



# Chapter 4

## Global progress on adaptation finance

**Lead authors:** Paul Watkiss (Paul Watkiss Associates), Dipesh Chapagain (Center for Development Research), Pieter Pauw (Frankfurt School of Finance and Management), Georgia Savvidou (Chalmers University of Technology).

**Contributing author:** Blanche Butera (independent).

**Photo:** © Shutterstock

## Key messages

- ▶ Since the 2020 edition of the Adaptation Gap Report (AGR), there have been some new estimates of the costs of adaptation for developing countries, reporting higher figures than earlier studies. There are also new estimates of adaptation finance needs from some updated Nationally Determined Contributions and National Adaptation Plans, which report higher estimates for many countries.
- ▶ This new evidence indicates potentially higher adaptation costs and financing needs than indicated in previous AGRs. This emerging evidence requires a detailed updated stocktake of the costs of adaptation and finance needs.
- ▶ The costs of adaptation, and thus adaptation finance needs, will be much lower if the goals of Paris Agreement are met.
- ▶ While there has been a trend of gradually increasing international public adaptation finance to developing countries in recent years (up to 2019), adaptation finance flows are projected to decline as a result of the COVID-19 pandemic.
- ▶ Although final data still need to be prepared and analysed for 2020, unless it shows an increase in climate finance of 26 per cent between 2019 and 2020 (compared to just 2 per cent between 2018 and 2019), the US\$ 100 billion target for 2020 will not have been met.
- ▶ There have been positive trends in the emergence of new instruments, actors and approaches to scale up adaptation, including in the private sector. These include opportunities to leverage private-sector investment with public finance. However, due to the barriers to private finance and the public intervention or finance needed to overcome these, the rate of upscaling remains slow. Furthermore, private-sector investment will be uneven across countries and sectors and is unlikely to target the most vulnerable.
- ▶ The available evidence has limitations but suggests that estimated adaptation costs, and likely adaptation financing needs in developing countries, are five to ten times greater than current international public adaptation finance flows.
- ▶ The evidence suggests that the gap is larger than indicated in the AGR2020 and is widening for two reasons. First, new bottom-up evidence indicates higher estimated adaptation costs/needs. Second, known finance flows seem broadly stable or may even be decreasing.
- ▶ There remains an urgent need to scale up and further increase international public adaptation finance, for both direct investment and for overcoming barriers to private-sector adaptation.

## 4.1 Introduction

The adaptation finance gap has been defined as the difference between the estimated costs of meeting a given adaptation target and the amount of finance available to do so (UNEP 2014). In practice, this is a simplification: estimating the finance gap is challenging, both in conceptual and quantitative terms (UNEP 2016a). Furthermore, while a common monetary metric helps to

define the adaptation finance gap, it is important to note that finance is a means rather than an end: the availability of funds does not guarantee that they will be used efficiently and effectively.

This chapter provides an update on the adaptation finance gap for developing countries (defined as the non-Annex I countries under the United Nations Framework Convention on Climate Change [UNFCCC]<sup>1</sup>), as reported in previous

<sup>1</sup> This refers to countries that have ratified or acceded to the UNFCCC that are not included in Annex I to the Convention. The industrialized countries listed in Annex I to the Convention includes the 24 original Organisation for Economic Co-operation and Development (OECD) members, the European Union and 14 countries with economies in transition. The List of Parties to the Convention is available at [www.unfccc.int/process/parties-non-party-stakeholders/parties-convention-and-observer-states](http://www.unfccc.int/process/parties-non-party-stakeholders/parties-convention-and-observer-states).

Adaptation Gap Reports (AGRs) (UNEP 2014; UNEP 2016a; UNEP 2016b; UNEP 2018; UNEP 2021). It has reviewed the evidence base on the estimated costs of adaptation, including recent studies, and also considered the emerging estimates of country adaptation needs from National Adaptation Plans (NAPs) and Nationally Determined Contributions (NDCs). This provides an updated view on the potential costs of adaptation. It has also reviewed the latest data on global adaptation finance flows. This allows, in theory, a comparison of finance flows against the estimated adaptation costs, and thus makes it possible to determine the potential size of the adaptation finance gap (and whether this is changing) in developing countries. However, the analysis of both adaptation costs and finance flows is very challenging (UNEP 2016a; UNEP 2021). In this respect, this chapter provides insights rather than new numbers. Finally, it provides an update on the opportunities and progress to bridge the gap and discusses new insights since the 2020 edition of the AGR (UNEP 2021).

## 4.2 The costs of adaptation and adaptation finance needs

Previous AGRs have reviewed the evidence base for the costs of adaptation in developing countries, concluding that there is no definitive estimate for the (global) costs of adaptation, not least because there is no agreed (quantitative) adaptation target. The wide range of cost estimates in the literature reflects major differences in targets, future scenarios, methods, assumptions, coverage (sectors and impacts), investment periods, uncertainty and the costs of implementation.

A key challenge is uncertainty. Future climate change varies with future emissions scenarios (for example, a global temperature rise of 2°C or 4°C by end of century, relative to pre-industrial levels) and the uncertainty around climate model outputs for a given scenario (for example, wetter or drier climate projections). Different scenarios and models lead to different impacts of climate change, and thus different adaptation costs. This leads to a large possible range of values, making proactive and planned adaptation difficult in practice, since it requires decision-making under conditions of uncertainty and changes the options and costs compared to analyses of adaptation for a single, precisely defined future. The amount of adaptation needed (and thus its total cost) also depends on the level of benefits that adaptation delivers (that is, its effectiveness), which also varies with the objectives.

A further issue is whether countries' existing adaptation deficits are included in the estimated cost of adaptation. This deficit is defined as the adverse impacts of natural (that is, non-human-induced) climate variability and extremes (for example, from periodic floods that already happen, rather

than those arising due to human-induced climate change). This deficit is often large in developing countries. While the existing adaptation deficit is not primarily caused by climate change, future adaptation will be less effective and will involve higher costs if it is not addressed first. There are also issues regarding whether these deficits are included in country estimates of adaptation finance needs.

### 4.2.1 Global costs of adaptation in developing countries

The AGR2016 (UNEP 2016a; UNEP 2016b) estimated that the annual costs of adaptation in developing countries could be between US\$ 140 billion and US\$ 300 billion by 2030. Moreover, with increasing levels of climate change, the annual cost was projected to increase to between US\$ 280 billion and US\$ 500 billion by 2050.<sup>2</sup> The figures reflect low and high future emissions scenarios (approximately 2°C and 4°C pathways by the end of the century, relative to pre-industrial levels), therefore, the costs of adaptation are projected to be much lower if the Paris Agreement goals are met. These estimates were compiled from a combination of global integrated, global sectoral, and national studies and must only be considered as indicative (discussion on the challenges of estimation is included in [Annex 4.A \[online\]](#)). This range of estimates was reported in subsequent AGRs (UNEP 2018; UNEP 2021).

Since the AGR2016, which had a special focus on finance, there have not been any major new global assessments nor re-analysis and synthesis of the evidence on the global costs of adaptation in developing countries. There are, however, some new studies that shed new light on the previous AGR estimates. This section summarizes the findings of a rapid review of new estimates. Additional details and references are provided in [Annex 4.A \(online\)](#) of this chapter.

A first key insight is that recent estimates of the economic impacts of climate change are generally higher than reported in earlier studies, both in the near-term under ambitious mitigation scenarios and later in the century under higher warming scenarios. This includes updated values from existing integrated assessment models, which indicate substantially higher impacts (for example, Nordhaus 2017; Chen *et al.* 2020). It also includes estimates from other modelling methods, including from computable general equilibrium models (for example, Kompas, Pham and Che 2018; Bosello *et al.* 2021), and econometric-based studies (Burke, Hsiang and Miguel 2015; Burke, Davis and Diffenbaugh 2018). The latter report much higher values because of the consideration of climate change impacts on growth rates as well as output. Implicitly, if the economic impacts of climate change are higher than previously anticipated, all other things being equal, the costs of adaptation are also likely to be higher (or otherwise there will be higher residual damage

<sup>2</sup> Note that updating to current (2020) prices, these values are now equivalent to between US\$ 155 billion and US\$ 330 billion annually by 2030, rising due to between US\$ 310 billion and US\$ 555 billion by 2050.

after adaptation). To illustrate this, the higher sea-level rise projected in the recent Intergovernmental Panel on Climate Change (IPCC) AR6 report (IPCC 2021) would be expected to lead to increased costs of sea defences (to maintain similar levels of protection or to deliver the optimal level of adaptation), although the economic benefits of adaptation would also be higher. It also highlights that strong mitigation action is indispensable to reduce adaptation costs and residual damage in the long term (Chapagain *et al.* 2020; Estrada and Botzen 2021; Iizumi *et al.* 2020; Markandya and González-Eguino 2019).

A second insight is that the estimated costs of adaptation in many national and sector studies are also increasing, as compared to earlier studies. For example, a recent estimate of the global costs of adaptation for developing countries, based on a compilation of national studies using a similar approach to the AGR2016 (UNEP 2016b), indicates costs in a similar range to those found in this report but with higher adaptation costs in high-emissions scenarios after 2030 (Chapagain *et al.* 2020). Similarly, a study using global integrated assessment models estimated adaptation costs in line with the upper estimates in previous AGRs (Markandya and González-Eguino 2019). Findings from sectoral studies also indicate similar trends. There have been several studies of the global costs of coastal adaptation (Nicholls *et al.* 2019; Schinko *et al.* 2020; Tiggeloven *et al.* 2020; Brown *et al.* 2021; Tamura *et al.* 2019). These studies report costs that are significantly higher than earlier estimates, even when using the same models. This is due to rising sea level projections and higher estimated costs from maintenance but also updated socioeconomic change scenarios. Similar findings emerge for other sectors, for example for river flood adaptation (Ward *et al.* 2017), the water sector (Straatsma *et al.* 2020) and the agricultural sector, (Iizumi *et al.* 2020; Baldos, Fuglie and Hertel 2020). This new evidence reinforces the AGR reported range of estimated adaptation costs and plausibly suggests a higher upper estimate, although more detailed systematic analysis is needed to confirm this.

On the other hand, there is growing evidence – at least in the short-term – that there are many low-cost adaptation interventions – so called no-regret and low-regret options (Global Commission on Adaptation 2019) – with high benefit-to-cost ratios. These include, for example, weather and climate services, sustainable soil and land management options, water efficiency and capacity-building. This highlights the incentives to act early and start scaling up adaptation, while recognizing that more major investment will be needed in the medium term and beyond, as these low-regret actions do not deliver more transformational adaptation. This early action is particularly important because the lags in the climate system mean that the largest benefits of mitigation will be from 2040 (Estrada and Botzen 2021) and most of the impacts projected for the next two decades can only be reduced by adaptation.

Overall, the new evidence reinforces the estimates presented in the AGR2016 but indicates that these could be towards

the higher end of the ranges, especially if the Paris Goals are not met. Given the new evidence that is emerging, a more detailed stocktake of the costs of adaptation is now required and it is thus recommended that a more comprehensive cost assessment is undertaken in line with the approach from the AGR2016.

### 4.2.2 Adaptation finance needs in developing countries

A further indication of the costs of adaptation for developing countries is provided by the costs/finance needs reported in countries' domestic adaptation ambitions, submitted to the UNFCCC in the form of NDCs and NAPs. The submission of updated NDCs means this is a rapidly evolving area and this chapter has reviewed updates submitted up to the end of July 2021.

The review found that 58 developing countries (specifically non-Annex I countries, the focus of this chapter) include estimates of adaptation financing needs in their latest NDCs and NAPs. These are generally not based on detailed technical analyses and use a range of methods, making them difficult to aggregate or compare, both with each other and against the costs of adaptation reported above. The costs indicated in these political documents should be interpreted with care for various reasons: (i) their level of precision varies considerably; (ii) NDC implementation periods vary; (iii) estimates are partial (covering only limited numbers of sectors); and (iv) there is no clear differentiation of the adaptation deficit versus the adaptation gap (Pauw *et al.* 2020). As a result, there is a large variation in estimated costs among countries. Nevertheless, these cost estimates are relevant to the international community because many developing countries make their NDC implementation conditional on international support (*ibid.*). There may be benefits to encouraging a more rigorous analysis of adaptation finance needs in NDCs. This will help recognize the issues above and help convert the estimates into bankable projects and pipelines that consider potential financing, including from public, private and public-private partnerships.

The indicative financing needs for these 58 countries total around US\$ 70 billion per year for 2020–2030. Extrapolation of these NDC and NAP estimates using per capita costs and population estimates (demand-side adaptation finance needs) to all developing countries – while being highly indicative – would increase the estimate to US\$ 250 billion per year by 2030 (Chapagain *et al.* 2020). This is at the upper range of the costs of adaptation from modelling studies reported in previous AGRs (US\$ 140 billion to US\$ 300 billion per year by 2030) but many NDCs do not clearly separate financing the adaptation deficit from future climate change.

Some countries have updated their adaptation finance needs in their updated NDC submissions. A comparison of original and updated NDCs indicates that adaptation finance

needs for these countries have increased. For example, the Dominican Republic, Cambodia, Guinea and Mongolia revised their NDCs and report significantly higher adaptation financing needs compared to their initial submission. A clear reason for this increase is the incorporation of more sectors in the adaptation plan.

The sectoral distribution of adaptation finance needs is shown in [figure 4.1](#). The figure is based on a subset of 26 NDCs and NAPs that provide sectoral estimates. These needs are from studies that use different approaches and methods (as discussed above) but that nonetheless provide useful information. The analysis shows that the reported needs are highest in the agriculture and infrastructure sectors, followed by water, and then disaster risk management. These four sectors cover over 75 per cent of adaptation finance needs that have been communicated. However, this sectoral distribution may be influenced by a larger proportion of African countries in the sample, where economies are highly dependent on natural resources.

Further estimates of adaptation finance needs for developing countries will be published later in 2021, by the UNFCCC Standing Committee on Finance in its first report on the needs of developing-country Parties related to implementing the UNFCCC and the Paris Agreement. These estimates were not available in time for inclusion in this edition of the AGR.

Aligned with the recommendation above, it would also be useful to consider the new evidence on adaptation finance needs as part of a more detailed stocktake on the costs of adaptation. This should also assess why needs are increasing, and whether this is due to higher costs, greater coverage or improved assessment methods.

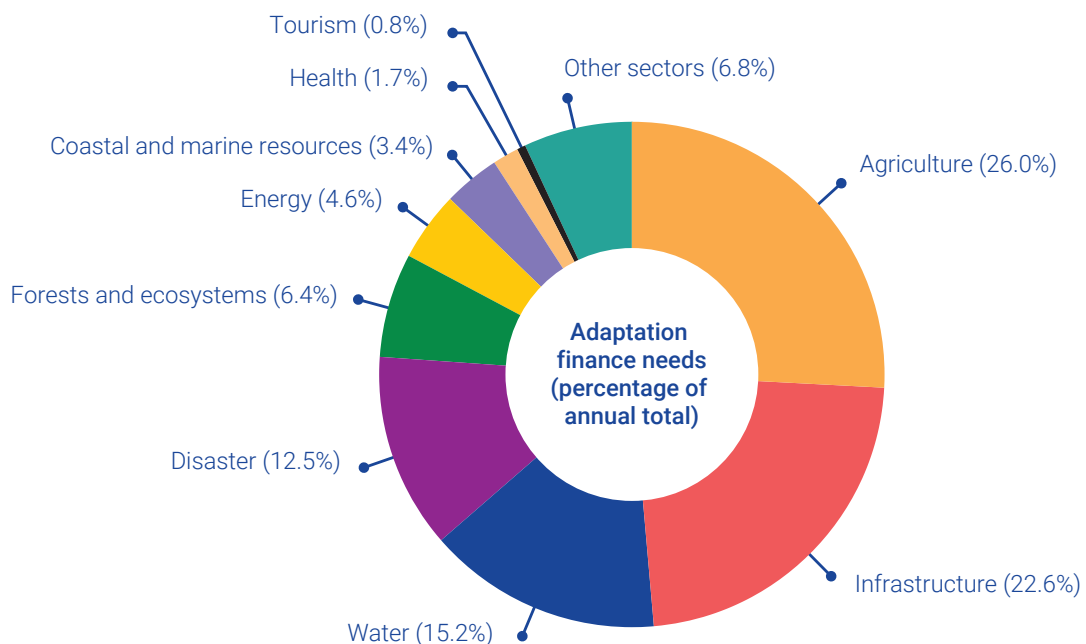
### 4.3 Financing adaptation: status and progress in adaptation finance flows

This section considers the main channels of adaptation finance for developing countries and how they have evolved over time. It starts with the global estimates and then provides a breakdown by bilateral, multilateral, domestic and private sources. The understanding of adaptation finance flows is heavily constrained by data availability and limitations (see [Annex 4.B \[online\]](#)). There are a number of significant challenges in tracking adaptation finance, including definitions, accounting issues, confidentiality restrictions and a lack of universally accepted impact metrics (UNFCCC 2018; UNEP 2016b; Climate Policy Initiative [CPI] 2020; see also [Annex 4.B \[online\]](#)). These challenges vary depending on the source of finance. International public bilateral and multilateral finance flows are well documented by the Development Assistance Committee (DAC) database of the Organisation for Economic Co-operation and Development (OECD). However, much less data exist on domestic public sector finance and private-sector investments in adaptation (UNEP 2021; UNFCCC Standing Committee on Finance 2018; Weikmans and Roberts 2019; Pauw *et al.* 2016). Details of the specific data sources considered for the assessments used in this chapter are included in the following sections, with more information in [Annex 4.B \(online\)](#).

#### 4.3.1 Global climate-related finance

According to the CPI Global Landscape of Climate Finance 2021 (CPI 2021), global climate finance flows – including public and private flows of both domestic and international origin – were tracked at US\$ 632 billion per year for 2019–2020. These global figures do not only concern flows to UNFCCC developing-country Parties (see next section)

**Figure 4.1** Adaptation finance needs by sector based on 26 developing countries' NDCs and NAPs with sectoral disaggregation



and they include finance for both mitigation and adaptation. This means they are not comparable with the goal of mobilizing US\$ 100 billion by 2020.

The vast majority (US\$ 571 billion) of tracked finance flowed to mitigation, with US\$ 46 billion for adaptation and US\$ 15 billion to cross-cutting themes that include both mitigation and adaptation (*ibid.*). Adaptation finance gained momentum in 2019–2020, increasing 53 per cent to an annual average of US\$ 46 billion from US\$ 30 billion in 2017–2018. However, the level still falls far short of estimated needs (Global Center on Adaptation [GCA] 2021) and continues to account for only a minor share of total public climate finance (14 per cent). The majority of this tracked adaptation finance comes from public finance channels (*ibid.*).

Data for developing countries for 2020 are still emerging. Studies undertaken at the start of the pandemic projected there might be a decrease in finance flows (see also [chapter 6](#)), with the potential for a single-digit percentage decline in adaptation finance in 2020 and a potentially larger decline in subsequent years, due to the COVID-19 pandemic (CPI 2021; GCA 2021). This prediction was based on the projected reductions in international development finance, increased debt distress, and slow vaccine roll-out in climate-vulnerable countries (CPI 2021; GCA 2021). These projections need to be compared to the actual figures for 2020 and 2021 once data are available. However, there are a number of factors pointing in the direction of positive long-term growth in adaptation finance, including the increase of adaptation finance over time prior to 2020, the potential for funding towards addressing COVID-19 to include adaptation co-benefits (see [chapter 6](#)) and the potential that increasing climate risk disclosure and strengthened accounting frameworks may drive an increase in adaptation finance flows and the capacity to accurately track them.

Data on climate-related finance to developing nations shows an increasing trend in finance flows over time, reaching US\$ 79.6 billion in 2019, a 2 per cent increase compared to 2018. However, this falls some US\$ 20 billion short of the US\$ 100 billion target for 2020 (OECD 2021a). To meet the target, the current trend in climate finance would therefore need to increase from 2 per cent (between 2018 and 2019) to 26 per cent (between 2019 and 2020).

### 4.3.2 Adaptation finance to support developing countries

Under the UNFCCC, Annex II Parties<sup>3</sup> are required to report on the climate finance that they provide to developing countries. Annex II Parties use various methodologies to track adaptation finance (see [Annex 4.B \[online\]](#)) and some countries have

also changed the way they report. This makes it very difficult to compare data over time (Weikmans and Roberts 2019). However, it is clear that the adaptation component of such self-reported finance under the UNFCCC has been growing in recent years, at least before the COVID-19 pandemic.

Some non-Annex II countries also report their adaptation-related finance contributions to the OECD DAC on a voluntary basis. The OECD also tracks multilateral adaptation finance committed by multilateral development banks (MDBs), multilateral climate funds and other international institutions (see [Annex 4.C \[online\]](#)). This mainly includes grants and loans of varying levels of concessionality, equivalent to Official Development Assistance (ODA) and Other Official Flows (OOF), as defined by the OECD (see [Annex 4.C \[online\]](#)).

The Rio Marker and Climate Components methodologies are currently used across the landscape of bilateral and multilateral funders to track and report climate change finance. Except for MDBs, which use Climate Components, all funders use Rio Marker, although both use compatible definitions of climate mitigation and adaptation (OECD 2018). According to the Rio Marker methodology, adaptation and mitigation can be targeted as a “principal” objective (where mitigation or adaptation “is explicitly stated but is not the fundamental driver or motivation for undertaking the activity”) or is not be “targeted” at all (OECD 2011). MDBs track and report data on their climate-related contributions following their own Climate Components methodology (European Bank for Reconstruction and Development 2019). Based on this approach, MDBs determine the specific components of a transaction that directly contribute to mitigation, adaptation or both simultaneously.

Self-reporting comes with some limitations. The attribution of financial support is subjective because the judgement and reporting is made by the funders and is not independently verified. The definition of adaptation used by both methodologies leaves room for interpretation and the accounting methods differ (see [Annex 4.C \[online\]](#)). Several studies claim that the self-reporting of donors and the lack of independent quality control result in low data reliability and sometimes substantial overestimations of finance flows (Junghans and Harmeling 2012; Weikmans *et al.* 2017), especially for activities tagged as “significant” (Weiler, Klöck and Dornan 2018). Finally, historical data of loan amounts are reported by the funders at face value, instead of using the grant-equivalent amounts, resulting in overestimates of loan amounts (Oxfam International 2020; Roberts *et al.* 2021). Moreover, financial flows reported include the administrative costs of donors, which in some cases can be high (Atteridge and Savvidou 2020). Regarding gender considerations around equity and justice, although gender-

---

<sup>3</sup> Under the UNFCCC, Annex I Parties include the industrialized countries that were members of the OECD in 1992, plus countries with economies in transition. Annex II Parties (considered here as developed countries) are Annex I Parties that are obliged to provide support to non-Annex I Parties (considered here as developing countries).

responsive public finance is thought to be more effective and efficient (UNDP 2018), funders do not systematically report data on gender. Furthermore, not all financial transactions in the OECD DAC databases are screened against the Rio marker for adaptation, so there may be adaptation-related finance flows that are not captured (Savvidou *et al.* 2021).

Despite the limitations mentioned above, the OECD DAC data provides the most comprehensive and comparable picture on international development finance for climate change (Weiler and Sanubi 2019; Doshi and Garschagen 2020). While it is important to acknowledge that tracking the provision and reporting of finance does not provide much information about efficient or effective use of funds (UNEP 2021), it is necessary for examining the effectiveness of financial contributions (Savvidou *et al.* 2021).

**BILATERAL PUBLIC FLOWS**

Overall, bilateral flows to developing countries reported to the OECD DAC have increased between 2011 and 2019 (figure 4.2, Panel A). There are substantially higher allocations tagged as significant as compared to principal. Contributions tagged as “principally” targeting adaptation were lower in 2018 and 2019 than in 2017. Although there is no firm evidence on these trends, it could reflect efforts by countries to make their finance flows consistent with climate-resilient development pathways (article 2.1(c) of the Paris Agreement) as part of mainstreaming, which integrates climate adaptation in existing policies, programmes and plans. However, some analyses prior to 2015 did identify over-reporting of adaptation-related finance due to ambiguous definitions (Republic of India 2015) and political motives in reporting by funder institutions (Junghans and

**Figure 4.2 Panel A:** Adaptation-related bilateral flows to developing countries between 2011 and 2019  
**Panel B:** Share of financial instruments used per year for principal and significant markers



**Note:** Data represent donor commitments and are in constant US\$. Data include both adaptation and cross-cutting finance (22 per cent for activities targeting both adaptation and mitigation). Loans are presented at face value. Data include both Annex II and non-Annex II countries. A full list of funders is provided in [Annex 4.C \[online\]](#). The contribution of Annex II is over 97 per cent of the totals shown for both the “principal” and “significant” markers.

**Source:** OECD DAC 2021.

Harmeling 2012, Adaptation Watch 2015). This means that some caution is needed in interpreting the data and trends.

Increased finance for climate change adaptation is a central issue for climate justice (Heffron and McCauley 2018). There is a growing body of evidence indicating that funders are not strategically targeting their adaptation support towards those countries with the greatest vulnerability and needs (Savvidou *et al.* 2021; Weiler and Sanubi 2019; Doshi and Garschagen 2020; Alcayna 2020). The share of total adaptation-related finance committed to the Least Developed Countries (LDCs) for 2011–2019 was 23 per cent for principal and 28 per cent for significant. The Rio Marker methodology allows analysis of the extent to which adaptation finance is gender responsive. Around 60 per cent of bilateral ODA from OECD DAC contributors marked as relevant to adaptation was also marked as supporting gender equality for 2018–2019. Most of this adaptation-related finance (86 per cent) has a significant objective for the gender marker, compared to just 14 per cent for principal (see [Annex 4.D \[online\]](#) for more on gender in adaptation finance). This is despite the approval of the UNFCCC Gender Action Plan at COP23, which includes the use of gender-responsive finance as a core tool for implementation (UNFCCC 2017) and despite the fact that funded programmes taking into account gender dynamics have been found to be more effective and efficient (UNDP 2018).

Most of the finance was earmarked as grants (64 per cent for principal and 73 per cent for significant), with loans being the second-most used instrument (at face value) ([figure 4.2, Panel B](#)). Three sectors – agriculture, water supply and sanitation, and general environment protection – received well above 50 per cent of the total finance throughout the period for both “principal” and “significant” markers. To some extent, this aligns with the adaptation finance needs expressed in the NDCs and NAPs of developing countries ([figure 4.1](#)). However, basic development sectors such as health, education and others such as disaster prevention and preparedness, and other social infrastructure and services, received negligible amounts of adaptation spending, despite the needs expressed by countries in their development plans ([section 4.2.2](#)) as well as their importance in building long-term resilience and adaptive capacity (Atteridge, Verkuil and Dzebo 2019).

#### MULTILATERAL PUBLIC FLOWS

Adaptation-related financial flows to developing countries by MDBs exhibited a strong uptrend through to 2019 ([figure 4.3, Panel A](#)). Support for adaptation as a share of overall MDB climate finance rose from 10 per cent in 2011 to 39 per cent in 2019 (including 4 per cent for activities targeting both adaptation and mitigation). During the same period, a total of 26 per cent of adaptation-related MDB finance went to LDCs. The two sectors of agriculture, on the one hand, and water supply and sanitation, on the other, account for 36 per cent of finance contributions to adaptation.

The bulk of the increase of commitments to adaptation from MDBs comes from debt instruments, which make up 92 per cent of total commitments for 2015–2019, with just 6 per cent delivered as grants and 2 per cent as equity and shares in collective investment vehicles or unspecified financial instruments ([figure 4.3, Panel B](#)).

Adaptation finance flows from multilateral climate funds are also presented in [figure 4.3 \(Panel B\)](#). Multilateral climate funds have a critical role to play in the adaptation-related finance landscape, given their exclusive focus on supporting climate change objectives. In contrast to MDBs, multilateral climate funds use a higher proportion of grants than loans. The total share of grants was 85 per cent for contributions classed as principal and 74 per cent for significant. Notably, from 2011 to 2019, the share of principal contributions to least developed countries from multilateral climate funds increased substantially, from 26 per cent to 63 per cent ([figure 4.3, Panel B](#)). The largest proportion of principal adaptation-related finance from multilateral climate funds is for the general environment protection sector (29 per cent for both principal and significant), followed by water supply and sanitation (14 per cent for principal and 17 per cent for significant).

#### PRIVATE FLOWS

So far, few biennial reports by Annex II Parties have reported on the private climate finance that they mobilized through public interventions. The UNFCCC Standing Committee on Finance and OECD data show that mobilized private-sector finance has varied between 17 and 27 per cent of all climate finance for developing countries (Bhattacharya *et al.* 2020). The total amount of mobilized private finance has been relatively stable from 2017 to 2019, with an annual average of US\$ 14.4 billion (OECD 2021b). However, the majority of private finance mobilized by public climate finance in developed countries benefits mitigation activities (93 per cent for 2016–2018) (OECD 2020). However, the OECD has observed that there is room for improvement in identifying adaptation-relevant activities within mobilized private finance data sets. Tracking mobilized private adaptation finance is expected to remain challenging.

Despite private-sector flows to adaptation remaining limited and being challenging to track, there is considerable innovation in this area, increasing the potential for private-sector finance to play a larger role in closing the adaptation finance gap. In summary ([Annex 4.E \[online\]](#) provides a review of new developments), there are now examples of the use of private investors and financial markets to raise adaptation finance, for example, with green and resilience bonds (debt instruments). There is also growing involvement of the private sector in developing and delivering adaptation and a range of new instruments and approaches have been developed to encourage this, incentivized by blending public finance to address barriers and de-risk private investment (for example, seed funding, concessional lending, guarantees and equity). Nonetheless, barriers to private investment in adaptation (information



**Figure 4.3 Panel A:** Adaptation-related multilateral flows to developing countries between 2011 and 2019  
**Panel B:** Share of financial instruments used per year for climate funds (principal and significant markers) and multilateral development banks



**Note:** Data represent donor commitments and are in constant US\$. Data include both adaptation and cross-cutting finance (targeting adaptation and mitigation at the same time). Amounts are presented at face value. Data providers use different methods: MDBs use Climate Components; multilateral climate funds use Rio Marker (Annex 4.C [online]). Multilateral climate funds are the Adaptation Fund, Climate Investment Funds (Strategic Climate Fund), the Global Environment Facility (Least Developed Countries Fund, Special Climate Changes Trust Fund, General Trust Fund), the Green Climate Fund. MDBs included in this data are the African Development Bank, the Asian Development Bank, the Asian Infrastructure Investment Bank, the Caribbean Development Bank, the Development Bank of Latin America, the European Bank for Reconstruction and Development, the European Investment Bank, the Islamic Development Bank, the International Finance Corporation, the Inter-American Development Bank Group, and the World Bank Group.

**Source:** OECD DAC 2021.

gaps and uncertainty, positive externalities, lack of or low revenues) and the public interventions or finance needed to overcome these mean the uptake and scaling-up of these new instruments remains slow. Furthermore, private-sector investment will gravitate to opportunities where revenues are highest and risks are lowest, meaning it is unlikely to target the most vulnerable in LDCs or non-market sectors. More work is needed to identify where public finance is most needed and most effective in leveraging private finance, as well as where private finance is unlikely to fill the gap.

**DOMESTIC FINANCE FLOWS**

Domestic budgets are an underexamined but vitally important source of adaptation finance and current data are largely based on case studies. Allan *et al.* (2019) report that for many countries, domestic public finance for climate change (mitigation and adaptation) has in the past exceeded that of international sources. For example, in Ghana, for adaptation, 2 per cent of the total annual budget was climate-relevant between 2014 and 2017. This compares to 3 per cent in Antigua and Barbuda and 8 per cent in both Kenya and Pakistan (Watson *et al.* 2020).

Similarly, 5 per cent of the budget of Nepal is considered as being “highly relevant” to climate change (Nepal 2021). However, countries apply their own definitions and methods and transparency is often low (Watson *et al.* 2020). Furthermore, other aspects of countries’ budgets can counteract domestic finance for adaptation by increasing emissions or vulnerability (*ibid.*).

There is growing recognition of the role fiscal policy can play in building resilience to climate change. This includes taxes, price supports, revenue and expenditure measures that work to reduce, retain or transfer climate-related risks and help build resilience to shocks (International Monetary Fund 2019; World Bank 2019). This is in line with article 2.1(c) of the Paris Agreement, which states that all countries need to make their finance flows consistent with low-carbon and climate-resilient development pathways (Zamarioli *et al.* 2021). However, emerging evidence shows that the COVID-19 pandemic led to tax revenue reductions in many countries. In combination with the needs of governments to reallocate resources towards health or social services, this could cause countries to cut domestic climate finance flows (Caldwell, Alayza and Larsen 2021).

### 4.4 Progress, outlook and recommendations

This chapter has provided an update on the adaptation finance gap in developing countries. Estimating this gap is challenging but the evidence suggests that the costs of adaptation and reported needs from updated NDCs and NAPs are higher than in previous AGRs. At the same

time, this review has found that public finance flows for adaptation have remained broadly stable in recent years and may even have decreased slightly since the COVID-19 pandemic. These two findings suggest that not only is the gap larger than indicated in the AGR2020 but it is also widening. Taken together, the evidence indicates that estimated adaptation costs, and similarly likely adaptation finance needs in developing countries are five to ten times greater than current international public adaptation finance flows, a sizeable finance gap.

While there is some promising innovation to incentivize private-sector and domestic adaptation financing, data on such flows are scarce and there is little evidence to suggest such finance will bridge the adaptation finance gap. Related to this, while there is an upward trend in climate finance, based on current projections (OECD 2021b; Bhattacharya *et al.* 2020), it seems unlikely that the US\$ 100 billion target for 2020 has been met, particularly the inferred adaptation component of this target.

The review in this AGR has also found that there is now more evidence on the costs of adaptation, on adaptation finance needs and on finance flows. This makes it timely to undertake a more detailed stocktake and it is recommended that a more comprehensive cost assessment is undertaken in line with the AGR2016. Moreover, there is also more evidence on the benefits of adaptation and its effectiveness, which warrants consideration in such a stocktake, including a more detailed analysis of the potential roles and complementarity of public and private adaptation. Such information would also provide important insights needed for UNFCCC negotiations on future climate finance targets.