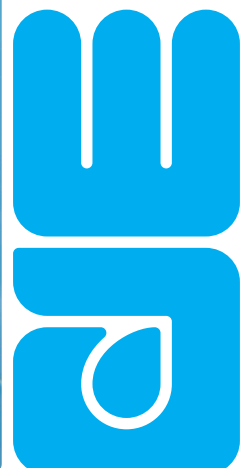


Just add water: a landscape analysis of climate finance for water

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October 2020



WaterAid

Contents

▲ Cover photo:
Priota is collecting water at a Pond Sand Filter
plant. Rising sea levels in the region of Dacope
means ground water resources can be increasingly
saline, which is unsafe to drink. September 2018.

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► **Fatimata Coulibaly, 29, a member of the Benkadi women's group who is in charge of water monitoring and management, standing with a notebook next to the water tower meter, Kakounouso, Samabogo, Circle of Bla, Segou Region, Mali. February 2019.**



WaterAid/ Basile Ouedraogo

Acronyms

| | | | |
|-------------|--|---------------|---|
| AFD | Agence Française de Développement | PPCR | Pilot Programme for Climate Resilience |
| CBI | Climate Bonds Initiative | SCCF | Special Climate Change Fund |
| CPI | Climate Policy Initiative | SCF | Standing Committee on Finance (of the UNFCCC) |
| CRDF | Climate-related development finance | SDG | Sustainable development goal |
| CRS | Creditor Reporting System | SIDS | Small island developing state |
| DAC | Development Assistance Committee | UMIC | Upper-middle-income country |
| DFI | Development finance institution | UNFCCC | United Nations Framework Convention on Climate Change |
| EBRD | European Bank for Reconstruction and Development | WASH | Water supply, sanitation and hygiene |
| GCF | Green Climate Fund | WCFI | Water and Climate Finance Initiative |
| GEF | Global Environment Facility | | |
| IDFC | International Development Finance Club | | |
| LDC | Least developed country | | |
| LDCF | Least Developed Countries Fund | | |
| LIC | Low-income country | | |
| LMIC | Lower-middle-income country | | |
| MCF | Multilateral climate fund | | |
| MDB | Multilateral development bank | | |
| MIC | Middle-income country | | |
| ODA | Official development assistance | | |
| OOF | Other official flows | | |

Executive summary

At WaterAid's Water and Climate Summit in London, March 2020, a High-Level Group led by HRH Prince of Wales pledged to work towards boosting available finance for climate resilient water, sanitation and hygiene (WASH), creating the Water and Climate Finance Initiative (WCFI). WaterAid has since facilitated the convening of a group of experts and stakeholders to identify key actions to deliver this objective.

To inform the work of the WCFI, WaterAid, with the support of the aforementioned group of experts and stakeholders, commissioned ODI to undertake a short review of the existing landscape of international financial flows to the water sector, with specific focus on climate finance.

The review is organised in three parts. Section 1 provides a **guidebook** on the climate finance architecture, in general and as it relates to water; Section 2 presents a **map** of the landscape of climate finance for water; and Section 3 concludes with a **compass** for future policy action and a set of recommendations.

1 Guidebook: Climate finance and water

1.1 What is climate finance and what is it for?

1.1.1 Climate finance definitions and pledges. Climate finance is understood to support adaptation and mitigation activities, but what counts as climate finance varies. Developed countries committed to mobilise USD 100 billion per year, from public and private sources, for adaptation and mitigation actions in developing countries by 2020, and will set a higher target for 2025.

1.1.2 Aligning all finance to the goals of the Paris Agreement. Alongside the need to increase the amount of climate finance, especially to developing countries, is the recognition that wider finance flows must be consistent with low-emission, climate-resilient development pathways.

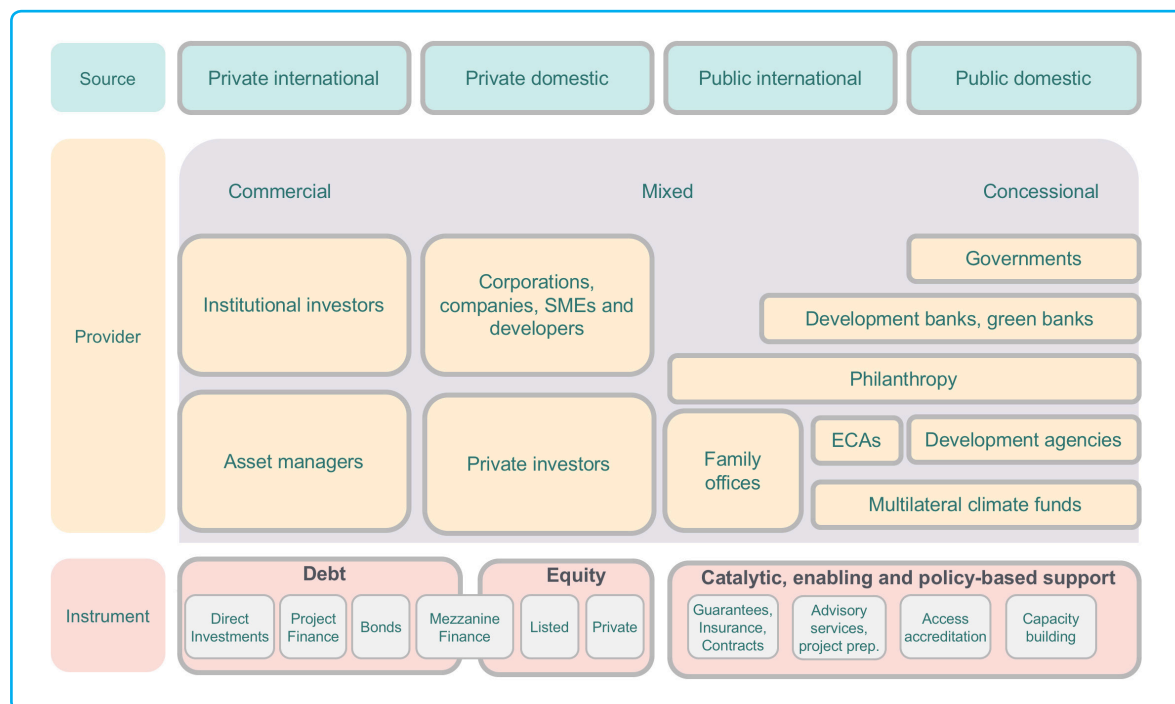
1.1.3 Sources of climate finance. Climate finance can come from many sources. International public concessional flows are the most transparent and relatively easy to identify, but domestic public and international and domestic private sources are also important, though less well tracked (Figure ES1).

1.1.4 Tracking climate finance. Different sources of climate finance are tracked to different degrees using a range of methodologies. Compilations of the volumes of climate finance are beginning to emerge, but little remains known of its impact.



◀ Marian Maria, 12, (dressed in blue) and Kellys Montiel, 11, walk next to the jaguey where their families used to source water before it dried up, Totcomana, Manaure, La Guajira, Colombia. March 2017.

Figure ES1: Sources, types, providers and instruments of climate finance available to support water and WASH projects



Source: Authors' analysis of various sources.

1.2 How much climate finance is available?

1.2.1 Total climate finance flows. Tracked flows of public and private climate finance across all geographies have grown steadily in recent years. In 2016 they totalled USD 455 billion or USD 681 billion if investments in energy efficiency are included.

1.2.2 Climate finance for projects in developing countries. Projects in developing countries received 61% of tracked climate finance in 2017/2018 and were mainly financed domestically. International concessional public climate finance (official development assistance, ODA) from developed to developing countries increased to USD 38 billion in 2016, but this is only 6% of total tracked climate finance.

1.2.3 Climate finance from public institutions. Globally, public institutions provided 33% - 44% of tracked climate finance. In 2016, climate finance from multilateral development banks' (MDBs) own resources was approximately ten times the face value of that from the multilateral climate funds.

1.2.4 Climate finance for adaptation and mitigation. Tracked total climate finance, including public and private flows globally, overwhelmingly supports mitigation projects. Just 5% of tracked global finance supports adaptation projects but this increases to 26% for international concessional public finance flows from developed to developing countries.

1.3 Challenges in tracking climate finance at the sectoral level

1.3.1 Differing motivations. Different sources of climate finance have different criteria for what defines a desirable project, each balancing profitability, development impact, contribution to action on climate change and political factors in a unique way.

1.3.2 Multiple instruments. Providers can select the type of support provided from a range of instruments that reflect their motivations and expertise, and the characteristics of the project. Financing complex projects often requires a range of instruments - which often cannot easily be aggregated - from a range of sources, often not tracked.

1.3.3 Accounting terms. Most climate finance tracking occurs on a commitment basis. Actual finance flows take time to disburse and so lag behind the increase in commitments seen in recent years.

1.3.4 Measurement frameworks. Different sources of climate finance track flows in similar but distinct ways. Some sources have robust measures for defining what is climate finance; others are still developing standards to do this.

1.4 Climate finance for water - mandates and approaches

1.4.1 Public domestic finance. Most developing countries identify water as a key sector in their climate change plans, but priorities within the sector vary. Very few data are available to globally evaluate how countries themselves finance water and WASH projects and the degree to which investment decisions consider climate change within them.

1.4.2 South-South cooperation. South-South climate finance flows are not systematically tracked given their voluntary nature, but they are likely to follow mandates set out by domestic governments or, where they overlap with other flows, those of other institutions e.g. the MDBs and development finance institutions (DFIs) to which some developing countries contribute.

1.4.3 Bilateral donors. Contributor-country mandates are unique in the same way that recipient-country priorities are. Some integrate the water sector in their climate change programmes while others treat these sectors separately. Support that is reported to the OECD Development Assistance Committee Creditor Reporting System (DAC-CRS) makes use of the 'Rio Markers'. These have two levels – activities with a 'principal' focus on climate change and those with a 'significant' focus where there is a climate objective but it is not the main focus of the programme. The OECD refers to finance

tagged as principle or significant as 'climate-related'.

1.4.4 Multilateral development banks and international development finance institutions. Long-standing commitments to the water and WASH sectors have marked MDBs and DFIs as the sectors' largest sources of international finance. Pledges by MDBs and DFIs to align their portfolios with the Paris Agreement are increasing the integration of climate risks within these finance flows. The MDB group, together with several DFIs, use a 'Common Principles' approach to identify climate-related finance. Under this approach, finance for adaptation is classified as such only where project activities can be linked to reduction of context-specific vulnerabilities.

1.4.5 The multilateral climate funds. Data clarity and availability for the multilateral climate funds (MCFs), including the Green Climate Fund (GCF), the Global Environment Facility (GEF) and the Adaptation Fund, is better than for other sources of climate finance. Some MCFs prioritise water and WASH projects, while others see their impacts as co-benefits. Most MCFs focus on piloting new projects or those that lead to transformational change, but also offer substantial support for building local capacity and strengthening the enabling environment.

1.4.6 Private sector climate finance. Motivations in the private sector are too diverse to characterise in any detail beyond stating that - apart from that from philanthropic sources - private capital seeks commercial investments. The increasing interest of private sector actors in sustainable finance, and growing awareness of material climate risks, has resulted in the launch of myriad initiatives to define and standardise approaches to integrating climate change concerns, each seemingly slightly different. The use of concessional capital and catalysing instruments by public institutions can attract private capital to climate-related investments, including blended finance projects that would otherwise not be financed by private actors.

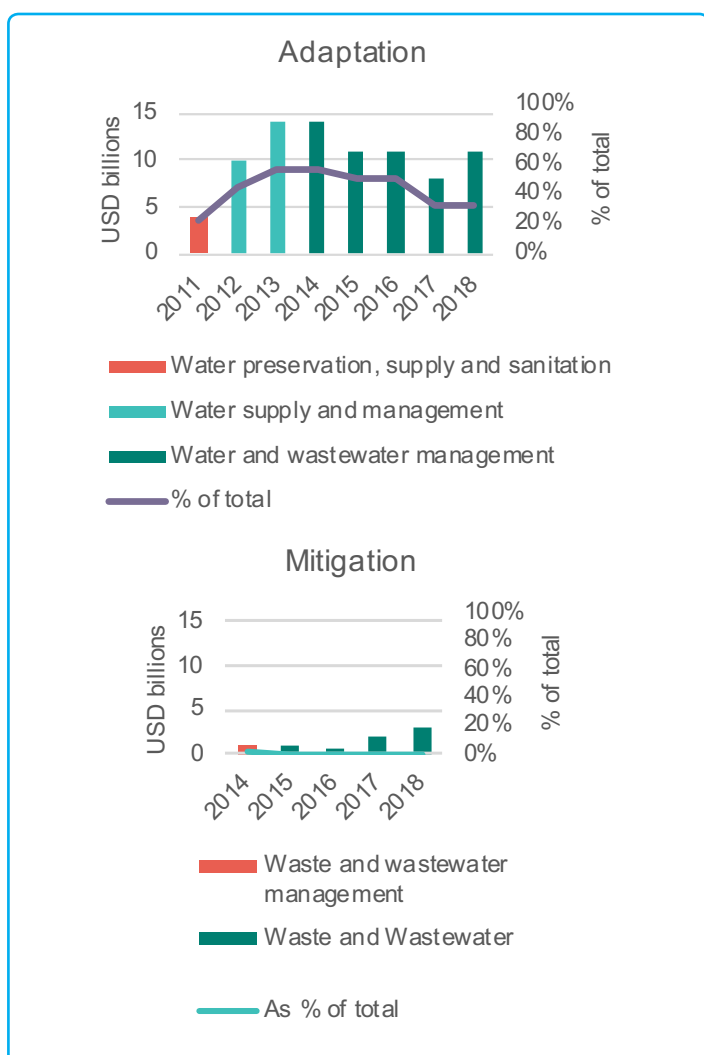


2 Map: water-related climate finance flows

2.1 How much water-related climate finance is available?

2.1.1 Overview. The water sector receives a substantial share of committed adaptation-related finance - 43% of the annual total since 2011, on average - with funding standing at USD 11 billion in 2018 for water and wastewater management. Water-focused mitigation related finance is growing but is more modest: USD 3 billion in 2018 for wastewater and waste combined (Figure ES2). Since finance for mitigation is far greater than for adaptation, water received a low share of climate finance overall (less than 3%).

Figure ES2: Climate finance to discernible water-related sectors: adaptation and mitigation



2.1.2 How much climate finance is flowing to different aspects of water? International public climate-related finance for water, as tracked by the OECD DAC 2000-2018, is dominated by large infrastructure for water resources management and water supply and sanitation, which receive over a third of the total each. Rural and community-scale water and sanitation receives around a 10th of the total.

2.1.3 How much of this finance is 'climate-related' finance, and how much is 'climate finance'? Definitions make a considerable difference to the numbers: a conservative interpretation of what counts as climate finance sees bilateral contributors committing nearly two-thirds less in climate finance to water, than headline figures might suggest. This conservative approach is applied to the succeeding analysis of international public flows. Patterns in the data suggest that donors may be slightly more likely to see finance to water as having a principal focus on climate change adaptation, as compared to their finance to other areas. The reverse may be true for WASH as compared to water resources - the former is less likely to be tagged as having a principal focus on climate change adaptation, than the latter. However, further investigation at project level would be needed to corroborate this.

2.1.4 What kind of water-related climate finance is being provided? The significant majority (86%) of public, international climate finance to water has been provided as repayable loans, of which around half was non-concessional or provided at market rates. Basic WASH and water policy and 'capacity' activities are more likely to receive grants than other water-related activities.

2.1.5 How much climate finance is actually flowing? Most available data on climate finance flows to water represent commitments. Disbursement data are patchy but available figures confirm this can be considerably lower.

Source:
Authors' analysis
of CPI data.

2.2 Where is water-related climate finance coming from?

2.2.1 Overview. Together, MDBs and DFIs account for nearly four-fifths of tracked water-focused climate finance in recent years (2016-2018). Bilaterals and bond issuers provide about a tenth each, and multilateral climate funds still a small share, albeit growing (around 3%) (Figure ES3). This is a global perspective on flows for which there is globally aggregated data available. Bond issuers likely make up a much smaller share for developing countries.

2.2.2 Domestic climate finance. National and regional DFIs provide a significant amount of tracked water-focused climate finance, more than two-fifths of the total in recent years. The majority of this appears to be allocated by DFIs outside the OECD, primarily in middle-income countries (MICs), within their own borders, and as market-rate loans. Other sources of domestic climate finance - such as budget spending - are not tracked globally, but country-level initiatives are developing, and may improve data and decision making around domestic climate finance flows.

2.2.3 South-South cooperation. Data are scarce, but these voluntary climate finance flows are unlikely to be larger than others assessed in this report. The biggest identified South-South contribution in terms of international public flows is from the Republic of Korea, which is classed as a non-Annex I country under the UNFCCC, but a developed country and member of OECD DAC for development-aid purposes. It is

the fifth largest donor providing climate-related development finance to water. Flows from China may be significant but high-level analysis of AidData's Global Chinese Official Finance dataset did not reveal any projects that are clearly at the intersection of water and climate objectives.

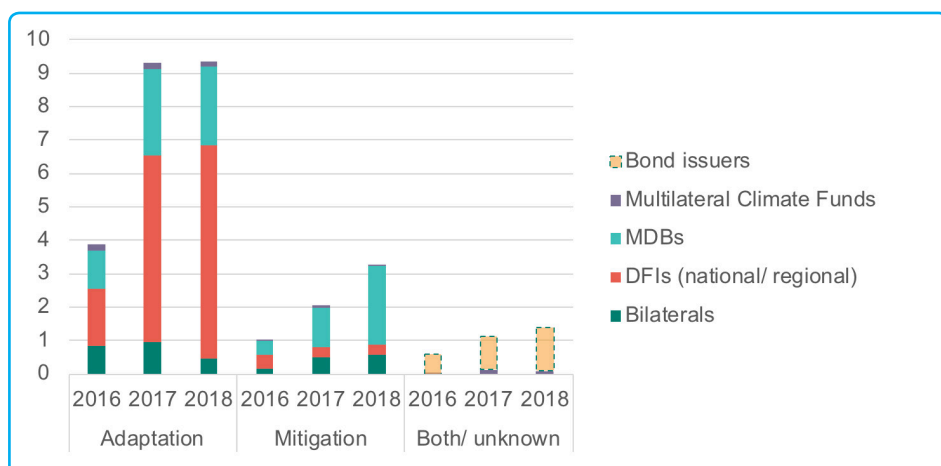
2.2.4 Bilaterals. The majority of bilateral commitments of climate-related development finance comes from three donors: Japan, Germany and France. With major lending activities, most of this is provided as concessional loans to Asian and middle-income countries. Across all bilateral donors, LDCs received a sixth of water-focused commitments.

2.2.5 Multilateral development banks. Among MDBs, the World Bank, Asian Development Bank and Inter-American Development Bank provide the majority of water-focused climate finance. These institutions provided climate-related development finance almost entirely as loans, of which most was non-concessional, with over half of the finance going to Asia. The African Development Bank is also active in financing water-focused adaptation projects, especially with a policy focus. LDCs again received about a sixth of all water-focused commitments from MDBs.

2.2.6 Multilateral climate funds. While the multilateral funds contribute a small share of climate finance to water overall, they concentrate more on LDCs, and on policy and capacity development, than most bilaterals and MDBs. The GCF has rapidly become the leading fund approving climate finance to water.

2.2.7 Private climate finance. Private finance for water-focused climate action is complex to track, in general and so there are limited data. Discernible flows are limited to green and climate-aligned bonds, which represent a growing share of tracked climate finance to water – USD 1.3 billion under one certification scheme in 2019. However, it should be

Figure ES3: Sources of climate finance for water



Source: Authors' analysis of multiple sources, see main text for details. Data are from different sources to Figure ES2 and are of similar order of magnitude but are not directly comparable.

noted that: bonds issuers and user-of-proceeds can be public in nature; bonds may be used to refinance debt (where they do not represent 'new' money); and existing issuances are heavily weighted towards developed country markets. The consultative process to develop certification and tracking of climate-related bonds to water may hold some lessons for improving tracking and coordination of other private climate finance stocks and flows for the sector. Related to the contribution of private financial institutions is the contribution of households and firms in the form of spending on water and sanitation, which may have adaptation and/or mitigation benefits. This is under-researched, as are questions of how related areas of public policy and finance for water, including pricing and subsidies, should be tailored to improve climate outcomes.

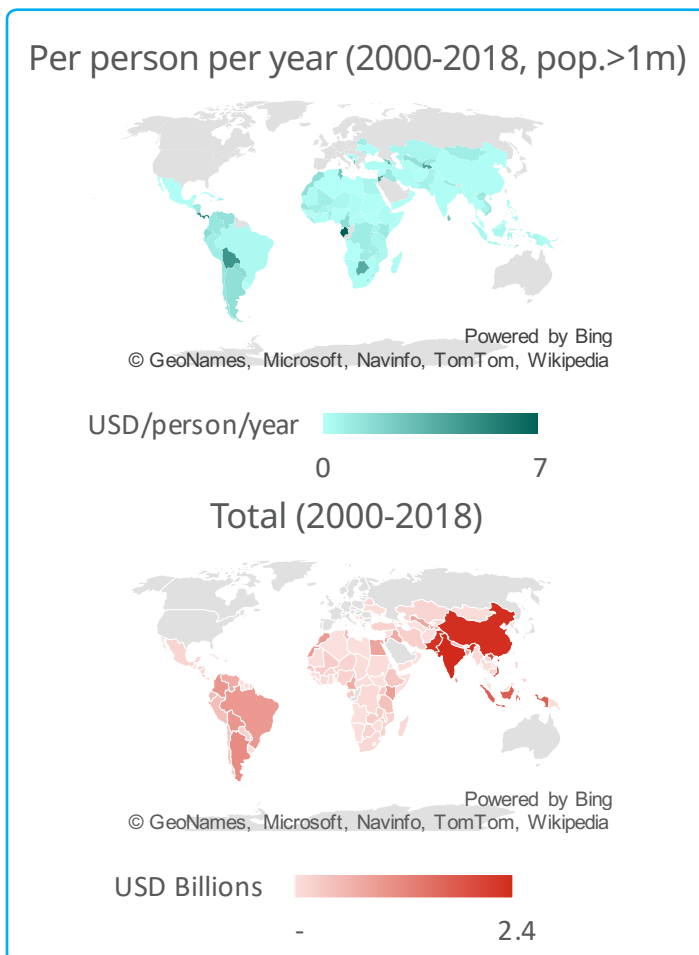
2.3 Where is water-related climate finance going?

2.3.1 Where is water-related climate finance going? Five countries in Asia - all middle income - received nearly 30% of public international climate finance to water: India, China, Pakistan, Vietnam and Indonesia. The top 20 recipients receive the majority of this finance as loans, and to large infrastructure for water resources management and WASH. Hydropower is prominent among the top 20 recipients of mitigation-related finance.

2.3.2 Does climate-related development finance to water reflect needs? Few LDCs are among the top-20 recipients of international public climate finance for water (Figure ES4). LDCs also receive a higher share when looking at flows in grant-form as opposed to loans; at flows for basic WASH and water policy and capacity rather than other water-related areas; and at flows of adaptation finance to water, rather than climate finance to water generally (yet adaptation finance to water is less likely to go to LDCs than adaptation finance generally). The relatively limited representation of LDCs may be related to their lower receipt of loans, which dominate overall climate-related development finance flows. However, on other measures there still appears to be little relationship between flows and need, including whether recipient countries themselves identify water as a vulnerable or priority adaptation sector in NDCs. Data on the additional financing need for water arising from

climate change is limited at global and country level, and there are considerable methodological difficulties to producing such estimates to compare against flows.

Figure ES4: Recipients of public, international climate finance to water, 2000-2018



Source: Authors' analysis of OECD DAC CRDF data, 'significant' focused finance excluded, and population data from World Bank.

3 Compass: How to enhance the contribution of climate finance to water and WASH?

3.1 Enhancing both map and compass to navigate climate finance policy debates

3.1.1 Supporting efforts to chart the landscape. The landscape is evolving and there is still much terra incognita. This will change with the evolution of both international tracking

efforts, and country-level climate finance accounting and costed planning pipelines. Sector communities can engage with and support these improvements and utilise improved data to link different sources of climate finance to appropriate project types and contexts.

3.1.2 Identify and follow principles that act as a compass to achieving SDGs 6 and 13.

The water community cannot wait for perfect understanding of the landscape, with the 2030 SDG deadline only a decade away, and both time and (in the near term) finance contracting due to COVID-19. More important is joint understanding and shared objectives – around making climate finance work for water, but also making water (and water finance) work for climate. What this means will be context dependent, but common threads include: supporting country-level processes (e.g. NDCs and NAPs); brokering access to the most appropriate types of finance for each purpose; and supporting wider efforts to strengthen the enabling environment for productive investment of climate finance alongside all finance flows.

3.1.3 Understand and internalise the idea that all finance in the water and WASH sector will need to align with the goals of the Paris Agreement.

Impetus to make finance flows consistent with climate goals, as required by Article 2.1c, is building. All ODA and OOF will need to demonstrate that it is climate-aligned, which means in turn that projects will need to demonstrate that climate risks have been properly considered (importantly, they will not be the most important risks in all contexts). More broadly, however, Article 2.1c will require not only increasing the finance flows that positively contribute to climate change adaptation and mitigation, but shifting away from finance flows that hinder these objectives. The water community can support efforts by both private financiers and the public policy makers that govern their activities to ensure finance is climate-aligned.

3.2 Priority actions at country level – the view from below

3.2.1 The challenge of extending and sustaining services. The level of funding going to water-related activities is certainly important, but what about the type and quality of projects

being funded? Here we refocus debate on the substance of adaptation, and more specifically on the barriers poorer countries face in extending and sustaining access to sustainable WASH as climate change accelerates. These depend crucially on the lifetime of proposed investments, the size of investment, risk of ‘lock-in’ and contribution of non-climate factors to performance.

3.2.2 Financing priorities: is money being spent on the right things? The way climate finance works, particularly the need for recipient institutions to make an unambiguous and additional climate rationale for funding, may distort sector priorities, privileging big infrastructure over small, long term adaptation over immediate concerns, and technical change over governance. At least for rural WASH in poorer countries, getting the basics right remains paramount, though funding arguments may need to shift – highlighting the benefits of addressing broader governance issues in terms of sustainability and resilience.

3.3 Priority actions at international level

3.3.1 Enhancing climate finance tracking with learning from water. To enhance the consistency and comparability of water-related climate finance tracking as well as the quality of interventions, the international water community could promote a risk-based approach to assessing the climate-relevance of funded activities, building on existing standards.

3.3.2 Coordinating advocacy and support on climate finance for water between different country categories. To improve the precision of advocacy asks and support around climate-finance, the international water community can tailor problem diagnosis and response to specific countries, or at least income groups.

3.3.3 Meeting the ambition of the Paris Agreement when it comes to water finance. To act as ‘responsible members’ of the climate community, water stakeholders can contribute to wider efforts to make finance flows consistent with low-emission, climate resilient development pathways, i.e. Article 2.1c of the Paris Agreement.

Introduction

At WaterAid's Water and Climate Summit in London, March 2020, a High-Level Group led by HRH Prince of Wales pledged to work towards boosting available finance for climate resilient WASH, creating the Water and Climate Finance Initiative (WCFI). WaterAid has since facilitated the convening of a group of experts and stakeholders to identify key actions to deliver this objective.

WaterAid, with the support of the WCFI Technical Group commissioned ODI to undertake a short review of the existing landscape of international financial flows to the water sector, with specific focus on climate finance. The report builds on the WaterAid report 'Short-Changed on climate change: Money, water and the people on the frontline' (WaterAid, 2020).

The review is organised in three parts. Section 1 provides a guidebook on the climate finance architecture, in general and as it relates to water; Section 2 presents a map of the landscape of climate finance for water; and Section 3 concludes with a compass for future policy action including recommendations.

▼ Priota happily posing with pitchers at the community Pond Sand Filter plant. Rising sea levels in the region of Dacope means ground water resources can be increasingly saline, which is unsafe to drink. Golchera, Harintana, Dacope, Khulna. September 2018.



1. Guidebook: Climate finance and water

1.1 What is climate finance and what is it for?

1.1.1 Climate finance definitions and pledges

Climate finance is understood to support adaptation and mitigation activities, but what counts as climate finance varies. Developed countries committed to mobilise USD 100 billion per year, from public and private sources, for adaptation and mitigation actions in developing countries by 2020, and will set a higher target for 2025.

The Standing Committee on Finance (SCF) of the United Nations Framework Convention on Climate Change (UNFCCC)¹ uses the term climate finance to refer to “the financial resources dedicated to adapting to and mitigating climate change globally, including in the context of financial flows to developing countries” (UNFCCC, 2018). The Standing Committee on Finance in its Biennial Update and Overview of Climate Finance Flows recognises, however, that there is no single internationally agreed definition of climate finance.²

The absence of a detailed definition of climate finance creates challenges in assessing whether developed countries are meeting their commitments to developing countries.³ Specifically, in 2009, developed countries committed to mobilise USD 100 billion a year, from both public and private sources, by 2020 in developing countries to respond to climate change.⁴ This provision of financial resources to developing countries is further embodied in Article 9 of the 2015 Paris Agreement (UNFCCC, 2015) and it is worth noting that a new collective goal for climate finance provision will be established from the present floor of USD 100 billion per year for 2025. Interpretations of what should count towards the USD 100 billion differ on the basis of the motivation, level of concessionality and source, causality, geographic origin and recipient of finance (Bodnar et al., 2015).

1.1.2 Aligning all finance to the goals of the Paris Agreement

Alongside the need to increase the amount of climate finance, especially to developing countries, is the recognition that wider finance flows must be consistent with the low-emission, climate-resilient development pathways.

The financing of climate action increasingly captures two interrelated topics under the UNFCCC. First, the abovementioned means of support and implementation provided to developing countries by developed countries to mitigate and adapt to climate change. Second, the long-term goal agreed to by all Parties to the Paris Agreement to make “finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development” (Article 2.1c, UNFCCC, 2015).

While this paper mainly focuses on the first topic, the second provides important context and inevitably overlaps with this paper’s scope. Article 2.1c, as the third long term goal of the Paris Agreement alongside those focused on mitigation and adaptation, captures the full scale of effort needed on finance to address climate change (Whitley et al, 2018). It not only suggests the redirection of finance flows that continue to support high-emissions or maladaptive actions, but it sends a strong signal that climate risks must better understood and internalised in all investment decision-making – across private and public spheres (Box 1).

¹ A body created to assist the Conference of the Parties with measurement, reporting and verification of support provided to developing countries.

² See Annexes B and C of UNFCCC (2018) for a summary of different definitions.

³ While ODI is transitioning away from using terms like ‘developed countries’ and ‘developing countries’, the Paris Agreement refers to ‘developed country Parties’ and ‘developing country Parties’ and this language is used here to refer to these groups.

⁴ FCCC/CP/2015/10/Add.1, para. 52 (or: Decision 1/CP.21)

Box 1: Why internalise climate risks in investment-decision making? An economic perspective.

There is a growing recognition that climate change poses a real threat to business and investment as usual in both the public and private sector around the world. This 'climate risk' stems from the actual and potential physical risks to assets and associated direct and indirect losses and damages, as well as from transition risks that result from shifts in asset values or the higher costs of doing business associated with transitions towards low-carbon, more climate resilient economies. There is also a third risk, in terms of liability, that arises when compensation is sought for the impacts arising from climate change.

Climate risks combine, and the economic impacts can be large. On the demand side, they might affect private (household) or public (government) consumption demand and investment, business investment and international trade. For example, business investments could be reduced as a result of uncertainty in future demand and growth prospects. On the supply side, physical impacts affect productive capacity (labour supply, physical capital and technology). For example, power outages after hurricanes. Combined, physical climate risk the disruption in supply chains, production and operations (e.g. power outages, worker availability, transport challenges), and changing demand for products and services and can lead to changes in resource and input prices. These affect tax revenues and ultimately challenge debt repayment and economic growth. Physical risks also lead to rising insurance costs. For insurers (and reinsurance), physical risks are not only important on the asset side, but also with respect to liabilities. Under a changing climate, insurance policies are likely to generate claims with higher frequency and severity that can lead insurance to become more expensive or even unavailable.

With potential to lower economic growth and productivity, climate risks therefore have potential impact on financial conditions through, e.g. lower corporate profits and lower property and corporate asset values. So, the impacts of climate change in the real sector economy - be it through industry, corporations, enterprises, and consumers - will then have cascading implications for the financial system. In financial institutions climate risks will affect profitability, market/sector engagement and capital adequacy (the minimum reserves of capital that a financial institution must have available). Operating costs can change, as can the costs of capital and access to capital. Climate risks may also lead to increased default risk of loan portfolios, lower values of assets and greater risks in mortgage portfolios. Or for example, damage to assets serving as collateral could create losses that prompt banks to restrict their lending in certain regions, reducing the financing available for reconstruction in affected areas. At the same time, these losses weaken household wealth and could in turn reduce consumption. This then creates a negative feedback loop.

Source: Bolton et al. (2020), NGFS (2019), IMF (2019), Batten et al. (2016).

Progress towards making finance flows consistent with a pathway to low-emission, climate resilient development pathways should complement, and not detract from, the provision of the financial resources for developing countries to mitigate and adapt to climate change. Such climate finance will remain important in strengthening the capacities of stakeholders to address mitigation and adaptation, in addition to creating incentives for investment in climate action, by de-risking investment and by demonstrating technologies and approaches.

1.1.3 Sources of climate finance

Climate finance can come from many sources. International public concessional flows are the most transparent and are relatively easy to identify, but domestic public and international and domestic private sources remain important, even if less well tracked.

International public concessional finance provides a critical source for climate action in developing countries and represents the funding flow most widely accepted as 'climate finance' under UNFCCC commitments. Its public nature allows it to support the provision of global and local public goods, while its concessional nature can reduce debt build up and support the demonstration and de-risking of new technologies. As a category it largely encompasses bilateral development finance flows tagged as climate-relevant and multilateral finance flows from multilateral climate change funds and via Multilateral Development Banks (MDBs).

On its own, international public concessional finance will be insufficient to support developing countries to adapt to and mitigate climate change.⁵ Private capital is therefore essential to meet the scale and pace of the low-carbon, climate-resilient transition. Moreover, private actors can bring expertise and innovation to the mix, expanding the assets and technologies available to address climate change (Nakhooda, 2013).

Domestic resource mobilisation is also likely to remain important to a climate change response. It is often the largest source of finance for national development strategies (AfDB et al., 2015) and in some cases domestic public finance for climate change actions have been found to be higher than international public finance flows (Eshetu et al., 2014; Yanda et al., 2013; Asante et al., 2015). Certainly, the domestic policy and regulatory environment is key, with fiscal policy and public investment setting the incentives for private investment flows (GGBP, 2014).

1.1.4 Tracking climate finance

Different sources of climate finance are tracked to different degrees using different methodologies. Compilations of the volumes of climate finance are beginning to emerge, but little remains known of its impact.

There remain challenges in tracking climate finance flows, including that flowing from developed to developing countries. Data on international public finance flows are most readily available through the OECD Development Assistance Committee (DAC) Creditor Reporting System (CRS) in the form of datasets on 'climate-related development finance' (CRDF);⁶ through multilateral climate funds (MCFs); and through self-reporting of the MDBs and some development finance institutions (DFIs). However, these sources do not always have consistent accounting rules (nor definitions as discussed above; Watson and Schalatek, 2020). Fewer data exist on domestic climate spending, with existing data sets based on case studies and country-specific accounting methods that hinder comparison and aggregation. While regional-national funds and channels for receiving and programming climate finance have also been established in developing countries, data on capitalisation is patchy.

There are also challenges in estimating private climate finance. As a diverse set of actors, private climate finance includes contributions from households, small and large businesses, large companies, NGOs, foundations⁷ and charities, local financial institutions, financial intermediaries, funds and institutional investors (Whitley et al. 2016). With differing motivations and return expectations, these private capital actors operate through a variety of modalities and financial instruments through which private capital is invested.

⁵ It is worth highlighting that international public non-concessional finance can support climate change mitigation and adaptation. Other official flows include those motivated not by development objectives but by commercial and foreign policy objectives, including for example export credits.

⁶ The CRDF includes both the concessional/ developmental official development assistance (ODA) flows, and some of the other official flows (OOF) (excluding export credits, general budget support, imputed student costs, debt relief except debt swaps, administrative costs, development awareness, and refugees in donor countries). See OECD (2016), Annex 18.

⁷ Some of which are nonetheless captured in the OECD DAC CRS/ CRDF datasets

In some cases, actions that might contribute to mitigation or adaptation, in particular are not called as such thus they are hard to track, while in other instances information is limited due to data confidentiality.

It is critical to recall that it is not just the scale of climate finance that is important, but also how effective that finance is being in mitigating or adapting to climate change. Climate finance effectiveness mirrors many of the concerns of development finance effectiveness, including issues of access, ownership and impact (Nakhooda, 2013). Impact monitoring, for example, is improving through efforts of the multilateral climate funds and some bilateral climate finance contributors, but so far monitoring and evaluation efforts are falling short of definitively answering how effective climate finance is being, if it is going to the right places and institutions and if it is having desired transformational changes.

1.2 How much climate finance is available?

1.2.1 Total climate finance flows

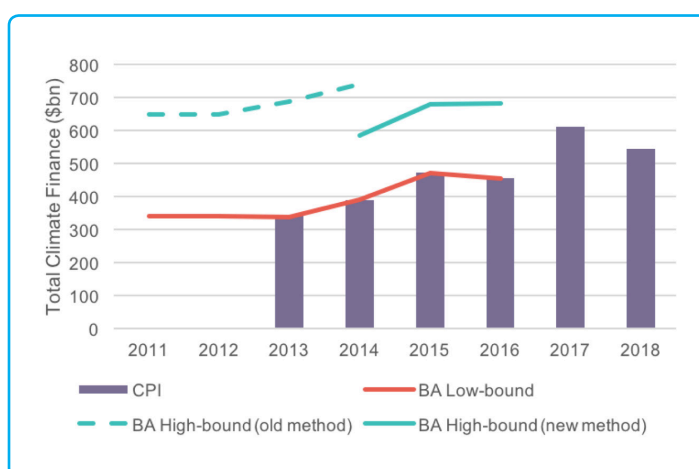
Global tracked flows of public and private climate finance have grown steadily in recent years. In 2016 they totalled USD 455 billion or USD 681 billion if investments in energy efficiency are included.

Estimating total climate finance flows is challenging, perhaps most notably due to varying interpretations of climate finance and limited data availability across the various sectors in which climate finance flows. Two prominent, related sets of estimates for global climate flows are available: Climate Policy Initiative (CPI) report annually with data available up to 2018 (CPI, 2019a) while the UNFCCC report every two years and the latest data available is for 2016 (UNFCCC, 2018). Both datasets show that total climate finance flows are increasing over time, but have variation in the underlying data and methodologies applied, and therefore report different total values (Figure 1).

CPI estimates form the low-bound UNFCCC estimates: USD 472 billion in 2015 and USD 455 billion in 2016.⁸ In the 2018 Biennial Assessment, UNFCCC discuss their findings in terms of the high-bound estimates: USD 680 billion and USD 681 billion in 2015 and 2016, respectively. The difference between these estimates is mainly attributed to energy efficiency investments, the data for which is not sufficiently disaggregated to completely rule out double counting. The use of different totals hampers direct comparisons between the reports.⁹ To overcome this, we clearly delineate between the two sources in the following sections.

In both cases, these totals include flows to all climate-related sectors that are domestic and international across developed and developing countries, public and private, and commercial and concessional. It is rarely possible to analyse the published data using more than one of these lenses.

Figure 1: Total tracked global climate finance



Source: Authors' analysis of CPI and UNFCCC data.

⁸ Note: CPI data prior to 2013 was carried out using a different methodology and is not comparable to that presented here.

⁹ In addition to the high-bound estimate, the UNFCCC report USD 67 billion of domestic climate-related public investment, though this does not appear throughout the UNFCCC analysis which is focussed on primary investment flows.

1.2.2 Climate finance for projects in developing countries

Projects in developing countries received 61% of tracked climate finance in 2017/2018 and were mainly financed domestically. International public concessional climate finance (ODA) from developed to developing countries increased to USD 38 billion in 2016, but this is only 6% of total tracked climate finance.

CPI report that 61% of total climate finance was committed for projects in non-OECD countries, an average of USD 356 billion for 2017/18. Three-quarters (74%) of these non-OECD projects were domestically financed. The remainder was met with international funds; USD 72 billion from OECD countries (12% of total finance) and USD 19 billion from non-OECD countries. These figures include public and private flows.

The figure below from the UNFCCC report shows that international public concessional¹⁰ climate finance from Annex II (considered here as 'developed') countries to non-Annex I (considered



Figure 2: Public climate finance from developed to developing countries



Source: UNFCCC (2018).

here as 'developing') countries increased markedly between 2011 and 2016.¹¹ Despite this, at USD 38 billion in 2016, this remained a small portion of total climate finance (~6%). In addition, equivalent public climate flows among developing countries – so called 'south-south' flows, were estimated at USD 10.1-12.5 billion, most of which was attributed to developing-country-contributions to MDBs and DFIs (UNFCCC, 2018).

¹⁰ The UNFCCC SCF separates OOF from these estimates of international public finance, to focus on concessional flows only.

¹¹ There is no widely used standard to define developed and developing countries in the climate finance landscape and data purporting to cover such finance flows is reported in a variety of ways. The UNFCCC categories are defined in the convention, namely: Annex I countries (OECD members in 1992 plus economies in transition), Annex II countries (OECD members of Annex I excluding economies and transition) and non-annex II countries (others, that are mostly equivalent to developing countries in other classification systems). However, other datasets on, and sources of, climate finance use different definitions. The OECD DAC CRDF data includes some non-annex I countries that are not eligible for ODA and in some cases are major providers (e.g. South Korea). MDBs also have several contributors outside Annex II. For simplicity, in this report we broadly use 'developed' to relate both to Annex II parties to the Paris Agreement and to members of the OECD, and 'developing' to include non-Annex I parties and non-OECD countries. We endeavour to flag where there are major differences.

1.2.3 Climate finance from public institutions

Globally, public institutions provided 33% – 44% of tracked climate finance. In 2016, climate finance from MDBs' own resources was approximately ten times the face value of that from the multilateral climate funds.

Globally, in the period 2016–2018 between 33% and 44% of total tracked climate finance came from public finance sources (including domestic financial institutions and government spending).¹²

UNFCCC data for finance from MDBs from their own resources resulted in a total of USD 25.5 billion in 2016, approximately ten times larger than the flow via the multilateral climate funds (USD 2.4 billion). The more recent estimate by CPI similarly reports finance from MDBs and the multilateral climate funds reached USD 40 billion and USD 4 billion, respectively, in 2018.

1.2.4 Climate finance for adaptation and mitigation

Tracked total climate finance, including public and private flows globally, overwhelmingly supports mitigation projects. Just 5% of tracked global finance supports adaptation projects but this increases to 26% for international concessional public finance flows from developed to developing countries.

Difficulties with accurately estimating flows for adaptation finance are broad ranging and increasingly well documented.¹³ This notwithstanding, the figure above from the UNFCCC report also shows that ~14% of climate finance from developed to developing countries was for adaptation projects in 2016, though this rises to 26% when just concessional finance is considered. Support is even further skewed towards mitigation projects when all finance flows are included: CPI estimates that just 5% of total climate finance flows are for adaptation projects. This proportion has been relatively constant over time and so flows of adaptation finance increased alongside total climate finance – from an annual average of USD 22 billion in 2015/16 to USD 30 billion annually in 2017/18.

1.3 Challenges in tracking climate finance at the sectoral level

As already noted, there are numerous challenges to tracking climate finance. This section attempts to frame these under four key headings: motivations, instruments, accounting terms and measurement frameworks. These are important to recognise before diving into discussion of water-focused climate finance.

1.3.1 Differing motivations

Different sources of climate finance have different criteria for what defines a desirable project, each balancing profitability, development impact, contribution to action on climate change and political factors in a unique way.

Within the broader finance landscape, there are multiple motivations for financiers: action on climate change; 'traditional' development objectives; profitable opportunities; as well as a huge range of political considerations. Some progress is being made to break down barriers between these motivations, especially for mitigation activities. Yet it remains the case that relatively little investment for adaptation projects can satisfy these criteria simultaneously. Instead, some degree of segmentation of finance or trading off between objectives may currently be pursued.

While it is of course a simplification that does not account for the diversity of institutions and their mandates, at the broadest level, private finance needs to seek profitable investments above all; governments and development institutions focus on 'traditional' development goals, while attempting to mainstream climate actions; and dedicated climate funds prioritise projects with climate change initiatives that are beyond business- or development-as-normal trajectories.

The diversity of motivations for different types of climate finance creates preferences (implicit and explicit) for supporting different types of project within the water and WASH sectors.

¹² UNFCCC report the value as 33% for 2016, or 39% if additional domestic climate-related investments are included. CPI report a value of 44% for 2018. The proportions are not based on the same total volumes so we cannot say whether or how much the value has increased between 2016 and 2018.

¹³ See UNFCCC (2018). The issues also overlap with challenges of estimating adaptation costs – See Box 2, section 2.3.2

This variety is a feature of the landscape rather than a criticism of it and precisely why it is useful to consider the mandates, strategies and measurement frameworks of different institutions.

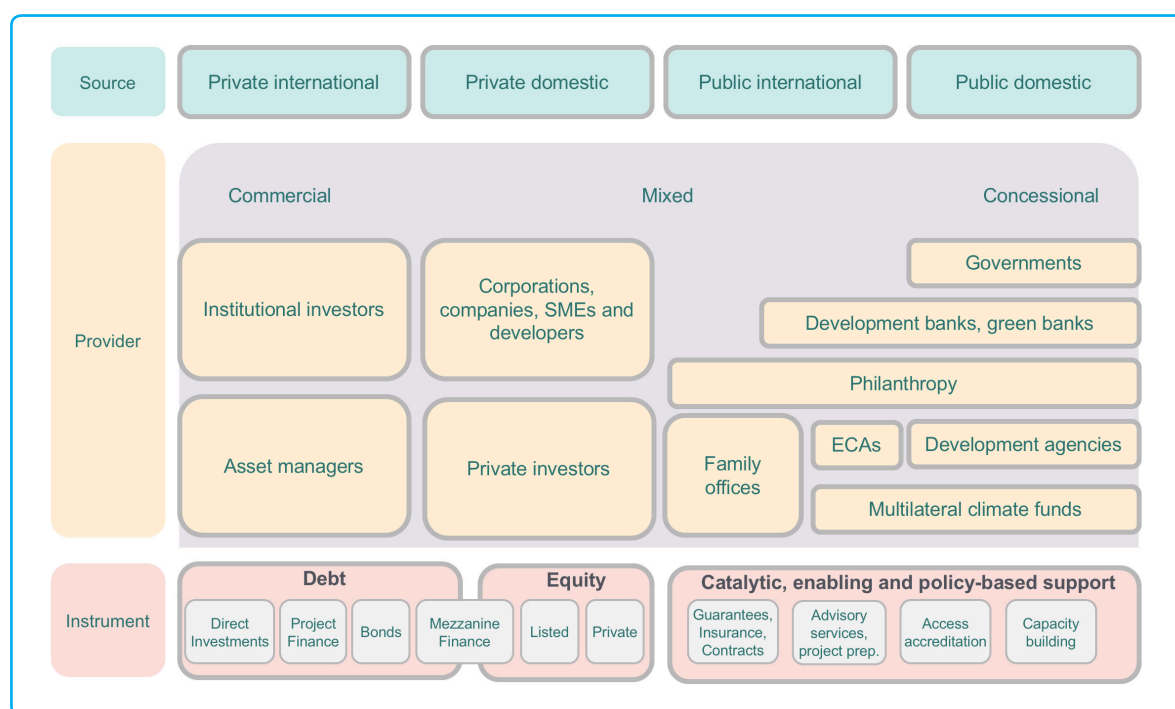
1.3.2 Multiple instruments

Financing complex projects often requires a range of instruments - which often cannot easily be aggregated - from a range of sources, which often are not tracked.

Figure 3 shows that the range of climate finance providers is broader than simply private actors, governments and development actors, and the climate funds. The figure also illustrates how the instruments used to channel climate finance vary across and within institutions, from market-rate loans and equity investments for profitable projects to non-repayable grants for first-of-a-kind projects that generate substantial public goods. For projects that generate a mixture of public and private goods, the investment approach also depends on the local context, and not just the infrastructure built. A technically identical project may be profitable in one region

may not be 'bankable' in another without significant concessionary support.

Because bankability is ultimately decided by individual financial institutions,¹⁴ it is inherently subjective (i.e., what is bankable to one institution may not be to another). This raises considerable problems in estimating the amount of public concessionary capital required to mobilise private finance in general and for individual projects specifically. Individual projects may also need support from different types of instrument, with different financial institutions better placed to support projects in different ways. As well as difficulties in evaluating the value of public support (e.g. in the form of policy-based lending or risk guarantees), these aspects complicate the tracking of private finance. As the example in Box 2 below shows, while most concessionary finance is tracked, most public domestic finance, and that from domestic and international private sources, is not.



Source: Authors, adapted from Carter (2020), UNFCCC (2018), Joint MDB Climate Finance Group (2018).

Figure 3: Sources, types, providers and instruments of climate finance available to support water and WASH projects

¹⁴ Guidelines of general bankability requirements do exist, offering a common minimum threshold that project developers must meet. CFLI (2019) provides a useful summary for projects trying to attract private-sector investment, though many aspects also relate to public-sector investments.

1.3.3 Accounting terms

Most climate finance tracking occurs on a commitment basis. Actual finance flows take time to disburse and so lag behind the increase in commitments seen in recent years.

A further complication with tracking actual climate finance flows arises because not all DAC members report climate-related development finance on a disbursement basis (UNFCCC, 2018). Analysis of commitments can introduce a considerable lag to real flows as disbursements are usually split over many years and it can take years for projects to begin to receive finance (Darby, 2017). This lag and the recent ramping up of commitments introduces a considerable difference between commitments and disbursements in a given year. For example, commitments by the Agence Française de Développement (AFD) for water and sanitation in 2016 and 2017 were approximately double disbursements (AFD, 2018).

1.3.4 Measurement frameworks

Different sources of climate finance track flows in similar but distinct ways. Some sources have robust measures for defining what is climate finance, others are still developing standards to do this.

Tracking climate-finance that supports projects in specific sectors largely involves combining two distinct sources of funding: those that primarily create climate-positive outcomes with sector-specific co-benefits and those that focus on more traditional sector objectives while also yielding climate co-benefits.

The varying interpretations of climate finance hamper our ability to aggregate flows and compare them with assessed needs for action on climate change and achieving other sustainable development objectives. Several methods have been proposed to assess whether projects qualify as climate finance and others are still being developed. These largely divide depending on the source of climate finance:

- All flows from the multilateral climate funds are considered as climate finance.
- Flows reported to OECD and termed as 'climate-related' development finance (ODA and some OOF via bilateral and some MDB/DFI channels) are assessed against the Rio Markers.
- A group of MDBs and the International Development Finance Club use a 'Common Framework' approach, which is in principle more rigorous in the requirement to link project activities to adaptation/ mitigation.
- There is no common framework for assessing flows from domestic governments or from the private sector. However, a number of initiatives are underway in both areas.

Detail on these measurement frameworks, or lack thereof, and what they mean for tracking climate finance for water, is discussed below. For now, there are two further caveats to note when reviewing data on climate finance. First, an increase in finance that is tagged as climate-related does not necessarily indicate an increase in climate finance, where for example the finance is not additional to that which would have been spent anyway. Second, the volume of climate finance tells us little about its quality, especially in the case of adaptation, where there is no uniform impact metric equivalent to reduced GHG emissions. Relatedly, aggregate figures of climate finance flows tell us little about the development co-benefits. The 2018 Biennial Assessment recognises this and calls for a greater focus on understanding the quality of climate finance (UNFCCC, 2018).

The above issues particularly affect tracking and analysis of flows from a global perspective. A project perspective is often needed to interrogate volumes, modalities, instruments and objectives of climate finance, but is inevitably time consuming. Box 2 illustrates this complexity with a water project example funded by the Green Climate Fund (GCF), European Bank for Reconstruction and Development (EBRD), Moroccan Government and a private investor.

Box 2: Why internalise climate risks in investment-decision making? An economic perspective.

Large projects in particular are often supported by different climate finance instruments from different institutions. The Saïss water conservation project in Morocco provides a useful example. Total investment for the project will reach nearly USD 0.5 billion and involve four different sources of finance and at least as many financial instruments at varying levels of concessionality. However, only USD 153 million (including two grants and one loan from two different institutions) is tracked as climate finance – the remainder is provided by domestic government and undisclosed private sources.

The project focuses on transporting water from the M'Dez dam for distribution in the Sebou-Saïss basin to alleviate pressure on the Saïss aquifer. Unsustainable abstraction rates and decreasing recharge rates, in part due to global-heating-induced changes in precipitation, are the primary reasons for the aquifer's depletion, which is forecast to worsen absent a major intervention. Public finance for the project comprises a grant from the GCF (a multilateral climate fund), a grant and a loan from EBRD (a multilateral development bank) and a 'grant' from the Government of Morocco (via the domestic state budget). Together, these investments are expected to cover the development of the primary and secondary infrastructure and thereby sufficiently incentivise a private sector actor to enter into a PPP with the government to cover the tertiary infrastructure that delivers the water to users and maintenance of the overall system. Further capital investments by the Moroccan Government and recurrent subsidies for consumers are expected to ensure that user tariffs are affordable, while permitting the private company to generate a profit. The level of private investment for the PPP has not been published, citing confidentiality concerns, though the overall project investment is reported to be near USD 0.5 billion.

Source: GCF (2017), MAMF (2016)

1.4 Climate finance for water – mandates and approaches

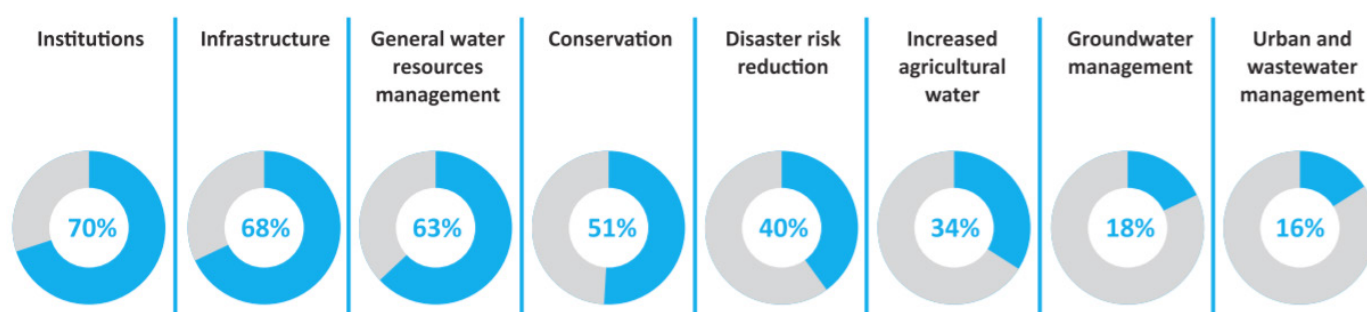
There are no clear distinctions between what type of climate finance will support what type of project; the example in Box 2 shows that institutional mandates can clearly overlap. Yet, different groupings of sources of climate finance appear to exhibit some broad-brush differences in their approach to recognising what is climate finance and how it can be used to support water/WASH projects. We discuss these differences by adopting the categories of climate finance used in the UNFCCC 2018 Biennial Assessment: public finance from domestic, South–South, bilateral, and multilateral (including MDBs and MCFs) sources, and private finance (domestic and international), though we note that in some cases these categories may overlap. The focus is climate finance supporting water and WASH projects in developing countries, though the final subsection includes some aspects that are relevant to higher-income countries.

1.4.1 Public domestic finance

Most developing countries identify water as a key sector in their climate change plans, but priorities within the sector vary. Very few data are available to globally evaluate how countries themselves finance climate-related water and WASH projects and the degree to which investment decisions consider climate change within them.

In terms of approaches, each country's priorities for climate-related water and WASH investments are unique. Countries can articulate priorities in a range of related reports submitted as part of the UNFCCC process. These include Biennial Update Reports (BURs), National Adaptation Plans (NAPs), National Adaptation Programmes of Action (NAPAs), Nationally Appropriate Mitigation Actions (NAMAs), and Nationally Determined Contributions (NDCs). Focusing here on the latter, the water sector was identified as vulnerable in 103 of the first round of NDCs, with 29 mentioning it as a key sector and 93 more elaborating on sector plans, actions or strategies to adapt to climate change (NDC Explorer, n.d.). While submission of the next round of NDCs is already in progress, a recent review of 80 developing countries highlighted the following priorities within the water and WASH sectors (Figure 4; GWP, 2018).

Figure 4: Proportion of first round NDCs that prioritised water actions for adaptation



Source: GWP (2018).

Data for domestic climate finance flows to the water and WASH sectors are not globally compiled. Globally compiled data related to climate flows in general, and water and WASH sector investments in general, are also sparse. Only 19 countries submitted domestic climate finance data to the 2018 UNFCCC Biennial Assessment, and just three countries were responsible for more than 80% of the total reported. A similar number of countries' spending on water is recorded by the IMF, where spending rarely exceeded 0.3% of GDP, and the data on finance and expenditure collated by the UN-Water GLAAS initiative remains patchy. The submission of updated NDCs, as well as ongoing initiatives that support governments to track climate finance (see 2.2) could increase the quantity and quality of data compilation and reporting in this area in the future.

1.4.2 South-South Cooperation

South-South climate finance flows are not systematically tracked but likely follow mandates set out by domestic governments or, where they overlap with other flows, those of other institutions e.g. the MDBs and DFIs to which some developing countries contribute.

There is no systematic tracking of South-South climate finance flows (UNFCCC SCF, 2018). The 2018 Biennial Assessment shows that where data are available flows and mandates are likely to overlap with those covered elsewhere in this section:

1. Climate finance channelled through national development banks is likely to reflect domestic priorities (i.e., NDBs act in a similar way to finance ministries);

2. Contributions by non-OECD countries to multilateral development banks (15%–26% of MDB climate finance), international development finance institutions (accounting for USD 5 billion for mitigation activities and USD 1.2 billion for adaptation activities in 2016), and multilateral climate funds (e.g. as of 2018, developing countries had provided USD 112 million to the GCF) (UNFCCC SCF, 2018).
3. Some South-South bilateral data are ODA compliant (the OECD CRDF data analysed in Section 2 includes climate finance flows from the Republic of Korea and United Arab Emirates, both of which are non-Annex I countries).
4. The Biennial Assessment also notes developing countries' contributions to developing-country-owned MDBs (AIIB and NDB). As of 2016, AIIB and NDB had only supported renewable energy projects, though in general, their priorities are similar to those of other MDBs and DFIs.

1.4.3 Bilateral

Contributor-country mandates are unique in the same way that recipient-country priorities are. Some largely integrate the water sector in their climate change programmes while others treat it separately. Support that is reported to the OECD DAC-CRS is monitored using the 'Rio Markers' framework, with two levels – activities with a 'principal' focus on climate change and those with a 'significant' focus, where there is a climate objective, but it is not the main focus of the programme. The OECD refers to finance tagged as principle or significant as 'climate related.'

Table 1 Objectives and approaches to water and climate taken by the three largest bilateral providers of climate-related development finance to water.



| | |
|----------------------|---|
| <p>Japan</p> | <p>ODA from Japan (loans and grants) is provided via the Japan International Cooperation Agency (JICA). Relatively little detail was available in English relating to JICA's objectives, how it prioritises support, and how it measures its impact. Water/WASH and climate change are highlighted in various JICA documents, though they rarely seem to overlap in its priorities.</p> <p>Global Environment is one of JICA's key issues. Water Resources is a standalone activity under this issue, with both Safe Water Supply and IWRM as named priorities. Climate change mitigation, adaptation and sustainable natural resources management are together one activity under the Nature Conservation key issue, while sanitation and water treatment are included under the Environmental Management activity. Agricultural irrigation and support for water users' associations are mentioned as part of resilience to climate change in the Agricultural and Rural Development key issue while water supply and sanitation are also included under the Human-Centred Development activity.</p> <p>(JICA, 2018; 2019a; 2019b)</p> |
| <p>France</p> | <p>The French Government's support for water-/WASH- and climate-related international development is channelled through the Ministry of Foreign Affairs, and in particular through the AFD Group.</p> <p>AFD's 2017–2022 climate and development strategy highlights water as a flagship theme that is key to its ecological transition focus. Similarly, climate co-benefits are emphasised in the group's 2014–2018 water and sanitation strategy, and the value of projects with climate co-benefits is a key indicator that is reported on. The climate and development strategy targets half of all investments to have climate co-benefits, yielding a total of 5 billion Euro/year in climate finance for developing countries by 2020. Within this, support for adaptation projects is set to increase to 1.2 billion Euro/year, with a focus on African states, least developed countries (LDCs) and small island developing states (SIDS).</p> <p>The 2014 – 2018 water and sanitation strategy included a target for total finance (averaging 700 million Euro/year) and was highly prescriptive. Half of all support (350 million Euro/year) was to be channelled to Sub-Saharan Africa with one-third (250 million Euro/year) to be directed to Asia and Latin America. With respect to supported activities, 80% of projects were to have a capacity-building component, half were required to include a hygiene-awareness-raising component, and 30% needed a sanitation component.</p> <p>The mid-term review of the climate and development strategy notes that the group will develop new toolkits to specifically identify climate co-benefits that are currently not fully exploited in projects in the water and sanitation sector.</p> <p>(AFD, 2017; 2018; 2020)</p> |

| | |
|-----------------------|--|
| <p>Germany</p> | <p>The International Climate Initiative (IKI) is one of the German Government's main channels for delivering international climate finance. Supported projects are divided under four themes: mitigation, adaptation, REDD+ and conserving biodiversity and support can be provided via country-specific or thematic funding windows.</p> <p>Water- and WASH-related projects appear under the mitigation and adaptation themes. For mitigation, the main priority appears to be on helping water and wastewater utilities reduce GHGs while also providing clean water under 'sustainable consumption and production, circular economy, resource and waste management'. For adaptation, clean water appears within the 'ecosystem-based adaptation' and 'developing and implementing national adaptation strategies' themes.</p> <p>IKI's measurement framework of standard indicators is not sector specific, though several aspects could relate to water/WASH projects.</p> <p>(IKI, n.d.a; n.d.b; n.d.c 2020)</p> |
|-----------------------|--|

Priorities directing bilateral climate finance, objectives and the approaches taken vary between donors. A summary of the objectives of the three donor countries that provided the most climate finance for water and WASH projects over the period analysed in Section 2 (2000-2018) is presented below.

Bilateral climate finance flows that are also ODA are compiled in the OECD DAC CRS/ CRDF datasets using the Rio Markers approach. The use of the Rio Markers for Other Official Flows is optional, and few countries report fully on OOF, but some OOFs are also tracked in this way within OECD DAC CRS/ CRDF.

The Rio Markers assess adaptation and mitigation separately and evaluate a project's contribution depending on whether adaptation or mitigation is a primary objective, a significant objective, or not targeted. Different institutions interpret projects in different ways, though some coherence seems to have evolved in assessment following detailed guidance as to how to score projects (OECD, nd).

In the water-specific mapping in section 2, we take a conservative approach and in much of the detailed analysis strip out flows with only a 'significant' climate objective – since these are generally projects that could still have been funded without the climate objective. We opt for this blanket approach in the face of varying efforts to address the definitional issue by different institutions. A guidance note suggests that the EU, for example, reports climate finance as 100% of flows where adaptation or mitigation are a principal objective and 40% of those flows where

adaptation or mitigation are a significant objective (Petri, 2017). The Biennial Assessment states that 100% of finance flows are reported for both principal and significant projects (UNFCCC, 2018).

1.4.4 Multilateral development banks and international development finance institutions

Long-standing commitments to the water and WASH sectors have marked MDBs and DFIs as the sectors' largest sources of international finance. Pledges by MDBs and DFIs to align their portfolios with the Paris Agreement is increasing the integration of climate risk within these finance flows. The MDB group and several DFIs track climate finance using the 'Common Principles' approach. Under this approach, finance for adaptation is meant to be classified as such only where project activities can be linked to reduction of context-specific vulnerabilities.

MDBs and DFIs have historically been the largest sources of international finance for investments in the water and WASH sectors with many water and WASH programmes predating those relating to climate change. The water and WASH sectors remain core foci for most MDBs and many DFIs, but over the

¹⁵ The first annual report on MDB climate finance was released in 2012. At COP 21 in 2015 MDBs established the five principles for mainstreaming climate finance and together with IDFC established the common principles for tracking mitigation and adaptation finance. At COP 24 in 2018 MDBs committed to entirely align their funding with the goals of the Paris Agreement.

last decade or so these institutions have made a number of pledges to track their climate-finance spending and then to ensure that all of their activities aligned with the goals of the Paris Agreement.¹⁵

Climate finance is reported by a group of MDBs as well as most DFIs that are members of the International Development Finance Club (IDFC). This is based on the separate guidelines agreed in 2015 for mitigation and adaptation activities, the 'common principles.' As well as setting measurement standards, these give a sense of the approach to water-related investments that these institutions have signed up to. Finance is considered mitigation related if the project is on a list of approved activities. Example mitigation projects that relate to the water and WASH sectors include hydropower generation and wastewater treatment, but only where projects lead to net reductions in GHG emissions (Joint MDB Climate Finance Group, 2018).

The lack of a universal indicator for adaptation led the group to include finance for adaptation only where there is a clear and direct link between climate vulnerability and the project activities. The guidelines recommend a 'three-step' approach involving setting out the context of vulnerability to climate change, making an explicit statement of intent to address vulnerability as part of the project; and articulating a clear link between vulnerability and project activities. Only the relevant project activities are counted, not the whole value (Joint MDB Climate Finance Group and IDFC, 2019).¹⁶ Example water and WASH projects provided include aspects related to water supply, wastewater infrastructure and management, water resource management, and agricultural irrigation (Joint MDB Climate Finance Group, 2017). A lessons-learned report released after three years of implementing the guidelines highlights a number of challenges the group has encountered when implementing the requirements, suggesting the approach will continue to evolve (Joint MDB Climate Finance Group and IDFC, 2018).

1.4.5 The multilateral climate funds

Data fidelity and availability for the MCFs is better than for other sources of climate finance. Some MCFs prioritise water and WASH projects, while others see their impacts as co-benefits. Most MCFs focus on piloting new projects or those that lead to transformational change, but also offer substantial support for building local capacity and strengthening the enabling environment.

The MCFs are the most systematically and transparently documented area of climate finance. They have also played an important and still evolving role in supporting countries to plan for, access and deliver climate finance (Box 3). Climate Funds Update (n.d.) and the NDC Partnership (n.d.) maintain comprehensive detail of more than 20 funds established with a primary objective to act on climate change.

Canales Trujillo et al. (2017) carried out a thorough review of the mandates and priorities of the MCFs with respect to WASH projects. The unpublished review also included many projects in the broader water sector and much of that analysis remains current and relevant here. The main updates to two key MCFs for water and WASH projects (GCF and GEF-7) are described below. Details for other MCFs are taken directly from the prior review and appended in Annex 1 as little new information relevant to the water sector has been released since the prior review was carried out.¹⁷

GCF (Sources: GCF, n.d.a; 2014; 2019a; 2019b; 2020a). The GCF's 2020-2023 strategy continues with the intention of equally financing mitigation and adaptation projects, prioritising vulnerable countries (LDCs, SIDS and African states), to whom at least 50% of the adaptation portion is to be channelled.

¹⁶ The OECD itself recommends the MDB three-step approach to climate adaptation tracking as a best practice, implying that many bilateral and other donors may be using more approximate approaches when applying the Rio Markers to their commitments.

¹⁷ Neither the Mid-term Strategy nor the the updated Strategic Priorities (agreed late 2017) for the Adaptation Fund mention water (AF 2017a, 2017b). The updates to the GCCA+ initiative following the EU's adoption of Multi Annual Indicative Programme (MIP) 2018-2020 continue to include long-term access to water sources and the protection and restoration of watersheds as typical activities, while water and sanitation remain priority sectors in the initiative's measurement framework (GCCA+ 2020a, 2020b). No significant operational documents were found to have been published for PPCR since the prior review. Minor changes to LDCCF and SCCF are included under GEF (which manages them).

GCF projects must demonstrate impact in terms of the key indicators, co-benefits, and transformational impact. The number of people with year-round access to a reliable and safe water supply is part of a key indicator and several others could include water and WASH related aspects, such as increasing the climate-resilience of physical assets, protection of ecosystems in response to climate variability and better integrating climate change information into decision-making, planning and institutional systems. Designated co-benefits include improved water supply and sanitation facilities, and actions that improve water quality and conservation. 'Proportion of the population using resilient water services' has been suggested as a new indicator for the GCF to measure, though this is yet to be confirmed.

The GCF supports projects of various scales through public- and private-sector facilities. Separate to its project finance, the GCF strategy emphasises its role in supporting capacity building – by the end of 2018 it was the largest supporter of climate finance capacity building in developing countries. The GCF also provides grants of up to USD 1 million per country per year for readiness support and a one-off grant of USD 3 million per country for adaptation planning, with this facility now prioritising the 64 developing countries that have not submitted a GCF proposal.

Support for the water sector is mainly via the adaptation funding window, and the GCF recognises that “it may often be challenging to distinguish climate-related components from wider efforts to strengthen food, water and agriculture systems in developing countries.” Such challenges have led to considerable disagreement between board members and commentators from donor and recipient communities (Darby, 2017).

Overarching project themes include IWRM and the nexus of water, energy and food security. Specific examples include watershed restoration, improving water-use efficiency, climate-resilient water supply and sanitation, conjunctive use of alternative water sources and nature-based solutions for flood control.



Global Environment Facility (GEF) -7 (Sources: GEF 2018; 2019a; 2019b; 2020). Key priorities of the seventh iteration of the GEF (GEF-7) include catalysing transformative change, cross-cutting projects, and involving new actors (including the private sector, indigenous peoples, and civil society) and increasing its focus on gender equality. GEF-7 continues many of the water-related themes from previous iterations, with water availability and water catchment integrity key aspects of the Food systems, land use and restoration; and Sustainable cities impact programmes, respectively. The GEF also aims to complement rather than compete with the work of the GCF. These features also apply to the SCCF and LDCF, which are special funds administered by the GEF and aligned to the broader GEF strategy. In this vein, LDCF/SCCF will avoid supporting capacity building projects in LDCs that are targeted by GCF, but are seen as key in supporting subnational pilot adaptation projects and water resilience projects.

Named examples of water and WASH-related projects also exist under four of the focal areas for investment (biodiversity, climate change mitigation, climate change adaptation, and land degradation). GEF-7 also continues the long-running International Waters programme that has made the GEF the largest funding mechanism for international collaboration on water and the ocean. Of particular note is the key theme 'enhancing water security in freshwater ecosystems', examples of which include groundwater and river basin planning and management and wastewater treatment. Going forward, GEF is particularly focusing on projects where a lack of collaboration on water resource management could lead to conflict. Most finance in GEF-7 will remain in the form of grants, though the strategy notes a growing intent to work with the private sector via blended finance and through non-grant instruments. Prior blended finance projects in the water and WASH sectors include wastewater management and the provision of water-related climate information services.

Box 3: What is climate finance readiness?

The Green Climate Fund define climate finance readiness as 'a country's capacity to plan for, access, and deliver climate finance, as well as monitor and report on its expenditures' (GCF readiness programme, 2017). A number of the multilateral climate change funds support the building of developing country capacity to access and use climate finance. The GEF incorporates capacity building activities into their existing project funding through so-called 'enabling activities' and have supported, for example, developing country reporting to the UNFCCC. The Adaptation Fund and Green Climate Fund both have dedicated climate finance readiness programmes. As of early 2020, the GCF had approved over 360 readiness programme requests across 136 countries, totalling USD 241 million. The Adaptation Fund has a smaller readiness programme, the total 2015-2018 budget was USD 2.4 million.

With regard to access, the Adaptation Fund has played an important role by promoting direct access and simplified approval processes, which have diversified the implementing entities across the funds. The GCF has also worked to develop a streamlined accreditation system, which adjusts the rigour of the process according to the size of projects, level of environmental and social risk, and the financial activity of the implementer. There remains a need to support national and regional entities to qualify under the system. The GCF also has a small but growing number of Enhanced Direct Access projects. These allow accredited entities based in developing countries to decide how to programme resources allocated by the GCF.

While early climate finance readiness efforts were criticised for their focus on supporting accreditation to the climate funds alone, there has more recently been a shift to a broader focus for climate finance access including to wider public and private finance flows, as well as more attention devoted to whether such readiness resources are having an impact on climate finance flows, as they are intended to.

Within water, there is much to learn from early efforts at a project level. GWP, for example, has convened several regional workshops together with GCF National Designated Authorities, Direct Access Entities and Water Ministries to share learning on how to accelerate access to GCF resources, including through enhanced project preparation. GWP has also been approved as a delivery partner of the GCF Readiness Programme.

Sources: GCF (n.d.b), Adaptation Fund Board (2018), Adaptation Fund (2018), GCF (2019c), Adaptation Fund (2018), UNFCCC SCF (2018), GWP (2019).

1.4.6 Private sector climate finance

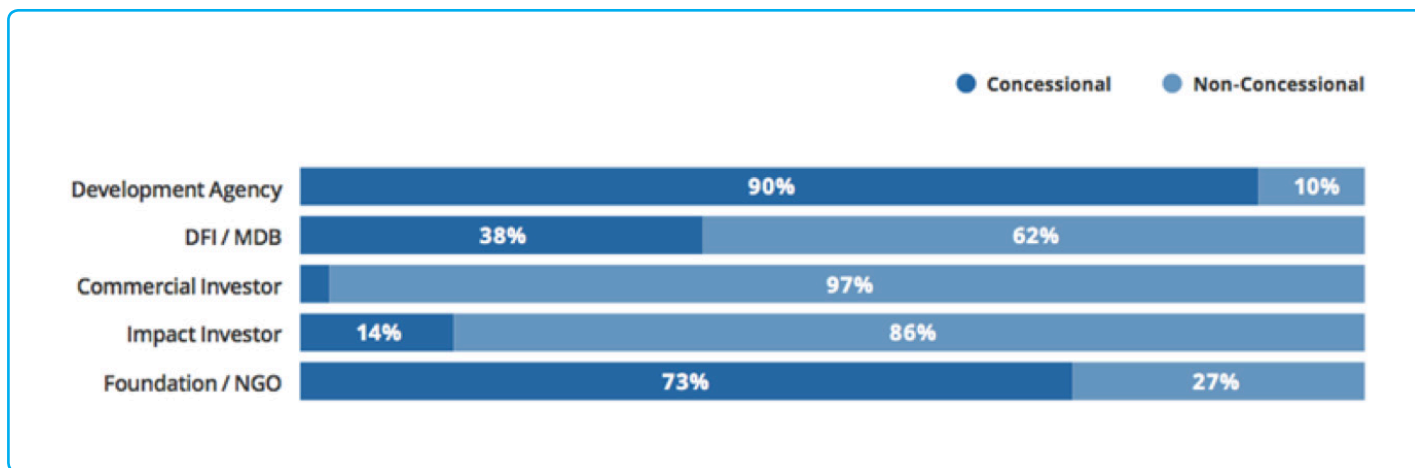
Motivations in the private sector are too diverse to characterise in any detail beyond stating that – apart from that from philanthropic sources – private capital seeks commercial investments. The increasing interest of private sector actors in sustainable finance, and growing awareness of material climate risks, has resulted in the launch of myriad initiatives to define and standardise approaches to integrating climate change concerns, each seemingly slightly different. The use of concessional capital and catalysing instruments by public institutions can attract private capital to climate-related investments, including blended finance projects that would otherwise not be financed by private actors.

It is difficult to overstate the variety in private sector finance for climate related projects. The just-released 'The ecosystem of private investment in climate action' (Carter, 2020) provides a comprehensive view of the ways in which private capital can support climate-related projects, identifying six broad investor groups (institutional investors; asset management companies; corporations, companies, SMEs and developers; private investors; family offices; and philanthropic investors) and six standard investment instruments (direct investments, project finance, bonds, mezzanine finance, listed equity, and private equity). An investor in any group may specialise in any of the instruments and a project is likely to attract a mixture of instruments from a mixture of investors.

Opportunities for private financing of non-mitigation activities in the water and WASH sectors are most likely to arise from philanthropic investors, the increasing number of investors looking to align their portfolios with green or sustainable finance aspirations, and green or climate bonds.¹⁸

A group of 29 philanthropic investors pledged USD 4 billion to support climate action between 2018 and 2023 across developed and developing countries and across mitigation and adaptation actions¹⁹ Individual investors appear to have distinct priorities.

Figure 5: Concessional and non-concessional commitments to blended finance transactions by key organization types (2013-2018)



The most important mandate is that all these investor groups except philanthropy have a fiduciary duty to their shareholders to make commercial investments within the regulatory landscape that they operate in. Projects that generate public, non-monetised, or subsidised goods; or are not considered economic at standard commercial rates will struggle to attract private capital unless public support is provided to catalyse or de-risk the commercial investment. The amount of concessional capital that is typically blended into a deal varies depending on the provider (Figure 5 above includes figures for the private-sector arms of public finance institutions).

Source: Convergence (2019).

¹⁸ Although we include them under private finance, bonds can be issued by public or private entities. Where a public entity issues a bond, even if finance is raised on the bond market, the use of proceeds may be to support fiscal policy or public finance, e.g. subsidies, tax incentives or direct public investments. It should also be noted that bonds can be issued to refinance debt, in which case the total stock of money available does not increase in line with the value of the bonds being issued.

¹⁹ <https://hewlett.org/newsroom/philanthropic-community-announces-4-billion-commitment-to-combat-climate-change/>. This group makes up a small share of water-focused, climate-related development finance to date, however. In the analysis of those water-focused flows in section 2, it is subsumed under international public finance, rather than private finance, due to its inclusion in the OECD DAC CRS/ CRDF dataset which counts private (philanthropic) donor contributions as development finance.

Issuances of climate or green bonds have increased rapidly since their inception in 2007. The Climate Bonds Initiative (CBI) has developed a taxonomy and set of sector standards to assess whether bonds are aligned with limiting global heating to 2° C (Article 2.1(a) of the Paris Agreement). USD 259 million in bonds meeting the standard were issued in 2019. The sector standard for water infrastructure, which also considers climate change adaptation and was developed through extensive consultation with water and climate specialists, lists a series of example hydropower and adaptation projects in the water and WASH sectors that may be considered for accreditation, including the monitoring, treatment, storage and distribution of water, flood defences, nature-based solutions and water-saving technologies.

Accreditation of projects is not automatic. Hydropower schemes must meet emissions and power-density thresholds while water/WASH adaptation projects must avoid a net increase in GHG emissions and comply with a relevant adaptation and resilience component (CBI, 2020a)²⁰. Green bonds may be similar to CBI-accredited climate bonds, but generally have less strict criteria and tend to relate to mitigation activities. Blue bonds are also beginning to emerge. These focus on protecting and rehabilitating ocean ecosystems (SDG 14) and can include water treatment and sanitation projects (Carter, 2020).

Sustainable and green finance initiatives have evolved alongside climate and green bonds. Similar to 'green' bonds, 'sustainable finance' and 'green finance' have been interpreted in a variety of ways. The various interpretations prevent credibly estimating the volume of climate/green/sustainable finance and have given rise to the development of several international standards.²¹ Although conceptually separate, sustainable and green finance initiatives are often conflated with efforts to make finance flows consistent with low-emission, climate resilient development pathways (Article 2.1(c)).

Loosely, the former appraise individual investments' contribution against a definition of sustainability while the latter appraise the degree to which a portfolio of investments is contributing to and accounting for the risks of climate change.

An analysis of the numerous sustainable/green finance initiatives²² is beyond the scope of this report but the recently agreed EU Taxonomy on Sustainable Finance (EU, 2020a) provides a useful example of the state of the art. In this, sustainability is interpreted more broadly than in other standards and covers six environmental objectives, three of which include water and WASH related example projects: climate change mitigation, climate change adaptation, and sustainable and protection of water and marine resources²³. To qualify as sustainable, finance must support a project that:

- Makes a substantial contribution to one of the objectives.
- Does no significant harm to the other five objectives.
- Meets a series of minimum safeguards.

The technical annex published with the taxonomy (EU, 2020b) provides detailed guidance on the criteria to be used by the standard by project type.



²⁰ <https://www.climatebonds.net/standard/water>

²¹ See, for example, ISO 14030, Green bonds – Environmental performance of nominated projects and assets, ISO/AWI 14100 - Green Finance: Assessment of Green Financial Projects, ISO/DIS 14097 – Framework including principles and requirements for assessing and reporting investments and financing activities related to climate change, and BSI PAS 7340:2020 - Framework for embedding the principles of sustainable finance in financial services organizations.

²² See Table 7 in UNDP (2020), for 18 separate examples.

²³ The other three objectives are transition to a circular economy, pollution prevention and control, and protection and restoration of biodiversity and ecosystems.

2. Map: water-related climate finance flows

This section presents and analyses the available data on water-focused climate finance that are compiled at global level. It should be emphasised that all flows reported in this section are retrospective. The future prospects for water-focused climate finance need therefore to be considered in the context of the above discussion of evolving approaches and mandates.

2.1 How much water-related climate finance is available?

2.1.1 Overview

The water sector represents a substantial share of committed adaptation-related finance - 43% of the annual total since 2011, on average - and stood at USD 11 billion in 2018 for water and wastewater management. Water-focused mitigation related finance is growing but is more modest: USD 3 billion in 2018 for wastewater and waste combined. Since finance for mitigation is far greater than for adaptation, water received a low share of climate finance overall (c.2% in 2018).

Since 2011, the Climate Policy Initiative (CPI) has compiled estimates of global climate finance for mitigation and adaptation. These estimates include sectoral breakdowns, and the scope of flows included - public and private, domestic and international - has steadily increased.

Within adaptation, while some water-related activities are included in other categories,²⁴ there is a clear water-focused sector identifiable in reports covering 2011 to 2018 (defined more consistently from 2014 onwards). According to CPI's estimates, climate finance for this sector alone - almost entirely public²⁵ - constituted 43% of all adaptation finance, 2011-2018, but has declined in both absolute and relative terms since 2013-2014, when it reached USD 14 billion per year in absolute terms (Figure 6).

For mitigation, water-related finance is included in CPI reports under various broader categories – for example, hydropower is included under renewable energy generation and separate figures for hydro are not available in reports after 2014. One discernible water-related sector in CPI's reporting on mitigation finance is 'waste and wastewater', with estimates available since 2014. Flows to this sector reached USD 3 billion in 2018, and constituted 0.4% of all mitigation-related climate finance, 2014-2018. Although CPI does not make all the underlying data available, its estimates are broadly corroborated by our own, compiled from several different sources (Section 2.2.1).

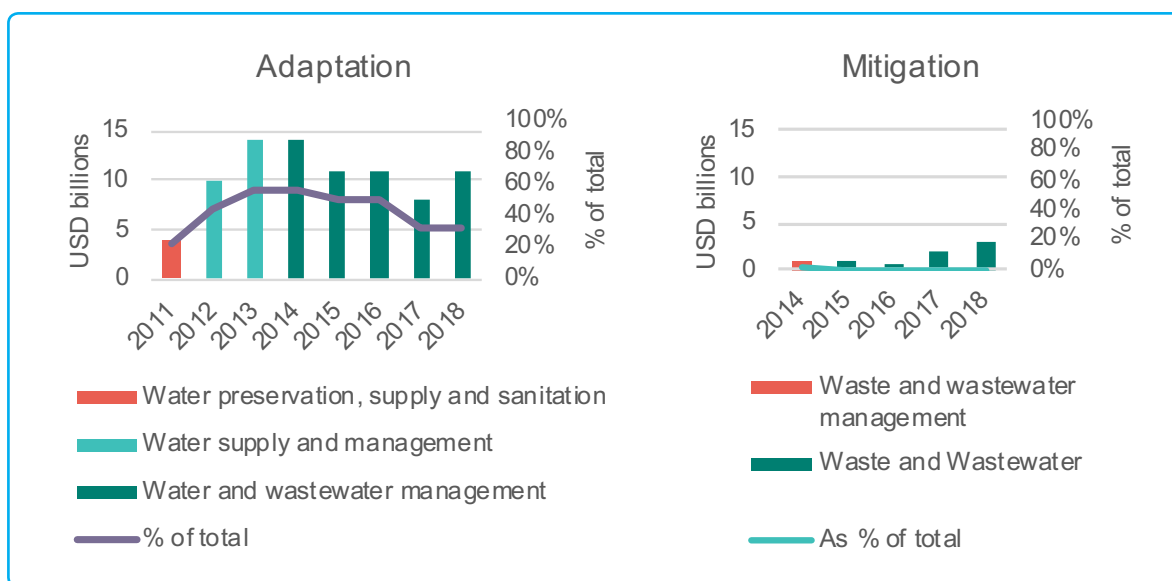
▼ Moustapha and his colleague Desire pictured on the sand dam constructed across the riverbed. The sand dam is used to improve water retention and recharging of groundwater, in the village of Sablogo, in the Commune of Lalgaye, province of Koulpelogo, Region of Centre-East, Burkina Faso. January 2018.



²⁴ For example, in 2019 definitions of the 'coastal protection' and 'disaster risk management' sectors both indicate that they may include activities relating to riverine flood protection (CPI, 2019a)

²⁵ Private climate finance constituted less than 0.1% of all flows tracked in the 2019 CPI report, except those going to renewable energy and low-carbon transport. This is attributed to lack of data but also underlying challenges with markets and business models for private sector participation in adaptation (CPI, 2019b).

Figure 6: Climate finance to discernible water-related sectors: adaptation and mitigation



Source: Authors' analysis of CPI data.

The identifiable water-related sectors comprise a small share of the total climate finance tracked by CPI - less than 3% in 2014-2018 - albeit close to half of all tracked adaptation finance. This should be contextualised: the totals estimated by CPI are significantly influenced by private finance for energy generation, accounting for just under half of all climate finance 2017-2018. Water does not offer a comparable opportunity for private climate finance and is unlikely to do so in the near term, especially on the adaptation side.

While most of the underlying datasets compiled by CPI are not publicly available, more detailed reports and datasets are available for different categories of provider. The following sections use these to explore the headline question further.

2.1.2 How much climate finance is flowing to different aspects of water?

This question can only be answered effectively for international public climate-related finance for water, as tracked by the OECD DAC 2000-2018. It is dominated by large infrastructure for water resources management and water supply and sanitation, which receive over a third of the total each. Rural and community-scale water and sanitation receive around a 10th of the total. Contextualising these climate-related flows to water against all equivalent international public flows to water,

suggests that providers are increasingly tagging water activities as climate-related.

The climate-related development finance (CRDF) datasets compiled by the OECD, covering 2000-2018, are often used for sectoral analysis. They go to activity level, and are coded by OECD DAC sector and sub-sector, as well as numerous other variables. They include the majority of public, international climate finance flows: ODA and some OOF²⁶ from OECD DAC and non-DAC donors, MDBs, other multilaterals (including the major multilateral climate funds) and private donors (principally corporate and philanthropic foundations).

Annual totals are not directly comparable to the CPI figures above due to differences of definition and scope, but the majority of public international finance tracked by CPI will correspond broadly with the CRDF dataset.²⁷ It is important to note that the CRDF datasets, and OECD-DAC-CRS system from which they are derived, were not established to track climate finance, instead to assess the degree to which climate considerations have been mainstreamed into development finance (OECD, 2017).

²⁶ See footnote 6

²⁷ The total in 2018 was USD 9.6 billion, of which USD 6.4 billion was adaptation-related and USD 4.3 billion mitigation related (USD 1 billion tagged as related to both mitigation and adaptation). The water-focused total for adaptation in 2018 is considerably lower than CPI's estimate for 2018 (USD 11 billion) but this likely relates mainly to CPI's inclusion of more national and regional DFIs which allocate much of their money domestically (see below).

Across all providers covered in the OECD's CRDF database, 16% of all development finance flows tagged as climate-related from 2000-2018 went to 14 water-focused subsectors (Figure 7; 24% of the total in the case of adaptation-related flows, and 8% in the case of mitigation-related flows).²⁸

To set these percentages in context, the same subsectors attracted 6% of all equivalent development finance over the same period (i.e. ODA and OOF excluding export credits downloaded from the OECD CRS system, without climate-related tagging applied). Water activities are therefore more likely to be tagged as climate-related by international public climate finance providers than many other activities. However, a detailed sector-by-sector analysis would be needed to see how water fares compared to other intuitively 'climate-relevant' DAC sectors like Agriculture, Forestry, Fishing and Rural Development, and Energy Generation and Supply.

For the selected water subsectors, climate-related flows tracked via CRDF make up a quarter of the total equivalent development finance flows (26%) over the whole 2000-2018

period, compared to a climate-related 'share' of 12% when looking at all sectors/subsectors. For water, the share tagged as climate-related has also been growing at almost double the rate of increase for all sectors/subsectors – from 1% in 2000 to 50% in 2018. This indicates that providers are increasingly ready to tag water activities as climate-related. It does not indicate that water finance is increasingly focused on climate change above all else, since projects tagged as climate related can have multiple objectives.

In terms of differences between adaptation and mitigation-related flows, hydropower activities are, unsurprisingly, much more likely to have been tagged as mitigation-related (39% of all water-related mitigation flows, vs. 2% of adaptation flows). Other than this, flows to water subsectors are generally more likely to be tagged as adaptation-related than mitigation-related. For example, there is no discernible pattern of mitigation-focused finance going to sanitation as opposed to water supply, despite the potential for GHG abatement by capturing biogas etc. in the former.

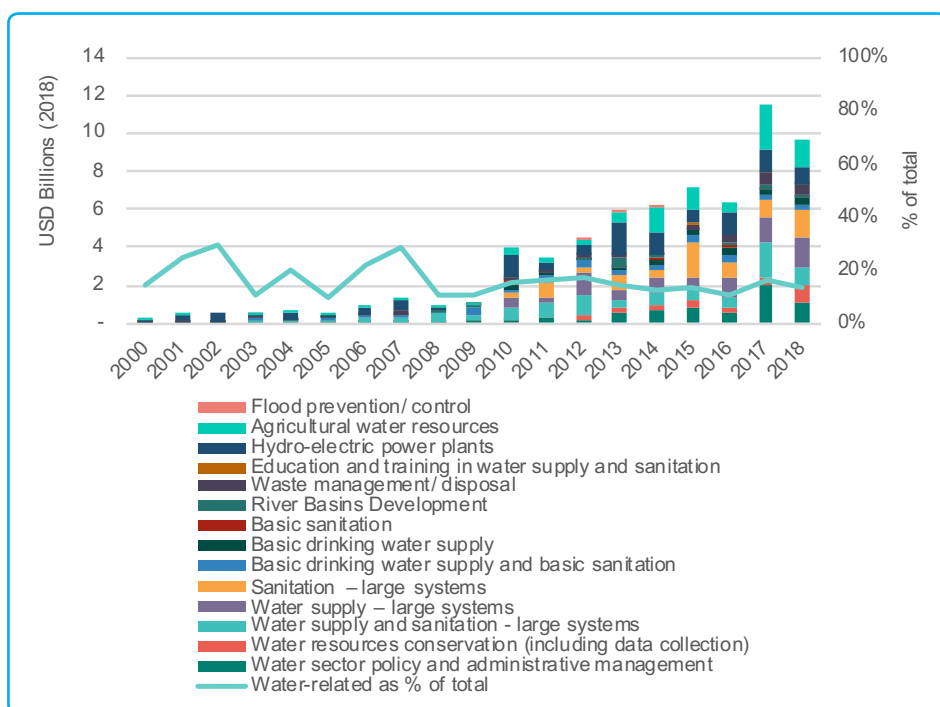


Figure 7: Climate-related development finance to water subsectors 2000-2018

Source: Authors' analysis of OECD DAC CRDF data.

²⁸ All OECD DAC 14000 series sub-sector codes, plus Hydro-electric power plants (23220), agricultural water management (31140) and flood prevention/control (41050) which has been phased out and only appears in the CRDF data 2012-2014. Water transport and disaster risk reduction were considered for inclusion but were excluded due to the likelihood of their including activities unrelated to water.

The subsectors depicted in Figure 7 can be grouped to aid interpretation (Figure 8). The data show that, perhaps unsurprisingly, large infrastructure dominates. Those most closely corresponding to water resources development and management (particularly for hydropower and irrigation) accounted for over a third of total CRDF flows to water, alongside the large (primarily urban) water and sanitation systems.

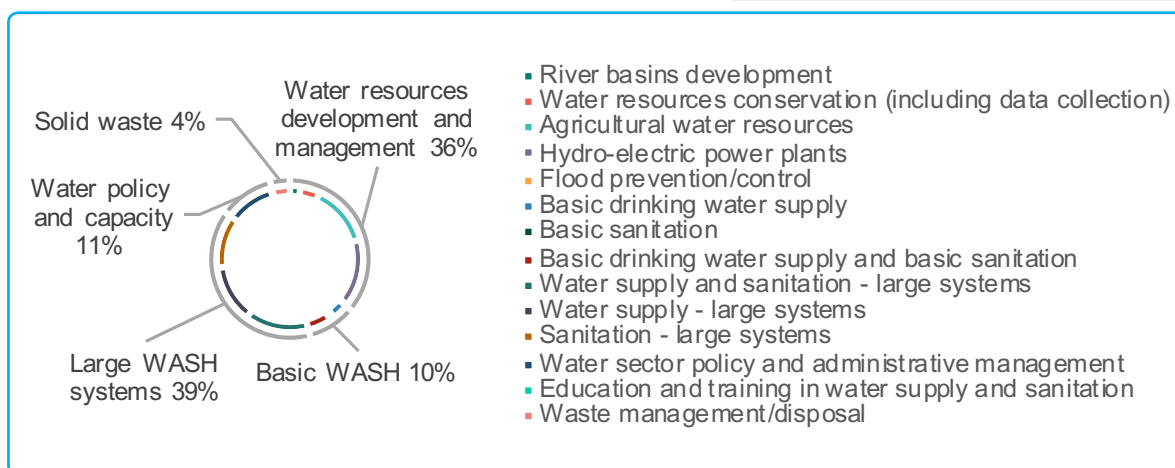
Subsectors corresponding to basic WASH (primarily rural and community-scale) and policy and capacity development received around a tenth of the total each.²⁹ This does not appear to be substantially different to the same subsectors' shares of equivalent general flows (ODA and OOF excluding export credits, without climate-related tagging applied). On this assessment the WASH subsectors, both 'basic' and 'large', had a slightly higher share of the water-focused general development finance flows since 2000: 15% in the case of basic WASH, and 42% in the case of large WASH systems. This may indicate that donors are more likely to tag activities pertaining to water resources as climate-related, compared to activities pertaining to WASH. Although it may be simply be that hydropower activities are especially likely to be tagged as climate related.

▼ Mor Tei, 32, collects water from behind his home near Pursat, Cambodia.



WaterAid/ Laura Summerton

Figure 8: Climate-related development finance to water by theme 2000-2018



Source: Authors' analysis of OECD DAC CRDF data.

²⁹ Solid waste management, which is included by the OECD DAC system as part of the water and sanitation sector, received 4%.

2.1.3 How much of this finance is 'climate-related' finance, and how much is 'climate finance'?

Definitions make a considerable difference to the numbers: a conservative interpretation of what counts as climate finance sees bilateral contributors committing nearly two-thirds less in climate finance to water, than headline figures might suggest. This conservative approach is applied to the succeeding analysis of international public flows. Patterns in the data suggest that donors may be slightly more likely to see finance to water as having a principal focus on climate change adaptation, as compared to their finance to other areas. The reverse may be true for WASH as compared to water resources – the former is less likely to be tagged as having a principal focus on climate change adaptation, than the latter. However, further investigation at project level would be needed to corroborate this.

As noted, methodologies used by the different providers reporting to the OECD DAC vary, with the majority of MDBs reporting according to the IDFC-MDBs Common Principles, and most other providers using the Rio Marker method. The majority of DFIs, namely the members of IDFC, report in a separate annual report, but using the Common Principles methodology.³⁰ These are discussed further below under 'domestic' flows, as is the small amount of tracked private climate finance for water.

MDBs following the Common Principles methodology should be reasonably rigorous in determining what 'counts' as climate finance, especially where the recommended three-step approach to categorising adaptation finance is applied. However, providers using Rio Markers can include flows that have a 'significant' relation to climate change as well as flows that are 'principally' related to climate change. The former tag can be applied where climate change adaptation or mitigation objectives are referenced but are not the primary objective (OECD 2016).³¹ Excluding activities tagged as 'significantly' related to climate change thus provides a more conservative but probably more realistic estimate for what is actually climate finance. It should be noted, however, that this is not a measure of additionality, which is difficult to define due to numerous issues including the lack of an adequate baseline.³²

Excluding activities with a 'significant' focus on climate change reduces water-related flows in the OECD CRDF databases considerably, by USD 28 billion or 43% of the total, 2000-2018, and by USD 3.4 billion in 2018 alone. The impact varies depending on what aspect of water is being considered. Flows to WASH systems, both basic and large, are less likely to be tagged as 'principally' related to climate change than other water-focused flows (Figures 9 and 10). This may indicate a perception among donors that WASH projects are less likely to be strongly climate-related than water resources management projects, but detailed analysis at project level would be required to confirm the hypothesis. Note that in Figure 9 and the CRDF dataset, 'climate components' is the tag used for MDB flows, which are meant to follow the Common Principles methodology.

Overall, when excluding all flows with a 'significant' focus on climate change, water focused flows represent a smaller share of the CRDF total, 2000-2018, (12% vs. 14%). However, they make up a larger share when considering flows to adaptation only (28% vs. 24%). Under a generous interpretation, this may be an indication that donors are more likely to regard water-focused activities as making a clear contribution to climate adaptation, than activities in other sectors. Again, however, project-level analysis would be needed to confirm this.

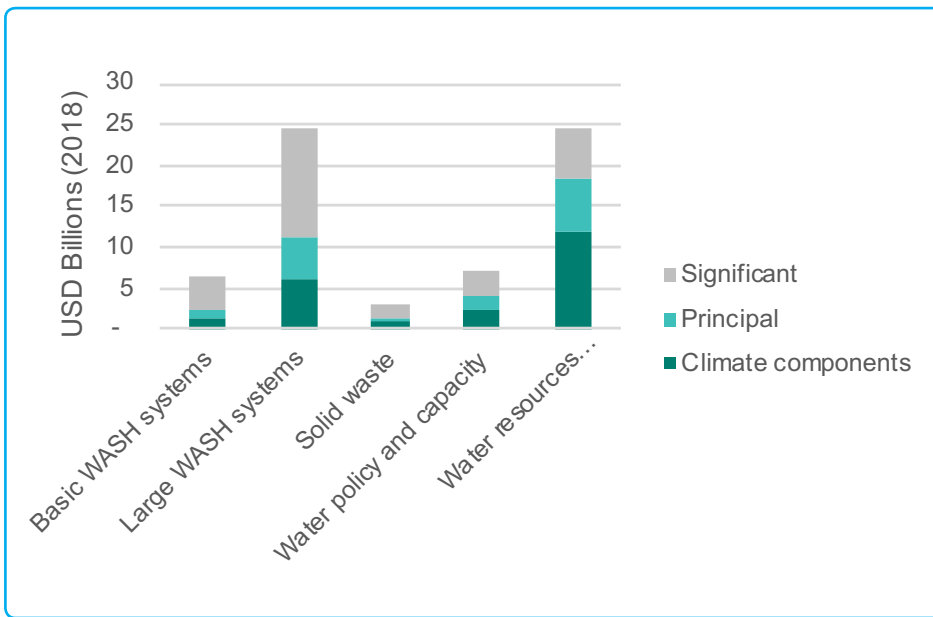
³⁰All OECD DAC 14000 series sub-sector codes, plus Hydro-electric power plants (23220), agricultural water management (31140) and flood prevention/ control (41050) which has been phased out and only appears in the CRDF data 2012-2014. Water transport and disaster risk reduction were considered for inclusion but were excluded due to the likelihood of their including activities unrelated to water.

³¹"An activity can be marked as "principal" when the objective (climate change mitigation, climate change adaptation, biodiversity, combating desertification) is explicitly stated as fundamental in the design of, or the motivation for, the activity. Promoting the objective will thus be stated in the activity documentation to be one of the principal reasons for undertaking the activity. In other words, the activity would not have been funded (or designed that way) but for that objective. An activity can be marked as "significant" when the objective (climate change mitigation, climate change adaptation, biodiversity, combating desertification) is explicitly stated but is not the fundamental driver or motivation for undertaking and designing the activity. The activity has other prime objectives but has been formulated or adjusted to help meet the relevant environmental concerns." OECD (2016, p.2)

³²"In accordance with Article 4, paragraph 3, of the Convention, the financial resources provided to support climate action are meant to be "new and additional". Although such language was reiterated at COP 16,109 the Paris Agreement does not make use of that specific phrase. Article 9.3 of the Paris Agreement does, however, state that "developed country Parties should continue to take the lead in mobilizing climate finance from a wide variety of sources, instruments and channels", and that such mobilization should "represent a progression beyond previous efforts". Nevertheless, understanding of what is "new" and "additional" varies widely across stakeholders." UNFCCC SCF 2018, p.89

As mentioned, we exclude the flows with a 'significant' focus on climate change in much of the subsequent analysis since they reflect flows to activities that could have been funded even without the climate objective.³³ The OECD itself points out that the Rio Markers provide "a quantification for mainstreaming rather than finance that is climate-specific" (OECD 2019a, p.147).

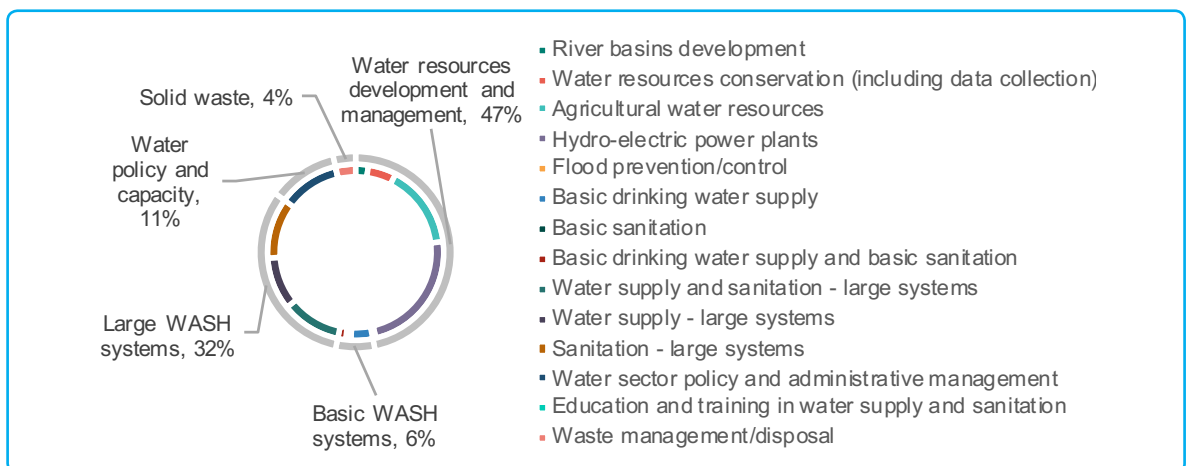
Figure 9: Flows to water 2008-2018 by climate objective



Source: Authors' analysis of OECD DAC CRDF data.



Figure 10: Climate-related development finance to water by theme 2000-2018, excluding flows tagged as having a 'significant' focus on climate change



Source: Authors' analysis of OECD DAC CRDF data, 'significant' focused climate related development finance excluded.

³³The UNFCCC BA includes ODA flows tagged as having a 'significant' climate change focus. CPI apply a coefficient to the flows reported by each donor, based on a recent survey, whereby flows tagged as having a 'significant' climate focus are adjusted downwards usually by a set percentage (differing by donor) or, in two cases, excluded at activity level (OECD, 2019).

2.1.4 What kind of water-related climate finance is being provided?

The significant majority of public, international climate finance to water has been provided as repayable loans: 86%, around half of which were non-concessional/market rate. Basic WASH and water policy and capacity activities are more likely to receive grants than other water-related activities.

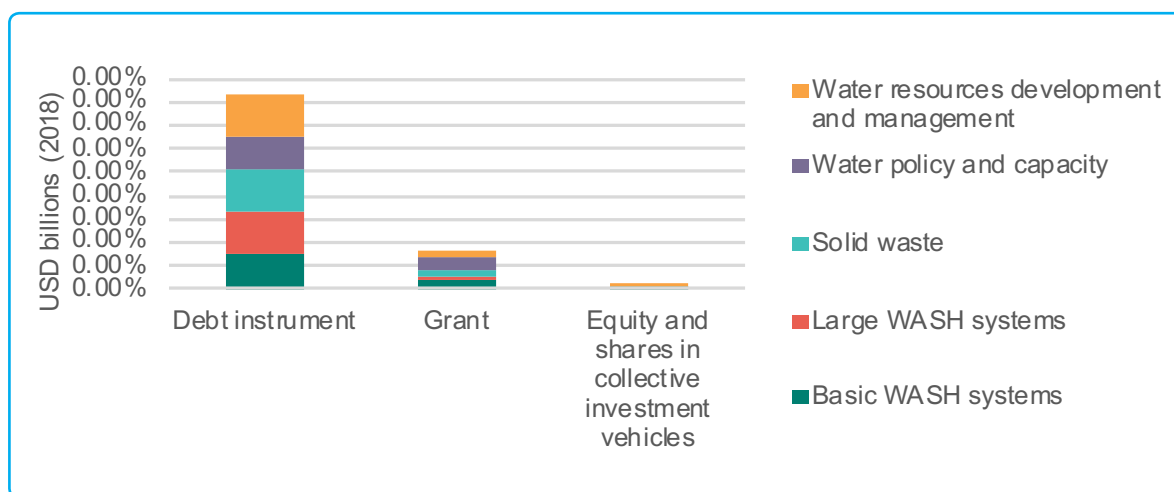
The OECD CRDF database provides further data on the financial instruments deployed for water-focused, climate-related development finance. Equivalent water-specific data for private, domestic and most national/regional DFI flows was not identified.

CRDF data suggests that 86% of international, public, climate-related development finance to water subsectors has been provided via debt instruments, including standard loans, reimbursable grants, bonds, or asset-backed securities, 2000-2018 (excluding flows with only a 'significant' climate focus, as above). Around 47% of these loans were non-concessional/not primarily developmental, implying that they

were provided at market rates. Grants comprise roughly 14% of the total share while equity stakes make up less than 1%. Climate-related flows to water appear slightly more likely to have been provided in loan form: when looking at equivalent total flows, i.e. all ODA and non-export credit OOF 2000-2018 whether tagged as climate-related or not, the same subsectors received higher share as grants (26%). This may reflect the large share of climate-related development finance going to water subsectors that involve major infrastructure investments, which are often financed through loans.

A breakdown by mitigation and adaptation provides a similar picture for the respective debt instrument and grant shares, while most of the limited equity financing is concentrated in mitigation, principally financing hydro-electric plants. Grants made up a higher share of the total in subsectors corresponding to water policy and capacity and basic WASH systems, compared to other sectors, but loans still dominated, by a factor of 3 and 4, respectively (Figure 12).

Figure 11: Climate finance to water by financial instrument, 2000-2018



Source: Authors' analysis of OECD DAC CRDF data.

2.1.5 How much climate finance is actually flowing?

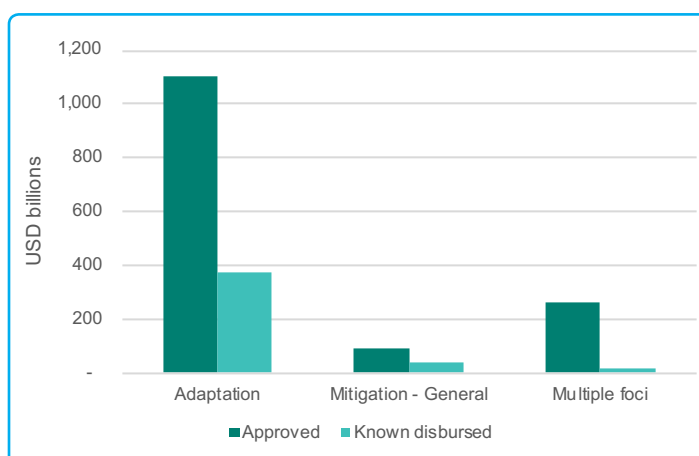
Most available data on climate finance flows to water represents commitments. Disbursement data are patchy but available figures confirm this can be considerably lower.

All of the flows captured in the CRDF databases, as well as most of those captured by CPI, correspond to commitments. A separate project-level dataset covering the multilateral climate funds, the Heinrich-Böll-Stiftung and ODI Climate Funds Update, is the only publicly available source that separates disbursements.

The data still needs to be interpreted with caution as not all funds tracked by CFU report disbursements. Nonetheless, applying the same subsector codes as were applied to the CRDF data described above³⁴ indicates that only 29% of approved water-focused funds are known to have been disbursed since 2003 (when the multilateral climate funds that CFU monitors approved the first project). Approved flows from the multilateral climate funds to water-focused, adaptation-related projects have totalled USD 1.1 billion since 2003, with only a third (34%) disbursed, to date. Approved mitigation-objective projects total USD 0.09 billion (42% disbursed), and those with multiple foci, USD 0.26 billion (6% disbursed).

The gap between funds approved and disbursed from the multilateral climate funds cannot be assumed to apply to all water-related climate finance, and there is inevitably a time lag between approvals and disbursement. This is exaggerated in the case of the relatively new multilateral funds, dominated by the GCF, which first mobilised resources in 2014 and has been ramping up finance since, including to water. However, given what is known about expenditure in the water sector more widely, it likely points to wider challenges in disbursing and absorbing climate funds, and suggest that both CDRF and CPI numbers measured on approval basis are optimistic.

Figure 12: Climate finance to water approved and disbursed from the multilateral climate funds



Source: Authors' analysis of CFU data.

2.2 Where is water-related climate finance coming from?

2.2.1 Overview

Together, MDBs and DFIs account for nearly four-fifths of tracked water-focused climate finance in recent years (2016-2018). Bilaterals and bond issuers provide about a tenth each, and multilateral climate funds still a small share, albeit growing (around 3%). This is a global perspective on flows for which there is globally aggregated data available. Bond issuers likely make up a much smaller share for developing countries.

The CPI reports referenced above do not provide a breakdown of sources of water-related climate finance. An approximation can be constructed, at high level, from various sources including the OECD CRDF database, Climate Funds Update (covering the multilateral climate funds), joint reports issued by the major Multilateral Development Banks, reports of the IDFC for its DFI members, and reports of the Climate Bonds Initiative on its climate certified bonds (Figure 11).

³⁴ CFU applies the OECD sector and subsector codes, but does so independently, so projects may be coded differently from CRDF. At headline level, aggregate total water-related climate finance derived from CFU is comparable to equivalent totals derived from CRDF (USD 1.4 billion approved in CFU approved vs. USD 1.7 billion committed in CRDF, 2003-2018). CFU data used in this report were last updated in November 2019.

The resulting totals are not identical to those estimated by CPI (Figure 5 above), likely due to differences in definitions and necessary assumptions about the data aggregated in reports. However, they are of similar order of magnitude – with adaptation flows to water sectors representing on average 32% of all adaptation flows (1% in the case of mitigation; 5% in cases where both mitigation and adaptation are targeted or cannot be separated).

Key observations on this breakdown by category of provider include the major contribution of national and regional DFIs, discussed further under ‘domestic’ sources below; the small relative contribution of the multilateral climate funds; the greater role played by MDBs as compared to bilaterals (for which only ‘principally’ climate-related flows are shown, as discussed above); and the not-insignificant contribution of bond issuers. Bond issuers are also the only source of private finance for which tracked climate-related flows were identified. As noted, however, bond issuers and use of proceeds can be public rather than private. Bonds can also be issued to refinance debt rather than to raise ‘new’ finance

and their contribution to the aggregate total needs to be understood in this light (indicated by the transparent fill and dotted line in Figure 13).

The aggregation of datasets using differing definitions and methodologies provides only an approximation of the relative contribution. There is some double-counting e.g. between a limited number of bilaterals and their DFI wings. It is also important to consider each broad source in the context of the type of finance it provides, for which geographies. Nuances are discussed briefly below for each provider type, along with some insight on the contribution of specific institutions where the data allows.

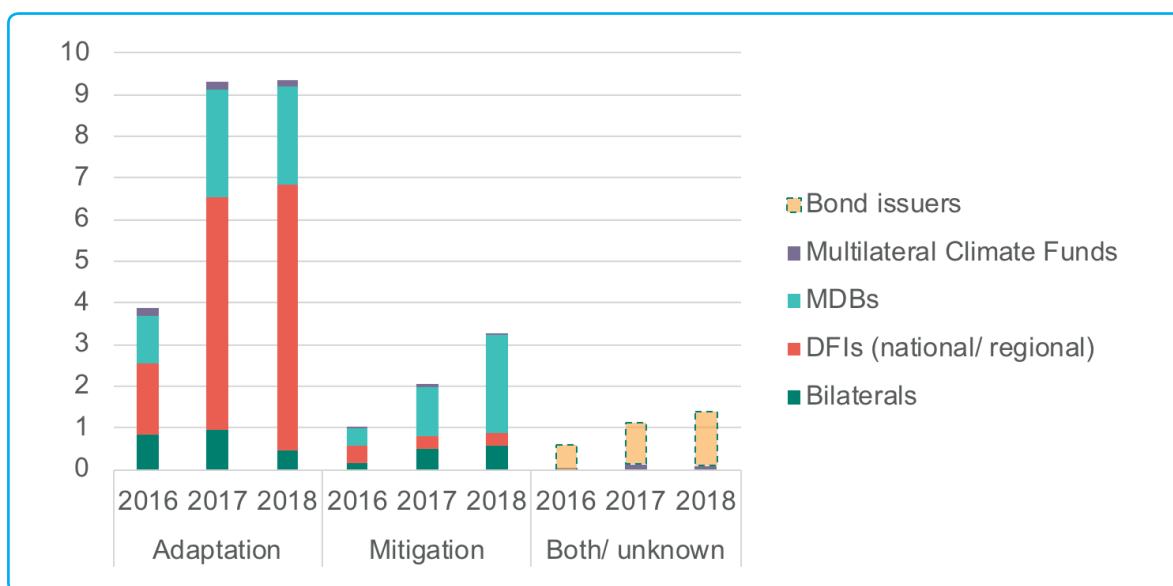


Figure 13: Sources of climate finance for water

Source: Authors’ analysis of multiple sources. All flows are approved/ committed (‘outstanding’ in the case of bonds). Bilaterals – source: OECD CRDF datasets 2016-2018, applying 14 water-related codes mentioned above; ‘significant’ climate focus excluded; overlap between adaptation and mitigation attributed equally. DFIs – source: IDFC 2019; Mitigation sector category is ‘waste and wastewater’. MDBs – source: MDB Joint Reports (Joint MDB Climate Finance Group, 2017, 2018, 2019); Adaptation excludes ‘coastal and riverine’ infrastructure sector category; mitigation is ‘waste and wastewater’. Multilateral Climate Funds – source: Climate Funds Update dataset, updated November 2019, applying 14 water-related codes mentioned above. Bond issuers – source: CBI (2020b), includes climate certified bonds under the Climate Bonds Standard for water infrastructure.

2.2.2 Domestic climate finance

National and regional DFIs provide a significant amount of tracked water-focused climate finance, more than two-fifths of the total in recent years. The majority of this appears to be allocated by DFIs outside the OECD, primarily in MICs, within their headquarter countries, and as market-rate loans. Other sources of domestic climate finance are not tracked globally, but country-level initiatives are developing, and may improve data and decision making around domestic climate finance as well as other sources.

There is little globally aggregated data on domestic climate finance. An important contribution is provided by DFIs that are members of the International Development Finance Club (IDFC), a grouping of 26 national and regional development banks. Together these are the largest providers of development finance globally and have been tracking climate-related and other green commitments since 2016. Some of this finance is international, and a proportion may overlap with data captured in CRDF for MDBs.

While the exact proportion for water-focused finance cannot be identified, it appears the majority is allocated domestically and so it is reported here, rather than as international public finance. A sizeable proportion of all climate finance reported by IDFC DFIs is committed by those in non-OECD countries - though mainly middle-income countries (MICs) - to domestic activities: 54% in the case of mitigation, and 73% in adaptation in 2018.³⁵

Geographic destinations and type of finance are not reported at the sector level. However, for 'Green Finance' in aggregate - which includes a small proportion for 'other environmental objectives' besides mitigation and adaptation - the majority of commitments went to East Asia and the Pacific (56%) in 2018. Roughly 9% went to Latin America and the Caribbean, 7% to South Asia, 2% to Sub-Saharan Africa, 2% to Eastern Europe and Central Asia, and 22% to countries in the EU. Commitments by country classification based on income or level of development are not reported.

The majority of finance (67%) was provided as non-concessional, market-rate loans. This likely accounts at least partly for CPI's observation that "water and wastewater management projects are often large infrastructure projects, a status which likely contributes to the ability of such projects to attract market-rate capital" (Richmond et al. 2020). However, the pattern also reflects the fact that most of the non-OECD DFIs in the IDFC are headquartered in large MICs with developed capital markets. The limited data available at sector level may also conceal a role for blended finance from public or philanthropic sources, in catalysing some of this market-rate private finance.

In terms of mitigation finance in 2018, IDFC DFIs allocated USD 0.3 billion to the main water-related sector, 'waste and wastewater', only 0.2% of a total dominated by transport, renewable energy and energy efficiency projects. In adaptation finance, allocations to 'water preservation'³⁶ reached USD 6.4 billion in 2018 and comprised on average 45% of total IDFC DFI commitments to adaptation, 2016-2018. Some water-focused finance may be amalgamated in flows to other sectors.



³⁵ A total of 17 of 24 IDFC members reported in 2018, completing a survey following principles the MDBs-IDFC Common Principles for Climate Mitigation and Adaptation Finance Tracking. It should be noted, however, that IDFC members appear to have reported adaptation flows according to pre-defined categories, rather than the three-step approach used by the MDBs (IDFC, 2019). The IDFC report does not break down the sectoral flows by domestic/ international, nor by provider.

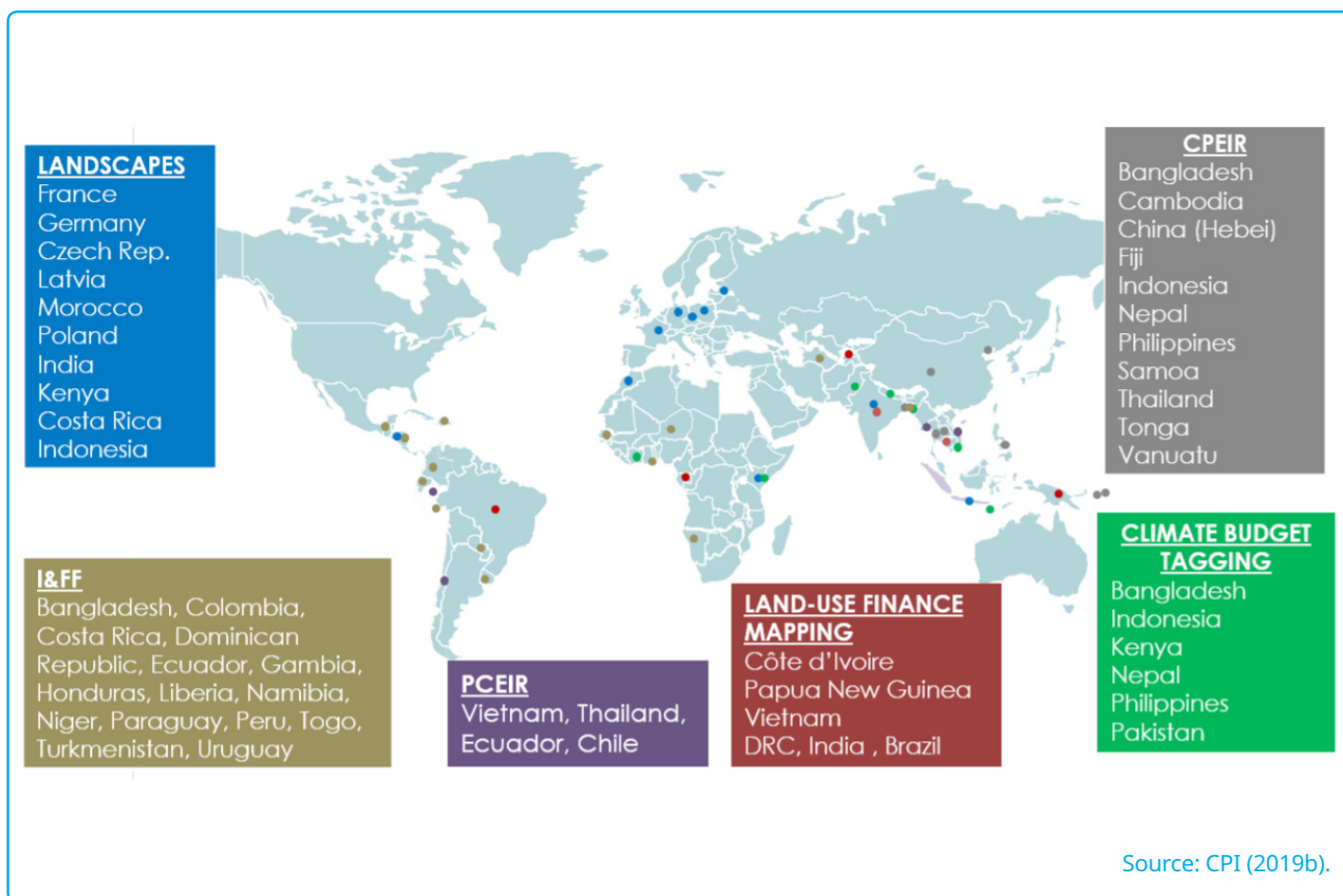
³⁶ See Appendix C in IDFC (2019) for eligible project categories.

We did not identify other globally aggregated data on the scale and role of domestic climate finance beyond the IDFC DFIs, which are in any case likely to be financing international activities as well. The role of national and subnational budgets, for example, could well be significant but is as-yet not systematically mapped in general, let alone for water. However, a number of individual countries are improving their national-level climate finance tracking and accounting across their domestic public expenditure and finance institutions, as well as other sources. This is generally done with the support of international partners under one or more multi-country initiatives, including CPI's Domestic Climate Finance Landscapes, and UNDP and the World Bank's promotion of the Climate Budget Tagging tool, Climate Public Expenditure and Institutional Reviews

(which also have a private finance variant), and Investment and Financial Flows Assessment (more forward looking, to determine costs of climate change measures and potential investment sources).

Figure 14 shows the broad geographic coverage of these initiatives, as of December 2019. It is beyond the scope of this global review to assess how water is treated in extant national climate finance tracking systems. However, this is a growing area, in which engagement by the water community in specific countries would be worthwhile.

Figure 14: Global coverage of country-level climate finance tracking initiatives



2.2.3 South-South cooperation

Data are scarce, but these voluntary climate finance flows are unlikely to be larger than others assessed in this report. The biggest identified South-South contribution in terms of international public flows is from the Republic of Korea, which is classed as a non-Annex I country under the UNFCCC, but a developed country and member of OECD DAC for development-aid purposes. It is the fifth largest donor providing climate-related development finance to water. Flows from China may be significant but high-level analysis of AidData's Global Chinese Official Finance dataset did not reveal any projects that are clearly at the intersection of water and climate objectives.

As noted above, there are a number of issues for tracking South-South climate finance, which apply also to the water-related flows. It is likely that some of the DFI flows could be categorised as South-South, but how much cannot be distinguished reliably from the IDFC reports. The contribution of the non-Annex I parties included in CRDF can be distinguished: UAE's water-focused climate finance is small (USD 11 million 2000-2018, excluding 'significantly' climate-related projects); the Republic of Korea, however, which is an OECD DAC member but a non-Annex I country, was the 5th largest bilateral provider, committing USD 0.4 billion in total. China, as an increasingly significant contributor of South-South flows, is likely to be contributing to projects that involve both water and climate objectives. A high-level assessment of AidData's Global Chinese Official Finance dataset did not reveal any clearly climate-related contributions to the water and sanitation sector, however.³⁷

2.2.4 Bilaterals

The majority of water-focused commitments of climate-related development finance come from bilaterals comes from three donors: Japan, Germany and France. With major lending activities, most of this is provided as concessional loans, to Asian and middle-income countries. Across all bilateral donors, LDCs received a sixth of water-focused commitments.

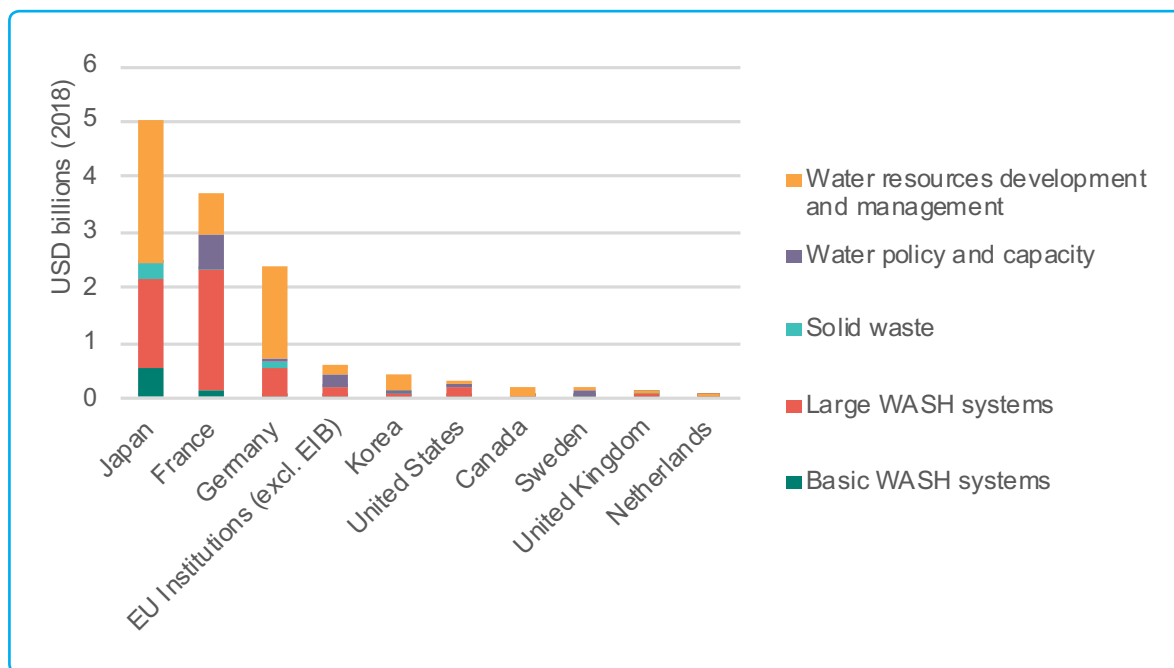
As can be seen in Figure 15, Japan, Germany and France dominate the bilaterals providing water-focused, climate related finance. This is robust to whether projects with a 'significant' climate finance are included or not. Despite the concentration in hydropower of both Japan and Germany (46% of both donors' commitments to water), it is also robust to whether the focus is on adaptation, mitigation, or both (see Figure 13). These three donors provided 88% of their water-focused, climate-related finance as debt instruments, and the remainder as grants, with the Japan Bank for International Cooperation, AFD (in its capacity as a DFI) and KfW playing significant roles in providing loans for water-related activities.

The contribution of these three donors is concentrated geographically in East Asia (24%) and South and Central Asia (19%), with the Middle East, South America and Sub-Saharan Africa all receiving 10% or more. Across all bilateral providers (including the very small contribution of private donors and non-DAC donors), lower-middle-income countries (LMICs) received 55% of commitments and upper-middle-income countries (UMICs) 23%. LDCs received 17%.



³⁷ <https://www.aiddata.org/pages/how-to-use-global-chinese-official-finance-data>. We assessed AidData's Global Chinese Official Finance Dataset, which covers ODA-like and other official flows from China, 2000-2014. We first isolated water-related projects (tagged with OECD Sector Code 140, Water Supply and Sanitation), returning 104 separate results with a total value of USD 7.9 billion (2014 values), 1% of the total tracked finance in the dataset. We then used a keyword search for "climate", "adaptation" and/ or "mitigation" within the project titles and descriptions, which yielded no results.

Figure 15: Top 10 bilateral providers of climate-related finance water-focused activities, 2000-2018



Source: Authors' analysis of OECD DAC CRDF data, 'significant' focused climate related development finance excluded.

2.2.5 Multilateral development banks

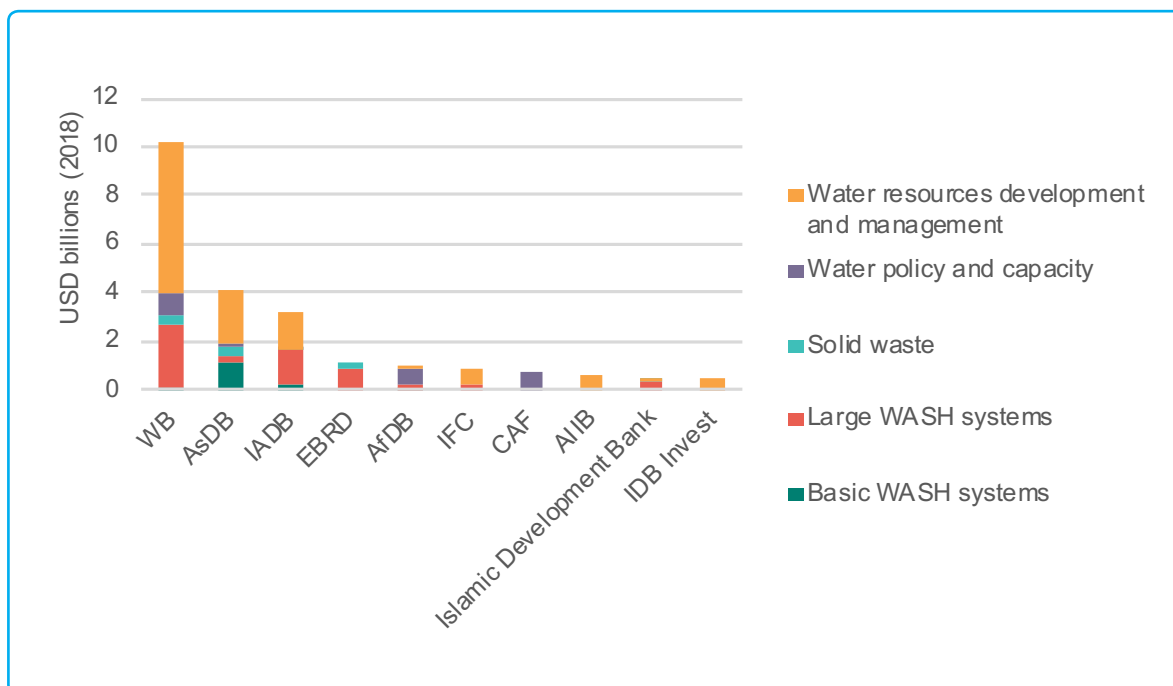
Among MDBs, the World Bank, Asian Development Bank and Inter-American Development Bank provide the majority of water-focused climate finance. These institutions provided climate-related development finance almost entirely as loans, of which most were non-concessional, with over half the finance going to Asia. The African Development Bank is also active in financing water-focused adaptation projects, especially with a policy focus. LDCs again received about a sixth of all water-focused commitments from MDBs.

As the MDB joint reports provide aggregated rather than project-level data, the CRDF dataset must also be used to examine commitments to water-focused activities from each MDB. For climate-related finance overall, the World Bank (WB, i.e. IDA and IBRD, excluding IFC),³⁸ Asian Development Bank (AsDB) and Inter-American Development Bank (IADB) are the three largest providers. For adaptation-related, water-focused commitments, however, the

African Development Bank (AfDB) replaces the IADB. Hydropower is, again, a major focus for all except AfDB (WB: 19%; AsDB: 26%; IADB: 44%), with the WB also investing significantly in irrigation (agricultural water resources, 30%); AsDB in basic water supply (24%); IADB in large water supply and sanitation systems (30%); and AfDB in water sector policy and administrative management (65%) (Figure 14). The four institutions provided 94% of finance as debt (37% of which was concessional or primarily developmental), 6% as grants and 1% as equity/shares in collective investment vehicles. The majority was provided to Asia (54%), with 21% going to Africa and 24% to the Americas. Among all MDBs, most commitments were made to LMICs (47%) and UMICs (35%), while LDCs received 16%.

³⁸ Contributions from the Multilateral Investment Guarantee Agency, MIGA, do not appear to be included in the CRDF data.

Figure 16: Top 10 MDB providers of climate-related finance water-focused activities, 2000-2018



Source: Authors' analysis of OECD DAC CRDF data.

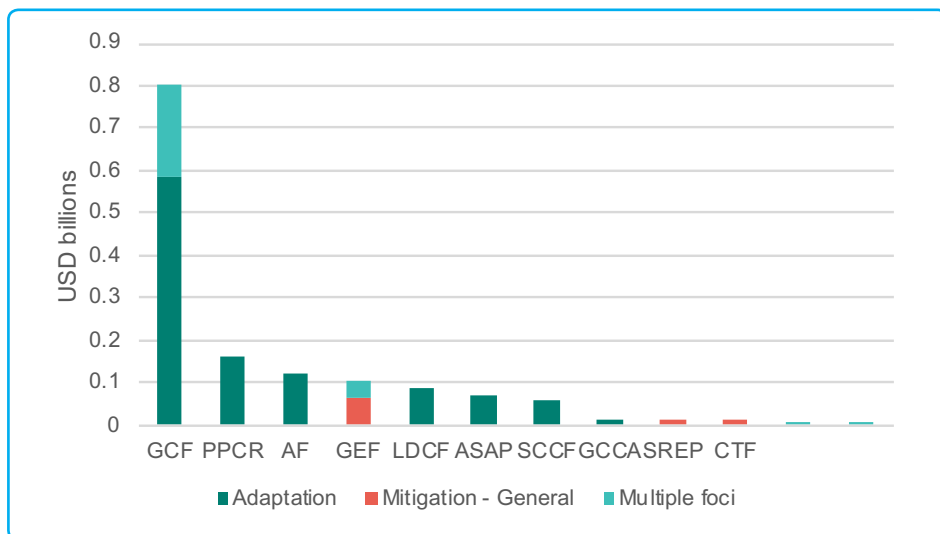
2.2.6 Multilateral climate funds

While the multilateral funds contribute a small share of climate finance to water overall, they concentrate more on LDCs, and on policy and capacity development, than most bilaterals and MDBs. The GCF has rapidly become the leading fund approving climate finance to water.

For the multilateral climate funds a separate project-level and independently compiled dataset is available from CFU, covering 2003-2019. Applying the same 14 subsector codes, as were used to analyse CRDF data, shows that the GCF already leads the (albeit modest) water-related contributions from the multilateral climate funds. It is followed by the Pilot Programme for Climate Resilience (PPCR) (part of the Strategic Climate Fund of the Climate Investment Funds) and the Adaptation Fund. The GEF stands out for its contribution to water-focused mitigation projects, though it also manages the Special Climate Change Fund (SCCF) and Least Developed Countries Fund (LDCF) which are more adaptation-focused (Figure 15). CFU data also reveals that the

vast majority of MCF funding towards WASH is committed through grants (87%), with about a third (34%) going to water sector policy and administrative management, indicating that the Funds may be supporting 'upstream' investment in developing the enabling environment for climate-sensitive water policy and delivery. The Multilateral Climate Funds have committed a higher share of water-focused climate finance to LDCs, at 37%, than either MDBs or bilateral donors, though the LDC share of disbursed funds is slightly lower (32%). Sub-Saharan Africa has also received the highest share of any region (24%), with Latin America and the Caribbean following, at 22%.

Figure 17: Top 10 multilateral climate funds providing climate finance to water-focused activities, 2003-2019



Source: Authors' analysis of CFU data.

2.2.7 Private climate finance

Private finance for water-focused climate action is complex to track in general and so there are limited data. Discernible flows are limited to green and climate-aligned bonds, which represent a growing share of tracked climate finance to water – USD 1.3 billion under one certification scheme in 2019. However, it should be noted that bonds issuers and user-of-proceeds can be public in nature, bonds may be used to refinance debt (where they do not represent ‘new’ money) and existing issuances are heavily weighted towards developed country markets. The consultative process to develop certification and tracking of climate-related bonds to water, may hold some lessons for improving tracking and coordination of other private climate finance stocks and flows for the sector. Related to the contribution of private financial institutions, is the contribution of households and firms, in the form of spending on water and sanitation which may have adaptation and/ or mitigation benefits. This is under-researched, as are questions of how related areas of public policy and finance for water, including pricing and subsidies, should be tailored to improve climate outcomes.

In estimating climate finance flows from developed to developing countries, the UNFCCC Standing Committee on Finance includes

private finance mobilised by public international climate finance (climate funds, MDBs, OECD DAC bilateral donors), as well as foreign-direct investment in renewable energy projects. Together, these tracked private flows constituted USD 16 billion in 2015 and USD 17 billion in 2016 (UNFCCC 2018). Water may constitute a share of the mobilised private finance to developing countries, but this cannot be discerned from the available data. Globally, as per CPI's estimates, the same UNFCCC report identifies significant private contributions to renewable energy and sustainable transport, as well as energy efficiency – in excess of USD 450 billion in 2015 and 2016. Water is unlikely to feature much in this, besides some hydropower investments.

The UNFCCC Standing Committee on Finance also identifies six large and potentially significant flows - as well as existing stocks - of private finance, which need to be considered to track consistency of finance flows with low-emission climate resilient pathways (Article 2.1(c) of the Paris Agreement). These comprise bank lending, bond markets, listed equity, private equity, insurance and reinsurance, and assets under management.

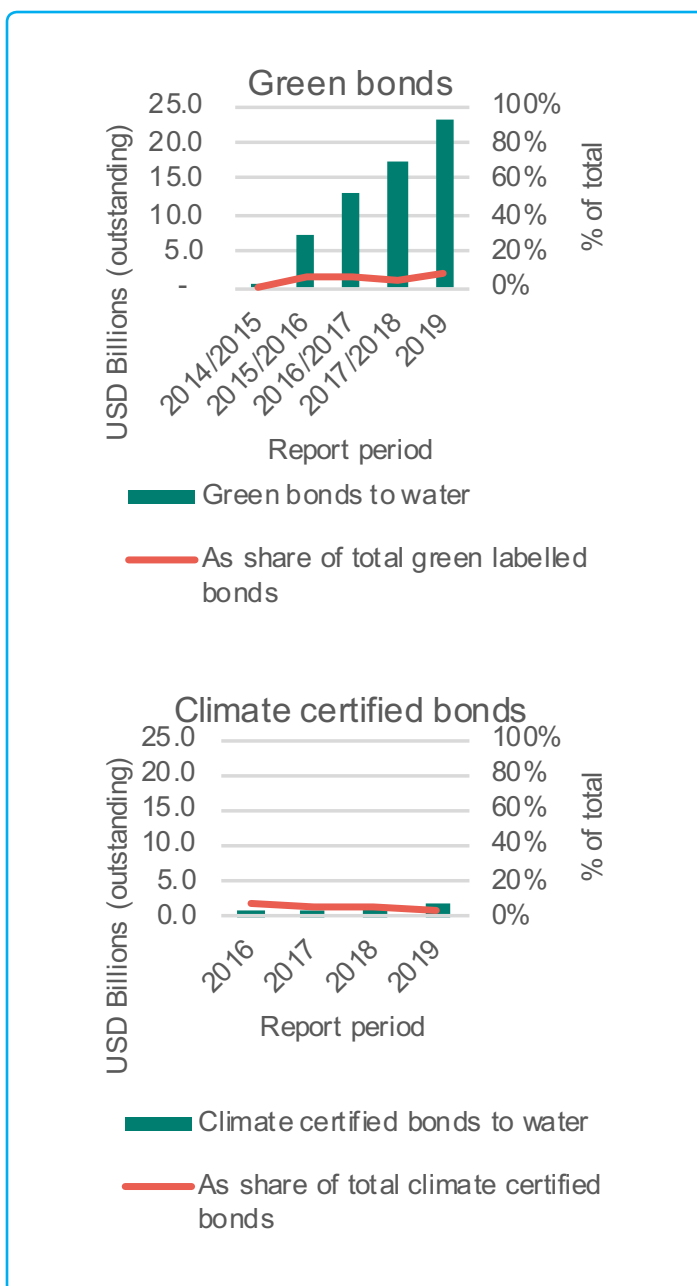
Bonds are the only category for which a climate-aligned, water-focused share could be identified for this analysis – specifically green bonds. Green bonds can be defined as “fixed-income instruments aimed at financing environmental

and sustainable development projects. Their proceeds are used exclusively to finance or refinance, partially or in full, new and ongoing green projects, in particular, infrastructure investments.” (Deschryver and Mariz, 2020, p.2). It is important to note that where green bonds are used to refinance existing debt, they will not necessarily be attracting new and additional. Although we group them under private finance as money is raised on the capital markets, they can also be issued by ‘public’ entities at different scales - from local governments to sovereigns and MDBs - to fund public investments, as well as by corporates in the financial and non-financial sectors (CBI 2019). Within the wider universe of green bonds, there are ‘certified climate bonds’ which meet the Climate Bonds Standard and Sector Criteria issued by the Climate Bonds Standard Board (CBSB), convened by the Climate Bonds Initiative (CBI). While there are other initiatives for climate-aligned bonds standardisation (Deschryver and Mariz, 2020) the CBI provides useful tracking information in the form of annual reports on the ‘state of the market.’

Water emerged as a discernible use-of-proceeds category of green bonds in 2014/2015, and has constituted 4% to 9% of all outstanding green bonds since then, while growing in absolute terms to USD 23 billion in issuances per year in 2019 (Figure 16). The vast majority are issued by public entities in developed markets, such as US and European utilities and municipalities, to fund water supply and treatment infrastructure in those countries. There are some exceptions, for example the USD 1.5 million (KES 1.5 billion) issuance by the Kenya Pooled Water Fund which was originally slated for 2018).³⁹ Green bonds are, however, poorly defined in general (Deschryver and Mariz, 2020) and it is likely that these flows include investments with limited contribution to adaptation or mitigation.⁴⁰

The ‘climate certified bonds’ meeting the CBSB/ CBI Sector Criteria are more robustly defined, and though small, are growing. Water represents a similar share of total climate certified bonds outstanding, as for green bonds, but constituted under USD 2 billion in 2019, with no separate estimates for mitigation and adaptation-related bonds available.⁴¹ While we include them in Figure 18 for completeness, it should be kept

Figure 18: Green bonds and climate-aligned bonds to water (CBI data)



Source: Authors’ analysis of CBI data

³⁹ It is not clear whether it has yet been issued. The initiative is part of the Water Finance Facility, with EUR 10 million seed funding from the Netherlands Government, managed by Cardano Development.

⁴⁰ CBI includes in its Green Bonds Database “bonds with at least 95% of proceeds dedicated to green assets and projects aligned with the Climate Bonds Taxonomy” (CBI 2020, p.2)

⁴¹ Estimated from report chart. Underlying data not available. See CPI (2020), p.14. It is not clear that CPI include these climate-certified bonds for water projects in their estimate of global climate finance to water-related sectors. CPI’s 2019 report finds that private finance accounted for under 1% of all climate finance to all sectors, besides renewable energy and low-carbon transport, in 2017-2018. In the case of water, this would imply less than USD 0.2 billion in private finance, including bonds.

in mind that climate certified bonds are likely also to be heavily tilted towards activities in developed markets.

The data gaps for other sources of private finance, including the five other categories identified by the UNFCCC Standing Committee on Finance, appear to be significant. The experience of water-focused climate bond standardisation and tracking will be useful when thinking through how to approach other flows and stocks of private capital. The CBI Sector Criteria were developed through an extensive consultation process that engaged a wide array of stakeholders in the water and climate domain.

There is also the question of household and firm expenditure on both mitigation and ('autonomous') adaptation (Chambwera et al. 2014). For water, this could include the costs of self-supplied capital infrastructure (e.g. private boreholes) and payments for water resources or services where these involve additional expense to reduce emissions and/or adapt to climate change. While such flows are thought to be significant even under historical and current climate variability and change, amounts are not known with any precision. There is therefore no certainty about baseline amounts, nor any additional amount spent in response to anticipated climate change – deepening boreholes, supplementing farm and household water storage capacity, flood-proofing latrines, installing solar-powered pumps and so on.

There remains a strong interaction with public finance here, given the prevalence of subsidies in the water and sanitation sector (estimated at USD 320 billion per year, globally; Andrés et al., 2019). Unlike in energy, where fossil fuel subsidies have been a major focus for research and advocacy from the climate community, there appears to have been limited attention to whether water and sanitation subsidies are enhancing climate resilience or driving emissions reduction, or how they could do so. This is an important aspect of the much broader question of how the water sector should itself align with Article 2.1(c) of the Paris Agreement.

2.3 Where is water-related climate finance going?

2.3.1 Overview

Five countries in Asia - all middle income - received nearly 30% of public international climate-related development finance to water: India, China, Pakistan, Vietnam and Indonesia. Most of the top 20 recipients receive the majority of this finance as loans, and to large infrastructure for water resources management and WASH. Hydropower is prominent among the top 20 recipients of mitigation-related finance.

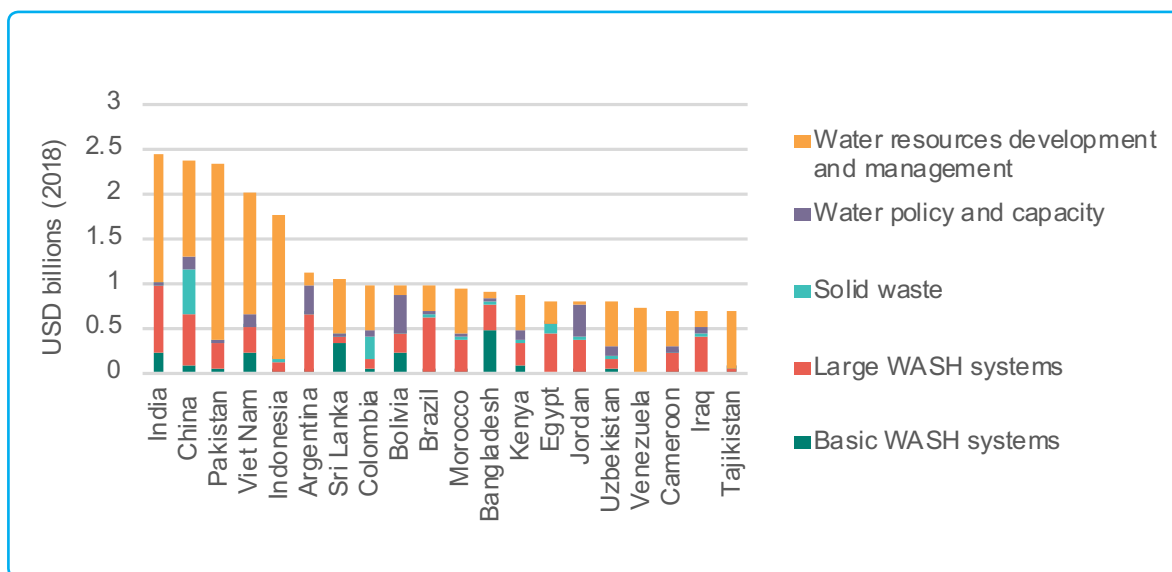
The only available datasets disaggregating sectoral flows to recipient country level are CRDF and CFU. CRDF includes most of the multilateral climate fund flows in CFU, so is used in this section. Again, flows tagged as having a 'significant' focus on climate change are excluded and it should be stressed that the flows account for international, public sources of development finance (ODA and OOF) only.

Nearly two-thirds (64%) of the tracked climate-related development finance committed to water between 2000 and 2018 went to 20 countries ('principle' focus/'climate components'). Over the time-period the top recipient, India, received USD 2.4 billion, 6% of the total. The next top four recipients are all Asian countries.⁴² Only two countries in sub-Saharan Africa, Kenya and Cameroon, feature in the top 20 (Figure 19).

For most of the top 20 countries, water resources development and management and large WASH systems receive the majority of commitments. Policy and capacity play a minor role, and are only substantial (>20%) in three of the top 20 countries: Jordan (47%), Bolivia (44%) Argentina (27%). Most of the top 20 recipients receive >90% of overall finance committed in the form of debt (99% for India). Tajikistan, Kenya and Bolivia are the only countries in the top 20 receiving more than 20% of commitments as grants (44%, 21% and 23%, respectively).

⁴² India, China, Pakistan, Vietnam and Indonesia are also the top five when including 'significant' focused flows.

Figure 19: Top 20 recipients of climate-related development finance, 2000-2008



Source: Authors' analysis of OECD DAC CRDF data, 'significant' focused climate related development finance excluded.

The top 20 recipients for adaptation- and mitigation-related commitments are similar. In the case of adaptation, Tunisia, Lebanon, Senegal and Ethiopia substitute Brazil, Venezuela, Iraq, Tajikistan. For mitigation, Costa Rica, Chile, Ecuador and Peru replace Kenya, Bangladesh, Bolivia and Morocco in the top 20. The ranking for mitigation-related finance, in many countries, reflects allocations to hydropower. In 10 of the top 20 recipients of mitigation-related finance, more than half is going to hydropower, and the top recipient, Pakistan, received 76% of mitigation-related finance to water in this sector (USD 1.4 billion).

2.3.2 Does climate-related development finance to water reflect needs?

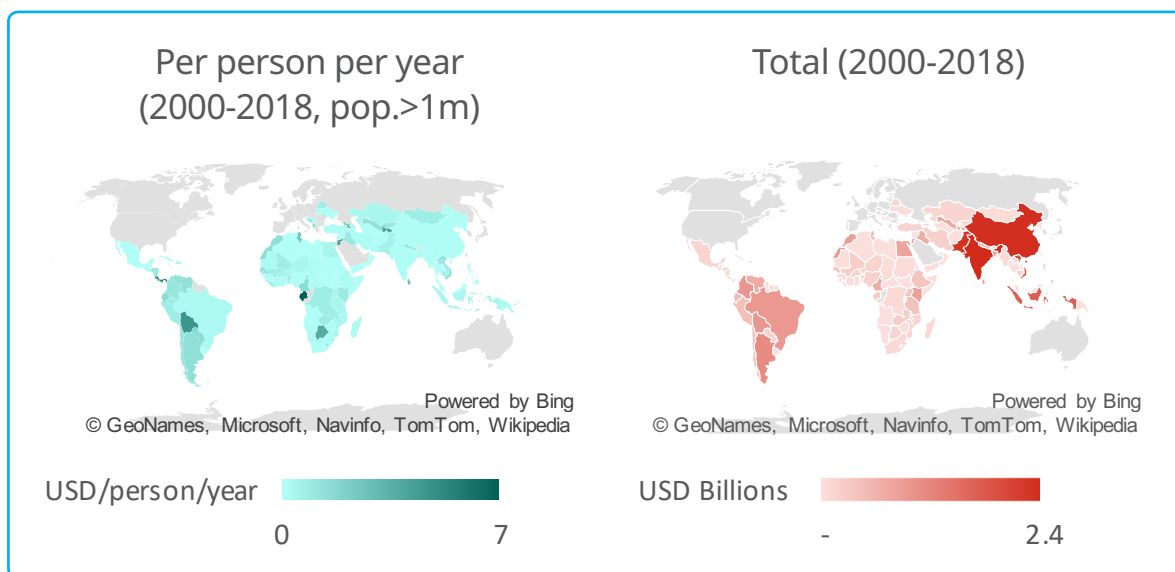
Few LDCs are among the top-20 recipients of international public climate finance for water, though there are more (and many more SIDs) when adjusting for finance per-capita. LDCs also receive a higher share when looking at flows in grant-form as opposed to loans; at flows for basic WASH and water policy and capacity rather than other water-related areas; and at flows of adaptation finance to water, rather than climate finance to water generally (yet adaptation finance to water is less likely to go to LDCs than adaptation finance generally). The relatively limited representation of LDCs may reflect

their lower receipt of loans, which dominate overall climate-related development finance flows. However, on other measures there still appears to be little relationship between flows and need, including whether recipient countries themselves identify water as a vulnerable or priority adaptation sector in NDCs. Data on the additional financing need for water arising from climate change is limited at global and country level, and there are considerable methodological difficulties to producing such estimates to compare against flows.

Almost all of the top 20 recipients of climate-related development finance for water are middle-income countries (again, excluding flows with a 'significant' focus). Only one, Bangladesh, is an LDC. Adjusting for population, nine of the top 20 recipients of climate-related development finance for water are small-island developing states (USD/person, 2000-2018 cumulative). Five are LDCs (Tuvalu, Bhutan, Solomon Islands, Djibouti and Kiribati). Among larger countries with >1 million population, there is only one LDC, Timor Leste, in the top 20.



Figure 20: Recipients of public, international climate finance to water, 2000-2018



Source: Authors' analysis of OECD DAC CRDF data, 'significant' focused climate related development finance excluded, and population from World Bank.

In general, for water-focused flows where income group was recorded (87% of the total) LDCs received 18%, other LICs 0.06%, UMICs 30%, and LMICs 51%.⁴³ Adaptation-related flows to water were more likely to go to LDCs, which received 23% of the total (where income group recorded). However, this is lower than the share going to LDCs for flows to all sectors combined, 31%.

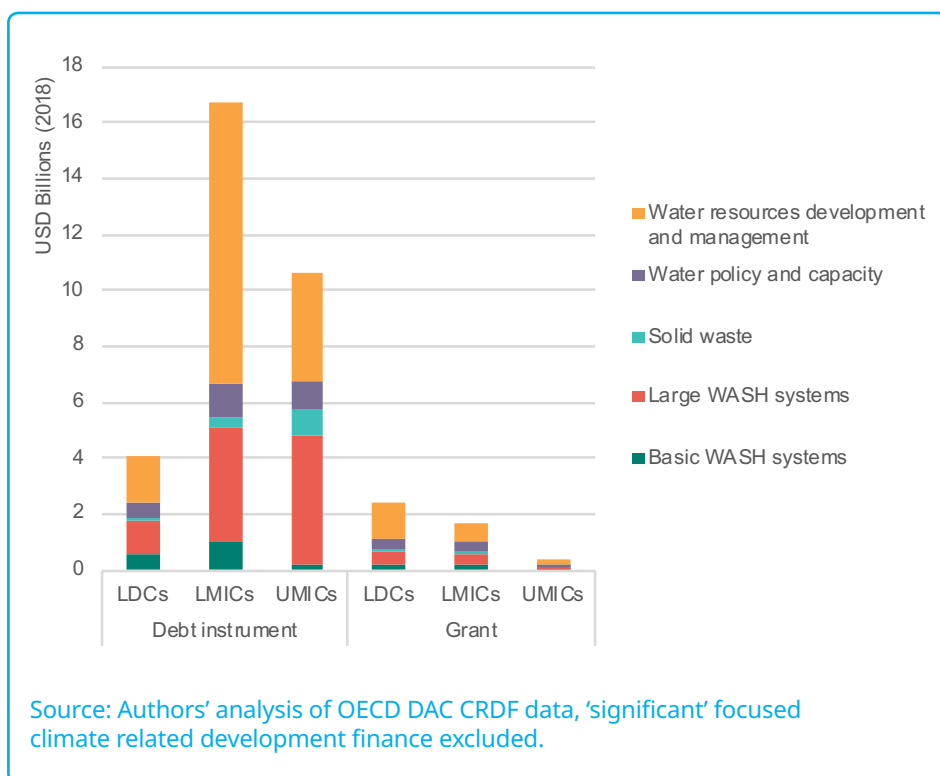
In terms of the types of water activities receiving climate-related development finance, basic WASH systems and water policy and capacity development were more likely to be the focus in LDCs (again, excluding flows with a 'significant' focus). Large WASH systems were more likely to be the focus in UMICs, and water resources development and management in LMICs. LDCs received the majority of grant finance (54%) (Figure 21). The relative emphasis on basic WASH and grant finance in LDCs is perhaps unsurprising – many LDCs face continuing gaps in coverage of even basic WASH systems, and their ability to access repayable finance, which in MICs tends to fund large WASH and water resources infrastructure, is more limited.



▲ Rising sea levels in the region of Dacope means groundwater resources can be increasingly saline, which makes them unsafe to drink. These women are collecting safe drinking water from a Pond Sand Filter plant. Golchera, Dacope, Khulna. September 2018.

⁴³ More advanced developing countries and territories (MADCTs) received 1%.

Figure 21: Climate-related development finance to water-related themes by financial instrument and income group, 2000-2018⁴⁴



Building on WaterAid (2020)⁴⁵ we examined whether countries' own articulation of their adaptation needs and priorities show any relationship to the finance they receive. To do so, we assessed the adaptation-related development finance for water per person per year (2000-2018) against whether water is identified as a vulnerable sector and/or as a priority sector for adaptation within country NDCs.⁴⁶ Though much of the finance included in the 2000-2018 average predates development of the NDCs following the Paris Agreement in 2015, it would be expected that NDCs articulate long-standing country priorities in relation to climate adaptation (Figure 22).

The results show, firstly, that water is more often identified as a vulnerable sector than not (72% of countries with NDCs receive adaptation-related development finance). Moreover, water is also more likely to be mentioned as a priority sector (18% of countries) or to have elaborated-on actions, plans or strategies (66% of countries), than not to be mentioned as a priority sector at all (16% of countries). However, countries that identify water as a climate-vulnerable sector or

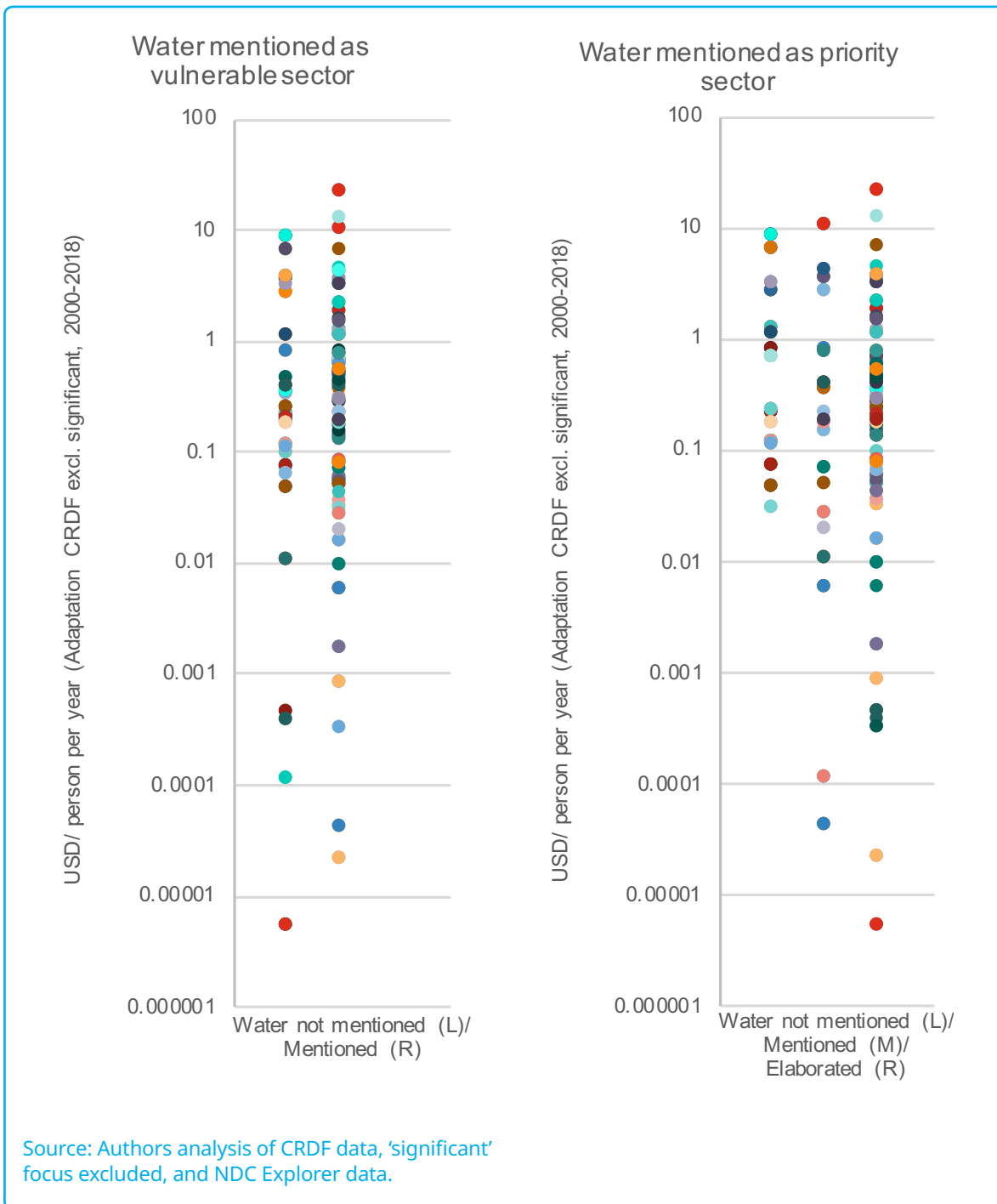
priority for adaptation in their NDCs have received considerably less adaptation-related development finance per person per year for water. The average annual adaptation-related finance per person per year to water is USD 1 for countries that mention water as a vulnerable sector, vs USD 3 for those that do not. Those mentioning water as a priority sector or elaborating actions in this regard also received USD 1 per person per year, on average, while those not mentioning water as a priority received USD 5.

⁴⁴ The very small share of financing as equity and shares in collective investment vehicles, and to other LICs/ MADCTs is excluded for clarity.

⁴⁵ WaterAid (2020) assessed whether climate-related development finance relates to water-related proxies for countries' climate vulnerability, namely the ND-GAIN vulnerability index, and access to basic drinking water and sanitation services as compiled by the WHO/ UNICEF Joint Monitoring Programme. We re-ran the analyses using several variations of the indicators (e.g. using the ND-GAIN water-specific vulnerability index). Similar to WaterAid (2020), we found no discernible relationships between climate-related finance and vulnerability or WASH access.

⁴⁶ As tracked in the German Development Institute's NDC-Explorer. Pauw, W.P., Cassanmagnano, D., Mbeva, K., Hein, J., Guarin, A., Brandi, C., Dzebo, A., Canales, N., Adams, K.M., Atteridge, A., Bock, T., Helms, J., Zalewski, A., Frommé, E., Lindener, A., Muhammad, D. (2016). NDC Explorer. German Development Institute / Deutsches Institut für Entwicklungspolitik (DIE), African Centre for Technology Studies (ACTS), Stockholm Environment Institute (SEI). DOI: 10.23661/ndc_explorer_2017_2.0. Data last downloaded 10/9/20. Last updated 2020-03-18. Rights: CC BY 4.0 <https://creativecommons.org/licenses/by/4.0/>

Figure 22: Annual adaptation-related development finance per person per year, 2000-2018 vs. mention of water as a vulnerable/priority sector in NDCs



Source: Authors analysis of CRDF data, 'significant' focus excluded, and NDC Explorer data.

Finally, there remains the wider question of financing need. Relevant estimates for water are sparse, and both global and country estimations of climate change costs - especially for adaptation - are fraught with

methodological issues. Country-level estimates may nonetheless be the best place to focus, as part of a wider effort support national policy makers to prioritise, sequence and plan the water sector response to climate change (Box 4).

Box 4: How do financing flows compare to need?

At global level, adaptation finance is often compared to estimates of the costs of adaptation. UNEP's 2016 estimate is frequently cited, with costs in the range of USD 140-300 billion p.a., requiring financing flows 6-13 times their current size (UNFCCC 2019; UNEP 2018). A recent review of existing estimates as they relate to developing countries finds that estimates based on integrated assessment models (global scale) and bottom up aggregation of sectoral impacts tend to produce higher cost values (Chapagain et al. 2020).

Within water specifically, there are limited estimations of the additional costs associated with climate change mitigation or adaptation, though adaptation is often assumed to be the bigger cost-share. Fay and Rosenberg (2019) provide the most recent estimates of the costs of water-related infrastructure, covering water and sanitation, irrigation and flood protection, in low- and middle-income countries only. For water and sanitation, while these estimates are an advancement on previous studies (e.g. Hutton and Varughese 2016) they do not include climate change in the modelling. In the case of flood protection, the authors draw on a previous study by Ward et al. (2017) for costs and benefits associated with (urban) riverine flooding, while for irrigation, a new study was commissioned (Palazzo et al. 2019). These studies do incorporate climate change. However, they do not give a simple incremental dollar cost associated with climate change adaptation. Rather, they reveal how both costs and benefits vary under different assumptions, such as the level of flood protection or food security required, and scenarios for emissions and socio-economic development.

This points to the wider challenges of making credible cost estimates - whether sectoral or general - particularly at the global level. Besides how to account for uncertainty around socio-economic development and emissions abatement, cost estimates for adaptation are affected by numerous difficulties. These include but are not limited to: selecting (consistent) objectives and appropriate baselines (e.g. to deal with current adaptation deficits); monetising some categories of costs (including ecosystems and biodiversity – highly relevant to water); identifying all relevant risks; accounting for autonomous adaptation; and incorporating transaction and implementation costs on one hand, vs. efficiency gains through learning on the other (UNEP 2018).

At country level, the challenges may reduce somewhat as scope narrows. The development of NAPs and NAPAs has improved detail on adaptation measures foreseen by countries, but there is still limited costing and those available offer little detail on methodology. Experience to date points to a requirement for improved methodologies, and better information to characterise needs in each sector, down to the project level, and over time (UNEP 2018). While a global estimate of the water-specific costs of adaptation might provide an advocacy tool, the methodological difficulties mean that any number could be easily questioned. Supporting country policy-makers to develop national and sub-national estimates may be more productive, however: cost estimation and modelling can provide a framework for considering climate change risks, assumptions, and investment and policy options in detail.

3: Compass: How to enhance the contribution of climate finance to water and WASH?

3.1 Enhancing both map and compass to navigate climate finance policy debates

The mapping exercise detailed in the previous sections gives a sense of the current landscape for climate finance that supports water and WASH sector projects. We have established that water and WASH projects receive a substantial share of climate finance for adaptation as it is currently tracked, though the share of climate finance overall is still modest due to dominance of funding for mitigation. We have also found that there are large areas of the landscape that cannot yet be defined.

Our analysis of the development of climate finance in general and the motivations of the different financial institutions that provide it suggests that the size of the landscape (i.e. the volume of climate finance, or at least finance deemed climate-related) will continue to grow in the medium- to long-term, even in the wake of COVID-19 (Box 5). This offers the potential for advancing progress towards the various aspects of Sustainable Development Goal (SDG) 6 while also taking action against climate change. We have also highlighted that, ultimately, all finance for the water and WASH sectors will have to relate to climate change to some extent.

Box 5: Implications of COVID-19

COVID-19 is likely to mean at least a short-term disruption and contraction to climate- finance flows. There are a few signs for optimism. Pledges to the first GCF replenishment, totalling nearly USD 10.3 billion, were made just before the pandemic outbreak. As of July 2020, USD 8.3 billion had been confirmed via contribution agreements.

However, as seen, the GCF still represents a small share of global climate finance flows. In the face of economic contraction, the envelopes of public and private flows in general are likely to decrease, with knock-on effects on climate finance. How far this affects flows to climate objectives vs. other priorities, and to different climate-related priorities (adaptation vs. mitigation, different sectors and activities) remains to be seen. The signs are not good. After the immediate response, governments are coming under pressure to address near-term economic concerns - jobs and incomes - including by propping up unsustainable industries. Most of the USD 3.5 trillion in stimulus packages announced by major economies will do more damage to the environment than improve it.

Nonetheless, the pandemic has demonstrated the importance of tackling systemic economic risks and given fresh impetus to a shift, especially in private finance, to incorporate climate change as a material consideration. Water - with its fundamental importance to climate change, pandemics and other systemic threats such as biodiversity loss - could yet emerge as a priority for finance as a key cross-cutting enabler of resilience, broadly defined. To support that outcome, the water community will need to rapidly increase the precision and coherence of the demands it makes of financiers, and help countries to assess and prioritise interventions to offer the best return.

Sources: GCF (2020b), Vivid Economics (2020), Hofstetter (2020).

Given these findings, we suggest three complementary strategies for the water sector to best navigate debates surrounding the evolving landscape:

1. Support efforts to chart the landscape.
2. Identify and follow principles that act as a compass pointing to the overlap between SDGs 6 and 13.
3. Accept, understand, and internalise the idea that all finance in the water and WASH sectors will need to align with the goals of the Paris Agreement.

Crucially, many of these issues are relevant beyond the financing of water and WASH projects. Seeking out and engaging with key actors in other sectors that are also separate to but correlated with climate change (e.g. agriculture, energy, migration, peace and security) may offer opportunities to advance the Sustainable Development Agenda collaboratively, rather than have the various sectors competing for their 'share' of climate finance.

3.1.1 Supporting efforts to chart the landscape

The landscape is evolving and there is still much terra incognita. This will change with the evolution of both international tracking efforts, and country-level climate finance accounting and costed planning pipelines. Sector communities can engage with and support these improvements and utilise improved data to link different sources of climate finance to appropriate project types and contexts.

We can sketch the outline of the types of climate finance potentially available to different areas of water and WASH, but much of the detail on where finance is currently flowing and where it is needed remains to be filled in. If the goal is to efficiently allocate capital in a way that advances the objectives of SDG 6 and helps to avert climate breakdown there is a need for credible risk-informed assessments of the extra finance requirements, likely built from the bottom up. A knitted-together understanding of how the different finance sources are responding to existing needs is similarly required.

Much of the data underpinning the landscape exists, or will soon, as costed national planning pipelines and evolving experience in identifying public and private climate finance begins to populate databases that are currently sparse. As data becomes available, compiling it in a way that permits the tracking of climate finance for water and WASH projects will require a significant shift in the sector's approach to finance. Effort will be needed to bring relevant information into the public sphere in a way that is useful to all of those working across the sector. This will involve going beyond simply tracking cumulative flows, to improve disaggregation and systematically evaluate the quality of finance and its impact (especially for adaptation).

The usefulness of any monitoring data will depend on how specifically they allow us to link different sources of climate finance with different types of project and contexts, and to identify barriers that need to be removed if finance is to flow freely. There is the potential to learn from the advances made in the energy sector in recent years where private, non-governmental, and intergovernmental organisations track data specific to different aspects of SDG 7.⁴⁷

▼ In February 2017, heavy rains brought flooding to parts of Lilongwe in Malawi. Access to potable water has been disrupted due to broken water pipes.



⁴⁷ For example, Bloomberg New Energy Finance's New Energy Outlook, the International Energy Agency's World Energy Investment, and the Frankfurt School – UNEP Collaborating Centre for Climate and Sustainable Energy Finance Global trends in renewable energy investment catalogue energy investments by source, sector and destination (covering SDG 7.2 and 7.3), while Sustainable Energy for All (SEforALL)'s Energising Finance Series focuses specifically on finance for energy access (SDG 7.1).

3.1.2 Identify and follow principles that act as a compass to achieving SDGs 6 and 13

The water community cannot wait for perfect understanding of the landscape, with the 2030 SDG deadline only a decade away, and both time and (in the near term) finance contracting due to COVID-19. More important is joint understanding and shared objectives – around making climate finance work for water, but also making water work for climate finance. What this means will be context dependent, but common threads include: supporting country-level processes (e.g. NDCs and NAPs); brokering access to the most appropriate types of finance for each purpose; and supporting wider efforts to strengthen the enabling environment for productive investment of climate finance alongside all finance flows.

The immediacy of the deadline for meeting SDG 6 means the water and WASH communities cannot wait until the landscape is fully mapped to decide how to best allocate climate finance to meet their goals. The share, if not the volume, of climate finance available to water and WASH projects may increase in the coming years, but without a strong steer it seems unlikely that this will flow to those projects that have the greatest impact both in terms of SDG 6 and in terms of action on climate change.

The water and WASH sector need to work hard to attract the right type of finance to the right type of projects, removing blockages and catalysing the process that remains arduous in many contexts. Precisely what this will mean will depend on the context, but prioritising (as opposed to just identifying) risk-informed project pipelines in NDCs and NAPs on the basis of impact (e.g., through a leave no-one behind lens), facilitating access to the types of finance that are most likely to support those projects, and building supportive enabling environments that encourage those investments are likely to feature broadly.

One key aspect is the need to recognise the variety of time horizons that are the focus for projects across the sector and how this impacts the interrelationship with climate change and climate finance (see Section 3.2).

3.1.3 Understand and internalise the idea that all finance in the water and WASH sector will need to align with the goals of the Paris Agreement

Impetus to make finance flows consistent with climate goals, as required by Article 2.1c is building. All ODA and OOF will need to demonstrate that it is climate aligned, which means in turn that projects will need to demonstrate that climate risks have been properly considered (importantly, they will not be the most important risks in all contexts). More broadly, however, Article 2.1c will require not only increasing the finance flows that positively contribute to climate change adaptation and mitigation, but shifting finance flows away from activities that hinder these objectives. The water community can support efforts by both private financiers and the public policy makers that govern their activities, to ensure finance is climate-aligned.

To meet the goals of the Paris Agreement, all finance for water and WASH projects will eventually have to consider climate change. Project developers and financiers will meet somewhere on the spectrum that ranges from climate-positive to climate-resilient to climate-aligned, recognising that many of the bottlenecks to extending and sustaining services will require a wider, governance focus unrelated to climate per se. The fact that half of current ODA and OOF for the water sector is not tagged as climate-related (three quarters in the period 2000-2018) suggests this will be a major diversion from the status quo, even insofar as public, international and concessional flows are concerned. The necessary shift for private finance is potentially even greater. Domestic public finance and policy meanwhile plays an important role, in its own right and in terms of directing that private finance (Whitley et al. 2018; Mason et al. 2019). Such a radical shift in priorities for project developers and financiers will take time and effort to bring about. If the sector can move quickly to align with the climate momentum, it stands to gain from finance also recognising the need for alignment with the goals of the Paris Agreement. Conversely, if the sector fails to make the transition fast enough, it may see its share of the climate finance landscape contract.

3.2 Priority actions at country level

So far, our focus in this report has been on a ‘top down’ assessment of funding flows, modalities and destinations and, in broad terms, on how much money has been committed to and spent on water-related activities. Here we address a different question: what is the evidence telling us about the problems countries face in extending and sustaining access to sustainable WASH as climate change accelerates, and what role can climate finance play in overcoming those problems?

3.2.1 The challenge of extending and sustaining services

The level of funding going to water-related activities is certainly important, but what about the type and quality of projects being funded? Here we refocus debate on the substance of adaptation, and more specifically on the barriers poorer countries face in extending and sustaining access to sustainable WASH as climate change accelerates. These depend crucially on the lifetime of proposed investments, the size of investment, risk of ‘lock-in’ and contribution of non-climate factors to performance.

Secure water and sanitation provides a first line of defence against climate change, and the countries most vulnerable to climate change have some of the lowest levels of secure access (Howard et al, 2016; Calow et al, 2018; WaterAid, 2020). Just as investments in irrigated agriculture are viewed as adaptive responses to climate change, buffering rainfall variability and livelihood risk, investments in safe water and sanitation are, by their nature, risk-reducing, since they lessen people’s dependence on more climate-vulnerable, poorer quality sources. This is an argument for prioritising WASH outright, and particularly for helping people step-on to the first rungs of the water and sanitation ladder.

In terms of the evidence base on climate-resilient WASH, we need to draw a distinction between long-lived investments in systems and services that involve a degree of ‘lock in’ to future climate, and shorter-lived investments in less lumpy, more disaggregated systems (Calow et al 2017; Watkiss et al, 2020). For the

former, for example with planned investment in urban water and wastewater treatment, it clearly makes sense to conduct detailed climate risk assessments that consider future climate scenarios, with screening processes that grapple with a complex mix of slow onset trends (e.g. warming), changes in variability (seasonal to decadal), fluctuations in mean conditions (places may become wetter or drier) and changes in the frequency and intensity of extremes. Where the science is uncertain, adaptation responses that are robust to a range of possible futures, with some built-in flexibility and/or redundancy, may be preferred (Howard et al, 2016; Calow et al, 2017; Smith et al, 2019).

A growing number of decision-support frameworks are now available to guide planning⁴⁸, and the justification for additional climate finance to screen and fund such infrastructure is perhaps easier to make. This may be one reason why major WASH infrastructure investments in urban areas feature more prominently than ‘basic WASH’ in both country NDCs and the project portfolios of climate finance institutions, despite the fact that income and WASH poverty remain overwhelmingly rural in low income countries.

So what about basic WASH in rural areas, where on-site sanitation and drinking water from improved sources (increasingly groundwater-based) will likely dominate the programme mix in lower income countries for the next few decades. Here, we know that existing climate variability and extremes create problems: floods damage infrastructure and cause sanitation systems to overflow; and droughts affect the performance of springs and shallow wells tapping smaller groundwater systems with modest storage. Yet we also know that many of the reasons behind service discontinuity and failure lie in poor construction, siting and maintenance – problems that have their root causes, crudely put, in weak governance rather than a changing climate. The evidence has not stopped the emergence of a crisis narrative around WASH that holds climate change as principally responsible for problems of system and service failure.

⁴⁸Including the World Bank’s Decision Tree Framework for risk screening (see Ray and Brown, 2015), WHO’s work on climate-resilient water safety planning (WHO, 2017) and ADB’s Principles of Climate Risk Management (Watkiss et al, 2020).



The argument here is a little more nuanced. First, there is little value scrutinising climate projections for WASH programmes that prioritise household or community-based systems with a design-life of 10-20 years. Indeed a preoccupation with long term change can divert attention away from existing threats, particularly in areas with high seasonal and inter-annual variability. Second, addressing well understood problems of siting, construction and maintenance in the context of known climate variability would be of much greater value in tackling the sustainability problem, and the existing adaptation deficit. The argument is not for business-as-usual, but rather for the implementation of known best practice that does not reduce 'the problem' to climate change, risk screening and technical choices.

3.2.2 Financing priorities: is money being spent on the right things?

The way climate finance works, particularly the need for recipient institutions to make an unambiguous and additional climate rationale for funding, may distort sector priorities, privileging big infrastructure over small, long-term adaptation over immediate concerns, and technical change over governance. At least for rural WASH in poorer countries, getting the basics right remains paramount, though funding arguments may need to shift – highlighting the benefits of addressing broader governance issues in terms of sustainability and resilience.

Leaving aside issues around where climate finance is going, and which institutions and instruments are involved, a legitimate question to ask is whether climate finance is being directed at the 'right' things. In light of the key challenge of extending and sustaining services highlighted above, particularly for poorer rural areas with existing adaptation deficits, we see at least two (linked) reason for concern (after Fankhauser and Burton, 2011; Lockwood, 2013; Calow et al, 2018):

- A preference of adaptation institutions, writ large, for hard 'structural' adaptations - essentially technical change and infrastructure - which are more visible and easier to appraise than 'soft' measures that address bottlenecks in, say, state capability and capacity.
- The difficulty of integrating adaptation and development in an environment where the 'additionality' of climate finance has to be unambiguously justified, at least for funding recipients.

The debate around additionality is a long and complex one. As we have seen, the track record of Annex II countries is not without blemish in terms of their record of fudging 'what counts' as climate finance and the ways in which they set the accounting rules, such as they are. Developing countries, meanwhile, have long sought reassurance that promises of contributions to the costs of mitigation and adaptation are kept with 'new and additional' funds, above and beyond traditional ODA (Weikmans and Roberts, 2018). The political economy of how issues play out at a country level remains under-researched, but the need for an unambiguous climate rationale for new funds, separate from development finance, would appear to be a growing priority for dedicated funds such as the GCF.

This, in part, may explain the preference for more concrete, 'structural' projects in the WASH space that privilege large infrastructure investments in urban areas with a clearer, long term sensitivity to climate change (see Section 2). It may also account for the growing tendency of WASH programmes - urban and rural - to frame priorities in somewhat narrow, climate-specific terms, irrespective of the time frames, degree of lock-in, funding sources and barriers to implementation involved.

On the one hand, this could be viewed as a mainstreaming success. Climate variability and longer-term change clearly should be factored into planning processes, with the degree of risk screening and scenario analysis contingent on the nature of programme involved (see above). On the other hand, it raises concerns that programmes may end up missing the weakest links affecting performance in pursuit of more visible, climate-specific actions that are more clearly 'additive'.

Concerns about an overly technocratic, additive approach to adaptation programming are not specific to the WASH sector, or that new. The landmark Stern Review (2006) cautioned against the separation of funding streams and distortion of priorities that discrete climate programming could induce. More recently, authors such as Lockwood (2013) have highlighted the disconnect between adaptation programming and existing bodies of knowledge on the development process – the wider political and governance context in a sector or locality. More specifically, the reduction of policies around adaptation to lists of technical, planning and delivery processes that exist in a political and governance vacuum. With little engagement with deep-rooted barriers to implementation, so the argument runs, much of the thinking around adaptation is unrealistic, failing to anticipate where particular problems are likely to be encountered, and where effective responses might lie.

A conclusion, albeit a tentative one, is that the additionality hurdles developing countries face in developing 'bankable' WASH projects can be met, but not without risk. The risk, simply put, is that sector priorities become distorted. Rather than addressing deep-seated problems of delivery that include, amongst other things, climate variability and change, programmes privilege a set of climate-specific actions that make them fundable, but do little to tackle the underlying bottlenecks plaguing service delivery for the poorest and most vulnerable. The alternative, at least for rural WASH programmes, is to argue the case for investment as a basic public good. This would highlight the benefits of addressing a wider set of implementation issues framed in resilience and poverty terms, based on an evidence-based analysis of barriers and opportunities. Perversely, incentives for funders and recipients may currently make this argument a tricky one to make.

3.3 Priority actions at international level

3.3.1 Enhancing climate finance tracking with learning from water

To enhance the consistency and comparability of water-related climate finance tracking as well as the quality of interventions, the international water community could promote a risk-based approach to assessing the climate-relevance of activities.

The MDB-DFI Joint Methodology stands out as being rigorous and is now recommended by the OECD DAC. This has the advantage - in the case of adaptation - of requiring interventions to be assessed against context-specific climate vulnerability. Yet experience from water also shows that climate is not always the most important risk factor. At minimum, interventions need to be screened across climate and other risks using simple heuristics like asset lifetime. The extent to which climate finance can be used to ensure they are climate aligned, climate 'proofed', or climate positive can then be assessed, and finance allocated (or advocated for) accordingly. Standards also need to be suitable and promoted beyond international public finance providers – including for private and domestic finance. The experience with developing criteria for water-focused green bonds could be instructive for developing standards in other areas of private finance, e.g. bank lending.

▼ **Pipes being connected during the installation of the new water kiosk in Chiswe village, Mponela, Dowa, Malawi. June 2019.**



3.3.2 Coordinating advocacy and support on climate finance for water between different country categories

To improve the precision of advocacy asks and support around climate-finance, the international water community can tailor problem diagnosis and response to specific countries, or at least income groups.

The preceding analysis suggests that LDCs have received a higher share of grant finance, to the areas of basic WASH and water policy and capacity. The impact of this could be usefully investigated further through a deeper, project-level review. Yet LDCs still seem to lose out, overall, on climate finance to water whether on an absolute and per-capita basis. There is clearly a need to re-appraise whether climate finance for water - especially the more concessional forms - is following need, according to internationally comparable metrics and countries' own identification of vulnerabilities and priorities. Our analysis suggests it is not – but much more could be done to confirm why this is the case.

Meanwhile, MICs are absorbing a high proportion of loan finance to large and likely long-lived infrastructure, some of which has a mitigation purpose. Here, the ask might focus on using limited grant finance and technical assistance more strategically as a complement to loans and blending. Examples could include supporting proper due diligence so that large infrastructure assets created will not become 'stranded'⁴⁹; or so that forecast future revenue streams (which themselves support the sustainability and resilience of infrastructure in a wider sense) will be robust to climate, political and other changes. In time this may help to free up grant finance which can be reprioritised towards LDCs.

3.3.3 Meeting the ambition of the Paris Agreement when it comes to water finance

To act as 'responsible members' of the climate community, water stakeholders can contribute to wider efforts to align all finance with climate goals, i.e. Article 2.1c of the Paris Agreement.

While the implications of this endeavour for water need to be mapped in greater detail, there are several promising areas in which work is already underway. This includes advocating for appropriate situation of water-related climate risks within financial regulation and information instruments (e.g. mandatory and voluntary disclosure – CDP, 2019); and continuing to improve the effectiveness and targeting of public finance for blending in water and sanitation (OECD, 2019). Other areas are comparatively underexplored, including fiscal policy, for example how to ensure that water pricing and subsidy models are reformed to enhance climate resilience on both the supply and demand side.



▲ A woman collecting water from a water stand post in Bundelkhand region of Uttar Pradesh. March 2018.

⁴⁹ For example, hydropower dams with GHG reduction benefits may be vulnerable to changing river flow regimes

Annex 1: Multilateral climate fund mandates and approaches regarding water

From: Canales Trujillo et al. (2017)



| Fund | Country eligibility criteria and access | Focus on WASH within policies, standards and procedures of dedicated multilateral climate funds |
|-----------------|--|--|
| Adaptation Fund | <p>Developing country Parties of the Kyoto Protocol particularly vulnerable to the adverse effects of climate change.</p> <p>Special attention to the particular needs of the most vulnerable communities.</p> <p>Access is through accredited implementing entities (IE) - national or international organisations.</p> | <p>The strategic priorities, policies and guidelines of the fund do not specify a sectoral approach. However, 'water management' is one of seven sectors under which projects are classified.⁵⁰ Within this category the fund supports actions at different levels: e.g. household rainwater harvesting; ecosystem-based adaptation activities at watershed level; water security interventions at national level.</p> <p>As of 30 June 2015, there were eight projects contributing to water management with USD 49.7 million already allocated. This represents 16% of the current portfolio, making water management the fourth largest sector out of seven (followed by agriculture, multi-sector and food security).</p> <p>The current financial cap per country is USD 10 million. Access is based on a first-come-first-served basis.</p> |

► Moustapha checking water level at the sand dam constructed across the riverbed. The sand dam is used to improve water retention and recharging of groundwater, in the village of Sablogo, in the Commune of Lalgaye, province of Koulpelogo, Region of Centre-East, Burkina Faso. February 2018.



⁵⁰The seven sectors are agriculture, coastal zone management, disaster risk reduction, food security, multisector projects, rural development and water management. See <https://www.adaptation-fund.org/projects-programmes/project-sectors/>

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|--|--|---|
| <p>Least Developed Countries Fund (LDCF)</p> | <p>Least developed countries.</p> <p>Access is through GEF agencies.</p> | <p>The UNFCCC mandates the LDCF to support the preparation and implementation of NAPAs focused on the urgent and immediate adaptation priorities of LDCs.</p> <p>‘Water resources management’ is one of seven core sectors supported.⁵¹ The selection of sectors responds to CoP guidance, country priorities, country demands, residual gaps and areas of emerging interest.</p> <p>Since its operationalisation, around 14% of projects and programmes have supported water resources management. Interventions include support for water governance; watershed and catchment management; the transfer and adoption of technologies for water harvesting and enhanced water-use efficiency; and more recently adaptation on transboundary rivers.</p> <p>Looking ahead, LDCF highlight the following water-related priorities: (i) to accelerate and scale-up the adoption of proven technologies for sound water resources management at the level of households, communities, municipalities, industries and energy production; (ii) to enhance the knowledge base for climate-resilient management of water supplies; and (iii) continued support for strengthening regulatory frameworks and economic incentive structures for climate-resilient water management. For this, the LDCF financial scenarios are between USD 105 and 135 million (out of USD 700 or 900 million, respectively) for the period from July 2014 - June 2018.</p> |
| <p>Special Climate Change Fund (SCCF)</p> | <p>All non-Annex I countries.</p> <p>Access through GEF agencies.</p> | <p>The SCCF is administered by the GEF, and includes priorities related to water resources management.⁵² Areas of intervention are identified by the CoP and are expected to be consistent with national sustainable development agendas. Since 2012, the CoP has also requested SCCF support for NAP preparatory activities in countries other than LDCs. Since its operationalisation, 25% of investment has focussed on enhancing the resilience of water infrastructure and water management.</p> <p>The financial scenarios for water resources management are between USD 100 and USD 125 million for the period July 2014 - June 2018 (from a total of USD 400 or USD 500 million).</p> |

⁵¹ Full list of core sectors are: Agriculture and food security; water resources management; coastal zone management; infrastructure, including transport and energy; disaster risk management; natural resources management; and health.

⁵² Priority areas are water resources management; land management; agriculture; health; infrastructure development; fragile ecosystems, including mountainous ecosystems; integrated coastal zone management; improving the monitoring of diseases and vectors affected by climate change, and related forecasting and early-warning systems. Also included: institutional capacity building for disaster risk assessment and response, including preparedness for and management of droughts and floods in vulnerable areas.

| | | |
|--|--|--|
| <p>Global Environment Facility (GEF)</p> | <p>Non-Annex I Parties of the UNFCCC or countries eligible to borrow from the World Bank or for UNDP assistance.</p> <p>160 countries eligible in the Climate change Focal Area (GEF RAF).</p> <p>Access is through GEF Agencies.</p> | <p>GEF-6 focuses on supporting mitigation strategies. Under its remit of enhancing synergies across conventions, areas to be supported include 'Water-food-energy nexus initiatives' and 'Reduction in GHG emissions from landfills coupled with reductions in the release of chemical pollutants and contamination'.⁵³</p> <p>In addition, GEF 6 includes a programme (Programme 3) focused on promoting integrated low-emission urban systems. Projects eligible for support under this programme include WASH-related activities such as 'waste-to-energy' under 'renewable energy', and reducing GHG emissions from solid waste and wastewater management.</p> <p>Programme 3 has a budget envelope of USD 210 million (from a total climate change mitigation envelope of USD 1,260 million) for the 2014-2018 period.</p> |
| <p>Pilot Programme for Climate Resilience (PPCR)</p> | <p>Set of countries based on a specific eligibility criteria.⁵⁴</p> <p>Criteria included the identification of regional hazard hot-spots, physical risk, and country preparedness.</p> <p>Access through in-country MDBs.</p> | <p>Countries selected for participating in the PPCR are asked to develop Investment Plans in which projects are developed according to national priorities and MDB experience. So far, there has been an indicative allocation of USD 193.21 million to water resources management projects in the first batch of countries. Of this, USD 143.21 million has already been approved for projects in this sector. This represents 18% of total funding approved for projects.</p> <p>Investment plans for the second batch of nine countries are still under development. The inclusion of WASH projects in the new investment plans will depend on diverse factors, including the MDB portfolio and the adaptation needs of selected countries.</p> |



▲ Moustapha (back) and his colleague Desire (front) posing together with a record book next to a rain gauge, showing us their volunteer work as water monitors, in the village of Sablogo, in the Commune of Lalgaye, province of Koulpelogo, Region of Centre-East, Burkina Faso. January 2018.

⁵³ Integrated urban management and infrastructure investment initiatives that encompass sustainable transport, clean energy solutions, urban biodiversity, and structural resilience against projected climate change effects such as fluctuations in energy sources and demands, and extreme events. Includes the design of urban systems that impose less stress on ecosystem services within and outside city boundaries. Forest management that includes biodiversity priorities, sustainable forest management (SFM), and mitigation actions targeting forest depletion drivers, to provide carbon benefits as well as other social and environmental benefits that forests can provide as an ecosystem. Agricultural practices that respond to land degradation issues and enhance soil quality while reducing agro-based GHG emissions. Water-food-energy nexus initiatives. Combined mercury emission reduction and energy efficiency improvement in manufacturing sectors. Reduction in GHG emissions from landfills coupled with reduction in release of chemical pollutants and contamination. Integrated mitigation-adaptation projects that promote low-emission growth with systematic identification of climate vulnerabilities and resilience in areas such as coastal systems, urban transport and housing.

⁵⁴ Bangladesh, Bhutan*, Bolivia, Cambodia, Caribbean Region (Dominica, Grenada, Haiti, Jamaica St. Lucia St. Vincent & Grenadines) Honduras*, Ethiopia*, Gambia*, Kyrgyz Republic*, Madagascar*, Malawi*, Mozambique, Nepal, Niger, Pacific Region (Papua New Guinea Samoa, Tonga) Philippines*, Rwanda, Tajikistan, Uganda*, Yemen, Zambia. * Joined in 2015.

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| <p>The Global Climate Change Alliance (GCCA+)</p> | <p>To be eligible for GCCA+ funds, a country has to be among the 73 LDCs or SIDS that are already recipients of aid.</p> <p>Access through EU aid channels.</p> | <p>In 2014, a new phase of the GCCA, the GCCA+ flagship initiative, was launched with the European Commission's new Multiannual Financial Framework (2014-2020). In this new phase, it is expected that the GCCA+ will support partner countries for implementation of national strategies and their national processes to achieve their INDC goals.</p> <p>During the period 2008-2014, the GCCA included support to water and sanitation, waste, infrastructure, tourism and health, through 14 projects. This represents around 29% of its portfolio.</p> |
| <p>Green Climate Fund (GCF)</p> | <p>All developing country Parties to the UNFCCC.</p> <p>The aim is to direct at least 50% of the adaptation allocation to particularly vulnerable countries, including LDCs, small island states (SIDS) and African states.</p> <p>Access is through accredited entities (AEs) - national, sub-national, regional and international organisations</p> | <p>The GCF supports diverse initiatives, both for mitigation and adaptation. Water features as part of its expected Adaptation Strategic Impacts, as 'increased resilience of health, food and water security'.⁵⁵ The fund expects the costs of water adaptation to be expensive in the immediate term and recognizes that both agriculture and water have received more attention compared to health. Two of the first eight projects in the GCF portfolio are water-related, representing 32% of funding for projects approved.</p> <p>There appears to be scope for funding WASH activities within climate resilient integrated urban programmes, both on water and sanitation. There is a specific interest in improving and strengthening water management systems and infrastructure, and in supporting the reduction of pressures on water supply from other sectors (e.g. agriculture). According to the governing instrument of the fund, eligible activities need to align with climate change strategies and plans, including NAMAs, NAPAs and NAPs.</p> <p>Whereas the fund has no envelope established for specific sectors, the potential of funding includes small size (up to USD 50 million), as well as medium and large projects (more than USD 250 million).</p> |

Sources: Adapted from Canales Trujillo (2012), Nakhooda & Norman (2014), GEF (2014), Green Climate Fund (2015); Biagini et al. (2014), Green Climate Fund (2011), and First Climate (2010).



⁵⁵ Mitigation strategic impacts include energy generation and access; transport; forests and land use; and buildings, cities, industries and appliances. Adaptation strategic impacts are expected in infrastructure and the built environment; ecosystems and ecosystem services; livelihoods of people and communities; and health, food and water security (Green Climate Fund, 2015).

References



Adaptation Fund (2018). Overall Evaluation of the Adaptation Fund, July 2017-June 2018. Adaptation Fund. Available at: https://www.adaptation-fund.org/wp-content/uploads/2018/06/AF_Phase2_Eval_4June.pdf

Adaptation Fund Board (2018). Report of the Adaptation Fund Board to the Conference of the Parties serving as meeting of the Parties to the Kyoto Protocol at its fourteenth session. Adaptation Fund. Available at: https://www.adaptation-fund.org/wp-content/uploads/2018/09/AFB_Decision_B.31-32.28_with_annex.pdf

AFD (2017). Climate & Development Strategy 2017-2022. Paris: Agence Française de Développement (AFD). Available at: <https://www.afd.fr/en/ressources/climate-development-strategy-2017-2022>

AFD (2018). Water & Sanitation: 2017 Review of the implementation of the strategy for 2014–2018. Paris: Agence Française de Développement (AFD). Available at: <https://www.afd.fr/en/ressources/water-sanitation-2017-review-implementation-strategy-2014-2018>

AFD (2020). Climate & Development Strategy 2017-2022: Midterm review. Paris: Agence Française de Développement (AFD). Available at: <https://www.afd.fr/en/ressources/climate-development-strategy-2017-2022-midterm-review>

Andres, L.A., Thibert, M., Lombana Cordoba, C., Danilenko, A.V., Joseph, G. and Borja-Vega, C. (2019). Doing more with less: Smarter subsidies for water supply and sanitation. World Bank, Washington, DC. © World Bank. <https://openknowledge.worldbank.org/handle/10986/32277> License: CC BY 3.0 IGO

Batten, S., Sowerbutts, R. and Tanaka, M. (2016). Let's Talk about the Weather: the Impact of Climate Change on Central Banks. Bank of England Staff Working Paper no. 603. London: Bank of England. Available at: <https://www.bankofengland.co.uk/working-paper/2016/lets-talk-about-the-weather-the-impact-of-climate-change-on-central-banks>

Biagini, B. et al., (2014). GEF Programming Strategy on Adaptation to Climate Change. Least Developed Countries Fund, Special Climate Change Fund, Washington, D.C.: GEF Secretariat.

Bodnar, P, Brown, J and Nakhooda, S. (2015). What Counts: Tools to help define and understand progress towards the \$100 billion climate finance commitment. Washington DC and London: WRI, Climate Policy Initiative and ODI. Available at https://wriorg.s3.amazonaws.com/s3fs-public/climate-finance-tools-workingpaper.pdf?_ga=2.108590530.159194711.1540396155-1475230196.1534408559.

Bolton, P., Despres, M., Pereira da Silva, L., Samana, F. and Svartzman, R. (2020). The Green Swan: Central banking and financial stability in the age of climate change. Basel: BIS. Available at: <https://www.bis.org/publ/othp31.pdf>

Calow, R.C., Mason, N., Mosello, B. and Ludi, E. (2017). Linking risk with response: options for climate resilient WASH. Technical Brief for the GWP-UNICEF Strategic Framework for WASH Climate Resilience. <https://www.gwp.org/en/WashClimateResilience/>

Calow, R.C., MacDonald, A.M. and Le Seve, M. (2018). The Environmental Dimensions of Universal Access to Safe Water. Chapter 6 in: Equality in Water and Sanitation Services, edited by Tom Slaymaker and Oliver Cummings. Earthscan Water, Routledge.

Canales Trujillo, N., Calow, R., and Pichon, F. (2017). The global climate finance landscape for water, sanitation and hygiene. Unpublished ODI Working Paper.

Carter, L. (2020). The Ecosystem of Private Investment in Climate Action. Invest4Climate Knowledge Series. New York: United Nations Development Programme (UNDP). Available at: <https://www.undp.org/content/undp/en/home/librarypage/climate-and-disaster-resilience-/private-investment-in-climate-action.html>

CBI (2020a). Climate Bonds Initiative Taxonomy (January 2020). London: Climate Bonds Initiative (CBI). Available at: <https://www.climatebonds.net/standard/taxonomy>

CBI (2020b). Green Bonds Global State of the Market 2019. London: Climate Bonds Initiative (CBI). Available at: https://www.climatebonds.net/files/reports/cbi_sotm_2019_vol1_04d.pdf

CDP (2019). CDP Global Water Report 2019. Cleaning up their act: Are companies responding to the risks and opportunities posed by water pollution? Carbon Disclosure Project, London. Available at: <https://www.cdp.net/en/research/global-reports/cleaning-up-their-act>

CFLI (2019). Financing the low-carbon future. Climate Finance Leadership Alliance (CFLI). London: Bloomberg LP. Available at: https://assets.bbhub.io/company/sites/55/2019/09/Financing-the-Low-Carbon-Future_CFLI-Full-Report_September-2019.pdf

Chambwera, M., Heal, G., Dubeux, C., Hallegatte, S., Leclerc, L., Markandya, A., McCarl, B.A., Mechler, R. and Neumann, J.E. (2014). Economics of adaptation. In IPCC, 2014. Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, R.K. Pachauri and L.A. Meyer (eds.)]. IPCC, Geneva, Switzerland, 151 pp. Available at: https://www.ipcc.ch/site/assets/uploads/2018/02/WGIIAR5-Chap17_FINAL.pdf

Chapagain, D., Baarsch, F., Schaeffer, M. and D'haen, S. (2020). Climate change adaptation costs in developing countries: insights from existing estimates. *Climate and Development*, pp.1-9. Available at: <https://www.tandfonline.com/doi/abs/10.1080/17565529.2020.1711698>

Climate Funds Update (n.d.) 'The Funds'. Webpage. Heinrich Böll Foundation North America and ODI (<https://climatefundsupdate.org/the-funds/>) [Accessed 27 September 2020]

Convergence (2019). The State of Blended Finance 2019. Toronto: Convergence. Available at: <https://www.convergence.finance/resource/13VZmRUtiK96hqAvUPk4rt/view>

CPI (2019a). Global Landscape of Climate Finance 2019. London: Climate Policy Initiative (CPI). Available at: <https://www.climatepolicyinitiative.org/publication/global-landscape-of-climate-finance-2019/>

CPI (2019b). Domestic Climate Finance Mapping and Planning: Challenges and Opportunities. Practitioners workshop held in the margins of COP25. Climate Policy Initiative (CPI). Available at: https://climatepolicyinitiative.org/wp-content/uploads/2019/10/Domestic-Climate-Finance-Mapping-and-Planning_-_Challenges-and-Opportunities_-_Outcome-Brief.pdf

Darby M. (2017). 'Rich countries oppose bid to drought-proof Ethiopian communities'. *Climate Home News*, 5 April 2017 (<https://www.climatechangenews.com/2017/04/05/rich-countries-oppose-bid-drought-proof-ethiopian-communities/>)

Deschryver, P. and De Mariz, F. (2020). What Future for the Green Bond Market? How Can Policymakers, Companies, and Investors Unlock the Potential of the Green Bond Market? *Journal of Risk and Financial Management*, 13(3), p.61. Available at: <https://www.mdpi.com/1911-8074/13/3/61>

EU TEG SF (2020a). Financing a sustainable European Economy. Taxonomy: Final report of the Technical Expert Group on Sustainable Finance. Brussels: EU Technical Expert Group on Sustainable Finance (EU TEG SF). Available at: https://ec.europa.eu/info/files/200309-sustainable-finance-teg-final-report-taxonomy_en

EU TEG SF (2020b). Technical annex to the TEG final report on the EU taxonomy. Brussels: EU Technical Expert Group on Sustainable Finance (EU TEG SF). Available at: https://ec.europa.eu/info/files/200309-sustainable-finance-teg-final-report-taxonomy-annexes_en

Fankhauser, S. and Burton, I. (2011). Spending adaptation money wisely. Centre for Climate Change Economics and Policy Working Paper No.47. Grantham Research Institute on Climate Change and the Environment, Working Paper No. 37. http://eprints.lse.ac.uk/36255/1/Spending_adaptation_money_wisely.pdf

First Climate (2010). The Climate Investment Funds Business Guide, s.l.: World Business Council for Sustainable Development and First Climate.

GCF (2014). Mitigation and adaptation performance measurement frameworks. Incheon: Green Climate Fund (GCF). Available at: <https://www.greenclimate.fund/document/mitigation-and-adaptation-performance-measurement-frameworks>

GCF (2017). Funding Proposal FP043: Saïss Water Conservation Project, Morocco. Incheon: Green Climate Fund (GCF). Available at: <https://www.greenclimate.fund/document/sa-ss-water-conservation-project>

GCF (2019a). Raising ambition. Empowering action. Incheon: Green Climate Fund (GCF). Available at: <https://www.greenclimate.fund/document/raising-ambition-empowering-action>

GCF (2019b). The Strategic Plan for the GCF: 2020–2023. Incheon: Green Climate Fund (GCF). Available at: <https://www.greenclimate.fund/document/gcf-b24-inf01>

GCF (2019c). Readiness and Preparatory Support Programme: Strategy for 2019-2021 and Work Programme 2019. Incheon: Green Climate Fund (GCF). Available at: <https://www.greenclimate.fund/sites/default/files/document/gcf-b22-08.pdf>

GCF (2020a). GCF Handbook (Updated May 2020). Decisions, Policies, and Frameworks. As agreed by the Board of the Green Climate Fund from B.01 to B.25. Incheon: Green Climate Fund (GCF). Available at: <https://www.greenclimate.fund/document/gcf-handbook>

GCF (2020b). Status of Pledges and Contributions (First Replenishment: GCF-1). Incheon: Green Climate Fund (GCF). Available at: <https://www.greenclimate.fund/document/status-pledges-and-contributions-made-green-climate-fund-gcf1>

GCF (n.d.a). 'Areas of work. Results Areas'. Webpage. Green Climate Fund (GCF). (<https://www.greenclimate.fund/results>) [Accessed 27 September 2020]

GCF (n.d.b). 'Overview of readiness programme'. Webpage. Green Climate Fund (GCF). (<https://www.greenclimate.fund/readiness>) [Accessed 28 September 2020]

GEF (2018). Updated GEF-7 Results Architecture. Global Environment Facility (GEF). Available at: <https://assembly.thegef.org/publications/gef-assembly-background-note-updated-gef-7-results-architecture>

GEF (2019a). Beyond the Numbers. Actions by the GEF Partnership to Safeguard the Global Environment. Global Environment Facility (GEF). Available at: <https://www.thegef.org/publications/beyond-numbers-actions-gef-partnership-safeguard-global-environment>

GEF (2019b). Advances in Blended Finance. GEF's Solutions to Protect the Global Environment. Global Environment Facility (GEF). Available at: <https://www.thegef.org/publications/advances-blended-finance-gefs-solutions-protect-global-environment>

GEF (2020.) International Waters. Global Environment Facility (GEF). Available at: <https://www.thegef.org/publications/international-waters>

GEF (2014). GEF-6 Programming Directions. GEF/A.5/07/Rev.01, Washington, D.C.: GEF. GEF, 2016. Direct access for national communications and biennial update reports to UNFCCC. Available at: https://www.thegef.org/gef/CC_direct_access.

GGBP (2014). Green growth in practice: lessons from country experiences. Seoul, Green Growth Best Practice Initiative. Available at: https://www.greengrowthknowledge.org/sites/default/files/downloads/resource/Green-Growth-in-Practice-GGBP_0.pdf

Green Climate Fund (2011). Governing instrument for the Green Climate Fund. FCCC/CP/2011/9/Add.1., Durban: UNFCCC.

Green Climate Fund (2015). Project Briefs. [Online] Available at: <http://www.greenclimate.fund/documents/20182/77885/GCF+Project+Fact+Sheets+-+web-ready.pdf/4435ff1f-a3e2-42a7-bab2-8c8aa5115f9d> [Accessed 22 February 2016].

Guillaume, S. (2019). Results of the first survey on coefficients that Members apply to the Rio marker data when reporting to the UN Conventions on Climate Change and Biodiversity. Organisation for Economic Co-operation and Development, Paris. Available at: <http://www.oecd.org/dac/financing-sustainable-development/Results%20of%20the%20first%20survey%20on%20coefficients%20that%20Members%20apply%20to%20the%20Rio%20marker%20data%20when%20reporting%20to%20the%20UN%20Conventions%20on%20Climate%20Change%20and%20Biodiversity.pdf>

GWP (2018). Preparing to Adapt: The Untold Story of Water in Climate Change Adaptation Processes. Global Water Partnership (GWP). Available at: <https://www.gwp.org/globalassets/global/events/cop24/gwp-ndc-report.pdf>

Hedger, M. (2018). Climate change and water. Finance needs to flood not drip. ODI Briefing Note. London: ODI. Available at: <https://www.odi.org/sites/odi.org.uk/files/resource-documents/12481.pdf>

Hofstetter, D. (2020). "Will COVID-19 derail climate finance?" Climate-KIC Blog. Accessed 10 September 2020. Available at: <https://www.climate-kic.org/opinion/what-covid-19-could-mean-for-climate-finance/>

Howard, G., Calow, R., MacDonald, A and Bartram, J. (2016). Climate Change and Water and Sanitation: Likely Impacts and Emerging Trends for Action. Annual Review of Environment and Resources, 2016. 41:8.1-8.24. <https://www.annualreviews.org/doi/abs/10.1146/annurev-environ-110615-085856>

Hutton, G. and Varughese, M. (2016). The costs of meeting the 2030 sustainable development goal targets on drinking water, sanitation, and hygiene. The World Bank, Washington DC. Available at: <https://openknowledge.worldbank.org/handle/10986/23681>

IDFC (2019). IDFC Green Finance Mapping Report 2019. International Development Finance Club. Available at: https://www.idfc.org/wp-content/uploads/2019/12/idfc_report_final-2.pdf

IKI (2020). The International Climate Initiative. Berlin: International Climate Initiative (IKI). Available at: https://www.international-climate-initiative.com/fileadmin/Dokumente/2020/200622_IKI_General_EN.pdf

IKI (n.d.a). 'IKI Funding Instrument'. Webpage. International Climate Initiative (IKI). (<https://www.international-climate-initiative.com/en/about-the-iki/iki-funding-instrument>) [Accessed 27 September 2020]

IKI (n.d.b). 'Mitigating greenhouse gas emissions'. Webpage. International Climate Initiative (IKI). (<https://www.international-climate-initiative.com/en/issues/mitigation/>) [Accessed 27 September 2020]

IKI (n.d.c). 'Adapting to the impacts of climate change'. Webpage. International Climate Initiative (IKI). (<https://www.international-climate-initiative.com/en/issues/adaptation/>) [Accessed 27 September 2020]

IMF (2019). Climate Change and Financial Risk: Central banks and financial regulators are starting to factor in climate change. IMF. Available at: https://www.imf.org/external/pubs/ft/fandd/2019/12/climate-change-central-banks-and-financial-risk-grippa.htm?utm_medium=email&utm_source=govdelivery

JICA (2018). Safe Water for All – Water supply: the foundation for precious lives and livelihoods. Japan Brand ODA. Tokyo: Japan International Cooperation Agency (JICA). Available at: <https://www.jica.go.jp/english/publications/brochures/index.html>

JICA (2019a). JICA Profile. December 2019. Tokyo: Japan International Cooperation Agency (JICA). Available at: <https://www.jica.go.jp/english/publications/brochures/index.html>

JICA (2019b). Annual Report 2019. Tokyo: Japan International Cooperation Agency (JICA). Available at: <https://www.jica.go.jp/english/publications/reports/annual/index.html>

Joint MDB Climate Finance Group (2017). 2016 Joint Report on Multilateral Development Banks' Climate Finance. London: European Bank for Reconstruction and Development. Available at: www.ebrd.com/2016-joint-report-on-mdbs-climate-finance.pdf

Joint MDB Climate Finance Group (2018). 2017 Joint Report on Multilateral Development Banks' Climate Finance. London: European Bank for Reconstruction and Development. Available at: www.ebrd.com/2017-joint-report-on-mdbs-climate-finance

Joint MDB Climate Finance Group and IDFC (2019). A Framework and Principles for Climate Resilience Metrics in Financing Operations. New York: Inter-American Development Group. Available at: <https://publications.iadb.org/en/framework-and-principles-climate-resilience-metrics-financing-operations>

Lockwood, M. (2013). What Can Climate Adaptation Policy in Sub-Saharan Africa Learn from Research on Governance and Politics? *Development Policy Review*, 2013, 31(6): 647-676.

MAMF (2016). Saïss irrigation project. Non-technical summary. Rabat: Morocco Ministry of Agriculture and Maritime Fisheries (MAMF). Available at: <https://www.ebrd.com/work-with-us/projects/psd/sass-water-conservation-project.html>

Mason, N., Calow, R., Roberts, L., Quevedo, A., Hedger, M., Watson, C., Lohani, A., Philip, R., Pischke, F., Simalabwi, A. and Weber-Fahr, M. (2019). The Untold Story of Water in Climate Adaptation. Part II: 15 Countries Speak. Synthesis Report. Global Water Partnership, Stockholm. Available at: https://www.gwp.org/globalassets/global/events/cop25/gwp_synthesisreport.pdf

Nakhooda, S. & Norman, M. (2014). Climate Finance: Is it making a difference? A review of the effectiveness of Multilateral Climate Funds, London: ODI.

Nakhooda, S. (2013). The effectiveness of international climate finance. London: ODI. Available at <https://www.odi.org/publications/7386-effectiveness-international-climate-finance>.

NDC Partnership (n.d.) 'Climate Finance Explorer'. Webpage. World Resources Institute (<https://ndcpartnership.org/climate-finance-explorer>) [Accessed 27 September 2020]

NGFS (2019). First Comprehensive Report. A Call for Action - Climate Change as a Source of Financial Risk. Network for Greening the Financial System. Available at: <https://www.ngfs.net/en/first-comprehensive-report-call-action>

OECD (2016). Converged statistical reporting directives for the creditor reporting system (CRS) and the annual DAC Questionnaire. Organisation for Economic Co-operation and Development, Paris. Available at: [https://www.oecd.org/dac/stats/DCD-DAC\(2016\)3-ADD2-FINAL%20-ENG.pdf](https://www.oecd.org/dac/stats/DCD-DAC(2016)3-ADD2-FINAL%20-ENG.pdf).

OECD (2019). Making blended finance work for water and sanitation. Organisation for Economic Co-operation and Development, Paris. Available at: <https://www.oecd.org/environment/resources/making-blended-finance-work-for-sdg-6-5efc8950-en.htm>

OECD (n.d.). OECD DAC Rio Markers for Climate: Handbook. Paris: Organisation for Economic Cooperation and Development (OECD). Available at: http://www.oecd.org/dac/environment-development/Revised%20climate%20marker%20handbook_FINAL.pdf

Palazzo, A., Valin, H.J.P., Batka, M. and Havlík, P. (2019). Investment Needs for Irrigation Infrastructure along Different Socioeconomic Pathways. The World Bank, Washington DC. Available at: <https://elibrary.worldbank.org/doi/abs/10.1596/1813-9450-8744>

Petri, H. (2017). 'Short guide to the use of Rio markers'. Webpage. Environment, Climate Change and Green Economy. Capacity4Dev. (<https://europa.eu/capacity4dev/public-environment-climate/wiki/short-guide-use-rio-markers>) [Accessed 27 September 2020]

Ray, P.A. and Brown, C. (2015). Confronting Climate Uncertainty in Water Resources Planning and Project Design: The Decision Tree Framework. Washington, DC: World Bank. <https://openknowledge.worldbank.org/handle/10986/22544>

Richmond, M., Meattle, C., Micale, V., Oliver, P. and Padmanabhi, R. (2020). A Snapshot of Global Adaptation Investment and Tracking Methods. Climate Policy Initiative, London. Available at: <https://www.climatepolicyinitiative.org/publication/a-snapshot-of-global-adaptation-investment-and-tracking-methods/>

Rozenberg, J. and Fay, M. (2019). Beyond the Gap: How Countries Can Afford the Infrastructure They Need while Protecting the Planet. Washington, DC: World Bank. Available at: <https://openknowledge.worldbank.org/handle/10986/31291>

Smith, D.M., Matthews, J.H., Bharati, L., McCartney, M., Mauroner, A., Nicol, A., Rodriguez, D., Sadoff, C., Suhardiman, D., Timboe, I., Amarnath, G. and Anisha, N. (2019). Adaptation's thirst: Accelerating the convergence of water and climate action. Background paper prepared for the 2019 report of the Global Commission on Adaptation, Rotterdam and Washington DC.
https://cdn.gca.org/assets/2019-12/AdaptationsThirst_0.pdf

UNEP (2020). The Adaptation Gap Report: Health. United Nations Environment Programme.
Available at: <https://www.unenvironment.org/resources/adaptation-gap-report>

UNESCO, UN-Water (2020). United Nations World Water Development Report 2020. Water and Climate Change. Paris, UNESCO. <https://www.unwater.org/publications/world-water-development-report-2020/>

UNFCCC (2015). Paris Agreement. UNFCCC, Bonn. Available at https://unfccc.int/sites/default/files/english_paris_agreement.pdf.

UNFCCC (2018). 2018 Biennial Assessment and Overview of Climate Finance Flows Report. UNFCCC. p. 21. Available at <https://unfccc.int/sites/default/files/resource/2018%20BA%20Technical%20Report%20Final%20Feb%202019.pdf>.

UNFCCC (2019). "Experts to meet in Bonn to Drive Forward Action on Adaptation Finance." UNFCCC Article. Accessed 17 September 2020. Available at: <https://unfccc.int/news/experts-to-meet-in-bonn-to-drive-forward-action-on-adaptation-finance>

Vivid Economics (2020). Greenness of Stimulus Index. An assessment of COVID-19 stimulus by G20 countries in relation to climate action and biodiversity goals. Vivid Economics and Finance for Biodiversity Initiative.
Available at: https://www.vivideconomics.com/wp-content/uploads/2020/09/GSI_924.pdf.

Ward, P.J., Jongman, B., Aerts, J.C., Bates, P.D., Botzen, W.J., Loaiza, A.D., Hallegatte, S., Kind, J.M., Kwadijk, J., Scussolini, P. and Winsemius, H.C. (2017). A global framework for future costs and benefits of river-flood protection in urban areas. *Nature climate change*, 7(9), pp.642-646.
Available at: <https://www.nature.com/articles/nclimate3350>

WaterAid (2020). Short-Changed on climate change: Money, water and the people on the frontline, WaterAid, London. Available at: https://washmatters.wateraid.org/sites/g/files/jkxooof256/files/short-changed-on-climate-change-money-water-and-the-people-on-the-frontline_0.pdf

Watkiss, P., Wilby, R. and Rodgers, C.A. (2020). Principles of Climate Risk Management for Climate Proofing Projects. ADB Sustainable Development Working Paper Series No.69, July 2020.
<https://www.adb.org/publications/climate-risk-management-climate-proofing-projects>

Watson, C. and Schalatek, L. (2020). The Global Climate Finance Architecture. Climate Funds Update Climate Finance Fundamentals. ODI and Heinrich Böll Stiftung.
Available at: <https://climatefundsupdate.org/wp-content/uploads/2020/03/CFF2-2019-ENG-DIGITAL.pdf>

Weikmans, R. and Roberts, T. (2019). The international climate finance accounting muddle: is there hope on the horizon? *Climate and Development*, 11:2, 97-111.
<https://doi.org/10.1080/17565529.2017.1410087>

Whitley S., Canales Trujillo N. and Norman, M. (2016). Mobilising private finance for climate compatible development: A diagnostic tool for mapping incentives and investment. ODI.
Available at <https://www.odi.org/sites/odi.org.uk/files/resource-documents/10709.pdf>.

Whitley, S., Thwaites, J., Wright, H. and Ott, C. (2018). Making finance consistent with climate goals: insights for operationalising Article 2.1 c of the UNFCCC Paris Agreement. ODI, WRI, RMI and E3G.
Available at <https://www.odi.org/publications/11253-making-finance-consistent-climate-goals-insights-operationalising-article-21c-unfccc-paris-agreement>.

WHO (2017). Climate-resilient water safety plans: Managing health risks associated with climate variability and change. Geneva: World Health Organisation, 2017.
<https://apps.who.int/iris/bitstream/handle/10665/258722/9789241512794-eng.pdf;jsessionid=1F38BE5F7DEC882E170BCEA4BE899312?sequence=1>

This report was commissioned by WaterAid, a charity working to get clean water, decent toilets and good hygiene to everyone, everywhere. With special thanks to Jonathan Farr, Tina Mlinaric and Martha Colman.

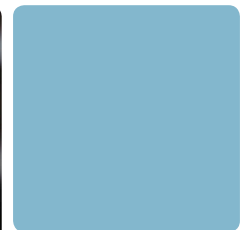


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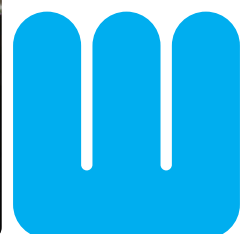
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▼ **Srey Nuch, 31, with her two young daughters in the Chong Kaosou community, Siem Reap, Cambodia. Srey Nuch fears that her children could drown in filthy flood waters when she is out working. In Cambodia, 3.8 million people in rural areas live without access to clean water, while the country ranks in the top 29% of nations most vulnerable to climate change and top 31% of countries least ready to adapt, according to the Notre Dame Global Adaptation Index.**



WaterAid/ Tom Greenwood



WaterAid

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