

Article 48-2: APPENDIX C: COUNTRY ENVIRONMENTAL RANKINGS

Country rankings include Yale and Columbia's EPI, Green Futures Index from MIT *Technology Review*, and U.S. News. 14 countries are top 20 on the three rankings and 11 are from western Europe. See Article 48 Part 2 Table 1 for a list comparing over 90 countries based on EPI.

The most complete and transparent ranking is Environmental Performance Index (EPI,) a joint project of Yale and Columbia Universities. In 2000, two groups were involved in the creation of EPI, the [Environmental Sustainability Index](#), [the Yale Center for Environmental Law and Policy](#), and the [Center for International Earth Science Information Network of Columbia University](#) in conjunction with the World Economic Forum and the European Commissions' Joint Research Centre. In 2006 the indicators were expanded, and the name was change to EPI. Today Yale and Columbia are funded by the McCall MacBain Foundation of Canada.

2020 Environmental Performance Index



EPI Framework includes two policy objectives, 11 issue categories, and 32 indicators.

| | Abbreviation | Variable | Weight | Next Level | Materiality Filter | Order |
|------------------|--------------|---|--------|------------|--------------------|-------|
| EPI | EPI | Environmental Performance Index | | | | 1 |
| Policy Objective | HLT | Environmental Health | 0.4 | EPI | | 2 |
| IssueCategory | AIR | Air Quality | 0.5 | HLT | | 3 |
| Indicator | PMD | PM2.5 exposure | 0.55 | AIR | | 4 |
| Indicator | HAD | Household solid fuels | 0.4 | AIR | | 5 |
| Indicator | OZD | Ozone exposure | 0.05 | AIR | | 6 |
| IssueCategory | H2O | Sanitation & Drinking Water | 0.4 | HLT | | 7 |
| Indicator | USD | Unsafe sanitation | 0.4 | H2O | | 8 |
| Indicator | UWD | Unsafe drinking water | 0.6 | H2O | | 9 |
| IssueCategory | HMT | Heavy Metals | 0.05 | HLT | | 10 |
| Indicator | PBD | Lead exposure | 1 | HMT | | 11 |
| IssueCategory | WMG | Waste Management | 0.05 | HLT | | 12 |
| Indicator | MSW | Controlled solid waste | 1 | WMG | | 13 |
| PolicyObjective | ECO | Ecosystem Vitality | 0.6 | EPI | | 14 |
| IssueCategory | BDH | Biodiversity & Habitat | 0.25 | ECO | | 15 |
| Indicator | TBN | Terrestrial biome protection (national weights) | 0.2 | BDH | | 16 |
| Indicator | TBG | Terrestrial biome protection (global weights) | 0.2 | BDH | | 17 |
| Indicator | MPA | Marine protected areas Protected Areas | 0.2 | BDH | SEA | 18 |
| Indicator | PAR | Representativeness Index | 0.1 | BDH | | 19 |
| Indicator | SHI | Species Habitat Index | 0.1 | BDH | | 20 |
| Indicator | SPI | Species Protection Index | 0.1 | BDH | | 21 |

| | | | | | | |
|---------------|-----|---|------|-----|-----|----|
| Indicator | BHV | Biodiversity Habitat Index | 0.1 | BDH | 22 | |
| IssueCategory | ECS | Ecosystem Services | 0.1 | ECO | 23 | |
| Indicator | TCL | Tree cover loss | 0.9 | ECS | 24 | |
| Indicator | GRL | Grassland loss | 0.05 | ECS | 25 | |
| Indicator | WTL | Wetland loss | 0.05 | ECS | 26 | |
| IssueCategory | FSH | Fisheries | 0.1 | ECO | SEA | 27 |
| Indicator | FSS | Fish Stock Status | 0.35 | FSH | SEA | 28 |
| Indicator | RMS | Marine Trophic Index | 0.35 | FSH | SEA | 29 |
| Indicator | FGT | Fish caught by trawling | 0.3 | FSH | SEA | 30 |
| IssueCategory | CCH | Climate Change | 0.4 | ECO | 31 | |
| Indicator | CDA | Adjusted emissions growth rate for carbon dioxide | 0.55 | CCH | 32 | |
| Indicator | CHA | Adjusted emissions growth rate for methane | 0.15 | CCH | 33 | |
| Indicator | FGA | Adjusted emissions growth rate for F-gases | 0.1 | CCH | 34 | |
| Indicator | NDA | Adjusted emissions growth rate for nitrous oxide | 0.05 | CCH | 35 | |
| Indicator | BCA | Adjusted emissions growth rate for black carbon | 0.05 | CCH | 36 | |
| Indicator | LCB | Growth rate in carbon dioxide emissions from land cover | 0.03 | CCH | 37 | |
| Indicator | GIB | Greenhouse gas intensity growth rate | 0.05 | CCH | 38 | |
| Indicator | GHP | Greenhouse gas emissions per capita | 0.03 | CCH | 39 | |
| IssueCategory | APE | Pollution Emissions | 0.05 | ECO | 40 | |
| Indicator | SDA | Adjusted emissions growth rate for sulfur dioxide | 0.5 | APE | 41 | |
| Indicator | NXA | Adjusted emissions growth rate for nitrous oxides | 0.5 | APE | 42 | |
| IssueCategory | AGR | Agriculture | 0.05 | ECO | 43 | |
| Indicator | SNM | Sustainable Nitrogen Management Index | 1 | AGR | 44 | |
| IssueCategory | WRS | Water Resources | 0.05 | ECO | 45 | |
| Indicator | WWT | Wastewater treatment | 1 | WRS | 46 | |

For details see Wendling, Z. A., Emerson, J. W., de Sherbinin, A., Esty, D. C., et al. (2020). 2020 Environmental Performance Index. New Haven, CT: Yale Center for Environmental Law & Policy. <https://epi.yale.edu/downloads/epi2020report20210112.pdf>

Backfiles are available at:

[SOCIOECONOMIC DATA AND APPLICATIONS CENTER \(SEDAC\)](#)

EPI Data sets: <https://sedac.ciesin.columbia.edu/data/collection/epi>

ESI Data sets: <https://sedac.ciesin.columbia.edu/data/collection/esi>

Downloadable 2020 dataset: <https://sedac.ciesin.columbia.edu/data/set/epi-environmental-performance-index-2020/data-download> registration required

Check [Mapped the](#) greenest countries in the world for an easy-to-follow visual approach:



Copyright Visualcapitalist 2021; <https://www.visualcapitalist.com/greenest-countries-in-the-world>
Data from EPI: <https://epi.yale.edu/>



MIT Green Future Index

76 countries are divided into four categories:

- **Green Leaders** (1-20) The 20 countries making the greatest progress and commitment toward building a low carbon future
- **Green Middle** (21-40) The 20 countries that are making progress or commitment toward building a green future.
- **Climate Laggards** (41-60) The 20 countries that are making slow and uneven progress or commitment toward building a green future.
- **Climate Abstainers** (61-76) The 16 countries that will be left behind in the green future through their lack of progress and commitment toward developing a modern, clean, and innovative economy

Over a third of the countries are from Europe and central Asia. 15 of the top 20 are from Europe. Over half are high income.

There are five ranking pillars and 18 indicators. The first four measure progress and are worth 60% of the score. The fifth measures the ambition set out in climate policies and how the countries “are using Covid-19 stimulus packages to channel investment into clean industries”

Green Futures Indicators and their Weighting

| | Index weightings | |
|---|----------------------|-------------------|
| | Indicator weightings | Pillar weightings |
| 1. Carbon emissions | | 15% |
| 1.1 CO2 emissions | 20% | |
| 1.2 CO2 emissions growth | 20% | |
| 1.3 CO2 emissions growth in transport sector | 20% | |
| 1.4 CO2 emissions growth in industrial sector | 20% | |
| 1.5 GHG emissions growth in agricultural sector | 20% | |
| 2. Energy transition | | 15% |
| 2.1 Renewable energy production growth | 40% | |
| 2.2 Renewable energy contribution | 60% | |
| 3. Green society | | 15% |
| 3.1 Green buildings | 20% | |
| 3.2 Recycling efforts | 25% | |
| 3.3 Net change in forestation | 30% | |
| 3.4 Meat and dairy consumption | 25% | |
| 4. Clean innovation | | 15% |
| 4.1 Green patents | 25% | |
| 4.2 Cross-border clean energy investment | 50% | |
| 4.3 Foodtech private investment | 25% | |
| 5. Climate policy | | 40% |
| 5.1 Climate action | 30% | |
| 5.2 Carbon pricing initiatives | 25% | |
| 5.3 Sustainable agriculture policy/strategy | 15% | |
| 5.4 Pandemic pivot | 30% | |

Weightings and rankings can be downloaded, but permission is required to manipulate data:

Weightings: <https://docs.google.com/spreadsheets/d/1ox44SX1lyS7nRIPtPsht5cyuWE29bLhidER2Ikji5TE/edit#gid=1524444406>.

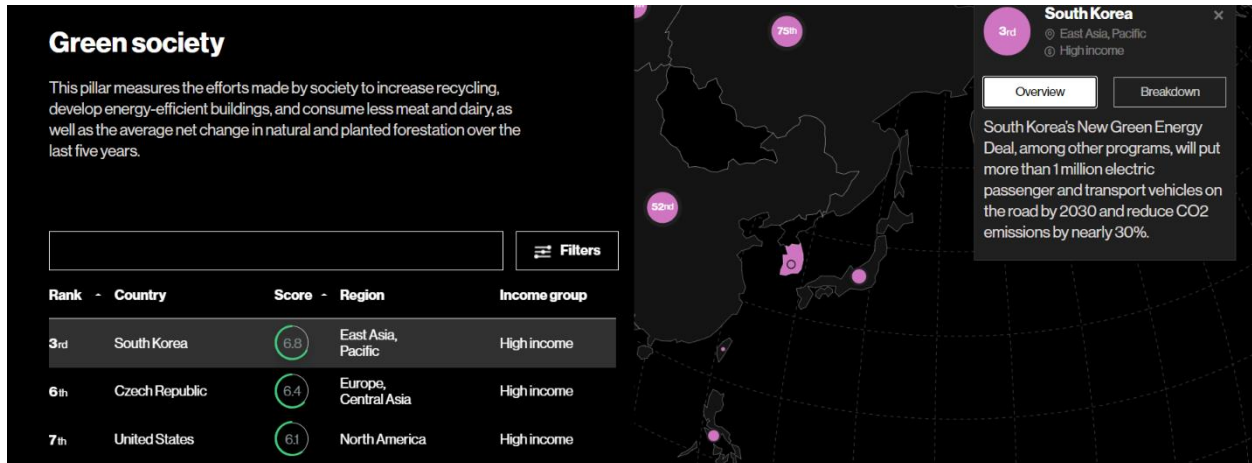
Dataset: <https://docs.google.com/spreadsheets/d/1ox44SX1lyS7nRIPtPsht5cyuWE29bLhidER2Ikji5TE/edit#gid=13054936>

The highest and lowest rankings in each pillar are:

- **Carbon emissions** - Total emissions as well as the degree of change in emissions in transportation, industry, and agriculture: Highest, Ukraine; Lowest, Pakistan
- **Energy transition** - The contribution and growth rate of renewable energy sources: Highest, Ethiopia; Lowest, Iran
- **Green society** - A range of indicators covering net forestation, development of green buildings, recycling, and consumption of animal products: Highest, Singapore; Lowest, New Zealand

- **Clean innovation** - The relative number of green patents, investment in cross-border clean energy, investment in food technology: Highest, Singapore; Lowest, Paraguay
- **Climate policy** - Policy commitment toward climate targets, carbon finance programs, sustainable agriculture, and the use of covid stimulus for a green recovery: Highest, New Zealand; Lowest, Russia

Some filtering can be done with the online interface:



Accessed 13/12/21 at <https://www.technologyreview.com/2021/01/25/1016648/green-future-index/>

Tables are available for download for each metric:

| Green society | | | | | | | | | |
|--|------------|------------------------|------------|-----------------------|------------|-------------------------------|------------|--------------------------------|------------|
| The tables below show the countries ranked by their score within the pillar as well as the scores they received in each of the indicators. | | | | | | | | | |
| 3. Green society | | 3.1 Green buildings | | 3.2 Recycling efforts | | 3.3 Net change in forestation | | 3.4 Meat and dairy consumption | |
| Rank / 76 Country | Score / 10 | Rank / 76 Country | Score / 10 | Rank / 76 Country | Score / 10 | Rank / 76 Country | Score / 10 | Rank / 76 Country | Score / 10 |
| 1 Singapore | 6.90 | 1 United States | 10.0 | 1 Iceland | 10.0 | 1 Ireland | 8.6 | 1 Nigeria | 10.0 |
| 2 Ireland | 6.88 | 2 Finland | 8.4 | 1 Germany | 10.0 | 2 Czech Republic | 8.4 | 2 Ghana | 9.9 |
| 3 South Korea | 6.79 | 3 United Arab Emirates | 8.4 | 1 Singapore | 10.0 | 3 Denmark | 7.3 | 3 Bangladesh | 9.8 |
| 4 Taiwan | 6.65 | 4 Ireland | 8.2 | 1 South Korea | 10.0 | 4 Kazakhstan | 6.8 | 4 Cameroon | 9.7 |
| 5 Philippines | 6.57 | 5 Hong Kong, China | 8.1 | 1 Taiwan | 10.0 | 5 Costa Rica | 6.7 | 5 Indonesia | 9.7 |
| 6 Czech Republic | 6.4 | 6 Sweden | 8.1 | 2 Australia | 8.4 | 6 China | 6.6 | 6 Ethiopia | 9.6 |

<https://docs.google.com/spreadsheets/d/1ox44SX1lyS7nRlPtPsht5cyuWE29bLhdER2lkji5TE/edit#gid=568833738>

MIT uses a variety of freely available sources. Not all are listed. Nor are they identified with the indicators. Methodology and definitions are in <https://mittrinsights.s3.amazonaws.com/GFI/Report2021.pdf>



U.S. News Best Countries for Green Living 2021

U.S. News provides two lists, Best Countries and Best Countries for Green Living.

Best country rankings, first released in 2016, are created in partnership with BAV Group, a unit of global marketing communications company VMLY&R, and The Wharton School of the University of

Pennsylvania. Two of the 10 attributes cover SDG attributes. <https://www.usnews.com/news/best-countries/overall-rankings>. See example below for Japan of all attributes.

Quality of Life (13.88%): a good job market, affordable, economically stable, family friendly, income equality, politically stable, safe, well-developed public education system, well-developed public health system.

<https://www.usnews.com/news/best-countries/quality-of-life-rankings>

Social Purpose (12.23%): cares about human rights, cares about the environment, gender equality, religious freedom, respects property rights, trustworthy, well-distributed political power, racial equity, cares about animal rights, committed to climate goals, committed to social justice. All categories are listed in the example below:

<https://www.usnews.com/news/best-countries/social-purpose-rankings>

Best Countries for Green Living are best for offering a healthy body and environment. “Global perceptions define countries in terms of a number of qualitative characteristics, impressions that have the potential to drive trade, travel and investment and directly affect national economies.

Green Living rankings are based on a survey of perceptions. 78 countries are ranking. Seven of the top ten are from Europe, two from Asia/Pac, and one from North America. It uses the Best Countries database for the countries. <https://www.usnews.com/news/best-countries/most-sustainable-countries>

| Article 48-2 Appendix C | | | | |
|--|---------------------|------------------------|-----------------------|-----------------------|
| Comparison of U.S. News Country Rankings | | | | |
| Green Rankings in U.S. News : Best countries for Green living, Quality of life, Social purpose, and overall | | | | |
| | Green Living | Quality of Life | Social Purpose | Best Countries |
| Sweden | 1 | 3 | 4 | 9 |
| Switzerland | 2 | 5 | 9 | 4 |
| Norway | 3 | 4 | 6 | 13 |
| Japan | 4 | 13 | 20 | 2 |
| Finland | 5 | 8 | 7 | 18 |
| Denmark | 6 | 2 | 2 | 12 |
| New Zealand | 7 | 10 | 3 | 7 |
| Canada | 9 | 1 | 1 | 1 |
| Netherlands | 10 | 7 | 5 | 10 |
| Australia | 11 | 6 | 8 | 5 |
| Bold - top 10 in all metrics | | | | |

Japan Rankings



Best Countries Methodology: <https://www.usnews.com/news/best-countries/articles/methodology>
https://www.usnews.com/media/best-countries/overall-rankings-2021.pdf?int=top_nav Download 2021 Rankings

Davis, E. (April 2021) Canada ranks No. 1. In 2021 U.S. News Best Countries Ranking.
<https://www.usnews.com/news/best-countries/articles/us-news-unveils-best-countries-rankings>
 For complete country rankings see Table 1, columns 1-3.