



TECHNICAL NOTE

Bottom-up Climate Finance Requirements Tracker

Data and methodology

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Technical notes document the research or analytical methodology underpinning a publication, interactive application, or tool.

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Abstract

The Climate Finance Requirements Tracker is designed to monitor countries' estimates of how much finance they need to implement their nationally determined contributions (NDCs) based on the quantitative data provided by countries through these documents. The tracker indicates how much countries report as financial needs related to climate mitigation, adaptation, and loss and damage. It provides flexibility to explore different combinations of countries, comparing their assessments of their climate finance needs and the level of conditionality, separated by theme (e.g., adaptation versus mitigation). It includes the different rounds of NDCs and builds on World Resources Institute's prior research in this area (Alayza and Caldwell 2021, 2023, 2024; Fransen et al. 2022).

The tracker has been available in Climate Watch's Explore NDCs module since 2023, with underlying data published through various research papers released between 2021 and 2023.

The tracker can be used to inform United Nations Framework Convention on Climate Change (UNFCCC) processes and mandated reports, such as the *Report on the Determination of the Needs of Developing Country Parties Related to Implementing the Convention and the Paris Agreement*, prepared by the UNFCCC Standing Committee on Finance. At the national level, the tracker can also be used as a reference tool for actors such as financial institutions or private donors seeking to strategically align funding decisions with country-specific climate action financing requirements.

This technical note describes the data sources and methods the authors used to classify climate finance across the different rounds of NDCs submitted by all countries since 2016. This includes analysis of first, first updated, second, second updated, and third NDCs. The technical note also addresses the tracker's limitations and compares the tracker with other initiatives monitoring climate finance requirements.



Introduction

Climate finance enables countries to achieve their climate action goals, also known as nationally determined contributions (NDCs), under the Paris Agreement. Identifying the finance gap can be valuable to governments planning how to implement their NDCs. The information can also be useful to international investors and providers of finance. Estimating how much financing is required to achieve their NDC targets is critical for countries' investment planning. Needs estimations signal investment need and highlight financing gaps. Identifying this gap can help countries develop NDC implementation and investment plans that lay out governance, financial, and policy changes that can shift funds toward NDC implementation.

The Climate Finance Requirements Tracker allows users to compare countries' climate finance needs as stated in their NDCs, and filter these data by needs for mitigation, adaptation, and loss and damage. In the case of loss and damage, the tracker collects data on the economic impact. The tracker also quantifies countries' conditional support in receiving international finance. The data in the tracker were taken directly from countries' NDCs; we did not attempt to standardize the data across the different methodologies that countries may have used to identify their needs. The tracker does not estimate how much funding has been invested to shrink the finance gap.

The tracker aims to inform the United Nations Framework Convention on Climate Change (UNFCCC) climate finance negotiations by providing new climate finance needs data, incorporating them in both the negotiations and mandated reports, such as the *NDC Synthesis Report*, the *Biennial Assessment and Overview of Climate Finance Flows*, and the *Report on the Determination of the Needs of Developing Country Parties Related to Implementing the Convention and the Paris Agreement*, prepared by the UNFCCC Standing Committee on Finance.

The tracker also aims to support countries at the national level, particularly those in the planning stages of their climate finance processes. It can help countries learn from others that have already carried out similar finance requirement assessments. For countries that are determining where their most significant finance gaps lie, the tracker can also guide collaboration with climate finance providers by, for example, informing the planning and funding process, thereby reducing fragmentation and duplication, maximizing the impact of financial support, and strengthening implementation.

This technical note starts by describing the methodology underpinning the tracker, including the data source used to construct the datasets for each of the adaptation, mitigation,

and loss and damage indicators, and how the climate finance indicator was defined (see "Methodology"). This is followed by a section describing the tracker's limitations (see "Limitations of the methodology and tracker"). Appendix A, Table A-1, compares the tracker with other initiatives monitoring climate finance requirements.

Methodology

The metrics described in this section were used to calculate the results shown in the tracker, which can be found in Climate Watch's Explore NDCs module.

Data source

The data in this tracker came directly from the NDC documents published in the UNFCCC NDC Registry (UNFCCC n.d.). This registry has all countries' NDCs submissions. As of April 29, 2026, 92 out of 194 Parties had reported quantitative finance needs data in their latest round of NDCs.

Data terminology

The tracker provides data on climate finance requirements as reported by countries across successive rounds of their NDC submissions. All figures were extracted directly from countries' NDCs and are presented as reported, without reinterpretation or reclassification.

Countries used a wide range of terminology when indicating the resources needed to implement their NDCs; some reported costs, others referred to investments, while others simply cited climate finance. To allow for consistency, the tracker uses "climate finance requirements" as the standard term to refer to all the different terms used in the NDCs (e.g., costs, investments, needs).

Adaptation and mitigation finance requirements

Most submissions disaggregated between mitigation and adaptation finance requirements, but some did not. When clearly defined, we assigned amounts to mitigation and adaptation based on countries' classifications in their NDCs; when not defined, we categorized them as "unspecified."

Loss and damage

For loss and damage, the tracker includes any numbers mentioned in NDCs as representing losses either incurred or predicted by countries. Current economic loss and damage refers to Parties' ex post reporting of observed economic

losses and financial costs already incurred as a result of climate-related impacts, such as those arising from extreme weather and climate-related disasters. Future economic loss and damage refers to Parties' reporting of ex ante, model-based estimations of projected climate-induced economic losses associated with slow-onset and extreme climate events.

The tracker does not aggregate the current and future economic costs from loss and damage into the "total climate finance requirements." While many countries have identified and tracked their finance requirements for mitigation and adaptation—including distinguishing between conditional and unconditional needs—this is not yet the case for loss and damage. This is because countries typically present adaptation and mitigation finance needs as forward-looking investments to achieve their NDCs, while loss and damage data represent the costs of climate-related impacts that have already occurred or are unavoidable.

Quantifying finance needs in the Climate Finance Requirements Tracker

All estimates provided by countries were taken at face value. If a country provided annual estimates, they were multiplied for the number of years in their timeframe, up to 2025, 2030, or 2050. If a country had more than one finance scenario, we used the highest scenario.

All values are presented in billions of US dollars. When countries communicated their finance requirements in their local currency, we converted these amounts to US dollars using an average exchange rate for the year the NDC was issued, based on exchange rates from the World Bank (World Bank n.d.). If the document issue date was not available, we used the year of submission to the UNFCCC Secretariat.

Domestic versus international funding

The data can be viewed based on whether the finance requirements were expected to be funded with domestic or international resources; this refers to the level of conditionality.

We developed the conditionality indicator by taking country-reported figures at face value. When a country explicitly identified a financing amount as conditional upon international support, we used this value directly. In cases where a country reported only a total financing requirement but specified that a portion of that total was unconditional as domestic flows not dependent on international flows, we inferred that

the remaining share represented conditional finance. The unconditional indicator was derived using the same logic: We took unconditional amounts directly when reported, and, when only total figures were provided, we counted the portion explicitly identified as unconditional. We followed the same analysis with the unspecified finance flows—flows not identified as either adaptation or mitigation.

Options for viewing the data

Users can select all countries to view and compare data across rounds of NDCs, allowing them to observe if a country has reported climate finance requirements data. Users can also examine each country individually and compare the data reported across its different NDC rounds.

The following options are available to view in the tracker:

Adaptation

- Only Conditional Adaptation Financial Requirements Identified
- Only Unconditional Adaptation Financial Requirements Identified
- Conditional and Unconditional Adaptation Financial Requirements Identified
- No Adaptation Financial Requirements Identified
- Total Adaptation Requirements Identified with No Conditionality
- No Document Submitted

Mitigation

- Only Conditional Mitigation Financial Requirements Identified
- Only Unconditional Mitigation Financial Requirements Identified
- Conditional and Unconditional Mitigation Financial Requirements Identified
- No Mitigation Financial Requirements Identified
- Total Mitigation Requirements Identified with No Conditionality
- No Document Submitted

Unspecified

- Only Conditional Unspecified Financial Requirements Identified
- Only Unconditional Unspecified Financial Requirements Identified
- Conditional and Unconditional Unspecified Financial Requirements Identified
- No Unspecified Financial Requirements Identified
- Total Unspecified Requirements Identified with No Conditionality
- No Document Submitted

Total Climate Finance Requirements

- Only Conditional Total Financial Requirements Identified
- Only Unconditional Total Financial Requirements Identified
- Conditional and Unconditional Total Financial Requirements Identified
- No Total Financial Requirements Identified
- Total Financial Requirements Identified with No Conditionality
- No Document Submitted

Current Loss and Damage

Future Loss and Damage

Limitations of the methodology and the tracker

Methodological and tracker limitations

The tracker only includes finance requirements at face value communicated by countries through their NDCs. It does not assess the quality of these numbers or include an analysis of the underlying methodologies used by countries to estimate their own finance requirements.

By grouping numbers listed as costs, needs, or investments into one category, we assumed that countries use these terms interchangeably.

In terms of the economic impact of loss and damage, the tracker does not aggregate these figures into the total climate finance requirements indicator. This is because most countries reported adaptation and mitigation finance requirements as investments needed to achieve their NDCs. In contrast, loss and damage was reported in terms of the amount lost as a consequence of climate change, rather than as a financing requirement.

What the tracker doesn't do

The tracker does not touch other important elements that need to be considered when it comes to an analysis of climate finance requirements. Examples include the following:

- Countries' methodologies for estimating each finance requirement
- Countries' sectoral- and project-level disaggregation of financial requirements
- Countries' means-of-implementation categories: finance, capacity-building, and technology transfer; data on capacity-building and technology transfer are not included in the tracker
- How much countries are spending to implement their NDCs
- Countries' finance requirements across regional or economic groups: The tracker does not provide aggregate data per country grouping, only data by country, although users are able to download the data and manually group the countries by region, economic group, or other category

Users will have to combine use of the tracker with other sources of information to get a full, well-rounded understanding of climate finance requirements.

Appendix A. Comparing the Climate Finance Requirements Tracker with other initiatives monitoring climate finance requirements

Table A-1 | **The Climate Finance Requirements Tracker compared with other existing initiatives**

INITIATIVE	INDICATORS			COUNTRY COVERAGE	LEVEL OF DATA DISAGGREGATION	CONDITIONALITY
	ADAPTATION	MITIGATION	LOSS AND DAMAGE			
Alberti et al. 2024; CPI 2025	Yes	Yes	No	All countries	Sector	Yes
Isah et al. 2025	Yes	Yes	No	All countries	Sector	Yes
UNFCCC 2024	Yes	Yes	No	Only developing countries	Thematic: adaptation and mitigation	Yes
Alayza and Caldwell 2021, 2023, 2024a	Yes	Yes	Yes	All countries	Thematic: adaptation, mitigation, and loss and damage	Yes

Notes: ^a This row refers to the Climate Finance Requirements Tracker. CPI = Climate Policy Initiative; UNFCCC = United Nations Framework Convention on Climate Change.

References

- Alayza, N., and M. Caldwell. 2021. "Financing Climate Action and the COVID-19 Pandemic: An Analysis of 17 Developing Countries." Working Paper. Washington, DC: World Resources Institute. doi.org/10.46830/wriwp.21.00039.
- Alayza, N., and M. Caldwell. 2023. "What Nationally Determined Contributions Say about Countries' Finance Requirements: 4 Findings on Adaptation, Mitigation, and Loss & Damage." Article. Washington, DC: World resources Institute. <https://www.wri.org/technical-perspectives/what-nationally-determined-contributions-say-about-countries-finance>.
- Alayza, N., and M. Caldwell. 2024. "Explore Nationally Determined Contributions (NDCs)." Climate Watch. Washington, DC: World Resources Institute. https://www.climatewatchdata.org/ndcs-explore?category=finance_and_support.
- Alberti, C., I. Alanah, O. Sawant, and C. Strinati. 2024. "Bottom-Up Climate Finance Needs." London: Climate Policy Initiative. <https://www.climatepolicyinitiative.org/publication/bottom-up-climate-finance-needs/>.
- CPI (Climate Policy Initiative). n.d. (Data Dashboard.) "Bottom-Up Climate Finance Needs." London: Climate Policy Initiative. <https://www.climatepolicyinitiative.org/dataviz/bottom-up-climate-finance-needs/>. Date accessed February 1, 2026.
- Fransen, T., C. Henderson, R. O'Connor, N. Alayza, M. Caldwell, S. Chakrabarty, A. Dixit, et al. 2022. *The State of Nationally Determined Contributions: 2022*. Report. Washington, DC: World Resources Institute. doi.org/10.46830/wrirpt.22.00043.
- Isah, A., F. Egli, A. Stünzi, and T. Schmidt. 2025. "How Do Developing Countries Estimate Their Climate Finance Needs under the Paris Agreement?" *Global Environmental Change* 95. <https://www.sciencedirect.com/science/article/pii/S0959378025001244>.
- UNFCCC (United Nations Framework Convention on Climate Change). 2024. *Report on the Determination of the Needs of Developing Country Parties Related to Implementing the Convention and the Paris Agreement*. Report. Bonn, Germany: UNFCCC. <https://unfccc.int/documents/640757>.
- UNFCCC. n.d. (Database.) UNFCCC NDC Registry. <https://unfccc.int/NDCREG>. Accessed November 11, 2025.
- World Bank. n.d. (Database.) World Bank Open Data. <https://data.worldbank.org>. Accessed August 20, 2025.

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Author contribution statement

Natalia Alayza wrote the paper, designed the methodology, and conducted the analysis and Molly Caldwell contributed to the underlying research, including the methodology and analysis.

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