

SCORE Index Methodology

The SCORE Index calculation involves the following four steps:

1. Identification of the SDG Terms and Phrases

The SDG terms and phrases are extracted from the official UN SDGs document (<https://sdgs.un.org/goals>), specifically from the titles, targets, and indicators of the 17 SDGs. The document contains 17 goals and 169 targets. These extracted terms and phrases form the *SDG Lexicon*. The terms in the lexicon are finalized after consultations with experts and stakeholders. Each term or phrase is counted as a unique item. For example, the term “sustainability” is counted as one item, and the phrase “freedom from hunger” is also counted as one single item. However, complex phrases such as “green carbon credits” are further decomposed into individual terms, like “green,” “carbon,” “green credits,” “carbon credits,” and “green carbon credits.” Thus, “green carbon credits” has 5 separate entries in the lexicon. Once the lexicon is created, the next step is to assign weights to the terms and phrases in the lexicon.

2. Assigning Weights

Weights are assigned to the items in the SDG Lexicon based on two factors: *importance* and *SDG composition*.

- **Importance Weight:** This is based on the item’s presence in the SDG title, target, or indicator, along with its length (number of words). If an item appears in the SDG title, it receives a score of 5; if it appears in the target or indicator, it receives a score of 3; and other items receive a score of 1. This is referred to as the *presence weight*. For example, the phrase “climate change” appears in the title of SDG 13, so it receives a presence weight of 5. For illustration, we present the ‘presence weight’ for SDG 13 in Appendix A
- The other component is the *size weight*, which is based on the number of words in the term or phrase, capped at 5. For instance, a phrase like “average hourly earnings of female and male employees,” though containing eight words, receives a *size weight* of 5, “press freedom” has size of 2 words and therefore it receives a *size weight* of 2. The total *importance weight* is the sum of the *presence weight* and the *size weight*. For example, the term “climate change” has two words and is appearing in the title of SDG 13. This presence in the title assigns it a *presence weight* of 5, and its two-word length gives it a *size weight* of 2. Therefore, the *importance weight* for “climate change” is 7 (5 + 2).
- **SDG Composition Weight:** The terms in the SDG Lexicon are linked to one or more SDGs. The *composition weight* assigns equal weight to all SDGs associated with a term. For example, the term “climate change” appears in SDG 13’s title and in the targets or indicators of SDGs 2, 11, and 14. Therefore, it receives a composition weight of 0.25 for each of these SDGs, and 0 weight for other SDGs. The composite weight is calculated by multiplying the *importance weight* and the *composition weight*. For example, if “climate change” has an importance weight of 7, the composite weight for SDGs 2, 11, 13, and 14 is 1.75

(7×0.25), and 0 for other SDGs. All items are weighted in Appendix B. Once the 17 composite weights are ready, the frequency of lexicons in the data can be calculated for further analysis.

3. Calculating the Frequency of SDG Lexicon Items in the Data

This step involves utilizing technologies such as big data, natural language processing (NLP), and optical character recognition (OCR). The frequency calculation process is broken into three major stages: data extraction, data cleaning, and frequency analysis.

- **Data Extraction:** Data is manually downloaded from websites of the five yet representative business dailies: *Economic Times*, *Mint*, *Business Standard*, *Financial Express*, and *Business Line*. The data is obtained in PDF or ZIP format, depending on the newspaper's website. The data from text-based PDFs is extracted using the Python library PyPDF2, and image-based PDFs are processed with Pytesseract OCR. Advertisements are not extracted.
- **Data Cleaning:** The extracted text is cleaned by converting it to lowercase, removing non-alphanumeric characters, and eliminating extra spaces. Stemming and lemmatization are not applied.
- **Frequency Analysis:** The frequency of each SDG Lexicon item is counted daily for each newspaper, based on the occurrence of these terms in the processed data.

Once the weights and frequency are prepared, the SCORE can be calculated.

4. Calculation of the SCORE Index

The SCORE Index is calculated by combining the frequency of SDG Lexicon items with their composite weights.

- **Numerator:** For each day, the frequency of each item is multiplied by the corresponding composite weights for the 17 SDGs. For each SDG, the products of frequency and composite weights (calculated for each word associated with the SDG) are summed up. These are the numerators for the SCORE Index calculation.
- **Denominator:** The denominator is the total word count of the newspapers for the specific day, excluding Sundays (all newspapers are not available). This ensures the SCORE Index is normalized against the total amount of newspaper content.
- **Final Calculation:** The 17 *SDG breakup* values are obtained by dividing the numerators by the denominator and multiplying the result by 10,000. Arithmetic mean of the 17 *SDG breakup* values is calculated (since all SDGs are treated as equally important) to obtain the daily SCORE. The weekly SCORE is calculated by finding the arithmetic mean of the daily scores over the six days of the week, starting from January 2, 2023, with the analysis running from Monday to Saturday.

Appendix A

SDG 13: Take urgent action to combat climate change and its impacts

Targets

13.1: Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries

Indicators:

13.1.1

Number of deaths, missing persons and directly affected persons attributed to disasters per 100,000 population

13.1.2

Number of countries that adopt and implement national disaster risk reduction strategies in line with the Sendai Framework for Disaster Risk Reduction 2015–2030

13.1.3

Proportion of local governments that adopt and implement local disaster risk reduction strategies in line with national disaster risk reduction strategies

Targets

13.2: Integrate climate change measures into national policies, strategies and planning

Indicators:

13.2.1

Number of countries with nationally determined contributions, long-term strategies, national adaptation plans and adaptation communications, as reported to the secretariat of the United Nations Framework Convention on Climate Change

13.2.2

Total greenhouse gas emissions per year

Targets

13.3: Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning

Indicators:

13.3.1

Extent to which (i) global citizenship education and (ii) education for sustainable development are mainstreamed in (a) national education policies; (b) curricula; (c) teacher education; and (d) student assessment

Targets:

13.a: Implement the commitment undertaken by developed-country parties to the United Nations Framework Convention on Climate Change to a goal of mobilizing jointly \$100 billion annually by 2020 from all sources to address the needs of developing countries in the context of meaningful mitigation actions and transparency on implementation and fully operationalize the Green Climate Fund through its capitalization as soon as possible

Indicators:

13.a.1

Amounts provided and mobilized in United States dollars per year in relation to the continued existing collective mobilization goal of the \$100 billion commitment through to 2025

Targets:

13.b: Promote mechanisms for raising capacity for effective climate change-related planning and management in least developed countries and small island developing States, including focusing on women, youth and local and marginalized communities

Indicators:

13.b.1

Number of least developed countries and small island developing States with nationally determined contributions, long-term strategies, national adaptation plans and adaptation communications, as reported to the secretariat of the United Nations Framework Convention on Climate Change

In the table below, the scores for each items relevant to SDG13 from the ID are presented. Note, the items “climate change”, “climate change action”, “climate change impact”, “impact of climate climate change” and “Take urgent action to combat climate change and its impacts” are all allotted ascore of 5 each. This is because these items appear directly or are more relevant to the SDG13 title. The remaining items appear directly or indirectly in the Targets or Indicators for SDG 13 and hence are scored 3 each. A similar exercise is carried out for ll the relevant items pertaining to each SDGs.

Items	Score
2030	3
adaptation	3
adaptation communications	3
adaptation plans	3
adaptive capacity	3
affected persons attributed to disasters per 100,000 population	3
awareness-raising	3
climate	3
climate change	5
climate change action	5
climate change impact	5
climate change mitigation	3
climate change mitigation, adaptation, impact reduction and early warning	3
climate-related hazards	3
combat climate change	5
deaths, missing persons and directly affected persons	3
developing countries	3
development	3
disaster	3
disaster risk	3
disaster risk reduction	3
disaster risk reduction strategies	3
disasters	3

disasters per 100,000 population	3
early warning	3
education for sustainable development	3
emission	3
emissions	3
global citizenship	3
global citizenship education	3
green climate fund	3
greenhouse	3
greenhouse gas	3
greenhouse gas emissions	3
impact of climate change	5
impact reduction	3
institutional capacity	3
least developed countries	3
least developed countries and small island developing states	3
local disaster risk	3
local disaster risk reduction	3
local disaster risk reduction strategies	3
local governments	3
marginalized communities	3
mitigation	3
national disaster risk	3
national disaster risk reduction	3
national disaster risk reduction strategies	3
national education policies	3
natural disasters	3
resilience	3
sendai	3
sendai framework	3

small island developing states	3
sustainable	3
sustainable development	3
transparency	3
united nations framework convention on climate change	3