

Online Annexes

Running on empty

The world is gearing up for climate resilience — without the money to get there



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**The world is gearing up for climate resilience —
without the money to get there**

Online annexes

Adaptation Gap Report 2025

Annex 2: Online annexes for the chapter ‘Global progress on adaptation planning’

Annex 2.A: Methodology underlying the analysis of global progress in national adaptation planning

Methodology for tracking progress in the preparation of national adaptation planning instruments

Planning instruments were identified through a desk review of publicly accessible databases that have global coverage. These included:

- ▶ Party submissions to the United Nations Framework Convention on Climate Change (UNFCCC), namely, nationally determined contributions (NDCs),¹ adaptation communications² and national communications,³ as well as national adaptation plans (NAPs) submitted to NAP Central,⁴ a NAPs database hosted by UNFCCC
- ▶ the Climate Change Laws of the World database,⁵ hosted by the Grantham Research Institute on Climate Change and the Environment
- ▶ the State of Adaptation Action by Parties portal,⁶ hosted by the Adaptation Committee

In addition, a Google search was conducted for each country included in the 2025 analysis. The search terms used were: [country name] national adaptation plan/strategy/policy, [country name] national climate change plan/strategy/policy, [country name] adaptation law/act, [country name] climate change law/act. The purpose of this additional search was to reduce the analysis’ reliance on secondary data (see the section on limitations, below).

The cut-off date for the analysis of the various documents and databases was 31 August 2025.

This analysis considered as relevant national-level planning instruments designed to guide or lead to

adaptation action. These instruments could be exclusively adaptation-focused, or cross-cutting across adaptation and mitigation. If instruments fell into the latter category, they had to have specific, timebound policies and tools that were focused on adaptation (and not merely recommendations) in order to be counted as adaptation planning instruments. Planning instruments also had to have a cross-sectoral purview (i.e. instruments focusing on single or specific clusters of sectors were not counted). Furthermore, they had to have a medium- to long-term outlook. This means that the analysis did not count national adaptation programmes of actions or similar adaptation programmes that were one-off and short-term in nature.

Data processing

Once individual planning instruments had been identified, the data for each country were reviewed to identify cases where individual planning instruments were direct subcomponents of other planning instruments, and could thus be considered part of the same ‘policy package’. In cases where individual planning instruments were considered part of a single policy package, the data points were merged so that they only counted as one instrument.

This process was used to make the data sufficiently consistent across countries to enable analysis. This was necessary as countries publish adaptation planning instruments in different ways. Some countries publish single instruments that contain a policy/strategy component and a plan/action plan component (i.e. they publish as one instrument what could be regarded as multiple instruments), while others publish policies, strategies and action plans as separate documents, even when these instruments are connected (i.e. part

¹ More information available at <https://unfccc.int/process-and-meetings/the-paris-agreement/nationally-determined-contributions-ndcs>.

² More information available at <https://unfccc.int/topics/adaptation-and-resilience/workstreams/adaptation-communications>

³ Annex I (see <http://www.unfccc.int/NC7> and www.unfccc.int/NC8) and non-Annex I (www.unfccc.int/non-annex-I-NCs).

⁴ More information available at <https://napcentral.org/submitted-naps>.

⁵ See <https://climate-laws.org>.

⁶ See https://unfccc.int/adaptation_country_portal.

of the same policy package). Thus, grouping instruments together in this manner was necessary to enhance the comparability of data between different countries. Where there was insufficient evidence to confidently establish that two planning instruments were part of the same policy package, these were counted as two separate instruments.

Methodology for assessing the extent to which countries have been successful in periodically updating planning instruments

To assess the extent to which countries have been successful in periodically updating their national adaptation planning instruments, planning instruments identified in the assessment described above were reviewed to establish their 'period of validity'. The period of validity was used as a proximate indicator for capturing whether a national planning instrument was still active (i.e. actively used to guide adaptation processes) and remained up-to-date (i.e. its contents were still relevant in light of continuing developments in the national and international context and new knowledge about climate risks). An instrument that was within its period of validity – and had not been prematurely superseded by an updated version – was considered by the analysis to be 'current', while an instrument that was outside of its period of validity – or had been prematurely superseded by an updated version – was considered to be 'dated'.

Defining the period of validity

In this analysis, the period of validity is defined as the time between the instrument becoming active and either (1) the year in which the instrument is explicitly stated to expire or (2) the year it is scheduled to be updated (whichever comes first). In cases where the year that the instrument becomes active is not explicitly stated in the document, it is assumed that the policy becomes active in the year of its publication.

In cases where the expiration year of the instrument or the year of a scheduled update is not explicitly stated in the document, the last date for implementing any strategies and actions proposed in the document is assumed to be indicative of the instrument's expiration date (activities marked as 'ongoing' are excluded). If no period of validity can be established based on the strategies and actions articulated in the instrument, the instrument is allocated a default period of validity of 10 years (see box 2.A.1).

In cases where the source document cannot be retrieved, the instrument is allocated a default period of validity of 10 years, unless the period of validity is stated in the instrument's title or explicitly reported on by the country (e.g. in biennial transparency reports, national communications or adaptation communications).

Box 2.A.1 Rationale for selecting 10 years as a default period of validity

National adaptation planning is a country-driven process that is conducted outside the confines of the UNFCCC and the Paris Agreement. As a result, there is no prescribed implementation period for national adaptation planning instruments. In fact, periods of validity vary greatly across these instruments: the shortest recorded in this analysis is 3 years and the longest 40 years.

Although no implementation period is prescribed, it is recognized that adaptation planning instruments should be updated periodically so they remain relevant and effective in light of evolving national and international contexts and increased knowledge about future climate risks (Parson and Karwat 2011; Watkiss, Hunt and Savage 2014; Woodruff 2016; Schinko *et al.* 2017; European Commission 2023; Organisation for Economic Co-operation and Development [OECD] 2024; UNFCCC Least Developed Countries Expert Group [LEG] 2025). Therefore, national adaptation plans, strategies and policies whose planning documents do not explicitly state the instrument's period of validity should not be considered 'current' indefinitely. When no consensus on a planning instrument's period of validity exists, a default period of validity is required to establish whether it is current or dated.

The challenge when selecting a default period of validity is to find a time period that balances (1) the need for planning instruments to be reviewed relatively regularly to ensure continued relevance, with (2) the need to respect countries' decisions to opt for longer periods of validity. Five years was selected as a starting point for finding a default period of validity as this is the period of validity for NDCs and the typical length of a NAP cycle (UNFCCC LEG 2023). However, in order to not mark down countries that

had opted for a period of validity that was longer than the NDC cycle or typical NAP cycle, this period was doubled to 10 years.

Data processing

Once the period of validity was established for all countries' national adaptation planning instruments, all the periods for which countries had 'current' adaptation planning instruments in place were plotted on a timeline, from 2000 to 2025. By collating the

timelines for all 197 country Parties being assessed, it was possible to find the cumulative total of the number of country Parties with a current national adaptation planning instrument for each year (represented by the red line in figure 2.1).

Box 2.A.2 Example of Grenada

Using the definition outlined above, three national adaptation planning instruments were identified for the country Party of Grenada: (1) National Climate Change Policy and Action Plan 2007–2011, (2) National Climate Change Policy for Grenada, Carriacou and Petite Martinique 2017–2021, and (3) National Climate Change Adaptation Plan (NAP) for Grenada, Carriacou and Petite Martinique 2022–2025.

As all three national planning instruments had clearly stated periods of validity, Grenada was coded in figure 2.1 (on the red dotted line) as having current policies, strategies or plans in 2007–2011 and in 2017–2021, and as having no current policies, strategies or plans pre-2007, in 2011–2016 and in 2022–2025.

During the data processing, it became apparent that some countries' results were distorted by the inclusion of planning instruments with extremely long periods of validity (e.g. planning instruments published in 2010–2015 that were stated as being valid until 2035–2040) and no information about when the instrument would be reviewed and

updated. It was deemed that any instrument with an explicitly stated expiration date that was far in the future would have to be periodically reviewed and updated between its publication date and its expiration date. Consequently, the default period of validity of 10 years was applied to all instruments that did not explicitly expire within 10 years.

Annex 2.B: Adaptation-mainstreaming literature review – methodology and sources

Methodology

The objective of the literature review is twofold. First, to synthesize the scientific literature on adaptation mainstreaming, including its definition, process, typology, and success factors. And second, to provide a framework on how jurisdictions are mainstreaming adaptation. As such, the research questions are:

- ▶ How is adaptation mainstreaming defined?
- ▶ What typologies exist for classifying different mainstreaming strategies?
- ▶ What factors play a prominent role in enabling or preventing effective mainstreaming?

This review used Scopus to systematically identify relevant peer-reviewed journal articles published after 2020. The inclusion criteria are that the article is

focused on mainstreaming adaptation in government policies and planning, in either developed or developing countries, but not in non-governmental entities (i.e. national, sectoral, subnational, or supranational levels). The keyword search query is TITLE-ABS-KEY (“climate change” AND [“adaptation” OR “resilience”]) AND (mainstream or integrate)). The search was done on 30 April 2024, yielding 1,154 entries. Following a review of their titles and abstracts, 43 were retained, and following a review of the full articles, 29 were identified as having met the inclusion criteria. In addition, eight other frequently cited or expert-suggested articles and six grey literature reports were reviewed.

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Annex 2.C: Small island developing States (SIDS) national development plan NotebookLM analysis methodology

The purpose of this analysis was to assess the extent to which adaptation has been integrated into the national development plans and strategies of SIDS. SIDS were selected for this exercise as they are a cohort of acutely climate-vulnerable countries, are found in various regions of the world and represent a range of income classifications.

1. Identification and sourcing of national development plans or strategies

National development plans and strategies were identified through a desk review of publicly accessible (national government) websites and databases with regional or global coverage. The following criteria were used to select documents for review:

- ▶ Only one national document per country.
- ▶ Documents had to be national in scope and focused on medium- to long-term development planning; annual budget documents, annual action plans, subnational, and sector-specific plans were excluded.
- ▶ Plans, policies or strategies that focused explicitly on climate, energy or the environment were excluded.
- ▶ If a country had multiple national development documents available for review, the authors selected the one with the closer end point (e.g. given a 30-year plan published ten years ago and a five-year (medium-term) plan published three years ago, they selected the latter).

Where plans appeared outdated or under development, the authors contacted government representatives to enquire about drafts and, where available, permission to use these drafts in the analysis.

2. Identification of three levels of mainstreaming in national development plans or strategies

The documents were uploaded to the AI program NotebookLM, which was prompted to identify three tiers or levels of information in each document:

- ▶ contextual: elements that inform a situational analysis for the plan or strategy, including socioeconomic and geographic background, development trends, challenges, risks and opportunities facing the country; the process of formulating the plan or strategy; and other contextual information
- ▶ strategic: the vision, mission, goals, principles, cross-cutting issues and high-level objectives (elements that shape the structure and overall direction of the plan or strategy)
- ▶ operational: concrete actions, policies, programmes, budgets, targets, implementation plans, financing and indicators

The prompt for this analysis was as follows:

Prompt A: Describe the three levels and request the AI to identify the corresponding sections in Country A's National Development Plan.

The analysis of [*Country A's National Development Plan*] is part of the analysis on how adaptation is mainstreamed into the national development plans of small island developing states. The analysis will look at three different levels of the document: context, strategic, and operational. Context level covers sections focused on situational analysis, such as the socioeconomic and geographic background, the development trends, challenges, risks and opportunities facing the country, the process of formulating the plan, and other contextual information. The strategic level covers sections that outline the vision, mission, goals, principles and high-level objectives. The operational level covers sections with concrete actions, policies, programmes, budgets, targets, indicators, implementation timeline, financing, and monitoring and evaluation information. With these definitions, identify which sections of [*Country A's National Development Plan*] would fall under each of the three levels.

The results were validated by the authors, who reviewed the structure and content of each document.

3. Mainstreaming check for each tier or level of information

The documents were scanned by NotebookLM, which used a three-tier mainstreaming check to answer the following question: How is adaptation mentioned (or not) in the contextual, strategic and operational sections of national development plans or strategies?

This was done using the prompts below:

Prompt B: Request to score the context level and provide justification.

For the sections identified for the context level [enter list of sections and sub-sections], search for the following terms: *adaptation, climate adaptation, climate change adaptation (CCA), climate resilience, climate proofing, climate risk, climate vulnerability, climate impacts, climate hazards, climate-smart, (climate related) disaster risk reduction (DRR), (climate-related) disaster resilience, vulnerability assessment, and climate-related risk management, preparedness, early warning systems*. The goal is to understand how adaptation is mentioned at this level of the development plan.

Below are the three scoring categories and protocol:

- ▶ 0 = Absent. No mention of climate change impacts, adaptation, or related concepts
- ▶ 1 = Recognized. General or passing reference to climate impacts or adaptation concepts, but without detail or specific connections to development sectors, issues, or priorities
- ▶ 2 = Integrated. Clear reference to how climate impacts, adaptation, and related concepts are linked to development sectors, issues, or priorities, indicating contextual understanding

Please provide as output:

- ▶ the numerical score
- ▶ three-sentence justification of the score, and
- ▶ a list of quotes with page number that justify the score

Prompt C: Request to score the strategic level and provide justification.

For the sections identified for the strategic level [enter list of sections and sub-sections], search for the following terms: *adaptation, climate adaptation, climate change adaptation (CCA), climate resilience, climate proofing, climate risk, climate vulnerability, climate impacts, climate hazards, climate-smart, (climate related) disaster risk reduction (DRR), (climate-related) disaster resilience, vulnerability assessment, and climate-related risk management, preparedness, early warning systems*. The goal is to

understand to what extent adaptation is integrated at this level of the development plan.

Below are the three scoring categories and protocol:

0 = Absent. No mention of climate adaptation, climate risk, resilience, or related concepts in the strategic elements of the Plan

1 = Recognized. Climate adaptation or related concepts are referenced in general terms but are not positioned as a central framing element or strategic priority

2 = Integrated. Adaptation or related concepts are presented as a core driver of development, informing key strategic directions or priorities

Please provide as output:

- ▶ the numerical score
- ▶ three-sentence justification of the score, and
- ▶ a list of quotes with page number that justify the score

Prompt D: Request to score the operational level and provide justification.

For the sections identified for the operational level (enter list of sections and sub-sections), search for the following terms: *adaptation, climate adaptation, climate change adaptation (CCA), climate resilience, climate proofing, climate risk, climate vulnerability, climate impacts, climate hazards, climate-smart, (climate related) disaster risk reduction (DRR), (climate-related) disaster resilience, vulnerability assessment, and climate-related risk management, preparedness, early warning systems*. The goal is to understand how adaptation is mentioned at this level of the development plan.

Below are the three scoring categories and protocol:

0 = Absent. Adaptation and related concepts are not reflected in any of the plans' operational elements – such as policies, actions, programmes, budgets, targets and indicators

1 = Recognized. Adaptation and related concepts appear in a limited number of specific operational elements, typically concentrated in one section, sector, or chapter of the plan (e.g. only the environment or disaster risk management sections)

2 = Integrated. Adaptation and related concepts appear in multiple operational elements and across several sections or sectors of the plan (e.g. reflected in

sector strategies, costed programmes, performance indicators across health, agriculture, infrastructure, etc.)

Please provide as output:

- ▶ the numerical score
- ▶ three-sentence justification of the score, and
- ▶ a list of quotes with page number that justify the score

4. Data entry and validation

The scores, justifications and quotes were entered into a spreadsheet. The authors confirmed the

presence of each quote and its page number in the document, checking that each one referred to climate change adaptation or adaptation-relevant issues (rather than, for example, climate change mitigation or broad or generic concepts of resilience that do not mention climate change). As they reviewed the quotes and their page numbers, authors also reviewed each score and three-sentence justification generated by NotebookLM, making adjustments as appropriate.

Annex 2.D: Case study: Integrating adaptation into national development planning in Fiji

The following case study provides insights into how adaptation was integrated into Fiji's National Development Plan 2025–2029 and Vision 2050 (NDP 2025–2029), the factors that enabled this to happen, the outcomes achieved through this process and lessons that can be learned from Fiji's experiences. The case study was informed by a semi-structured interview with an adaptation expert from Fiji's Ministry of Environment and Climate Change (MECC).

How does adaptation feature within Fiji's NDP 2025–2029?

During the analysis of the national development plans and strategies, presented in section 2.3.2, Fiji's NDP 2025–2029 was identified as a plan that strongly integrates adaptation, to the extent that it plays a significant role in structuring the plan. Specifically, adaptation appears as:

1. One of the plan's five "X-Factors": factors that are "transformational, impactful and reset the nation's development trajectory" (Fiji 2024, p. 13). Specifically, it appears in X-Factor 4, "Strengthening Resilience against the Impacts of Natural Disaster and Climate Change" (ibid., p. 19).
2. One of its six principles: "mitigating the impacts of climate change and protecting the environment" (ibid., p. 13).
3. One of its seven Focus Areas: "Developing Public Infrastructure, Protecting Environment, and Addressing Climate Change" (ibid., p. 14).
4. One of its eight cross-cutting priorities: "Mainstreaming Climate Change: Empower all Fijians to better adapt to the impacts of climate change" (ibid., p.23).

In addition, the impacts of climate change are often mentioned in describing the current status, challenges and opportunities of different sectors, ranging from sugar production and marine resources to tourism and the construction industry. Beyond this contextual recognition, six of the plan's seven Focus Areas include specific strategies that address adaptation.

How was adaptation integrated into Fiji's NDP 2025–2029?

The integration of adaptation into the NDP 2025–2029 is guided by the MECC, which coordinates work on this topic with other ministries through various technical working groups, steering committees (e.g. the committee for the National Adaptation Plan) and the National Climate Change Coordinating Committee (N4C). Mandates for the integration of adaptation into the NDP 2025–2029 exist within several plans, strategies and policies that have been endorsed by parliament – including Fiji's NAP and previous NDPs. Furthermore, a legal mandate is also provided in Part 11 of the country's Climate Change Act, although this has yet to come into force. In addition to the existing policy mandates and the forthcoming legal mandate, the integration of adaptation into Fiji's NDP 2025–2029 was driven by a broad consensus across government. This holds that, given the severe impacts of recent climate-related disasters on communities, public services and the economy as a whole, continuing with business-as-usual development – without factoring in increasing climate risks – is no longer viable.

To facilitate the integration of adaptation into the NDP 2025–2029 (as well as other sectorial policies and strategies), the MECC engaged with other ministries at a management and operational level to promote the adaptation agenda and provide capacity building and technical support to relevant personnel. This two-pronged approach was adopted to ensure that there was strong alignment across government regarding adaptation policy and that ministries are supported with the technical capacity to mainstream adaptation into their core operations.

What outcomes has integrating adaptation into recent NDPs achieved?

At the time of writing, the NDP 2025–2029 has only recently come into effect, so there is only limited potential to observe any outcomes of integrating adaptation into this instrument. However, the integration of adaptation in previous NDPs established adaptation and resilience as a priority for government and therefore a priority for all ministries and other national and subnational government entities. Making adaptation a national priority has strengthened the

sense of urgency surrounding the policy area, which in turn has enabled the recent progress of ministries and subnational government towards developing adaptation policies,⁷ mainstreaming adaptation into existing policies, strategies and regulations,⁸ and increasing or ringfencing budget allocations for adaptation interventions.

Lessons learned from Fiji's experience mainstreaming adaptation into NDPs

Being housed in a less influential ministry is not always a bad thing. Over the past 10 years, the unit responsible for climate change within the Government of Fiji has been housed in various ministries. Before climate change was moved to the MECC, it came under the remit of two of Fiji's most powerful ministries, the Ministry of Finance, Strategic Planning, National Planning and Development and the Office of the Prime Minister. Experience from these three institutional set-ups has demonstrated that while being situated in a powerful ministry can help drive the climate agenda in whole-of-government policy processes (e.g. the development of NDPs), it can end up competing with these ministries' other political

priorities, leading to a situation in which it is not treated with the necessary urgency it requires. Conversely, being housed in the MECC means that the climate agenda is always one of the ministry's top priorities and will therefore be aired at interministerial forums, even if the MECC does not necessarily have the same level of influence to ensure that the climate agenda is integrated into whole-of-government processes.

Establishing good working relationships with counterparts in other ministries is key. Although moving between ministries initially posed challenges for the unit responsible for climate change, it has ultimately broadened its institutional networks, which contributes to enhancing collaboration across government. These formal and informal linkages have proved to be useful in ensuring efficient communication between the various ministries, helping the MECC advocate the integration of adaptation into the NDP 2025–2029 (and other policy processes) while also gathering feedback on the technical support required by ministries in order to do this.

⁷ For example, the development of the national health adaptation plan.

⁸ For example, the integration of climate-smart agriculture into the Ministry of Agriculture and Waterways' strategic

development or the updating of Fiji's building codes to include consideration of future climate risks.

Annex 2.E: Biennial transparency report analysis: Methodology for analysing the extent to which countries are mainstreaming adaptation in national, subnational and sectoral policies

To evaluate the usefulness of biennial transparency reports (BTRs) for tracking global progress in adaptation mainstreaming, the chapters on climate change impacts and adaptation of each report submitted by 31 August 2025 were reviewed. At the cut-off date, 106 countries had submitted a BTR, 94 of which contained an adaptation chapter. The analysis assessed whether countries reported on (1) the mainstreaming of adaptation into policies across different levels of governance, and (2) initiatives implemented to catalyse mainstreaming.

Six key indicators were used to assess this, based on whether the BTRs included information about:

At least one instance of adaptation being integrated into a new or existing:

- ▶ national-level policy (e.g. national development plan or strategy)

- ▶ sectoral policy (e.g. sectoral development plan)
- ▶ subnational policy (e.g. municipal plan or river basin management plan)
- ▶ regulations

At least one instance of:

- ▶ guidance being developed to support adaptation mainstreaming into policies, plans and strategies
- ▶ mechanisms being established that legally mandate adaptation mainstreaming in policies, plans and strategies

Descriptions of how each indicator was defined are included in table 2.A.1. A description of how mainstreaming was defined is provided in the next subsection of this annex.

Table 2.A.1 Indicator definitions

Indicator	Description
National-level policy	National-level policies are plans, strategies, policies, policy frameworks and other policy instruments that are whole-of-government in nature (i.e. applicable to all ministries). National development plans and strategies are an example of these policies.
Sectoral policy	Sectoral-level policies are national-level plans, strategies, policies, policy frameworks and other policy instruments. They are focused on a single sector or policy goal, or cluster of closely related sectors or policy goals (e.g. a combined agriculture-water strategy is considered sectoral).
Subnational policy	Subnational policies are plans, strategies, policies, policy frameworks and other policy instruments that are applicable to a jurisdiction below that of national-level (e.g. state, county and regional-level, city, municipal and local-level, river basin-level etc.). These policy instruments can be cross-sectoral in purview (e.g. state development plans) or focused on specific sectors or policy goals.
Regulation	Regulations are legal instruments used by government and other authorities to control or govern behaviour or activity in a specific area. They operationalize laws and policies by defining what must be done and what is required to comply (e.g. building codes stipulate standards that new buildings must adhere to and how construction companies must verify that new buildings adhere to these standards).

Guidance supporting adaptation mainstreaming into policy instruments	Guidance supporting adaptation mainstreaming is defined as resources or tools that support government actors to integrate adaptation considerations into existing or new non-climate plans, strategies, policies, policy frameworks and other policy instruments. Climate information tools (e.g. impact, vulnerability and risk assessments) were not considered as guidance for mainstreaming adaptation into policy instruments, unless countries stated that the tools were accompanied by further guidance on how to utilize the climate information for the purposes of mainstreaming.
Mechanisms that legally mandate adaptation mainstreaming into policy instruments	Mechanisms that legally mandate adaptation mainstreaming into policies, plans and strategies are defined as legal instruments (e.g. acts, laws, regulations, executive decrees) that create a legal obligation for state actors (i.e. actors from national and subnational levels of government, or other state actors, such as independent regulators) to mainstream adaptation into their plans, strategies, policies, policy frameworks and other policy instruments (including regulations).

Defining mainstreaming

To be considered in the analysis, the BTR must explicitly state that climate change adaptation and/or climate change risks have been *actively* integrated into the policy being described. Policies that are reported as being adaptation-relevant, having adaptation-benefits or addressing climate impacts, but where there is no clear assertion that adaptation considerations have influenced the design/contents of these policies, were not counted. Therefore, the following examples did not count:

- ▶ countries reporting that sectoral policies are part of the policy framework for adaptation
- ▶ countries reporting that sectoral policies will contribute to adaptation goals (e.g. a national water policy leading to reduced water stress)

This criteria was applied to avoid business-as-usual (BAU) development policies and BAU disaster risk reduction (DRR) policies being considered as evidence of adaptation mainstreaming when there is no evidence that these policies have been adjusted to enable them to address not just **current** climate risks, but also **future** climate risks. Without making this

distinction, all development or DRR policies would be counted as adaptation.

Additionally, national, subnational or sectoral climate/adaptation plans, strategies and policies are not regarded as mainstreaming, even though some academic authors do regard this as “add-on mainstreaming” (e.g. Wamsler and Pauleit 2016).

Mapping against Intergovernmental Panel on Climate Change sectors

In addition to collecting the indicators described above, the analysis mapped sectoral policies identified as having adaptation integrated into them against the sectors assessed by chapters 2–8 of the Working Group II Contribution to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) (Pörtner *et al.* 2022). The purpose of this mapping exercise was to capture how likely countries were to mainstream adaptation into the policies of certain sectors and/or to report on mainstreaming within certain sectors. The codebook used to map policies to sectors is provided in table 2.A.2.

Table 2.A.2 Sector definitions

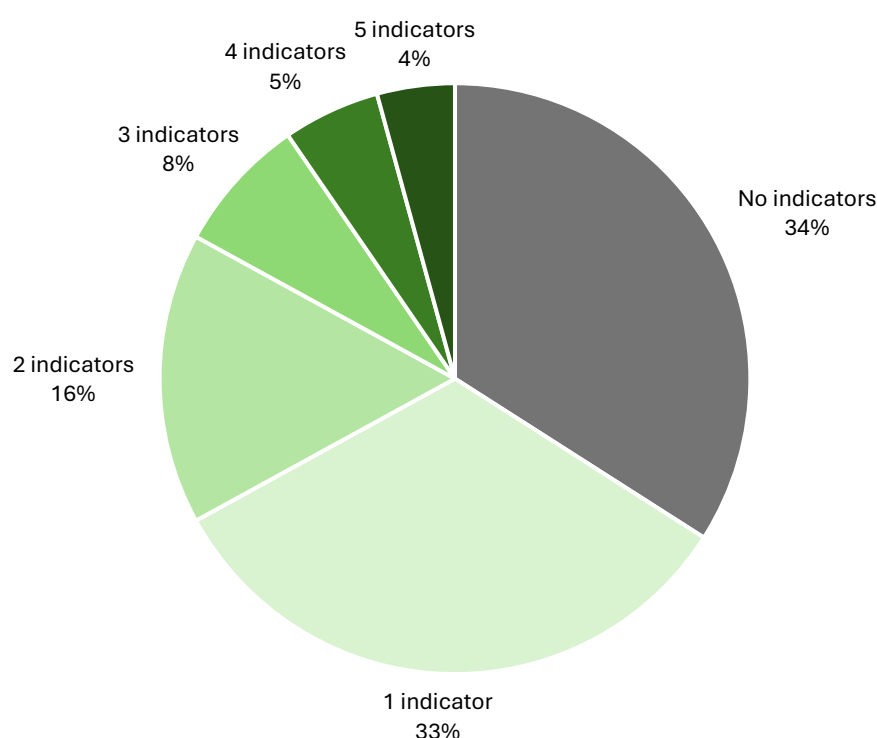
IPCC sector	Instruction	Definitions
Food, fibre and other ecosystem products	The definitions provided in the definitions column were used to guide sector allocation but were not considered exhaustive. In cases where sectoral policies could feasibly be allocated to more than one sector, the policy was allocated to the sector deemed most relevant.	Policies mainly related to agriculture, food security, nutritional security, livestock, fisheries, forestry and other forms of land use related to ecosystem-based products
Terrestrial and freshwater ecosystems		Policies mainly related to restoring, conserving, protecting or managing terrestrial or freshwater ecosystems, natural habitats and undomesticated species
Ocean and coastal ecosystems		Policies mainly related to restoring, conserving, protecting, managing or developing ocean, marine or coastal resources, ecosystems or areas
Water, sanitation and hygiene		Policies mainly related to water security, sanitation or hygiene
Cities, settlements and key infrastructure		Policies mainly related to cities and other types of human settlement, housing and key infrastructure (including energy, transport, waste and communications)
Health, wellbeing and communities		Policies mainly related to health systems, public health, individual wellbeing, community wellbeing, and the preservation of cultural heritage and traditional, indigenous and local knowledge
Livelihoods, poverty and sustainable development		Policies mainly related to jobs, employment, educations, tourism, poverty reduction, rural development, sustainable development and economic and social infrastructure and safety nets
Cross-cutting		Policies that cut across the sectoral categories but are not whole-of-government policies (e.g. DRR or gender and social inclusion policies)
Other		Policies that cannot be categorized according to the classifications presented above but were still deemed to be sectoral in nature

Annex 2.F Further discussion of reporting on adaptation mainstreaming in biennial transparency reports and ways forward

The analysis on tracking progress in adaptation mainstreaming through biennial transparency reports (BTRs), presented in section 2.3.2, chapter 2, found that the first round of BTRs submitted by 31 August 2025 do not represent a reliable data source for assessing progress being made in mainstreaming adaptation into relevant non-climate plans and strategies. It concludes that reporting on mainstreaming is relatively ad hoc in BTRs, with actual progress on mainstreaming adaptation into relevant non-climate plans and strategies likely being underreported.

However, while the analysis found that 32 of the 94 BTRs with a detailed information on climate impacts and adaptation (34 per cent) did not achieve any of the six indicators assessed in this analysis (figure 2.A.1), many of these BTRs nonetheless included discussion related to adaptation mainstreaming. However, in many cases, the information provided meant that this analysis was unable to ascertain whether adaptation mainstreaming has occurred.

Figure 2.A.1 Number of indicators achieved by BTRs with a detailed climate impacts and adaptation chapter



The following section presents three common ways of reporting on adaptation mainstreaming observed during the analysis of the first round of BTRs that did not provide users of these documents with sufficient information to determine whether adaptation considerations had been mainstreamed into non-climate planning processes or legal, policy or regulatory instruments.

Discussing adaptation mainstreaming in the context of their national adaptation plan or strategy. Many countries discussed the role of their national

adaptation plan (or equivalent national adaptation planning instrument) was intended to play in facilitating the mainstreaming of adaptation into relevant planning processes. As part of this, countries emphasize both the *need* for mainstreaming adaptation into national and sectoral planning processes, and their *intention* to do this; but did not necessarily provide information about any completed efforts to *actually* mainstream adaptation into specific non-climate plans, strategies, policies, regulations, or other legal, policy or regulatory instruments. Thus, information required to assess progress in adaptation

mainstreaming, as per the United Arab Emirates Framework on Global Climate Resilience (UAE FGCR)'s target on adaptation planning, was not provided.

Making insufficiently granular statements on adaptation mainstreaming. Many countries make high-level statements within their BTRs concerning adaptation being mainstreamed into national, subnational and sectoral policies instruments and processes. However, these statements are not supplemented by further information that would enable readers to determine where this mainstreaming is taking place (i.e. within which processes and instruments) or at what scale (i.e. systematically or on an ad hoc basis). As a consequence, users of this data lack the context required to interpret this information robustly beyond the fact that adaptation mainstreaming has occurred to an unknown degree somewhere in the country's legal, policy or regulatory framework.

Use of cross-referencing. Some countries – in particular developed countries – referred readers to the external documents where information about adaptation mainstreaming can be found. As a consequence, potentially relevant information about mainstreaming was not included in the BTR document itself, and therefore is unlikely to be captured by analyses of these documents, as the capacity required to follow these cross references would significantly increase the capacity required to undertake the analysis.

While the observed approaches to reporting on adaptation mainstreaming may point to the analysis of BTRs underestimating progress being made by countries in adaptation mainstreaming; it should also be noted that several BTRs recorded as not achieving any indicators in the analysis presented in section 2.3.2 made explicit statements stating that any meaningful mainstreaming of adaptation considerations into relevant plans, strategies, policies, regulations, or other legal, policy or regulatory instruments is yet to happen. In such cases, sufficient information is provided to gauge that no – or very limited – progress in adaptation mainstreaming has been made by the reporting country.

Building on the findings of this analysis

The findings presented in section 2.3.2, chapter 2, and the additional information presented in this annex illustrate that consistent approaches to reporting on adaptation mainstreaming are lacking, and that the standard of countries' reporting on their mainstreaming efforts is insufficient to adequately inform global assessments of progress in this area.

One contributing factor to this situation is the absence of detailed official and unofficial guidance available to countries on how to report on adaptation mainstreaming.

Presently, official guidance provided to countries is found in the annex of Decision 18/CMA.1 (commonly known as the modalities, procedures and guidelines – MPGs) agreed at the twenty-fourth Conference of the Parties to the United Nations Framework Convention on Climate Change (COP 24) negotiations in Katowice. In the context of reporting on mainstreaming, the MPGs only provide superficial guidance, stating “efforts to integrate climate change into development efforts, plans, policies and programming, including related capacity-building activities” (United Nations Framework Convention on Climate Change [UNFCCC] 2019, p. 34). While it is noted that the climate impact and adaptation chapter of a non-mandatory component of BTRs (making all adaptation reporting non-mandatory), the guidelines provided do not provide countries with a level of sufficient guidance to enable high-quality and informative reporting in this area. Similarly, technical guidance developed outside the UNFCCC negotiations fails to elaborate much further on how countries can approach this task (see Dale, Christensen and Neufeldt 2020; Consultative Group of Experts 2023; Dale and Bakitari 2025).

As countries moves towards the preparation and submission of their second BTR by the end of 2026, more detailed guidance on how to report on adaptation mainstreaming within BTRs is needed. In particular, such guidance should identify what information is required to allow progress in adaptation mainstreaming to be assessed at the global level (particularly in relation to the mainstreaming element of the UAE FGCR's target on adaptation planning), and illustrate how countries can provide this information in manner that is both effective and not overly burdensome.

Annex 3: Online annexes for the chapter ‘Global progress on adaptation implementation’

Annex 3.A Scope and evolution of the chapter on global progress of adaptation implementation

The scope of the implementation chapter covers adaptation actions whose implementation has started or been completed. It excludes any proposed actions that have merely been planned, approved or announced.⁹ The implementation chapter therefore complements the planning chapter – which sets out what countries intend to do – and the finance chapter, which analyses financial flows, pledges and needs. The implementation chapter provides insights about actual implementation, which is essential for assessing whether countries are becoming better adapted to the impacts of climate change.

“Actions” is used as an umbrella term covering any type of implementation by any actor. The scope of section 3.2.1 is specifically about adaptation projects or programmes worth at least US\$500,000. The reason for this minimum amount is to ensure comparability when counting projects – for example, to avoid treating technical assistance grants of less than US\$100,000 as equivalent to multimillion-dollar projects. Furthermore, project preparation grants are excluded from this section as they do not constitute the actual implementation of adaptation activities. If the prepared projects are later funded under the Adaptation Fund, the Green Climate Fund (GCF), the Least Developed Countries Fund (LDCF) or the Special Climate Change Fund (SCCF), then those projects will be counted (see annex 3.B). Excluding project preparation activities also helps avoid double counting. The analysis in section 3.3 includes all types of adaptation actions reported in biennial transparency reports (BTRs) without exclusions, as long as the actions are stated to be under implementation or completed.

Adaptation actions are implemented by a wide range of actors, from the local to the international level,

including initiatives with other primary objectives that also generate co-benefits for adaptation. Due to this diversity of adaptation-related actions across geographic scales, it is not possible to account for the full spectrum of adaptation actions occurring worldwide. The implementation chapter therefore relies on available data sources that cover either all countries or all developing countries and that are accessible for desk-based analysis (see table 3.A.1). It is not feasible, within the scope of the report, to undertake primary data collection on local adaptation actions in every country.

As new data sources with global coverage become available, these are analysed for inclusion in the implementation chapter each year, enabling the chapter to present novel analyses on an annual basis. Table 3.A.1 shows the evolution of the implementation chapter since its first edition in 2020. As space in the chapter is limited, not every analysis and data source that was featured in previous years can be repeated annually. The information shown in table 3.A.1 therefore directs readers to earlier editions of the implementation chapter that contain additional content.¹⁰ The following sections of this annex describe the data sources and analyses used for the Adaptation Gap Report (AGR) 2025’s chapter on global progress of adaptation implementation.

Due to limitations in space and capacity, the chapter on global progress of adaptation implementation cannot undertake detailed sectoral or thematic analyses of implementation. However, the AGR regularly includes deep-dive chapters, such as those focusing on health (UNEP 2018), nature-based solutions (United Nations Environment Programme [UNEP] 2021), the effectiveness of adaptation (UNEP 2022), and capacity-building and technology transfer

⁹ In countries’ reporting in BTRs, it was not always clear whether the stated actions were already under implementation. However, the actions generally appeared in sections of the BTRs that suggested that implementation

had begun. Actions that were only proposed were excluded from the analysis.

¹⁰ All editions of the AGR are available at <https://www.unep.org/resources/adaptation-gap-report>.

(UNEP 2024). A comprehensive sectoral, thematic and regional analysis of adaptation can be found in the Intergovernmental Panel on Climate Change (IPCC) Sixth Assessment Report (IPCC 2022). The AGR

complements the IPCC Assessment Reports by providing an annual assessment of adaptation progress, incorporating data sources that were not yet available for the Sixth Assessment Report.

Table 3.A.1 Data sources in the implementation chapter of the Adaptation Gap Report (AGR)

Data source ¹¹	Coverage	AGR edition(s)
Project documents from the three multilateral funds that serve the Paris Agreement (Adaptation Fund, GCF, LDCF and SCCF)	Developing countries	Annually since 2020
Documents of GCF projects that address both mitigation and adaptation (cross-cutting projects)	Developing countries	2022
Implemented adaptation actions reported in journal articles (data from the Global Adaptation Mapping Initiative)	Worldwide	2020 (preview), 2021 (detailed)
Organisation for Economic Co-operation and Development (OECD) Creditor Reporting System data on projects labelled as primarily addressing adaptation	Developing countries	2021, 2022
OECD Creditor Reporting System sectoral designation of adaptation finance of multilateral development banks	Developing countries	2025
Adaptation communications submitted by parties to the Paris Agreement	Developed and developing countries	2022 (preview), 2023 (detailed)
BTRs submitted by parties to the Paris Agreement	Developed and developing countries	2025
Evaluations of completed adaptation projects funded by the Adaptation Fund, GCF, LDCF and SCCF	Developing countries	2024
Reports about the implementation of national adaptation plans (NAPs)	Developed and developing countries	2024
Adaptation actions implemented by urban local governments	Worldwide	2024

¹¹ Details can be found in the online annex of each year's report.

Annex 3.B Analysis of implemented adaptation projects

3.B.1 Implemented adaptation projects funded by the Adaptation Fund, GCF and Global Environment Facility

To analyse how international public adaptation finance is being invested, the implementation chapter examines the number, volume and types of adaptation projects funded by the Adaptation Fund, GCF, LDCF and SCCF.¹² These four funds were selected because they constitute the financial mechanism that serves the United Nations Framework Convention on Climate Change (UNFCCC) and the Paris Agreement.¹³ Findings about their implementation and results are therefore particularly relevant for parties.

Together, the four funds accounted for only 5 per cent of international public adaptation finance flows to developing countries, averaged over 2022 and 2023 – i.e. 5 per cent of US\$26 billion (see chapter 4). Section 3.2.2 covers multilateral development banks (MDBs), which accounted for 57 per cent of US\$26 billion. In addition, previous editions of the implementation chapter analysed bilateral adaptation finance from the 10 largest adaptation funders, as reported under the OECD Development Assistance Committee (see table 3.A.1 for data sources covered in each edition of the implementation chapter since its inception in 2020). Taken together, the editions of the implementation chapter have, over the years, covered the vast majority of implemented adaptation activities funded through international public finance. The scope of this section of the implementation chapter includes the following:

- ▶ **Projects that are primarily focused on adaptation:** Projects that jointly cover mitigation and adaptation (referred to as “cross-cutting projects” under GCF) have been analysed in the 2022 edition of the implementation chapter
- ▶ **Projects that are under implementation or that have been completed:** Projects that have been approved, but whose implementation has not yet started, are

excluded

- ▶ **Projects with a funding volume (excluding cofinancing) exceeding US\$500,000:** This amount was chosen as a cut-off threshold to exclude small-scale actions that are not comparable to projects (e.g. funding for individual studies or workshops)

The first edition of the implementation chapter in the AGR 2020 analysed project documents to determine the climate hazards addressed, the primary sectors covered, the main actors supported, and the proportion of projects focusing on climate information, gender aspects, and ecosystem-based adaptation, and that aim to reach the most vulnerable (UNEP 2021, chapter 5). Subsequent editions of the chapter have not repeated this detailed analysis, instead presenting the evolution of the number and size of adaptation projects over time, as summarized in figure 3.1. In 2022, the combined annual funding volume of newly initiated adaptation projects, along with its five-year moving average, was added to this figure. To count the annual funding value, the total grant amount (funding size) of a project is added up for all projects starting in each calendar year. Projects are counted for the year in which their implementation began, not the year they were approved.

Cofinancing is not included – only the amounts provided directly by the Adaptation Fund, GCF, LDCF and SCCF are counted. Moreover, only grants are included. (Note that all projects under the Adaptation Fund and LDCF are purely grant-financed.) Loans, guarantees, equity and other instruments utilized by the GCF are not included in the combined funding value shown in figure 3.1. Apart from the addition of the combined funding volume in 2022, the data analysis approach in this section has remained constant since its first edition in 2020 – see also the annex of the AGR 2022 (UNEP 2022).

¹² The secretariat of the Global Environment Facility was designated as the operational entity responsible for managing the LDCF and SCCF by Decision 5/CP.7 under the UNFCCC, overseeing their administration, project approval and implementation, in collaboration with national governments and implementing agencies.

¹³ See <https://unfccc.int/process-and-meetings/bodies/funds-and-financial-entities>.

3.B.2 Implemented adaptation funded by MDBs

Data of implemented adaptation funded by MDBs is analysed for the first time in this year's edition of the AGR. A group of 10 MDBs annually publishes their climate finance commitments in a joint report. This report provides a breakdown of the proportion of funded adaptation allocated to 10 activity areas (for example, see African Development Bank et al. 2024, table 53). However, to ensure consistency with the finance chapter, instead of using the figures published in the annual MDB joint report on climate finance, the data from the OECD Creditor Reporting System was used. In comparison to the joint MDB report, note the following for the data used for section 3.2.2:

- ▶ Excludes external resources that are managed but not owned by MDBs
- ▶ Excludes non-flow financial instruments such as guarantees

- ▶ Excludes funds that do not go to developing countries
- ▶ Includes all MDBs

The amounts of adaptation finance stated in MDBs' joint climate finance report are therefore higher, not least because they include commitments to developed countries.

The OECD uses 23 sectoral designations.¹⁴ To enable a more focused analysis aligned to the themes of the United Arab Emirates Framework for Global Climate Resilience (UAE FGCR), the 23 categories were clustered into nine categories as shown in table 3.B.1. The first five categories (water supply and sanitation until infrastructure) are ordered according to the themes of the UAE FGCR (Decision 2/CMA.5, para. 9). To ensure full consistency with the finance chapter, the underlying OECD data for this section was provided by the authors of the finance chapter.

Table 3.B.1 Data sources in the implementation chapter of the AGR

Combined categories used in section 3.2.2	OECD categories
Water supply and sanitation	I.4 Water supply and sanitation
Agriculture	III.1 Agriculture, forestry, fishing; VI.2 Development food assistance
Health	I.2 Health; I.3 Population policies/programmes and reproductive health
Environmental protection	IV.1 General environment protection
Infrastructure (transport, energy and other social infrastructure)	II.1 Transport and storage; II.3 Energy; I.6 Other social infrastructure and services
Disaster response and relief	VIII.3 Disaster prevention and preparedness; VIII.2 Reconstruction relief and rehabilitation; VIII.1 Emergency response
Government and civil society	I.5 Government and civil society
Multisector	IV.2 Other multisector

¹⁴ Their descriptions are available at <https://webfs.oecd.org/oda/DataCollection/Resources/DAC-CRS-CODES.xlsx>

Others	I.1 Education; II.2 Communications; II.4 Banking and financial services; II.5 Business and other services; III.2 Industry, mining, construction; III.3.a Trade policies and regulations; III.3.b Tourism; VI.1 General budget support; IX. Unallocated/unspecified
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Annex 3.C Reporting through BTR under the Paris Agreement

3.C.1 Adaptation reporting

Details of adaptation reporting are explained in AGR 2017 (UNEP 2017, chapter 2). Further details on adaptation in BTRs are outlined in Dale and Bakhtiari (2025).

3.C.2 Data source

Of the 105 countries that had submitted a BTR by 31 August 2025,¹⁵ eight countries (Eswatini, Georgia, Guatemala, Guinea-Bissau, Niger, Malaysia, Singapore, and Holy See) did not include a chapter on climate impacts and adaptation. Three additional countries referred to other documents without providing any substantial information on adaptation in their BTRs (Liechtenstein, Switzerland and Trinidad and Tobago). The resulting 94 BTRs with an adaptation chapter were analysed through a systematic protocol

that builds on a previous study of adaptation tracking via NAPs and nationally determined contributions (Nowak *et al.* 2024) (see below). Submitted BTRs were accessed through the BTR registry hosted by the UNFCCC secretariat.¹⁶

While the inclusion of adaptation in the BTR is not mandatory, almost 90 per cent of submitted BTRs include details on adaptation. Chapter 4 of the “Modalities, procedures and guidelines” addresses reporting on information related to climate change impacts and adaptation under article 7 of the Paris Agreement (see box 3.C.1). Least developed countries and small island developing States are allowed flexibility to submit the required information at their discretion (Decision 18/CMA.1, para. 4).

Box 3.C.1 Topics for reporting on climate impacts and adaptation in BTRs

The recommended structure and topics for BTRs were adopted at the twenty-fourth session of the Conference of the Parties to the UNFCCC (COP 24) as the so-called “Modalities, procedures and guidelines” (Decision 18/CMA.1). They include nine topics on climate impacts and adaptation, of which this chapter covers the three that relate to climate context, actions and results:

- ▶ **Adaptation strategies, policies, plans and actions:** adaptation goals, strategies and actions, and efforts to mainstream adaptation
- ▶ **Progress on implementation:** implementation of adaptation actions, implementation of policies and plans including NAPs, and effectiveness of implemented actions
- ▶ **Monitoring and evaluation of adaptation actions and processes:** information on systems used to track progress and assess effectiveness, including indicators; effectiveness and results of adaptation actions and their sustainability

3.C.3 Data extraction and analysis protocol

The tables below provide questions, definitions, and instructions to guide data extraction and analysis on adaptation elements featured in BTRs. In the data-collection sheet, each row records an individual observation or data point. The columns represent attributes of each observation (source document, year

of document publication, as well as detailed typologies of each element).

The protocol builds on a methodology previously used to assess tracking elements in African NAPs and nationally determined contributions (Nowak *et al.* 2024) with several updates to make it suitable for assessing BTRs. First, the target countries have been expanded for a global assessment. Second, some of the descriptions – including specifying where

¹⁵ As at 31 August 2025, 106 Parties to the Paris Agreement have submitted a BTR to the UNFCCC. However, the European Union has been removed from this analysis as it is not a nation state.

¹⁶ This is available at <https://unfccc.int/first-biennial-transparency-reports>.

particular information can be found within the BTR – have been updated to align with the language and guidelines provided in the modalities, procedures and guidelines contained in chapter IV of the annex to Decision 18/CMA.1. Third, the elements have been optimized to focus on information related to implementation as opposed to planning; nationally determined contributions and NAPs signal their commitments whereas BTRs are used to communicate implemented actions. Fourth, the scope of the analysis does not cover a detailed assessment of monitoring, evaluation and learning systems. Hence, the protocol places less emphasis on the robustness dimension of the earlier protocol and instead focuses

on characterizing indicators and descriptions of monitoring, evaluation and learning systems as reported in the BTRs. Fifth, in addition to characterizing reported sectoral information to IPCC sectors, we also align this information to thematic targets of the UAE FGCR (UNFCCC 2024, Decision 2/CMA.5, para. 9), enabling the analysis to provide insights into the extent of alignment and the progress made along the seven themes.

The following table provides an overview of the BTR and the reporting country. The information is not limited to the adaptation chapter.

Table 3.C.1 Instructions for extracting general information in the BTR.

Question	Label	Instruction	Code	Definitions and detailed instructions
1. Which country submitted the document?	Country	Select one	Open field	The list of countries follows the published list of countries that have ratified the Paris Agreement, in alphabetic order:¹⁷ Afghanistan, Albania, Algeria, Andorra, Angola, Antigua and Barbuda, Argentina, Armenia, Australia, Austria, Azerbaijan, Bahamas, Bahrain, Bangladesh, Barbados, Belarus, Belgium, Belize, Benin, Bhutan, Bolivia (Plurinational State of), Bosnia and Herzegovina, Botswana, Brazil, Brunei Darussalam, Bulgaria, Burkina Faso, Burundi, Cabo Verde, Cambodia, Cameroon, Canada, Central African Republic, Chad, Chile, China, Colombia, Comoros, Congo, Cook Islands, Costa Rica, Croatia, Cuba, Cyprus, Czechia, Democratic People's Republic of Korea, Democratic Republic of the Congo, Denmark, Djibouti, Dominica, Dominican Republic, Ecuador, Egypt, El Salvador, Equatorial Guinea, Eritrea, Estonia, Eswatini, Ethiopia, Fiji, Finland, France, Gabon, Gambia, Georgia, Germany, Ghana, Greece, Grenada, Guatemala, Guinea, Guinea-Bissau, Guyana, Haiti, Honduras, Hungary, Iceland, India, Indonesia, Iraq, Ireland, Israel, Italy, Jamaica, Japan, Jordan, Kazakhstan, Kenya, Kiribati, Kuwait, Kyrgyzstan, Lao People's

¹⁷ The list of countries is available at https://treaties.un.org/Pages/ViewDetails.aspx?src=TREATY&mtmsg_no=XXVII-7-d&chapter=27&clang=en

Question	Label	Instruction	Code	Definitions and detailed instructions
				Democratic Republic, Latvia, Lebanon, Lesotho, Liberia, Libya, Liechtenstein, Lithuania, Luxembourg, Madagascar, Malawi, Malaysia, Maldives, Mali, Malta, Marshall Islands, Mauritania, Mauritius, Mexico, Micronesia (Federated States of), Monaco, Mongolia, Montenegro, Morocco, Mozambique, Myanmar, Namibia, Nauru, Nepal, Netherlands, New Zealand, Nicaragua, Niger, Nigeria, Niue, North Macedonia, Norway, Oman, Pakistan, Palau, Panama, Papua New Guinea, Paraguay, Peru, Philippines, Poland, Portugal, Qatar, Republic of Korea, Republic of Moldova, Romania, Russian Federation, Rwanda, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Samoa, San Marino, Sao Tome and Principe, Saudi Arabia, Senegal, Serbia, Seychelles, Sierra Leone, Singapore, Slovakia, Slovenia, Solomon Islands, Somalia, South Africa, South Sudan, Spain, Sri Lanka, State of Palestine, Sudan, Suriname, Sweden, Switzerland, Syrian Arab Republic, Tajikistan, Thailand, Timor-Leste, Togo, Tonga, Trinidad and Tobago, Tunisia, Türkiye, Turkmenistan, Tuvalu, Uganda, Ukraine, United Arab Emirates, United Kingdom of Great Britain and Northern Ireland, United Republic of Tanzania, Uruguay, Uzbekistan, Vanuatu, Venezuela (Bolivarian Republic of), Viet Nam, Yemen, Zambia, Zimbabwe
2. To which United Nations region does the reporting Member State belong?	Region	Select one	United Nations regions	Africa, Eastern Europe, Western Europe and other States, Latin America and the Caribbean, Asia-Pacific
3. To which UNFCCC classification does the reporting	UNFCCC classification	Select one	UNFCCC classification	Developing, developed

Question	Label	Instruction	Code	Definitions and detailed instructions
country belong?				
4. Which year was the document submitted and published?	Document year	Check the information on the BTRs registry	Open field	For the year of publication of the reviewed document, consider the year indicated on the BTR registry or the document for the case of cross-referenced reports.
5. In which language was the document prepared?	Document language	Refer to the source document	Open field	
6. Did the country receive external support to prepare the BTR?	Support received	Select one. If yes is selected, add details in column H.	Yes/No	Yes – the country reports or acknowledges receiving external support to prepare the BTR. This information may be included in the acknowledgements section or the introductory pages of the BTR. If yes, state who provided the support. No –
7. Does the BTR include references to gender and social inclusion?	Gender and social inclusion in the BTR	Select one. If “yes” is selected, add details in column J	Yes/No	Yes – there is a reference to gender and social inclusion as part of climate impacts and adaptation chapter, or as a separate chapter. This includes references to the consideration of socially differentiated vulnerabilities, adaptation needs, outcomes based on gender, age and socioeconomic status, and consideration of Indigenous and traditional groups and knowledge, etc. (refer to table 3.C.4 for further instructions).

The following table guides the extraction of information specific to the climate context, adaptation priorities and actions, implementation progress, barriers, and achieved results.

Table 3.C.2 Instructions for extracting detailed information from the climate impacts and adaptation component of BTRs

Question	Label	Instruction	Code	Definitions and detailed instructions
1. Which country	Country	Select one	Open field	The list of countries follows the published list of countries that have ratified the Paris

submitted the document?				Agreement, in alphabetic order:¹⁸ Afghanistan, Albania, Algeria, Andorra, Angola, Antigua and Barbuda, Argentina, Armenia, Australia, Austria, Azerbaijan, Bahamas, Bahrain, Bangladesh, Barbados, Belarus, Belgium, Belize, Benin, Bhutan, Bolivia (Plurinational State of), Bosnia and Herzegovina, Botswana, Brazil, Brunei Darussalam, Bulgaria, Burkina Faso, Burundi, Cabo Verde, Cambodia, Cameroon, Canada, Central African Republic, Chad, Chile, China, Colombia, Comoros, Congo, Cook Islands, Costa Rica, Croatia, Cuba, Cyprus, Czechia, Democratic People's Republic of Korea, Democratic Republic of the Congo, Denmark, Djibouti, Dominica, Dominican Republic, Ecuador, Egypt, El Salvador, Equatorial Guinea, Eritrea, Estonia, Eswatini, Ethiopia, Fiji, Finland, France, Gabon, Gambia, Georgia, Germany, Ghana, Greece, Grenada, Guatemala, Guinea, Guinea-Bissau, Guyana, Haiti, Honduras, Hungary, Iceland, India, Indonesia, Iraq, Ireland, Israel, Italy, Jamaica, Japan, Jordan, Kazakhstan, Kenya, Kiribati, Kuwait, Kyrgyzstan, Lao People's Democratic Republic, Latvia, Lebanon, Lesotho, Liberia, Libya, Liechtenstein, Lithuania, Luxembourg, Madagascar, Malawi, Malaysia, Maldives, Mali, Malta, Marshall Islands, Mauritania, Mauritius, Mexico, Micronesia (Federated States of), Monaco, Mongolia, Montenegro, Morocco, Mozambique, Myanmar, Namibia, Nauru, Nepal, Netherlands, New Zealand, Nicaragua, Niger, Nigeria, Niue, North Macedonia, Norway, Oman, Pakistan, Palau, Panama, Papua New Guinea, Paraguay, Peru, Philippines, Poland, Portugal, Qatar, Republic of Korea, Republic of Moldova, Romania, Russian Federation, Rwanda, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Samoa, San Marino, Sao Tome and Principe, Saudi Arabia, Senegal, Serbia, Seychelles, Sierra Leone,
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¹⁸ The list of countries is available at https://treaties.un.org/Pages/ViewDetails.aspx?src=TREATY&mtdsg_no=XXVII-7-d&chapter=27&clang=en

				Singapore, Slovakia, Slovenia, Solomon Islands, Somalia, South Africa, South Sudan, Spain, Sri Lanka, State of Palestine, Sudan, Suriname, Sweden, Switzerland, Syrian Arab Republic, Tajikistan, Thailand, Timor-Leste, Togo, Tonga, Trinidad and Tobago, Tunisia, Türkiye, Turkmenistan, Tuvalu, Uganda, Ukraine, United Arab Emirates, United Kingdom of Great Britain and Northern Ireland, United Republic of Tanzania, Uruguay, Uzbekistan, Vanuatu, Venezuela (Bolivarian Republic of), Viet Nam, Yemen, Zambia, Zimbabwe
2. Which document is reviewed?	Document	Select one that applies	BTR or other cross-referenced documents (adaptation communication [AdCom], national communication [NC])	BTR, AdCom, NC
3. What year was the document published?	Document year	Copy text from source	Open field	For the year of publication of the reviewed document, consider the year indicated on the BTR registry or on the document for the case of cross-referenced reports.
4. What element of adaptation tracking is included in the source document?	Element	Select one	Hazard	Make explicit reference to one or more climate-related hazards. A hazard is understood as the “potential occurrence of a natural or human-induced physical event or trend that may cause loss of life, injury, or other health impacts, as well as damage and loss to property, infrastructure, livelihoods, service provision, ecosystems, and environmental resources”. Include reference to both observed and/or projected climate-related hazards (meteorological, hydrological, climatological, biological), including extreme and slow-onset events. As per the modalities, procedures and guidelines, in the BTR, the information on hazards is expected to be captured in section B on impacts, risks and vulnerabilities and may

				also be referenced in the sections on adaptation priorities.
			System at risk	Make explicit reference to one or more systems or sectors that are vulnerable or at risk from a current or projected climate-related impact. Systems at risk might include agriculture, ecosystems, and/or human or social systems. Within the BTR, information on systems at risk is typically included in section B on impacts, risks and vulnerabilities.
			Impact	Make explicit reference to the effects of climate hazards on social, economic and environmental systems. While typically these would be negative effects, there might be unique cases where positive effects are described.
			Adaptation priorities	Make explicit reference to actions, objectives and targets that the country was aiming to undertake or accomplish. The main difference with implemented actions or results is that priorities are aspiration and forward-looking. The definition of “priorities” includes any statement in the source document that is explicitly tagged as “objective”, “aim”, “priority”, or “ambition”. In some cases, countries may outline priorities that were set in their nationally determined contributions or summarize priorities in the NAP. These provide a benchmark against which countries assess implementation progress, and they are expected to be listed under section C of the adaptation component of the BTR.
			Action	Make explicit reference to measures or interventions undertaken to prepare for, anticipate or respond to climate impacts and to achieve adaptation objectives and goals. The definition of “action” covers any statement tagged as: “action”, “activity”, “measure”, “intervention”, “effort” or “option”, and only if it is explicitly articulated as a strategy to implement adaptation priorities. Our definition of “action” also captures mentions of

				“project”, “program”, “programme”, “initiative”, “policy” or “strategy” if these are referenced in the document to implement adaptation action on the ground. Adaptation actions will typically be listed under sections D and E of the adaptation components of the BTR.
			Result	Make explicit reference to results of implemented adaptation actions, including immediate result “outputs”, outcomes and long-term impacts related to enhanced adaptive capacities, climate resilience and reducing climate impacts. This information is expected to be contained in section F on monitoring, evaluation and learning systems or referenced in the sections that report on implemented actions.
			Barriers	Make explicit reference to challenges and obstacles faced or hindering adaptation planning, implementation and effectiveness. These may include financial barriers (such as lack of funding), technological barriers (as it relates to limited availability or suitability of technologies), information and knowledge barriers (regarding to lack of climate data, lack of awareness or limited access to knowledge and technology needed for adaptation), etc. This information is expected to be provided in section C of the BTRs.
			Indicator	Make explicit reference to indicators for measuring implementation progress and results. Such indicators would be listed in the results and/or monitoring and evaluation sections of the BTR and would include different types of indicators that the country used to track adaptation progress.
5. How is the element labelled in the source document?	Element label	Copy text from source	Open field	Copy the statement about how the adaptation element is defined, without modifying the text. Labels might include: “goal”, “vision”, “objective”, “outcome”, “action”, “activity”, “indicator”, “sector”, etc. This information is collected to assess alignment between areas and categories

				used to extract data vis-à-vis how countries label them.
6. How is the element described in the document?	Element text	Copy text from source	Open field	Copy the statement describing the adaptation element, without modifying the text. This might include bullet points or sentences. For documents in languages other than English, statements are translated to English using open-source software and double-checked by a native speaker.
7. Which sector or thematic area does the element refer to?	Sector	Copy text from source	Open field	Copy the text that mentions the sector or thematic area for the specific element, without modifying the text. Sector refers to the economic sector or thematic area, as defined explicitly by the document. If the element refers to an enumeration of sectors or thematic areas, this will be recorded accordingly in the field. If the document does not identify any sector or thematic area, the field is left blank.

Table 3.C.3 provides instructions, codes, and definitions (including search terms) for characterizing and categorizing information BTRs.

Table 3.C.3 Data analysis codebook

Question	Label	Instruction	Code	Definitions and detailed instructions
1. What global goal on adaptation theme is featured?	Sector type (global goal on adaptation themes)	Select one option	Water and sanitation	Search terms: “sanitation”, “water and sanitation”, “sewerage”, “hygiene”
			Food and agriculture	Search terms: “agri”, “agro”, “food”, “crop”, “livestock”, “animal”, “fish”, “fisheries”, “aquacultur”, “seed”, “irrigation”, “value chain”, “land use”, “land tenure”, “land and forestry”, “agroforest”, “nutrition”, “food secur”
			Health	Search terms: “health”, “well-being”, “wellbeing”, “territorial communit”, “local knowledge”
			Biodiversity and ecosystems	Search terms: “ocean”, “marine”, “coast”, “coastal land use”, “coastal zone”, “blue carbon”, “mangrove”, “forest”, “environ”,

Question	Label	Instruction	Code	Definitions and detailed instructions
				"ecosystem", "biodiversity", "natural", "ecology", "wildlife", "REDD", "peatland", "protected area"
			Infrastructure and human settlements	Search terms: "city", "cities", "urban", "settlement", "infrastructure", "housing", "habitat", "industr", "waste", "transport", "energy"
			Poverty eradication and livelihoods	Search terms: "social", "poverty", "people", "econom", "capacity", "education", "employment", "tourism", "rural development", "sustainable development", "economic and social infrastructure", "livelihood", "income", "revenue", "social protection"
			Cultural heritage	Search terms: "cultur", "cultural heritage", "heritage site", "traditional knowledge, "local knowledge", "indigenous"
2. What type of hazard is featured?	Hazard Type	Only applicable if the element identified is a "hazard". Select one option	Extreme temperature	Reference to a meteorological event related to extreme temperature or higher temperatures compared to usual, including heat wave/excessive heat, and severe winter conditions (snow/ice, frost/freeze)
			Storm	Reference to a meteorological event such as storm, including tropical storm, cyclones, typhoons, hail, lightening, thunderstorm, heavy rain, windstorm, sand/dust storm, tornado
			Drought	Reference to a climatological event such as drought, drought cycles, prolonged droughts
			Wildfire	Reference to a climatological event such as wildfire, including forest fires and land fire (bush, pasture, etc.)
			Landslide	Reference to a climatological event such as landslides – the movement of a mass of rock, debris or earth down a slope

Question	Label	Instruction	Code	Definitions and detailed instructions
			Flood	Reference to a hydrological event such as coastal floods, pluvial floods, fluvial/riverine floods, flash floods, ice jam floods
			Change in temperature	References to consistent alteration in average temperature, either a rise or a drop, typically observed over multiple years or decades
			Change in precipitation	References to alterations in precipitation patterns, including shifts in timing, amount, intensity, frequency, typically observed over multiple years or decades
			Salinization	Reference to a process by which salt content in soil or freshwater systems increases due to sea level rise, changes in precipitation patterns or increased evaporation rates
			Land degradation	Reference to declines in quality and health of natural land resources caused by human-induced processes including anthropogenic climate change
			Sea level rise	Reference to increase in global and local average sea level, including coastal flooding and coastal erosion
			Sea temperature	Reference to changes to the temperature of the top layer of the ocean.
			Ocean acidification	Reference to reductions in the pH of the action, over an extended period (decades or longer)
3. Which type of system at risk is featured?	System type	Only applicable if the element identified is a “system at risk” and “climate impact”.	Crop	Reference to observed and/or projected climate-related impacts and risks on cropping systems and crop value chains, including crop production losses and damage to productive assets and infrastructure related to crops
			Livestock	Reference to observed and/or projected climate-related impacts and risks on livestock systems and livestock value chains, including reduced animal and livestock

Question	Label	Instruction	Code	Definitions and detailed instructions
		Select one option		health and productivity losses, as well as damage to productive assets and infrastructure related to livestock
			Fisheries and aquaculture	Reference to observed and/or projected climate-related impacts and risks on fisheries and aquaculture systems and value chains
			Forest	Reference to observed and/or projected climate-related impacts and risks on forests and forest ecosystem services and products, including non-timber forest product value chains
			Terrestrial	Reference to terrestrial ecosystems (including drylands) and their services, including changes in ecosystem structure, in provisioning services, in timing, etc.
			Fresh water	Reference to observed and/or projected climate-related impacts and risks on freshwater ecosystems (including inland wetlands) and their ecosystem services, including availability and quality of freshwater resources and changes in the hydrological cycle (e.g. water scarcity)
			Biodiversity	Reference to observed and/or projected climate-related impacts and risks on biodiversity (flora, fauna)
			Coastal	Reference to observed and/or projected climate-related impacts and risks on coastal, marine and ocean ecosystems and their services
			Food and nutrition	Reference to observed and/or projected climate-related impacts and risks on food security and nutrition outcomes of the population, including malnutrition in all its forms (undernutrition, overnutrition, obesity) and food safety risks
			Gender and inclusion (social groups)	Reference to observed and/or projected climate-related impacts experienced disproportionately among vulnerable

Question	Label	Instruction	Code	Definitions and detailed instructions
				groups, including women, the elderly and children in low-income households, Indigenous Peoples, minority groups, small-scale producers, pastoralists, fishing and forest-based communities, and people in high-risk regions, contributing to gender inequity, inequality and social exclusion
			Livelihoods and poverty	Reference to observed and/or projected climate-related losses of livelihoods and income
			Health	Reference to observed and/or projected climate-sensitive water- and vector-borne infectious diseases, heat morbidity, mental health and other adverse impacts on human health and health systems
			Infrastructure and services	Reference to observed and/or projected climate-related damage to key infrastructure such as roads, bridges and critical services, including electricity, water, sanitation and hygiene, and education
			Human security and peace	Reference to observed and/or projected climate-related migration and displacement, armed and organized conflict and other risks to human security
			Cultural Heritage	Reference to observed and/or projected impacts on cultural heritage, including sites relevant to culture and heritage
4. What type of adaptation actions are reported?	Action type	Only applicable to elements identified as “actions”. Select one	Infrastructural / technological	References to actions towards enabling, implementing, or undertaking technological innovation or infrastructural development
			Social (Behavioural/cultural)	Reference to actions that relate to enabling, implementing, or undertaking livelihoods and/or behavioural change, including capacity-building, knowledge exchange, gender and social inclusion
			Institutional	Reference to actions to improve the institutional and organizational context for adaptation, including establishing policies, plans and organizational structures. Also

Question	Label	Instruction	Code	Definitions and detailed instructions
				covers operationalization of institutional mandates in particular roles, such as research and development
			Natural resource-based	Reference to efforts to enhance, protect or promote ecosystem services and products
			Economic/financial	Reference to efforts to mobilize adaptation finance and investments, establishing innovative financial mechanisms
5. What type of results are reported?	Result Type	Select one option	Output	Relates to immediate results from the implementation of activities, without assessing if these results lead to changes in the baseline condition. This includes references to products or services developed or disseminated, enactment of adaptation policies, trees planted, improved cookstoves installed, seed varieties disseminated, coverage (area) of the activity or output, beneficiaries or adopters of the activity or product (including beneficiaries or adopters of an improved technology), individuals trained, and finance mobilized
			Outcome	Relates to intermediate effects of an output or intervention, including on behaviour change. Examples of these types of results might include participants with improved knowledge, improved adoption rates of adaptive technologies and practices, migration, etc.
			Impact	Relates to the ultimate effect of adaptation measures in relation to climate risks, indicating the level of adequacy and effectiveness of those measures in enhancing resilience and adaptive capacities and reducing vulnerability. Examples of these types of results might include agricultural productivity improvements, water-use efficiency rates, livelihoods and well-being scores, food security rates, farmers recovering from extreme events, etc.

Question	Label	Instruction	Code	Definitions and detailed instructions
6. What constraints, barriers and limits to adaptation are reported?	Barriers	Select one option. applies to information identified as “barriers”	Financial	Reference to challenges related to inadequate funds required to plan, implement and evaluate adaptation
			Economic	References to challenges due to current livelihood options, economic structures and economic mobility, as well as level of development of key sectors
			Human capacities	Reference to gaps in individual, organizational and societal capabilities to set and achieve adaptation objectives over time, including training, education and skill development, and adequate numbers of staff
			Informational	References to gaps in information, awareness or knowledge, including low quality and quantity of data to guide adaptation and guide assessment of adaptation progress; also includes gaps in data infrastructure and knowledge management systems
			Institutional	Reference to gaps in the institutional and policy environment, including weaknesses in policies required to support adaptation, such as regulatory frameworks, adaptation plans, or inadequate mainstreaming of adaptation into other policies
			Organizational	Reference to weak organizational structures necessary for planning, implementation, and assessment of adaptation, including having entities designated to support adaptation, coordination and inclusion of diverse stakeholders
			Technological	Reference to challenges related to limited access to technologies and innovations required for adaptation, including infrastructure
			Physical	Reference to barriers related to the physical natural environment

Question	Label	Instruction	Code	Definitions and detailed instructions
			Social/ cultural	References to challenges related to social norms, identity, place attachment, beliefs, worldviews, values, awareness, education, social justice and social support; security issues
			Biological	Reference to highly intense changes in temperature, precipitation, salinity, acidity, and intensity and frequency of extreme events, including storms, drought and wind
			Other emerging issues	Emerging contextual challenges such as pandemics and invasions

3.C.4 Assessment of the consistency score

To assess consistency within BTRs, the representation of thematic elements captured in systems at risk and climate impacts was compared to those captured under actions and results. To do this, the analysis created two profiles for each country. The risk profile aggregates entries classified as hazards, system at risk, and climate impact, indicating where climate risks concentrate. The action profile aggregates information identified as actions and results, indicating where adaptation efforts and outcomes are focused. Each profile is normalized to a share-of-attention view (summing to 100 per cent) to enable pattern-based comparison. The resulting consistency score summarizes how closely action emphasis aligns with risk emphasis: values approaching 1 reflect strong alignment, whereas values closer to 0 indicate a material mismatch, signalling potential gaps in targeting and prioritization.

3.C.5 Analysing data on gender and social inclusion

The ways gendered roles, structures, and norms are recognized define outcomes for gender equality (Moser 1989; Kabeer and Subrahmanian 1996; Arora-Jonsson 2011). Singh et al. (2021) take this insight and apply it to climate policy to demonstrate that

“different ways of recognizing gendered vulnerability (moving from women as vulnerable to women as change agents) shape adaptation policy approaches (from gender-blind to gender-transformative)” (p. 961).

The table below defines different gender approaches, focusing on how each approach defines vulnerability and has particular outcomes. This table was used to guide data extraction and analysis on the BTRs. In the data-collection sheet, each row records an individual BTR, with columns representing the gender approach. BTRs that mentioned gender once, typically in the introduction, and then did not mention it anywhere else, were coded as gender-blind. Further, each BTR was coded yes/no for mention of Indigenous and local knowledge.

Two countries are exceptions: Brazil discusses intersections of race and gender, and uses this to inform its gender mainstreaming approaches. See Brazil, Ministry of Science, Technology and Innovation (2024, p. 149) – “Strategies Considered for Gender Mainstreaming and for Consideration of the Knowledge of Indigenous Peoples and Traditional Peoples and Communities”. Chile focuses on intersectionality through gender, ethnicity and intergenerational aspects in their BTR.

Table 3.C.4 Instructions for analysing data on gender and social inclusion

Gender approach	Definition	How vulnerability is recognized	Implications for policy approach taken	Examples from BTRs to code under this category
Gender-blind	Failure to recognize that men and women have different, context-specific needs, roles and experiences	No recognition of gender and intersectionality as a key facet of climate vulnerability	Leads to policies and practices that can perpetuate, rather than alleviate, gender inequality	No mention of gender or women
Gender-neutral	Rules or practices that do not discriminate based on gender, aiming to provide equal rights, opportunities and treatment to all individuals, regardless of gender identity	Largely unitary recognition of gender which overlooks intersectionality. E.g. women, children and the disabled are typically viewed as more vulnerable than men (Lau et al. 2021; Arora-Jonsson 2011)	Does not question existing inequalities based on gender and its intersections with other forms of identity. Based on an assumption that all women can benefit equally, contrary to evidence on intersectional vulnerability	Gender goals mentioned in passing, typically in the beginning without any follow-through in the adaptation section. If mentioned, it is vague and buckets women, LGBTQIA+, etc. together as homogeneous categories
Gender-targeted	Strategy that aims to achieve gender equality by designing policies, programmes and initiatives that address the specific needs, interests and unequal positions of women and men, boys and girls	Views women as vulnerable and victims of climate change (Arora-Jonsson 2011), typically through metrics such as increased work burdens, violence, health outcomes	Interventions target men and women's needs, but within existing rules and norms of distributing responsibilities and resources	Specific programmes, schemes focusing on women without any acknowledgement that gender is relational. Things like women-specific self-help groups, gender-budgeting, collecting gender-disaggregated data, etc.
Gender-sensitive	Acknowledge and address the differing impacts of policies and programmes on women and men, recognizing historical and systemic inequalities to promote gender equality	Women as amenable and critical to adaptation, holding agency (Alston 2013)	Identify factors and processes that shape unequal gender relations and put in place strategies to reconfigure them	Adaptation actions that start redistributing resources – e.g. women's participation in leadership or particular sectors; has separate national gender equality policy/plan

Gender-transformati ve	Aims to fundamentally change the underlying societal norms, beliefs and power structures that create and perpetuate gender inequality, rather than just addressing its symptoms	Women and men as active agents of change, where gender is one axis of vulnerability. Focus on structural issues that undermine agency	Interventions designed to transform existing distribution of resources and responsibilities by normative change, e.g. legislative shifts	Changes in law, overhauling processes of resource inheritance, etc.
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Table 3.C.5 List of 94 countries with BTRs that contain detailed climate impacts and adaptation chapters

UN region	Countries with BTRs that contain detailed information on climate impacts and adaptation
Africa	Algeria, Burkina Faso, Central African Republic, Côte d'Ivoire, Egypt, Gabon, Ghana, Kenya, Mauritius, Morocco, Namibia, Nigeria, Rwanda, Seychelles, South Africa, Tunisia, Zimbabwe
Asia-Pacific	Azerbaijan, Bhutan, Brunei Darussalam, Cambodia, China, Indonesia, Japan, Kazakhstan, Lebanon, Maldives, Nepal, Pakistan, Philippines, Republic of Korea, Saudi Arabia, Solomon Islands, Sri Lanka, Tajikistan, Thailand, Uzbekistan, Vanuatu
Eastern Europe	Belarus, Bulgaria, Croatia, Czechia, Estonia, Latvia, Lithuania, Montenegro, Poland, Republic of Moldova, Russian Federation, Serbia, Slovakia, Slovenia
Latin America and the Caribbean	Argentina, Belize, Brazil, Bolivia (Plurinational State of), Chile, Colombia, Costa Rica, Cuba, Ecuador, Guyana, Honduras, Mexico, Panama, Paraguay, Peru, Uruguay, Venezuela (Bolivarian Republic of)
Western Europe and other states	Andorra, Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Ireland, Israel, Italy, Luxembourg, Malta, Monaco, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Turkey, United Kingdom of Great Britain and Northern Ireland, United States of America

Annex 4: Online annexes for the chapter ‘Adaptation Finance Gap’

Annex 4.A: The modelled costs of adaptation

Introduction

The Adaptation Finance Gap analysis assesses the incremental modelled costs of adaptation, based on sectoral analysis. This approach enables an improved representation of adaptation, though it does not capture the wider economic and cross-sectoral linkages that are possible with full economic models.

The Adaptation Gap Report (AGR) derives adaptation cost estimates from established sector models and recently published studies. Work was conducted with modelling teams to extract adaptation cost information and update to current prices (presenting values as annual undiscounted adaptation costs). This has predominantly drawn on a coordinated modelling analysis from the Assessing Climate Change Risk in Europe project (ACCREU),¹⁹ complemented by additional sector assessments from the ECONOGENESIS project.²⁰

The main models and references are summarized in table 4.A.1. Since the previous analysis in AGR 2023 (United Nations Environment Programme [UNEP] 2023), the modelled costs of adaptation have moved to provide estimates for the year 2035, in line with the target year of the new collective quantified goal. Where possible, it has also rerun models using the newer Coupled Model Intercomparison Project (CMIP6) projections (for multiple representative concentration pathways [RCPs]). There have been major updates for agriculture – using information from the Assessing Climate Change Risk in Europe project (ACCREU 2025) – and health – based on new costs of inaction analysis by World Bank Group (2024) and applying previous adaptation cost estimates from AGR 2023 (UNEP 2023).²¹ The values are presented in constant 2023 values.²²

¹⁹ The ACCREU project is funded by the European Union through the Horizon Europe Research and Innovation Action (RIA) under grant agreement 101081358. Note that the views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union. Neither the European Union nor the granting authority can be held responsible for them.

²⁰ The ECONOGENESIS project funded by UK aid from the UK Government and by the International Development Research Centre (IDRC), Ottawa, Canada as part of the Climate Adaptation and Resilience (CLARE) research programme (Note that the views expressed herein do not necessarily represent those of the UK Government, IDRC or its Board of Governors).

²¹ AGR 2025 acknowledges and thanks the World Bank for providing the updated health impacts, and the team of Tamer Samah Rabie, Lorie Rufo, Benoit Laplante, Steven Ceglia Smith and David Alexander Clary. We stress that the views and opinions expressed in this report are those of the author(s) only, and do not reflect those of the World Bank.

²² This study brings together information on costs and finance flows from many different sources. It is therefore important that these costs are expressed in comparable terms. Most of the studies and model outputs used in this Adaptation Finance Gap Update report cite values in United States dollars (referred to here as US\$ for consistency with AGR 2023). However, these values are often not directly comparable, as some are provided for different years.

There are conventions on how to produce comparable values and adjust for currencies or values in different

countries. However, the exact approach varies with each study’s objective. For the AGR, we are interested in the gap between current flows of international finance for the most recent year available (which is 2023) in comparison with how much finance is needed, based on studies of the costs of adaptation/adaptation finance needs, expressed in equivalent terms. This requires an analysis of adaptation costs and finance flows in equivalent constant 2023 US\$ values, without purchasing power parity adjustments.

Regarding the base (price) year, all values in this report are reported in constant 2023 prices (to year-end 2023), which was the most up-to-date gross domestic product (GDP) deflator data set when the analysis began. Price-level adjustments were made based on the World Bank’s GDP deflator series. GDP deflators were considered more representative of the types of expenditure needed for adaptation than consumer price indices – though it is noted that GDP deflators exclude imports, which might be important for some sectors.

All values are reported using market exchange rates rather than purchasing power parity values. In the context of the AGR, the relevant cost of providing adaptation finance to a developing country is that using market exchange rates, so it would not be relevant to make a purchasing power parity adjustment.

Costs are presented as annual finance flows or annual costs, with no discounting applied. This makes it easier to compare the likely resource needs for adaptation in different time periods. We note that, in many analytical contexts – such as in economic project appraisal – it would be appropriate to discount costs arising in future years.

Table 4.A.1 Approach and results for the sectoral modelled costs of adaptation for developing countries

Sector or theme	Approach	Estimated adaptation costs (central) for developing countries
Coastal zones	DIVA model (Hinkel <i>et al.</i> 2013) and model runs (Lincke <i>et al.</i> 2018)	Cost of coastal protection and beach nourishment (adaptation cost only, excluding residual damage; RCP4.5–SSP2). Residual costs remain after adaptation, though levels vary with protection levels.
River floods	GLOFRIS model (Ward <i>et al.</i> 2017) and model runs (ACCREDU 2025)	Cost of river flood protection estimated for 2010–2050 (RCP4.5–SSP2; average of five climate models). Residual costs remain after adaptation, though vary with protection level. Excludes pluvial flooding.
Infrastructure	World Bank Studies (Hallegatte, Rentschler and Rozenberg 2019; Hallegatte <i>et al.</i> 2019)	Cost of making infrastructure resilient in energy, transport, and water and sanitation subsectors. Adaptation reduces the risks of damage by a factor of two to three, though residual impacts remain. Does not include adaptation costs for retrofitting or for other infrastructure (including urban).
Agriculture	Global Biosphere Management Model (Havlík <i>et al.</i> 2015), runs (ACCREDU 2025), and research and development costs (Rosegrant <i>et al.</i> 2023)	Annual adaptation investment based on crop modelling outputs fed into partial equilibrium model to address the impact of climate change (RCP4.5–SSP2), including costs of agricultural crop, land and water management. Additional analysis included on agricultural research and development costs.
Fisheries, aquaculture and marine ecosystems	Impact data from Barange <i>et al.</i> (2018) and adaptation from UNEP (2023)	Costs of adaptation to address changes in fish catch potential. Includes costs for adaptation for marine and coastal ecosystems (marine protected areas) and safety at sea, but not ocean acidification.
Health	Update using health impact data from the World Bank Group (2024) and adaptation costs from UNEP (2023)	Costs of disease control to address increases in malaria, dengue and diarrhoeal diseases, and to address increased heat-related mortality (RCP4.5–SSP2), plus costs of increased disease surveillance and resilient health infrastructure
Early warning and social protection	Updated analysis based on UNEP (2023)	Costs of weather and climate services (including early warning systems) based on the Early Warning for All Assessment (World Meteorological Organization 2022) and a review of 31 national studies. Costs of adaptive social protection based on costs of additional funding for shock response programmes from national studies
Terrestrial biodiversity and	Update of UNEP (2023) based on Protected Planet (2025) and	Indicative analysis of the costs of adaptation for protected areas only, with climate change attribution. Estimate is an underestimate as it

ecosystem services	Waldron <i>et al.</i> (2020) data	does not capture adaptation to address non-protected areas or wider impacts on ecosystem services.
Cooling demand and labour productivity	Data from de Cian <i>et al.</i> (2025) and ACCREU (2025)	Adaptation costs for cooling in residential and commercial/industrial buildings (RCP4.5–SSP2). While impacts are autonomous or fall to the private sector/households, and not in core AGR estimates they do involve costs for developing countries and are reported separately.
Business and industry	Indicative values from Aligishiev <i>et al.</i> (2022)	Indicative estimates of the costs of climate proofing private sector assets and facilities. Note costs of retrofitting existing assets not included.
Capacity-building and governance	Qualitative review (due to low evidence base)	Review of potential adaptation costs associated with capacity-building and governance.
Socially contingent effects	Qualitative review (no quantified estimates available)	Review of potential adaptation costs for social sectors (e.g. education) and socially contingent effects such as migration or conflict.

Note that all values are presented in constant 2023 prices. Therefore, values differ from the original published studies.

As highlighted in the main text (box 4.2), these values are only partial and exclude many risks and categories.

The analysis has also looked at the potential difference in adaptation costs for different warming scenarios (RCPs). The differences between most RCPs (2.5, 4.5, 6.0) in the period 2030–2035 are relatively small (typically below 10 per cent), as this near-term climate change is mostly locked in already (Arias *et al.* 2021). However, it does find higher adaptation costs for the more extreme warming scenarios (RCP8.5). Further details of these differences will be provided in a subsequent academic paper (under preparation).

Much larger differences in adaptation costs arise (in 2035), driven by the objectives set. For example, costs vary due to differences in adaptation costs and residual damages between economic optimal, maintaining current standards or reducing all damages. Differences also depend on the specific climate model (whether hotter, cooler, wetter or drier) and the impact model and representation of adaptation used. The full range around the previous values is therefore very large. The analysis also shows

a greater divergence in adaptation costs between warming scenarios after 2040, which highlights the need to achieve the Paris Agreement goals to reduce adaptation costs (and residual damage). Further details of these differences will be provided in a subsequent academic paper (under preparation).

The effects of inflation

When comparing the adaptation finance costs from AGR to climate finance goals, it is critical to make sure this is on a like-for-like basis, ensuring all values are presented in equivalent price years and including the effects of inflation. This can make a significant difference to targets and their real-term values. To illustrate, the US\$100 billion climate finance goal was set in 2009 for the year 2020, but it was not adjusted for inflation. Based on observed historical inflation rates, this 2009 value would have risen to between US\$118 billion and US\$137 billion by 2020 with inflation (the range reflects the difference between using the United States versus the global GDP deflator series, respectively).

The same issues apply to the new collective quantified goal and, in particular, the goal of reaching at least US\$300 billion per year by 2035. This 2035 target is highly sensitive to the price year and would be much higher if inflation-adjusted (Gabbatiss 2024). The

negotiation text does not specify that the goal will be increased with inflation (and the previous US\$100 billion goal was not), and thus it is likely to represent US\$300 billion of climate finance in 2035.

Attempts to assess the future levels of inflation are extremely challenging and involve high levels of uncertainty. While there are inflation targets set by central banks, these have been regularly exceeded over the last decade (Ha *et al.* 2023). They are also projected to be exceeded over the next few years (World Bank 2025).

AGR has investigated different approaches. This has included constant annual inflation rates (e.g. 3 per cent) as well as historical rates (using GDP deflators, specifically the World Bank United States and global GDP deflator series over the past 10 years) (World Bank Group n.d.). The effects of different rates are shown in the following table for the central range of US\$310–365 billion per year for developing countries by the year 2035. For the main analysis, the 3 per cent fixed rate has been used.

Table 4.2.A Example of the influence of different inflation rates on the AGR adaptation cost estimates

	Inflation rate	2023 (constant US\$2023)	2035 with inflation
AGR modelled costs (Global)	Global (10-year rolling)	310	483
AGR finance needs (Global)	Global (10-year rolling)	365	569
AGR modelled costs (Global)	United States (10-year rolling)	310	450
AGR finance needs (Global)	United States (10-year rolling)	365	529
AGR modelled costs (Global)	2.5%	310	418
AGR finance needs (Global)	2.5%	365	491
AGR modelled costs (Global)	3.0%	310	442
AGR finance needs (Global)	3.0%	365	520
AGR modelled costs (Global)	5.0%	310	557
AGR finance needs (Global)	5.0%	365	655

Annex 4.B: Annex on international public adaptation finance flows

4.B.1. Data characteristics and methodological choices

Data source

Data on adaptation finance flows have been obtained from the Organisation for Economic Co-operation and Development (OECD) Development Assistance Committee (DAC)’s Climate-Related Development Finance (CRDF) data set (recipients’ perspective). It includes flows from public bilateral and multilateral providers, including multilateral development banks (MDBs). Since 2025, CRDF is comprised of official development assistance, other official flows and private sector instruments (OECD, 2024a). All values are commitments at 2023 constant prices. Other official flows and private sector instruments are not concessional flows.

Flows in CRDF are in commitments – financial obligations for the duration of an activity – as opposed to disbursements, which reflect the financial payment flows towards recipients (OECD 2008). It is not possible to use disbursement data, as it is only available reliably for bilateral providers, while most multilateral providers do not report disbursements consistently to the OECD DAC.

CRDF uses Rio markers to distinguish whether adaptation is a principal objective or a co-benefit (significant objective). Transactions tagged as principal are considered at full commitment value, while only around 40 per cent is considered when significant (when adaptation is a co-benefit), similar to what is reported by countries to the United Nations Framework Convention on Climate Change (UNFCCC). We also acknowledge that the use of Rio markers has

been questioned, even when adaptation is marked as a core objective (Toetzke *et al.* 2022; Weikmans *et al.* 2017). Transactions from MDBs are considered at full value, due to their methodological approach.

Treatment of bilateral and multilateral funding flows

Coefficients for bilateral finance flows are applied for flows with principal and significant Rio markers, according to providers’ own reporting to the UNFCCC (OECD 2024c). When providers apply coefficients on a case-by-case basis, a standard 100 per cent for principal and 40 per cent for significant flows is applied.

Only multilateral finance attributed to developed countries is considered. The AGR uses the same share as those used in the OECD reports on the US\$100 billion (OECD 2024d).

Concessional and non-concessional instruments

All official development assistance flows are concessional. This includes grants and debt instruments (e.g. loans). To be considered concessional, loans reported as official development assistance require a grant element²³ of 45 per cent for low-income and least developed countries (LDCs), 15 per cent to low- and middle-income countries, and 10 per cent to upper-middle income ones (OECD 2025b). Average interest rates for DAC members in 2022 was 1.89 per cent, with an average maturity of 24 years (OECD 2024b). Loans can be concessional and non-concessional.

A summary of data characteristics and methodological choices is shown in table 4.B.1.

Table 4.B.1 Summary of characteristics and main methodological choices for the analysis of international public adaptation finance flows for the AGR 2025

Data source	OECD Development Assistance Committee (DAC) Climate-Related Development Finance data set (recipients’ perspective) (OECD, n.d.)
Finance type	International public finance flows in 2023 constant prices

²³ The grant element is the difference between a loan at face value and the present value of the service payments during the duration of the loan, presented as a percentage of the face value (OECD 2025a). Discount rates vary depending on country income group, with 9 per cent for

LDCs and other low-income countries, 7 per cent for lower-middle income countries and 6 per cent for upper-middle income countries (OECD 2025a).

Period covered	2019–2023
Geographic classification	Providers: Developed countries (Annex II Parties to the UNFCCC) Recipients: Developing countries (Non-Annex I Parties to the UNFCCC)
Finance sources	▶ Bilateral flows ▶ Multilateral outflows (MDBs, climate funds, other multilateral institutions) attributed to developed countries
Financial instruments	▶ Grants and loans (concessional and non-concessional) ▶ Other (equity, shares in collective investment vehicles, mezzanine finance instruments)
Measurement point	Commitment flows only
Methodological decisions	Exclusion of coal-related projects, donor administrative costs and official export credits

4.B.2 Flows by World Bank region

International public adaptation finance flows (in US\$) to developing countries, aggregated from country-level data, are shown in tables 4.B.2–

4.B.4. This data is shown in constant prices for 2023. The two columns represent the average for the years 2022–2023, and the values for 2023 only.

Table 4.B.2 International public adaptation flows by region (average 2022–2023), and the values for 2023 only

World Bank region	Average 2022–2023 (US\$ billion 2023)	2023 (US\$ billion 2023)
East Asia and Pacific	3.25	3.94
Europe and Central Asia	0.85	0.73
Latin America and Caribbean	2.82	2.51
Middle East and North Africa	2.19	2.12
Other regions*	4.60	4.04
South Asia	10.53	9.89
Sub-Saharan Africa	0.70	0.86
Unspecified**	1.99	1.83
Total (all regions)	26.93	25.93

Notes: *Other regions include OECD regions that do not match World Bank region groups: Africa, regional; Asia, regional; and South and Central Asia, regional. **Unspecified refers to those transactions towards “developing countries” as a bundle, without specifying specific countries.

4.B.3 Flows by World Bank income-level group

Table 4.B.3: International public adaptation finance flows (in US\$) to developing countries by income group, average 2022–2023, and values for 2023 only

World Bank income groups	Average 2022–2023 (US\$ billion 2023)	2023 (US\$ billion 2023)
Low-income countries	5.50	4.64
Lower-middle-income countries	12.85	11.94
Upper-middle-income countries	4.29	4.82
High-income countries	0.11	0.07
Regional	2.19	2.62
Unclassified*	1.99	1.83
Totals (all income groups)	26.93	25.93

Notes: *Unclassified includes flows towards “developing countries” without specifying a set of countries, and Venezuela (due to lack of income related information since 2021).

4.B.4 Flows by Small Island Developing States (SIDS) and LDCs

Table 4.B.4 International public adaptation finance flows (in US\$) to developing countries classified as SIDS and LDCs, average 2022–2023, and values for 2023 only

Country groups	Average 2022–2023 (US\$ billion 2023)	2023 (US\$ billion 2023)
LDCs	10.20	9.35
SIDS	1.20	0.97
Total (SIDS and LDCs)*	11.40	10.32

Notes: *Several SIDS are also LDCs.

4.B.5 Adaptation finance providers included in the AGR 2025

As multilateral providers (MDBs and other multilateral) are capitalized by both developed and developing countries, the AGR calculates the share of flows attributable to developed countries, following the methodology and percentages from the OECD (2024d). The list of providers can be found in table 4.B.5.

When considering flows attributable from both developed and developing countries, the 100 per cent of flows from MDBs and other multilateral providers are included, as well Annex I and Non-Annex I countries’ contributions. (See table 4.B.5 for additional providers).

Table 4.B.5 Adaptation finance providers

Category	Adaptation finance providers
Annex II	Australia, Austria, Belgium, Canada, Denmark, European Union institutions (excl. EIB), Finland, France, Germany, Greece, Iceland, Ireland, Italy, Japan, Luxembourg, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom of Great Britain and Northern Ireland, United States of America
MDBs	Africa Development Bank Group (AfDB), Asian Infrastructure Investment Bank (AIIB), Asian Development Bank (ADB), Central American Bank for Economic Integration (CABEI), Development Bank of Latin America (CAF), Caribbean Development Bank (CDB), Council of Europe Development Bank (CEB), European Bank for Reconstruction and Development (EBRD), European Investment Bank (EIB), Inter-American Development Bank (IDB), International Finance Corporation (IFC), World Bank (including International Bank for Reconstruction and Development [IBRD] and International Development Association [IDA])
Other multilaterals	Adaptation Fund, Climate Investment Funds (CIF), Green Climate Fund (GCF), Global Environment Facility (GEF) (including Least Developed Countries Fund [LDCF] and Special Climate Change Fund [SCCF]), Food and Agriculture Organization of the United Nations (FAO), Consultative Group on International Agricultural Research (CGIAR), Global Green Growth Institute (GGGI), International Fund for Agricultural Development (IFAD) International Monetary Fund Resilience and Sustainability Trust (IMF-RST), Nordic Development Fund (NDF)

Table 4.B.6 Additional providers when considering developing country contributions

Category	Adaptation finance providers
Annex I	Croatia, Czechia, Estonia, Hungary, Latvia, Liechtenstein, Lithuania, Monaco, Poland, Romania, Slovakia, Slovenia
Non-Annex I	Azerbaijan, Kazakhstan, Republic of Korea, Qatar, United Arab Emirates
Other multilaterals	Islamic Development Bank

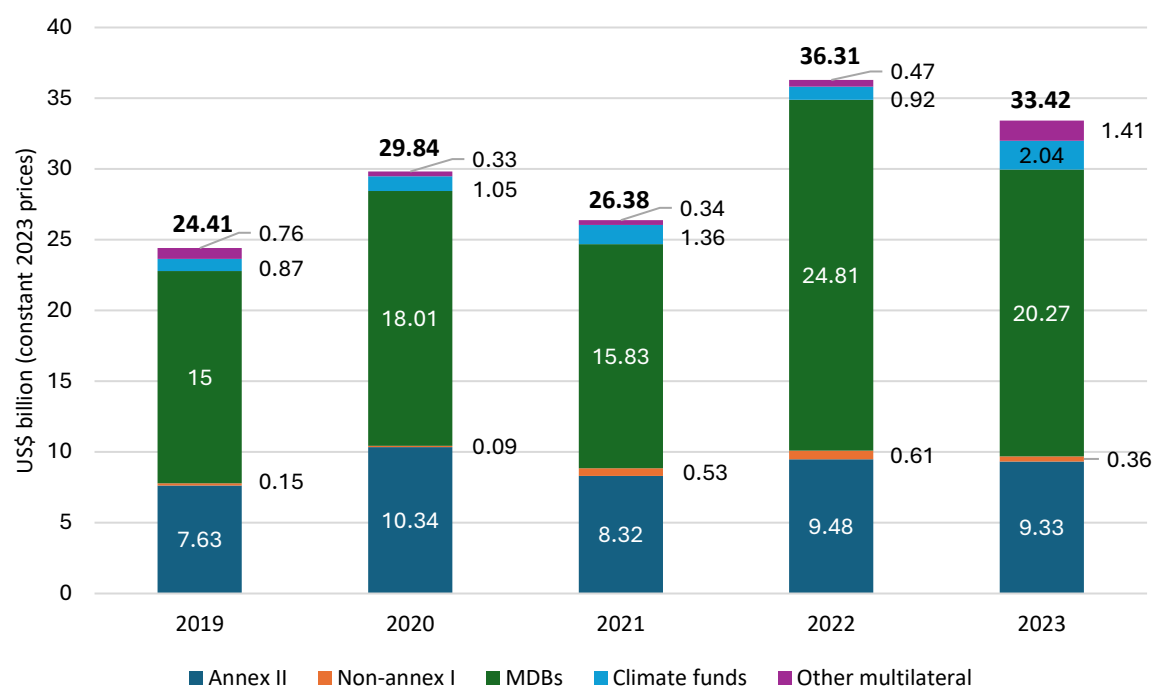
Table 4.B.7 Adaptation finance recipients included in the AGR 2025

World Bank region	Adaptation finance recipients
East Asia and Pacific	Cambodia, China, Democratic People's Republic of Korea, Far East Asia (regional), Fiji, Indonesia, Kiribati, Lao People's Democratic Republic, Malaysia, Marshall Islands, Melanesia (regional), Micronesia (Federated States of), Micronesia (regional), Mongolia, Myanmar, Nauru, Oceania (regional), Palau, Papua New Guinea, Philippines, Polynesia (regional), Samoa, Solomon Islands, Thailand, Timor-Leste, Tonga, Tuvalu, Vanuatu, Viet Nam

Europe and Central Asia	Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Central Asia (regional), Europe (regional), Georgia, Kazakhstan, Kosovo, Kyrgyzstan, Montenegro, North Macedonia, Republic of Moldova, Serbia, States Ex-Yugoslavia (unspecified), Tajikistan, Türkiye, Turkmenistan, Ukraine, Uzbekistan
Latin America and Caribbean	America (regional), Antigua and Barbuda, Argentina, Belize, Bolivia (Plurinational State of), Brazil, Caribbean and Central America (regional), Caribbean (regional), Central America (regional), Chile, Colombia, Costa Rica, Cuba, Dominica, Dominican Republic, Ecuador, El Salvador, Grenada, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Saint Lucia, Saint Vincent and the Grenadines, South America (regional), Suriname, Venezuela (Bolivarian Republic of)
Middle East and North Africa	Algeria, Djibouti, Egypt, Middle East (regional), Morocco, North of Sahara (regional), State of Palestine, Syrian Arab Republic, Tunisia, Yemen
South Asia	Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, South Asia (regional), Sri Lanka
Sub-Saharan Africa	Angola, Benin, Botswana, Burkina Faso, Burundi, Cabo Verde, Cameroon, Central African Republic, Chad, Comoros, Congo, Côte d'Ivoire, Democratic Republic of the Congo, Eastern Africa (regional), Equatorial Guinea, Eritrea, Eswatini, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Liberia, Madagascar, Malawi, Mali, Mauritania, Mauritius, Middle Africa (regional), Mozambique, Namibia, Niger, Nigeria, Rwanda, Sao Tome and Principe, Senegal, Sierra Leone, Somalia, South Africa, South of Sahara (regional), South Sudan, Southern Africa (regional), Sudan, Togo, Uganda, United Republic of Tanzania, Western Africa (regional), Zambia, Zimbabwe
Other regions	Africa (regional), Asia (regional), South and Central Asia (regional)
Unspecified	Developing countries (unspecified)

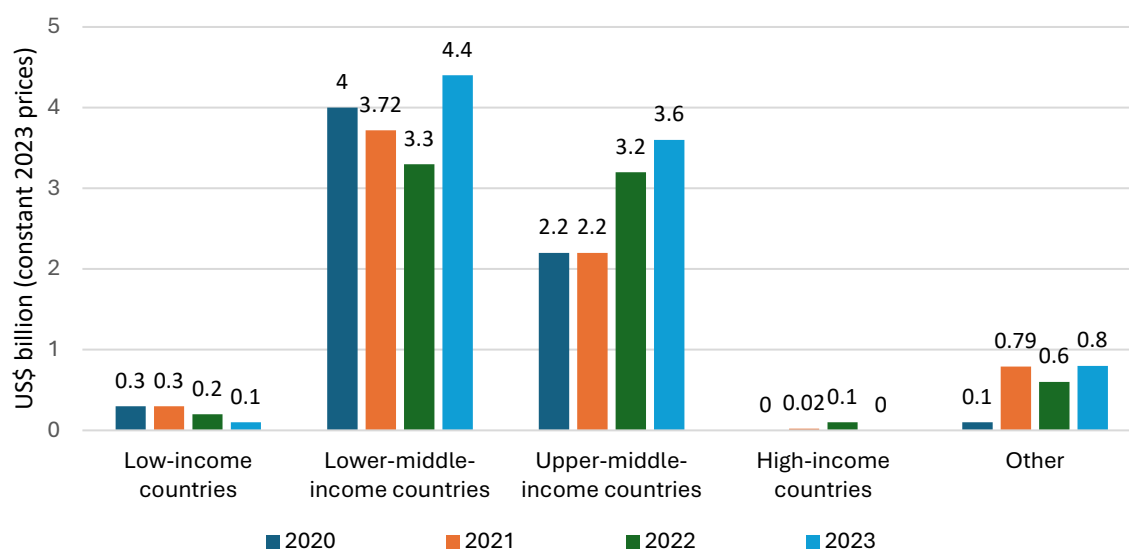
4.B.6 Adaptation finance considering developed and developing countries' contributions

When recognizing the contributions from all UNFCCC parties, adaptation finance raises to US\$35 billion on average for 2022–2023.

Figure 4.B.1 Adaptation finance flows, considering all UNFCCC parties

Note: Small errors may occur due to rounding.

4.B.7 Non-concessional finance

Figure 4.B.2 Non-concessional finance by income country group

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