

TABLE 7

Planetary pressures–adjusted Human Development Index

HDI RANK	Human Development Index (HDI)	Planetary pressures-adjusted HDI (PHDI)				Adjustment factor for planetary pressures	SDG 9.4 Carbon dioxide emissions per capita (production)	Carbon dioxide emissions (production) index	SDG 8.4, 12.2 Material footprint per capita	Material footprint index
	Value	Value	Difference from HDI value* (%)	Difference from HDI rank*	Value		(tonnes)	Value	(tonnes)	Value
	2021	2021	2021	2021	2021		2020	2020	2019	2019
Very high human development										
1 Switzerland	0.962	0.796	17.3	-7	0.828		3.7	0.946	31.1	0.710
2 Norway	0.961	0.734	23.6	-34	0.764		7.6	0.889	38.8	0.639
3 Iceland	0.959	0.633	34.0	-91	0.660		8.6	0.875	59.6	0.445
4 Hong Kong, China (SAR)	0.952	..	..	..	..		4.2	0.939	..	..
5 Australia	0.951	0.637	33.0	-87	0.670		15.4	0.776	46.8	0.564
6 Denmark	0.948	0.803	15.3	0	0.847		4.5	0.934	25.9	0.759
7 Sweden	0.947	0.803	15.2	1	0.848		3.8	0.944	26.7	0.751
8 Ireland	0.945	0.682	27.8	-58	0.722		6.8	0.902	49.3	0.542
9 Germany	0.942	0.804	14.6	4	0.854		7.7	0.888	19.4	0.819
10 Netherlands	0.941	0.745	20.8	-18	0.791		8.1	0.883	32.3	0.700
11 Finland	0.940	0.731	22.2	-28	0.777		7.1	0.897	36.7	0.658
12 Singapore	0.939	0.665	29.2	-61	0.709		7.8	0.887	50.4	0.531
13 Belgium	0.937	0.742	20.8	-17	0.792		7.2	0.895	33.5	0.689
13 New Zealand	0.937	0.756	19.3	-6	0.807		6.9	0.899	30.7	0.714
15 Canada	0.936	0.687	26.6	-46	0.734		14.2	0.793	35.1	0.674
16 Liechtenstein	0.935	..	..	..	..		3.7	0.946	..	..
17 Luxembourg	0.930	0.645	30.6	-73	0.693		13.1	0.810	45.5	0.577
18 United Kingdom	0.929	0.819	11.8	15	0.882		4.9	0.929	17.9	0.834
19 Japan	0.925	0.792	14.4	8	0.856		8.1	0.881	18.2	0.831
19 Korea (Republic of)	0.925	0.752	18.7	-4	0.813		11.7	0.830	22.0	0.795
21 United States	0.921	0.698	24.2	-36	0.758		14.2	0.793	29.7	0.724
22 Israel	0.919	0.744	19.0	-8	0.809		6.5	0.905	30.8	0.714
23 Malta	0.918	0.720	21.6	-22	0.784		3.6	0.947	40.7	0.621
23 Slovenia	0.918	0.769	16.2	8	0.838		6.0	0.912	25.4	0.764
25 Austria	0.916	0.766	16.4	9	0.836		6.7	0.902	24.6	0.771
26 United Arab Emirates	0.911	0.518	43.1	-105	0.569		15.2	0.779	69.0	0.358
27 Spain	0.905	0.819	9.5	24	0.905		4.5	0.935	13.5	0.875
28 France	0.903	0.803	11.1	21	0.890		4.2	0.938	17.1	0.841
29 Cyprus	0.896	0.708	21.0	-22	0.791		5.4	0.922	36.6	0.659
30 Italy	0.895	0.813	9.2	25	0.908		5.0	0.927	11.9	0.890
31 Estonia	0.890	0.684	23.1	-34	0.768		7.9	0.885	37.5	0.651
32 Czechia	0.889	0.748	15.9	6	0.841		8.2	0.880	21.3	0.802
33 Greece	0.887	0.792	10.7	22	0.893		5.0	0.927	15.2	0.859
34 Poland	0.876	0.753	14.0	12	0.859		7.9	0.885	17.9	0.834
35 Bahrain	0.875	0.647	26.1	-51	0.740		20.5	0.701	23.8	0.778
35 Lithuania	0.875	0.679	22.4	-34	0.776		5.1	0.926	40.1	0.626
35 Saudi Arabia	0.875	0.638	27.1	-57	0.729		18.0	0.739	30.0	0.720
38 Portugal	0.866	0.792	8.5	27	0.914		4.0	0.942	12.3	0.886
39 Latvia	0.863	0.716	17.0	-8	0.829		3.6	0.948	31.0	0.711
40 Andorra	0.858	..	..	..	..		6.0	0.912	..	..
40 Croatia	0.858	0.764	11.0	23	0.890		4.1	0.940	17.1	0.841
42 Chile	0.855	0.775	9.4	27	0.906		4.2	0.938	13.5	0.874
42 Qatar	0.855	0.491	42.6	-96	0.574		37.0	0.461	33.7	0.686
44 San Marino	0.853	..	..	..	..		..	..	..	..
45 Slovakia	0.848	0.738	13.0	8	0.870		5.6	0.918	19.1	0.822
46 Hungary	0.846	0.755	10.8	23	0.893		5.0	0.927	15.3	0.858
47 Argentina	0.842	0.759	9.9	26	0.901		3.5	0.949	15.8	0.853
48 Türkiye	0.838	0.741	11.6	14	0.885		4.7	0.932	17.5	0.837
49 Montenegro	0.832	..	..	..	..		3.7	0.946	..	..
50 Kuwait	0.831	0.452	45.6	-100	0.544		20.8	0.697	65.3	0.392
51 Brunei Darussalam	0.829	0.358	56.8	-109	0.432		23.2	0.662	85.7	0.202
52 Russian Federation	0.822	0.721	12.3	7	0.877		10.8	0.843	9.5	0.912
53 Romania	0.821	0.738	10.1	15	0.898		3.7	0.946	16.0	0.851
54 Oman	0.816	0.710	13.0	1	0.870		12.2	0.823	8.9	0.917
55 Bahamas	0.812	0.634	21.9	-43	0.781		5.9	0.913	37.8	0.648
56 Kazakhstan	0.811	0.590	27.3	-52	0.727		15.5	0.774	34.4	0.680
57 Trinidad and Tobago	0.810	..	..	..	..		25.4	0.631	..	..
58 Costa Rica	0.809	0.746	7.8	26	0.922		1.6	0.977	14.4	0.866
58 Uruguay	0.809	0.733	9.4	15	0.906		1.7	0.976	17.5	0.837

Continued –

TABLE 7

HDI RANK	Human Development Index (HDI)	Planetary pressures-adjusted HDI (PHDI)		Adjustment factor for planetary pressures	SDG 9.4 Carbon dioxide emissions per capita (production)	Carbon dioxide emissions (production) index	SDG 8.4, 12.2 Material footprint per capita	Material footprint index
	Value	Value	Difference from HDI value* (%)	Difference from HDI rank*	Value	(tonnes)	Value	(tonnes)
	2021	2021	2021	2021	2021	2020	2020	2019
60 Belarus	0.808	0.751	7.1	32	0.930	6.1	0.912	5.6
61 Panama	0.805	0.740	8.1	24	0.919	2.5	0.964	13.5
62 Malaysia	0.803	0.681	15.2	-10	0.848	8.4	0.877	19.6
63 Georgia	0.802	0.749	6.6	34	0.934	2.5	0.964	10.4
63 Mauritius	0.802	..	..	..	..	3.1	0.954	..
63 Serbia	0.802	0.715	10.8	11	0.891	4.9	0.928	15.7
66 Thailand	0.800	0.735	8.1	24	0.918	3.7	0.946	11.8
High human development								
67 Albania	0.796	0.739	7.2	28	0.928	1.6	0.977	13.0
68 Bulgaria	0.795	0.708	10.9	12	0.891	5.4	0.922	15.0
68 Grenada	0.795	..	..	..	..	2.6	0.962	..
70 Barbados	0.790	..	..	..	..	3.8	0.945	..
71 Antigua and Barbuda	0.788	..	..	..	..	4.4	0.936	..
72 Seychelles	0.785	..	..	..	..	5.0	0.927	..
73 Sri Lanka	0.782	0.761	2.7	46	0.973	1.0	0.986	4.4
74 Bosnia and Herzegovina	0.780	0.691	11.4	6	0.885	6.5	0.905	14.4
75 Saint Kitts and Nevis	0.777	..	..	..	..	4.0	0.942	..
76 Iran (Islamic Republic of)	0.774	0.677	12.5	-4	0.874	8.9	0.871	13.2
77 Ukraine	0.773	0.703	9.1	11	0.909	4.9	0.929	11.9
78 North Macedonia	0.770	0.707	8.2	15	0.918	3.4	0.950	12.3
79 China	0.768	0.648	15.6	-14	0.844	7.4	0.892	22.0
80 Dominican Republic	0.767	0.719	6.3	24	0.937	2.6	0.963	9.5
80 Moldova (Republic of)	0.767	0.748	2.5	44	0.975	1.3	0.981	3.4
80 Palau	0.767	..	..	..	..	12.1	0.824	..
83 Cuba	0.764	0.721	5.6	30	0.944	1.8	0.974	9.2
84 Peru	0.762	0.721	5.4	31	0.946	1.4	0.980	9.4
85 Armenia	0.759	0.727	4.2	33	0.958	2.0	0.971	6.0
86 Mexico	0.758	0.704	7.1	21	0.929	2.8	0.960	10.9
87 Brazil	0.754	0.676	10.3	5	0.896	2.2	0.968	18.9
88 Colombia	0.752	0.711	5.5	28	0.945	1.8	0.975	9.1
89 Saint Vincent and the Grenadines	0.751	..	..	..	..	1.9	0.973	..
90 Maldives	0.747	..	..	..	..	3.3	0.952	..
91 Algeria	0.745	0.687	7.8	16	0.922	3.5	0.949	11.2
91 Azerbaijan	0.745	0.688	7.7	18	0.924	3.7	0.946	10.6
91 Tonga	0.745	..	..	..	..	1.4	0.980	..
91 Turkmenistan	0.745	0.632	15.2	-20	0.848	12.5	0.818	13.1
95 Ecuador	0.740	0.704	4.9	27	0.951	1.8	0.974	7.7
96 Mongolia	0.739	0.557	24.6	-35	0.754	27.0	0.607	10.6
97 Egypt	0.731	0.692	5.3	25	0.947	2.1	0.970	8.2
97 Tunisia	0.731	0.687	6.0	21	0.940	2.4	0.965	9.2
99 Fiji	0.730	..	..	..	..	1.6	0.977	..
99 Suriname	0.730	..	..	..	..	3.8	0.945	..
101 Uzbekistan	0.727	0.688	5.4	25	0.947	3.4	0.951	6.1
102 Dominica	0.720	..	..	..	..	1.9	0.972	..
102 Jordan	0.720	0.683	5.1	20	0.949	2.5	0.964	7.0
104 Libya	0.718	0.626	12.8	-12	0.871	7.4	0.893	16.1
105 Paraguay	0.717	0.648	9.6	5	0.904	1.1	0.985	18.9
106 Palestine, State of	0.715	..	..	..	..	0.6	0.992	..
106 Saint Lucia	0.715	..	..	..	..	2.4	0.965	..
108 Guyana	0.714	..	..	..	..	2.8	0.959	..
109 South Africa	0.713	0.648	9.1	6	0.909	7.6	0.889	7.6
110 Jamaica	0.709	0.663	6.5	14	0.935	2.5	0.963	10.0
111 Samoa	0.707	..	..	..	..	1.2	0.982	..
112 Gabon	0.706	0.666	5.7	18	0.943	1.9	0.972	9.2
112 Lebanon	0.706	0.646	8.5	2	0.915	3.8	0.945	12.4
114 Indonesia	0.705	0.672	4.7	21	0.953	2.2	0.969	6.8
115 Viet Nam	0.703	0.662	5.8	17	0.941	2.6	0.962	8.5
Medium human development								
116 Philippines	0.699	0.664	5.0	20	0.950	1.2	0.982	8.8
117 Botswana	0.693	0.633	8.7	0	0.914	2.8	0.960	14.2

Continued →

TABLE 7

HDI RANK		Human Development Index (HDI)	Planetary pressures-adjusted HDI (PHDI)		Adjustment factor for planetary pressures	SDG 9.4 Carbon dioxide emissions per capita (production)	Carbon dioxide emissions (production) index	SDG 8.4, 12.2 Material footprint per capita	Material footprint index
		Value	Value	Difference from HDI value* (%)	Difference from HDI rank*	Value	(tonnes)	Value	(tonnes)
		2021	2021	2021	2021	2021	2020	2020	2019
118	Bolivia (Plurinational State of)	0.692	0.647	6.5	11	0.934	1.8	0.974	11.3
118	Kyrgyzstan	0.692	0.658	4.9	18	0.951	1.8	0.974	7.8
120	Venezuela (Bolivarian Republic of)	0.691	0.645	6.7	9	0.934	3.0	0.957	9.6
121	Iraq	0.686	0.622	9.3	0	0.907	5.2	0.924	11.9
122	Tajikistan	0.685	0.662	3.4	24	0.966	1.0	0.986	5.8
123	Belize	0.683	0.637	6.7	9	0.933	1.5	0.979	12.2
123	Morocco	0.683	0.652	4.5	22	0.955	1.7	0.975	7.0
125	El Salvador	0.675	0.652	3.4	24	0.966	0.9	0.986	5.9
126	Nicaragua	0.667	0.647	3.0	19	0.969	0.8	0.989	5.4
127	Bhutan	0.666	0.553	17.0	-13	0.831	2.5	0.964	32.4
128	Cabo Verde	0.662	..	..	..	..	1.0	0.986	..
129	Bangladesh	0.661	0.649	1.8	25	0.982	0.6	0.992	2.9
130	Tuvalu	0.641	..	..	..	..	0.6	0.991	..
131	Marshall Islands	0.639	..	..	..	..	2.6	0.963	..
132	India	0.633	0.609	3.8	6	0.963	1.8	0.974	5.2
133	Ghana	0.632	0.618	2.2	8	0.978	0.5	0.993	3.9
134	Micronesia (Federated States of)	0.628	..	..	..	..	1.3	0.981	..
135	Guatemala	0.627	0.601	4.1	7	0.959	1.1	0.985	7.2
136	Kiribati	0.624	..	..	..	..	0.6	0.992	..
137	Honduras	0.621	0.599	3.5	7	0.965	1.0	0.986	6.1
138	Sao Tome and Principe	0.618	..	..	..	..	0.5	0.993	..
139	Namibia	0.615	0.574	6.7	2	0.933	1.5	0.978	11.9
140	Lao People's Democratic Republic	0.607	0.559	7.9	-3	0.921	4.7	0.932	9.6
140	Timor-Leste	0.607	..	..	..	..	0.4	0.994	..
140	Vanuatu	0.607	..	..	..	..	0.6	0.991	..
143	Nepal	0.602	0.584	3.0	7	0.970	0.6	0.992	5.6
144	Eswatini (Kingdom of)	0.597	..	..	..	..	0.8	0.988	..
145	Equatorial Guinea	0.596	0.520	12.8	-14	0.873	7.3	0.894	15.9
146	Cambodia	0.593	0.573	3.4	5	0.967	0.9	0.987	5.7
146	Zimbabwe	0.593	0.587	1.0	10	0.989	0.7	0.990	1.2
148	Angola	0.586	0.577	1.5	10	0.985	0.7	0.990	2.2
149	Myanmar	0.585	0.577	1.4	11	0.986	0.7	0.990	2.1
150	Syrian Arab Republic	0.577	0.565	2.1	7	0.978	1.7	0.975	1.9
151	Cameroon	0.576	0.569	1.2	9	0.988	0.3	0.996	2.1
152	Kenya	0.575	0.561	2.4	7	0.976	0.3	0.996	4.6
153	Congo	0.571	0.564	1.2	9	0.987	0.6	0.992	1.9
154	Zambia	0.565	0.557	1.4	7	0.986	0.4	0.995	2.4
155	Solomon Islands	0.564	..	..	..	..	0.4	0.994	..
156	Comoros	0.558	..	..	..	..	0.3	0.996	..
156	Papua New Guinea	0.558	0.541	3.0	4	0.970	0.7	0.989	5.2
158	Mauritania	0.556	0.533	4.1	3	0.959	0.7	0.989	7.8
159	Côte d'Ivoire	0.550	0.540	1.8	5	0.982	0.4	0.994	3.3
Low human development									
160	Tanzania (United Republic of)	0.549	0.544	0.9	8	0.991	0.2	0.997	1.6
161	Pakistan	0.544	0.531	2.4	5	0.976	1.1	0.985	3.5
162	Togo	0.539	0.528	2.0	4	0.979	0.3	0.996	4.1
163	Haiti	0.535	0.528	1.3	5	0.987	0.3	0.996	2.4
163	Nigeria	0.535	0.524	2.1	3	0.979	0.6	0.991	3.6
165	Rwanda	0.534	0.529	0.9	8	0.990	0.1	0.999	2.0
166	Benin	0.525	0.515	1.9	2	0.980	0.6	0.992	3.4
166	Uganda	0.525	0.520	1.0	5	0.990	0.1	0.998	1.9
168	Lesotho	0.514	..	..	..	..	1.0	0.985	..
169	Malawi	0.512	0.508	0.8	3	0.992	0.1	0.999	1.7
170	Senegal	0.511	0.499	2.3	3	0.976	0.6	0.991	4.1
171	Djibouti	0.509	0.470	7.7	-7	0.924	0.4	0.995	15.9
172	Sudan	0.508	0.480	5.5	-1	0.945	0.4	0.994	11.3
173	Madagascar	0.501	0.497	0.8	5	0.992	0.1	0.998	1.5
174	Gambia	0.500	0.490	2.0	3	0.981	0.2	0.997	3.8
175	Ethiopia	0.498	0.496	0.4	6	0.997	0.1	0.998	0.5
176	Eritrea	0.492	0.483	1.8	4	0.982	0.2	0.997	3.5

Continued –

TABLE 7

HDI RANK	Human Development Index (HDI)	Planetary pressures-adjusted HDI (PHDI)		Adjustment factor for planetary pressures	SDG 9.4 Carbon dioxide emissions per capita (production)	Carbon dioxide emissions (production) index	SDG 8.4, 12.2 Material footprint per capita	Material footprint index
	Value	Value	Difference from HDI value* (%)	Difference from HDI rank*	Value	(tonnes)	Value	(tonnes)
	2021	2021	2021	2021	2021	2020	2020	2019
177 Guinea-Bissau	0.483	..	..	..	..	0.1	0.998	..
178 Liberia	0.481	0.474	1.5	3	0.986	0.2	0.997	2.7
179 Congo (Democratic Republic of the)	0.479	0.473	1.3	2	0.987	0.0	1.000	2.8
180 Afghanistan	0.478	0.474	0.8	5	0.991	0.3	0.995	1.4
181 Sierra Leone	0.477	0.472	1.0	3	0.989	0.1	0.998	2.1
182 Guinea	0.465	0.454	2.4	2	0.976	0.3	0.996	4.8
183 Yemen	0.455	0.448	1.5	1	0.984	0.3	0.995	2.9
184 Burkina Faso	0.449	0.442	1.6	1	0.985	0.2	0.997	3.0
185 Mozambique	0.446	0.441	1.1	1	0.988	0.2	0.997	2.2
186 Mali	0.428	0.418	2.3	0	0.978	0.2	0.998	4.6
187 Burundi	0.426	0.422	0.9	2	0.992	0.1	0.999	1.7
188 Central African Republic	0.404	0.401	0.7	1	0.992	0.0	0.999	1.6
189 Niger	0.400	0.392	2.0	1	0.980	0.1	0.999	4.2
190 Chad	0.394	0.379	3.8	1	0.961	0.1	0.999	8.3
191 South Sudan	0.385	0.376	2.3	1	0.977	0.1	0.998	4.8
Other countries or territories								
.. Korea (Democratic People's Rep. of)	..	..	..	..	0.988	1.1	0.983	0.8
.. Monaco	..	..	..	..	..	..	..	..
.. Nauru	..	..	..	..	..	5.2	0.924	..
.. Somalia	..	..	..	..	0.983	0.0	0.999	3.5
Human development groups								
Very high human development	0.896	0.747	16.6	–	0.833	9.0	0.869	21.6
High human development	0.754	0.667	11.5	–	0.884	5.4	0.922	16.5
Medium human development	0.636	0.613	3.6	–	0.964	1.5	0.978	5.3
Low human development	0.518	0.509	1.7	–	0.982	0.4	0.994	3.1
Developing countries	0.685	0.636	7.2	–	0.928	3.3	0.952	10.5
Regions								
Arab States	0.708	0.646	8.8	–	0.912	4.3	0.937	12.3
East Asia and the Pacific	0.749	0.657	12.3	–	0.877	5.8	0.916	17.4
Europe and Central Asia	0.796	0.713	10.4	–	0.896	5.2	0.924	14.1
Latin America and the Caribbean	0.754	0.695	7.8	–	0.921	2.3	0.966	13.3
South Asia	0.632	0.609	3.6	–	0.963	1.8	0.973	5.1
Sub-Saharan Africa	0.547	0.536	2.0	–	0.980	0.7	0.989	3.2
Least developed countries	0.540	0.531	1.7	–	0.983	0.3	0.995	3.1
Small island developing states	0.730	..	..	–	..	3.0	0.957	..
Organisation for Economic Co-operation and Development	0.899	0.755	16.0	–	0.840	8.2	0.881	21.5
World	0.732	0.667	8.9	–	0.912	4.3	0.937	12.4

TABLE 7

Notes	Definitions	Main data sources
a Based on countries for which a Planetary pressures-adjusted Human Development Index value is calculated.	Human Development Index (HDI): A composite index measuring average achievement in three basic dimensions of human development—a long and healthy life, knowledge and a decent standard of living. See <i>Technical note 1</i> at http://hdr.undp.org/sites/default/files/hdr2022_technical_notes.pdf for details on how the HDI is calculated. Planetary pressures-adjusted HDI (PHDI): HDI value adjusted by the level of carbon dioxide emissions and material footprint per capita to account for excessive human pressure on the planet. It should be seen as an incentive for transformation. See <i>Technical note 6</i> at http://hdr.undp.org/sites/default/files/hdr2022_technical_notes.pdf for details on how the PHDI is calculated. Difference from HDI value: Percentage difference between the PHDI value and the HDI value. Difference from HDI rank: Difference in ranks on the PHDI and the HDI. Adjustment factor for planetary pressures: Arithmetic average of the carbon dioxide emissions index and the material footprint index. A high value implies less pressure on the planet. Carbon dioxide emissions per capita (production): Carbon dioxide emissions produced as a consequence of human activities (use of coal, oil and gas for combustion and industrial processes, gas flaring and cement manufacture), divided by midyear population. Values are territorial emissions, meaning that emissions are attributed to the country in which they physically occur. Carbon dioxide emissions (production) index: Carbon dioxide emissions per capita (production-based) expressed as an index with a minimum value of 0 and a maximum value of 68.72 tonnes per capita. A high value implies less pressure on the planet. Material footprint per capita: The attribution of global material extraction to domestic final demand of a country, divided by midyear population. Total material footprint is the sum of material footprint for biomass, fossil fuels, metal ores and nonmetal ores, calculated as the raw material equivalent of imports plus domestic extraction minus raw material equivalents of exports. Material footprint per capita describes the average material use for final demand. Material footprint index: Material footprint per capita expressed as an index with a minimum value of 0 and a maximum value of 107.42 tonnes per capita. A high value implies less pressure on the planet.	Column 1: HDRO calculations based on data from Barro and Lee (2018), IMF (2022), UNDESA (2022a), UNESCO Institute for Statistics (2022), United Nations Statistics Division (2022) and World Bank (2022). Column 2: Calculated as the product of the HDI and the adjustment factor presented in column 5. Column 3: Calculated based on data in columns 1 and 2. Column 4: Calculated based on PHDI values and recalculated HDI ranks for countries for which a PHDI value is calculated. Column 5: Calculated based on data in columns 7 and 9. Column 6: Global Carbon Project (2022). Column 7: Calculated based on data in column 6. Column 8: United Nations Environment Programme (2022). Column 9: Calculated based on data in column 8.