Caribbean	1.24	-0.15	-0.51
152	TUN	Tunisia	Northern Africa and Western Asia	-0.10	-0.59	0.30
153	TUR	Turkey	Northern Africa and Western Asia	0.89	-2.07	0.29
154	TZA	Tanzania	Sub-Saharan Africa	-3.08	1.32	0.26
155	UGA	Uganda	Sub-Saharan Africa	-3.70	1.58	-0.50
156	UKR	Ukraine	Europe and North America	1.08	-0.35	0.01
157	URY	Uruguay	Latin America and the Caribbean	2.02	-1.26	1.15
158	USA	United States	Europe and North America	3.66	-0.22	0.36
159	UZB	Uzbekistan	Central and Southern Asia	0.47	-0.58	1.15
160	VEN	Venezuela, RB	Latin America and the Caribbean	-1.51	-0.06	1.41
161	VNM	Vietnam	Eastern and Southeastern Asia	1.02	-0.54	0.84
162	VUT	Vanuatu	Oceania	-1.37	-0.60	-0.64
163	YEM	Yemen, Rep.	Northern Africa and Western Asia	-5.96	-1.74	-0.78
164	ZAF	South Africa	Sub-Saharan Africa	-0.73	-1.15	1.91
165	ZMB	Zambia	Sub-Saharan Africa	-3.85	-0.03	1.16
166	ZWE	Zimbabwe	Sub-Saharan Africa	-2.75	1.04	0.58

Table S2 List of SDG indicators used in *Sustainable Development Report 2020*. More details are available from the *Sustainable Development Report* (<https://www.sustainabledevelopment.report/>).

Indicator	Indicator description
sdg1_wpc	Poverty headcount ratio at \$1.90/day (%)
sdg1_320pov	Poverty headcount ratio at \$3.20/day (%)
sdg1_oeudpov	Poverty rate after taxes and transfers (%)
sdg2_undernsh	Prevalence of undernourishment (%)
sdg2_stunting	Prevalence of stunting in children under 5 years of age (%)
sdg2_wasting	Prevalence of wasting in children under 5 years of age (%)
sdg2_obesity	Prevalence of obesity, BMI \geq 30 (% of adult population)
sdg2_trophic	Human Trophic Level (best 2-3 worst)
sdg2_crlyld	Cereal yield (tonnes per hectare of harvested land)
sdg2_snmi	Sustainable Nitrogen Management Index (best 0-1.41 worst)
sdg2_yieldgap	Yield gap closure (% of potential yield)
sdg3_matmort	Maternal mortality rate (per 100,000 live births)
sdg3_neonat	Neonatal mortality rate (per 1,000 live births)
sdg3_u5mort	Mortality rate, under-5 (per 1,000 live births)
sdg3_tb	Incidence of tuberculosis (per 100,000 population)
sdg3_hiv	New HIV infections (per 1,000 uninfected population)
sdg3_ncds	Age-standardized death rate due to cardiovascular disease, cancer, diabetes, or chronic respiratory disease in adults aged 30–70 years (%)
sdg3_pollmort	Age-standardized death rate attributable to household air pollution and ambient air pollution (per 100,000 population)
sdg3_traffic	Traffic deaths (per 100,000 population)
sdg3_lifec	Life expectancy at birth (years)
sdg3_fertility	Adolescent fertility rate (births per 1,000 adolescent females aged 15 to 19)
sdg3_births	Births attended by skilled health personnel (%)
sdg3_vac	Percentage of surviving infants who received 2 WHO-recommended vaccines (%)
sdg3_uhc	Universal health coverage (UHC) index of service coverage (worst 0-100 best)
sdg3_swb	Subjective well-being (average ladder score, worst 0-10 best)
sdg3_region	Gap in life expectancy at birth among regions (years)
sdg3_incomeeg	Gap in self-reported health status by income (percentage points)
sdg3_smoke	Daily smokers (% of population aged 15 and over)
sdg4_primary	Net primary enrollment rate (%)
sdg4_second	Lower secondary completion rate (%)
sdg4_literacy	Literacy rate (% of population aged 15 to 24)
sdg4_earlyedu	Participation rate in pre-primary organized learning (% of children aged 4 to 6)
sdg4_tertiary	Tertiary educational attainment (% of population aged 25 to 34)
sdg4_pisa	PISA score (worst 0-600 best)
sdg4_socioec	Variation in science performance explained by socio-economic status (%)
sdg4_science	Underachievers in science (% of 15-year-olds)
sdg4_resil	Resilient students in science (% of 15-year-olds)
sdg5_familypl	Demand for family planning satisfied by modern methods (% of females aged 15 to 49 who are married or in unions)

Indicator	Indicator description
sdg5_edat	Ratio of female-to-male mean years of education received (%)
sdg5_lfpr	Ratio of female-to-male labor force participation rate (%)
sdg5_parl	Seats held by women in national parliament (%)
sdg5_paygap	Gender wage gap (% of male median wage)
sdg5_unpaid	Gender gap in time spent doing unpaid work (minutes/day)
sdg6_water	Population using at least basic drinking water services (%)
sdg6_sanita	Population using at least basic sanitation services (%)
sdg6_freshwat	Freshwater withdrawal (% of available freshwater resources)
sdg6_wastewat	Anthropogenic wastewater that receives treatment (%)
sdg6_scarcew	Scarce water consumption embodied in imports (m ³ /capita)
sdg6_safewat	Population using safely managed water services (%)
sdg6_safesan	Population using safely managed sanitation services (%)
sdg7_elecac	Population with access to electricity (%)
sdg7_cleanfuel	Population with access to clean fuels and technology for cooking (%)
sdg7_co2twh	CO ₂ emissions from fuel combustion for electricity and heating per total electricity output (MtCO ₂ /TWh)
sdg7_ren	Share of renewable energy in total primary energy supply (%)
sdg8_impacc	Fatal work-related accidents embodied in imports (per 100,000 population)
sdg8_adjgrowth	Adjusted GDP growth (%)
sdg8_slavery	Victims of modern slavery (per 1,000 population)
sdg8_accounts	Adults with an account at a bank or other financial institution or with a mobile-money-service provider (% of population aged 15 or over)
sdg8_unemp	Unemployment rate (% of total labor force)
sdg8_empop	Employment-to-population ratio (%)
sdg8_yneet	Youth not in employment, education or training (NEET) (% of population aged 15 to 29)
sdg9_intuse	Population using the internet (%)
sdg9_mobuse	Mobile broadband subscriptions (per 100 population)
sdg9_lpi	Logistics Performance Index: Quality of trade and transport-related infrastructure (worst 1-5 best)
sdg9_qs	The Times Higher Education Universities Ranking: Average score of top 3 universities (worst 0-100 best)
sdg9_articles	Scientific and technical journal articles (per 1,000 population)
sdg9_rdex	Expenditure on research and development (% of GDP)
sdg9_rdes	Researchers (per 1,000 employed population)
sdg9_patents	Triadic patent families filed (per million population)
sdg9_netacc	Gap in internet access by income (percentage points)
sdg9_womensci	Women in science and engineering (% of tertiary graduates in science and engineering)
sdg10_adjgini	Gini coefficient adjusted for top income
sdg10_palma	Palma ratio
sdg10_elder	Elderly poverty rate (% of population aged 66 or over)
sdg11_pm25	Annual mean concentration of particulate matter of less than 2.5 microns in diameter (PM2.5) (µg/m ³)
sdg11_pipedwat	Access to improved water source, piped (% of urban population)
sdg11_transport	Satisfaction with public transport (%)
sdg11_rentover	Population with rent overburden (%)

Indicator	Indicator description
sdg12_msw	Municipal solid waste (kg/capita/day)
sdg12_ewaste	Electronic waste (kg/capita)
sdg12_so2prod	Production-based SO ₂ emissions (kg/capita)
sdg12_so2import	SO ₂ emissions embodied in imports (kg/capita)
sdg12_prodnitro	Production-based nitrogen emissions (kg/capita)
sdg12_reacnitro	Nitrogen emissions embodied in imports (kg/capita)
sdg12_mswrecycl	Non-recycled municipal solid waste (kg/capita/day)
sdg13_co2pc	Energy-related CO ₂ emissions (tCO ₂ /capita)
sdg13_co2import	CO ₂ emissions embodied in imports (tCO ₂ /capita)
sdg13_co2export	CO ₂ emissions embodied in fossil fuel exports (kg/capita)
sdg13_ecr	Effective carbon rate (EUR/tCO ₂)
sdg14_cpma	Mean area that is protected in marine sites important to biodiversity (%)
sdg14_cleanwat	Ocean Health Index: Clean Waters score (worst 0-100 best)
sdg14_fishstocks	Fish caught from overexploited or collapsed stocks (% of total catch)
sdg14_trawl	Fish caught by trawling (%)
sdg14_biomar	Marine biodiversity threats embodied in imports (per million population)
sdg15_cpma	Mean area that is protected in terrestrial sites important to biodiversity (%)
sdg15_cpfa	Mean area that is protected in freshwater sites important to biodiversity (%)
sdg15_redlist	Red List Index of species survival (worst 0-1 best)
sdg15_forchg	Permanent deforestation (% of forest area, 5-year average)
sdg15_biofrwtr	Terrestrial and freshwater biodiversity threats embodied in imports (per million population)
sdg16_weaponsexp	Exports of major conventional weapons (TIV constant million USD per 100,000 population)
sdg16_homicides	Homicides (per 100,000 population)
sdg16_detain	Unsentenced detainees (% of prison population)
sdg16_safe	Percentage of population who feel safe walking alone at night in the city or area where they live (%)
sdg16_prs	Property Rights (worst 1-7 best)
sdg16_u5reg	Birth registrations with civil authority (% of children under age 5)
sdg16_cpi	Corruption Perception Index (worst 0-100 best)
sdg16_clabor	Children involved in child labor (% of population aged 5 to 14)
sdg16_rsf	Press Freedom Index (best 0-100 worst)
sdg16_prison	Persons held in prison (per 100,000 population)
sdg17_oda	For high-income and all OECD DAC countries: International concessional public finance, including official development assistance (% of GNI)
sdg17_cohaven	Corporate Tax Haven Score (best 0-100 worst)
sdg17_govex	Government spending on health and education (% of GDP)
sdg17_govrev	Other countries: Government revenue excluding grants (% of GDP)

Table S3 List of United Nations' official SDG indicators used in this study. More details are available from the SDG Global Database of the United Nations (<https://unstats.un.org/sdgs/dataportal>).

Indicator	Series code	Series description
1.3.1	SI_COV_BENFTS	Proportion of population covered by at least one social protection benefit (%)
1.4.1	SP_ACS_BSRVH2O	Proportion of population using basic drinking water services (%)
1.4.1*	SP_ACS_BSRVSAN	Proportion of population using basic sanitation services (%)
1.5.1/11.5.1/13.1.1	VC_DSR_DAFF	Number of directly affected persons attributed to disasters per 100,000 population (number)
1.5.1/11.5.1/13.1.1	VC_DSR_MTMP	Number of deaths and missing persons attributed to disasters per 100,000 population (number)
1.a.2	SD_XPD_ESED	Proportion of total government spending on essential services, education (%)
2.1.1	SN_ITK_DEFC	Prevalence of undernourishment (%)
2.2.1	SH_STA_STNT	Prevalence of stunting in children under 5 years of age (%)
2.2.2	SH_STA_WAST	Prevalence of wasting in children under 5 years of age (%)
2.2.3	SH_STA_ANEM_NPRG	Proportion of women aged 15-49 years with anaemia, non-pregnant (%)
2.2.3	SH_STA_ANEM_PREG	Proportion of women aged 15-49 years with anaemia, pregnant (%)
2.c.1	AG_FPA_CFPI	Indicator of Food Price Anomalies (IFPA), by Consumer Food Price Index
3.1.1	SH_STA_MORT	Maternal mortality ratio
3.1.2	SH_STA_BRTC	Proportion of births attended by skilled health personnel (%)
3.2.1	SH_DYN_MORT	Under-five mortality rate (deaths per 1,000 live births)
3.2.2	SH_DYN_NMRT	Neonatal mortality rate (deaths per 1,000 live births)
3.3.2	SH_TBS_INCD	Tuberculosis incidence (per 100,000 population)
3.3.4	SH_HAP_HBSAG	Prevalence of hepatitis B surface antigen (HBsAg) (%)
3.4.1	SH_DTH_NCOM	Mortality rate attributed to cardiovascular disease, cancer, diabetes or chronic respiratory disease (probability)
3.4.2	SH_STA_SCIDE	Suicide mortality rate (deaths per 100,000 population)
3.5.1	SH_SUD_ALCOL	Alcohol use disorders, 12-month prevalence (%)
3.5.2	SH_ALC_CONSPT	Alcohol consumption per capita (aged 15 years and older) within a calendar year (litres of pure alcohol)
3.6.1	SH_STA_TRAF	Death rate due to road traffic injuries (per 100,000 population)
3.7.2	SP_DYN_ADKL	Adolescent birth rate (per 1,000 women aged 15-19 and 10-14 years)
3.7.2	SP_DYN_ADKL	Adolescent birth rate (per 1,000 women aged 15-19 and 10-14 years)
3.8.1	SH_ACS_UNHC	Universal health coverage (UHC) service coverage index
3.9.1	SH_STA_ASAIRP	Age-standardized mortality rate attributed to household and ambient air pollution (deaths per 100,000 population)
3.9.2	SH_STA_WASHARI	Mortality rate attributed to unsafe water, unsafe sanitation and lack of hygiene from diarrhoea, intestinal nematode infections, malnutrition and acute respiratory infections (deaths per 100,000 population)
3.9.3	SH_STA_POISN	Mortality rate attributed to unintentional poisonings (deaths per 100,000 population)
3.a.1	SH_PRV_SMOK	Age-standardized prevalence of current tobacco use among persons aged 15 years and older (%)
3.b.1	SH_ACS	Average proportion of the target population with access to 3 doses of diphtheria-tetanus-pertussis (DTP3), measles-containing-vaccine second-dose (MCV2), and pneumococcal conjugate 3rd dose (PCV3) (%)
3.c.1	SH_MED_DEN	Health worker density (per 10,000 population)
3.d.1	SH_IHR_CAPS	International Health Regulations (IHR) capacity (%)

Indicator	Series code	Series description
4.2.2	SE_PRE_PARTN	Participation rate in organized learning (one year before the official primary entry age) (%)
4.5.1	SE_GPI_PTNPRE	Adjusted gender parity index for participation rate in organized learning (one year before the official primary entry age), (ratio)
4.a.1	SE_ACC_ALL	Proportion of schools with basic facilities
5.2.1	VC_VAW_MARR	Proportion of ever-partnered women and girls subjected to physical and/or sexual violence by a current or former intimate partner in the previous 12 months (%)
5.5.1	SG_GEN_PARL	Proportion of seats held by women in national parliaments (% of total number of seats)
5.5.2	IC_GEN_MGTL	Proportion of women in managerial positions (%)
6.2.1	SH_SAN_DEFECT	Proportion of population practicing open defecation (%)
6.4.1	ER_H2O_WUEYST	Water Use Efficiency (United States dollars per cubic meter)
6.4.2	ER_H2O_STRESS	Level of water stress: freshwater withdrawal as a proportion of available freshwater resources (%)
6.5.1	ER_H2O_IWRMD	Degree of integrated water resources management implementation (%)
6.6.1	EN_LKRV_PWAC	Lakes and rivers permanent water area change (%)
6.6.1	EN_LKRV_SWAC	Lakes and rivers seasonal water area change (%)
6.6.1	EN_RSRV_MNWAP	Reservoir minimum water area (% of total land area)
6.6.1	EN_RSRV_MXWAP	Reservoir maximum water area (% of total land area)
6.6.1	EN_WBE_WTLP	Wetlands area (% of total land area)
7.1.1	EG_ACS_ELEC	Proportion of population with access to electricity, by urban/rural (%)
7.1.2	EG_EGY_CLEAN	Proportion of population with primary reliance on clean fuels and technology (%)
7.2.1	EG_FEC_RNEW	Renewable energy share in the total final energy consumption (%)
7.3.1	EG_EGY_PRIM	Energy intensity level of primary energy (megajoules per constant 2017 purchasing power parity GDP)
7.b.1/12.a.1	EG_EGY_RNEW	Installed renewable electricity-generating capacity (watts per capita)
8.1.1	NY_GDP_PCAP	Annual growth rate of real GDP per capita (%)
8.2.1	SL_EMP_PCAP	Annual growth rate of real GDP per employed person (%)
8.4.2/12.2.2	EN_MAT_DOMCMPC	Domestic material consumption per capita (tonnes)
8.4.2/12.2.2	EN_MAT_DOMCMPG	Domestic material consumption per unit of GDP (kilograms per constant 2015 United States dollars)
8.5.2	SL_TLF_UEM	Unemployment rate (%)
8.6.1	SL_TLF_NEET	Proportion of youth not in education, employment or training (%)
8.8.2	SL_LBR_NTLCLPL	Level of national compliance with labour rights (freedom of association and collective bargaining) based on International Labour Organization (ILO) textual sources and national legislation
8.10.1	FB_ATM_TOTL	Number of automated teller machines (ATMs) per 100,000 adults
8.10.1	FB_CBK_BRCH	Number of commercial bank branches per 100,000 adults
8.10.2	FB_BNK_ACCSS	Proportion of adults (15 years and older) with an account at a financial institution or mobile-money-service provider (% of adults aged 15 years and older)
9.1.2	IS_RDP_FRGVOL	Freight volume (tonne kilometres)
9.1.2	IS_RDP_PFVOL	Passenger volume (passenger kilometres)
9.2.1	NV_IND_MANF	Manufacturing value added (constant 2015 United States dollars) as a proportion of GDP (%)
9.2.1	NV_IND_MANFPC	Manufacturing value added per capita (constant 2015 United States dollars)
9.2.2	SL_TLF_MANF	Manufacturing employment as a proportion of total employment (%)

Indicator	Series code	Series description
9.4.1	EN_ATM_CO2GDP	Carbon dioxide emissions per unit of GDP PPP (kilogrammes of CO2 per constant 2017 United States dollars)
9.4.1*	EN_ATM_CO2MVA	Carbon dioxide emissions per unit of manufacturing value added (kilogrammes of CO2 per constant 2015 United States dollars)
9.b.1	NV_IND_TECH	Proportion of medium and high-tech manufacturing value added in total value added (%)
9.c.1	IT_MOB_4GNTWK	Proportion of population covered by at least a 4G mobile network (%)
10.4.1	SL_EMP_GTOTL	Labour share of GDP (%)
10.7.4	SM_POP_REFG_OR	Number of refugees per 100,000 population, by country of origin (per 100,000 population)
10.a.1	TM_TRF_ZERO	Proportion of tariff lines applied to imports with zero-tariff (%)
11.1.1	EN_LND_SLUM	Proportion of urban population living in slums (%)
11.5.3	VC_DSR_BSDN	Number of disruptions to basic services attributed to disasters (number)
11.6.2	EN_ATM_PM25	Annual mean levels of fine particulate matter (population-weighted) (micrograms per cubic meter)
11.a.1	SD_CPA_UPRDP	Countries that have national urban policies or regional development plans that respond to population dynamics; ensure balanced territorial development; and increase local fiscal space (1 = YES; 0 = NO)
12.3.1	AG_FOOD_WST_PC	Food waste per capita (KG)
12.4.1	SG_HAZ	Average ratio of parties meeting their commitments and obligations in transmitting information as required by Basel Convention, Montreal Protocol, Rotterdam Convention, and Stockholm Convention on hazardous waste, and other chemicals
12.4.2	EN_EWT_GENPCAP	Electronic waste (kg/capita)
12.4.2	EN_MWT_COLLV	Municipal solid waste (kg/capita/day)
12.b.1	ST_EEV_STDACCT	Implementation of standard accounting tools to monitor the economic and environmental aspects of tourism (number of tables)
12.c.1	ER_FFS_CMPT_GDP	Fossil-fuel subsidies (consumption and production) as a proportion of total GDP (%)
12.c.1	ER_FFS_CMPT_PC_CD	Fossil-fuel subsidies (consumption and production) per capita (nominal United States dollars)
14.1.1	EN_MAR_CHLANM	Chlorophyll-a anomaly, remote sensing (%)
14.5.1	ER_MRN_MPA	Average proportion of Marine Key Biodiversity Areas (KBAs) covered by protected areas (%)
15.1.1	AG_LND_FRST	Forest area as a proportion of total land area (%)
15.1.2	ER_PTD_FRHWTR	Average proportion of Freshwater Key Biodiversity Areas (KBAs) covered by protected areas (%)
15.1.2*	ER_PTD_TERR	Average proportion of Terrestrial Key Biodiversity Areas (KBAs) covered by protected areas (%)
15.2.1	AG_LND_FRSTBIOPHA	Above-ground biomass in forest (tonnes per hectare)
15.2.1	AG_LND_FRSTCHG	Annual forest area change rate (%)
15.2.1	AG_LND_FRSTPRCT	Proportion of forest area within legally established protected areas (%)
15.4.1	ER_PTD_MTN	Average proportion of Mountain Key Biodiversity Areas (KBAs) covered by protected areas (%)
15.4.2	ER_MTN_GRNCVI	Mountain Green Cover Index
15.5.1	ER_RSK_LST	Red List Index
15.6.1	ER_CBD_SMTA	Total reported number of Standard Material Transfer Agreements (SMTAs) transferring plant genetic resources for food and agriculture to the country (number)
15.8.1	ER_IAS_LEGIS	Legislation, Regulation, Act related to the prevention of introduction and management of Invasive Alien Species (1 = YES, 0 = NO)

Indicator	Series code	Series description
15.8.1	ER_IAS_NBSAP	National Biodiversity Strategy and Action Plan (NBSAP) targets alignment to Aichi Biodiversity target 9 set out in the Strategic Plan for Biodiversity 2011-2020 (1 = YES, 0 = NO)
16.1.1	VC_IHR_PSRC	Number of victims of intentional homicide per 100,000 population (victims per 100,000 population)
16.3.2	VC_PRS_UNSENT	Unsentenced detainees as a proportion of overall prison population (%)
17.1.1	GR_G14_GDP	Total government revenue (budgetary central government) as a proportion of GDP (%)
17.1.2	GC_GOB_TAXD	Proportion of domestic budget funded by domestic taxes (% of GDP)
17.6.1	IT_NET_BBND	Fixed Internet broadband subscriptions per 100 inhabitants (per 100 inhabitants)
17.8.1	IT_USE_ii99	Internet users per 100 inhabitants
17.10.1	TM_TAX_WMFN	Worldwide weighted tariff-average, most-favoured-nation status (%)
17.12.1	TM_TAX_DMFN	Average tariff applied by developed countries, most-favored nation status (%)
17.13.1	BN_CAB_XOKA_GD_ZS	Current account balance as a proportion of GDP (%)
17.13.1	BX_KLT_DINV_WD_GD_ZS	Foreign direct investment, net inflows, as a proportion of GDP (%)
17.13.1	FI_RES_TOTL_MO	Total reserves in months of imports (ratio)
17.13.1	FM_LBL_BMNY_IR_ZS	Broad money to total reserves ratio
17.13.1	FP_CPI_TOTL_ZG	Annual inflation, consumer prices (%)
17.13.1	GC_BAL_CASH_GD_ZS	Cash surplus/deficit as a proportion of GDP (%)
17.13.1	NE_CON_GOVT_KD_ZG	Annual growth of the general government final consumption expenditure (%)
17.13.1	NE_CON_PRVT_KD_ZG	Annual growth of households and NPISHs final consumption expenditure (%)
17.13.1	NE_EXP_GNFS_KD_ZG	Annual growth of exports of goods and services (%)
17.13.1	NE_GDI_TOTL_KD_ZG	Annual growth of the gross capital formation (%)
17.13.1	NE_IMP_GNFS_KD_ZG	Annual growth of imports of goods and services (%)
17.13.1	NY_GDP_MKTP_KD_ZG	Annual GDP growth (%)
17.13.1	TG_VAL_TOTL_GD_ZS	Merchandise trade as a proportion of GDP (%)
17.18.2	SG_STT_FPOS	Countries with national statistical legislation exists that complies with the Fundamental Principles of Official Statistics (1 = YES; 0 = NO)
17.18.3	SG_STT_NSDSIMPL	Countries with national statistical plans that are under implementation (1 = YES; 0 = NO)
17.19.2	SG_REG_BRTH90N	Countries with birth registration data that are at least 90 percent complete (1 = YES; 0 = NO)
17.19.2	SG_REG_DETH75N	Countries with death registration data that are at least 75 percent complete (1 = YES; 0 = NO)