Global Landscape of Climate Finance 2023

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CLIMATE POLICY INITIATIVE

AUTHORS

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ABOUT CPI

Climate Policy Initiative (CPI) is an analysis and advisory organization with deep expertise in finance and policy. Our mission is to help governments, businesses, and financial institutions drive economic growth while addressing climate change. CPI has six offices around the world, in Brazil, India, Indonesia, the United Kingdom, and the United States.

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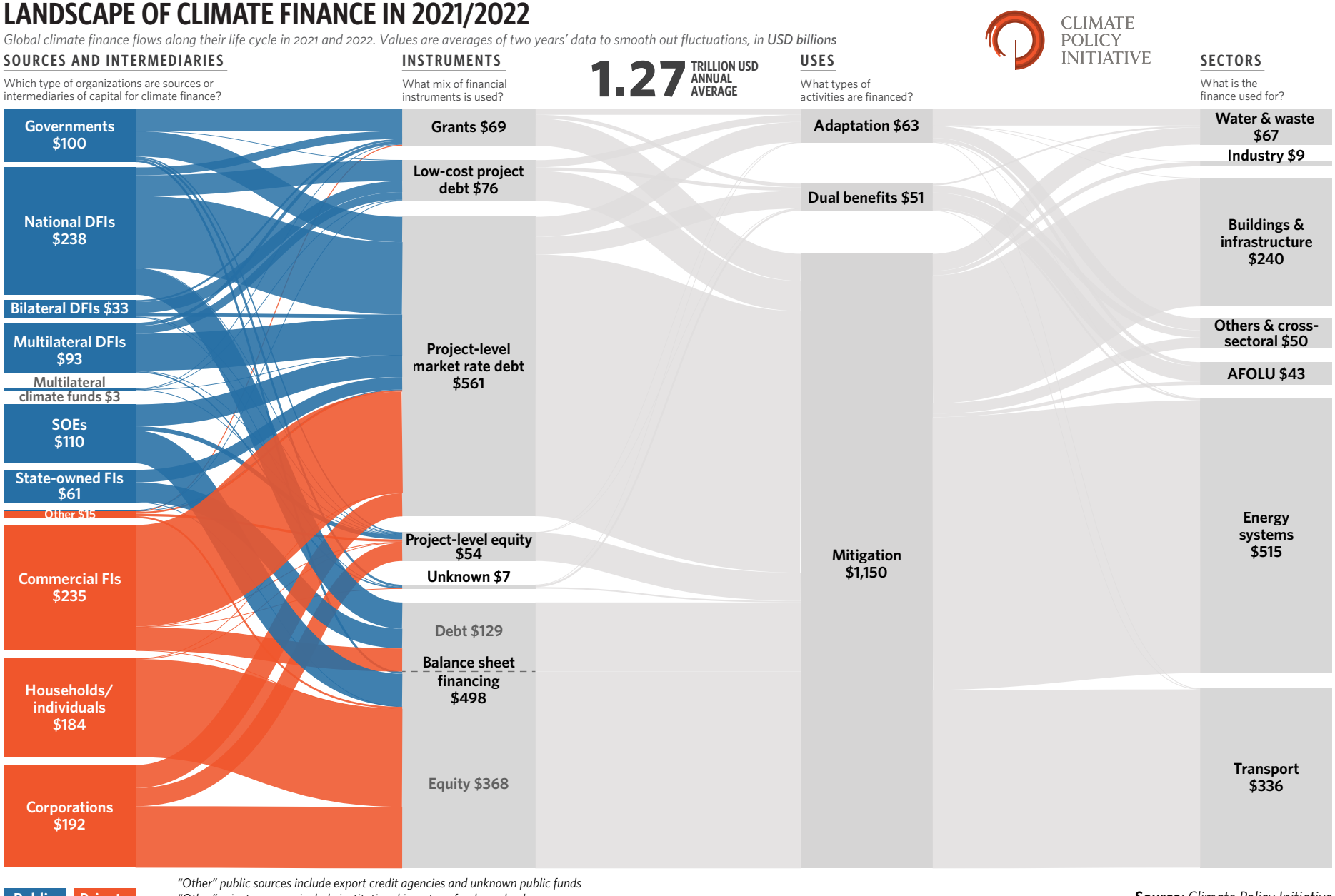
Figure ES1: Global climate finance flows in 2021/2022



"Other" public sources include export credit agencies and unknown public funds
"Other" private sources include institutional investors, funds, and unknown
"AFOLU" stands for agriculture, forestry, other land use, and fisheries. "Others & cross-sectoral" includes $6bn unknown

Source: *Climate Policy Initiative*

EXECUTIVE SUMMARY

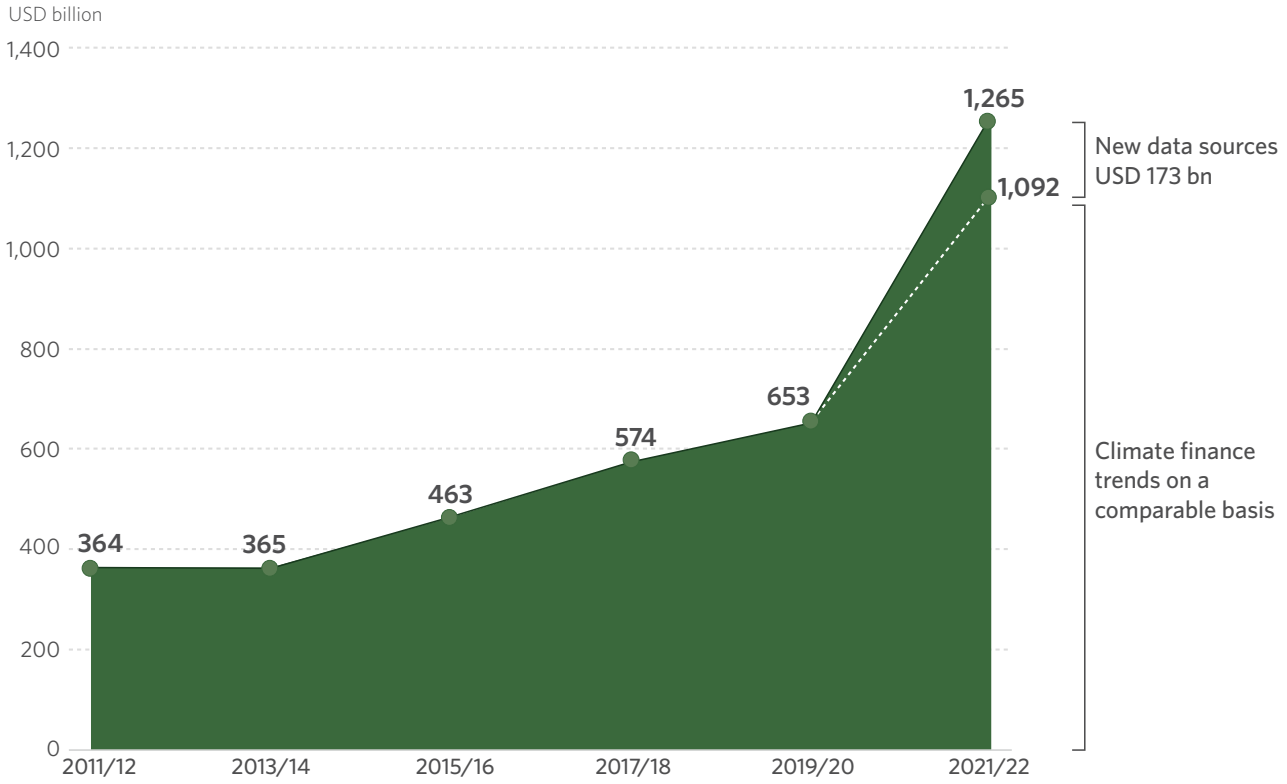
KEY TAKEAWAYS

WHERE ARE WE NOW?

Average annual climate finance flows reached almost USD 1.3 trillion in 2021/2022, nearly doubling compared to 2019/2020 levels. [1] This increase was primarily driven by a significant acceleration in mitigation finance (up by USD 439 billion from 2019/2020). The remainder of the growth observed in 2021/2022 (USD 173 billion each year) stems from methodological improvements and new data sources, which augment the flows tracked in 2019/2020. Without these data improvements, annual finance flows in 2021/2022 would have amounted to just below USD 1.1 trillion (see Figure ES2).

Despite the growth in 2021/2022, current flows represent about only 1% of global GDP.[2]

Figure ES2: Global climate finance in 2011-2022, biennial averages



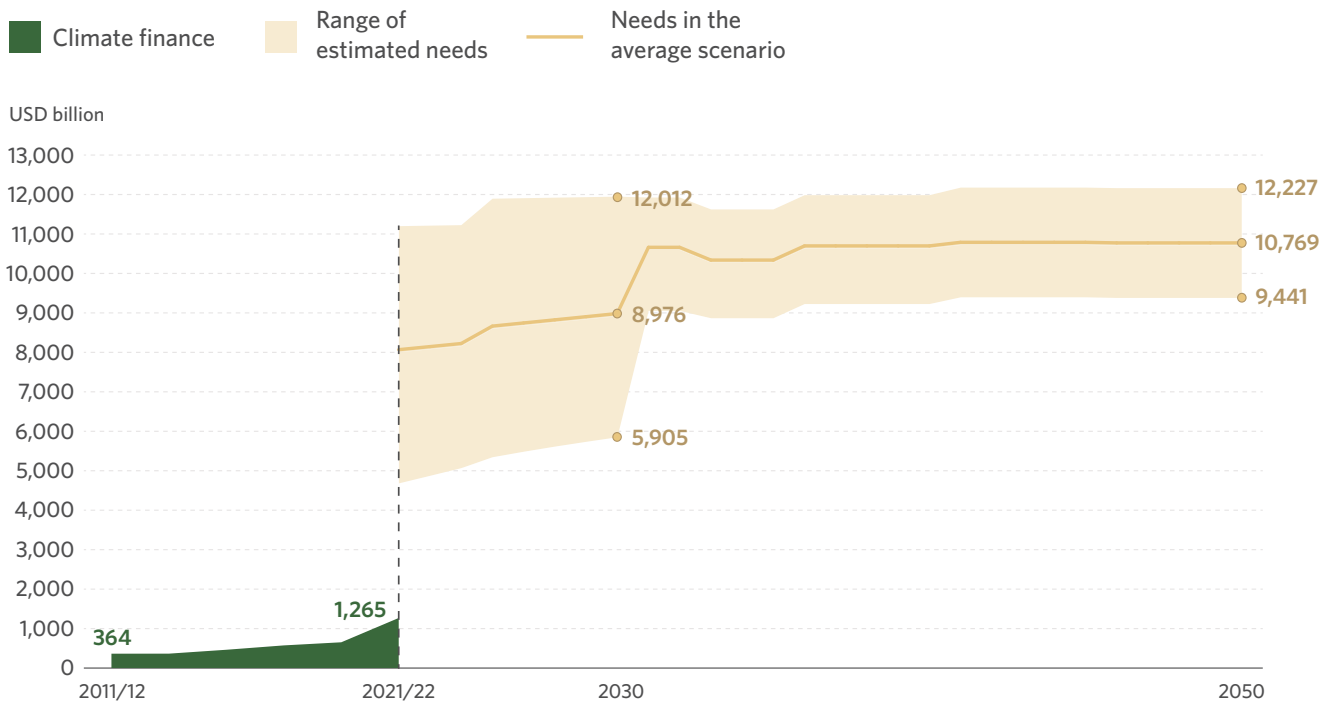
Note: Climate finance flows are reported as biannual averages to smooth out annual fluctuations in data and expressed in nominal USD. This means that annual figures do not account for the effects of inflation and exchange rate volatility over time.

1 Climate finance flows tracked in this report represent targeted climate mitigation and adaptation specific project-level allocation of capital.
2 Global GDP was USD 100 trillion in 2022, according to the World Bank (2023a)

WHERE ARE WE HEADED?

The average annual climate finance needed for each of the next six years until 2030 is estimated at USD 8.6 trillion, with a further USD 10.7 trillion per year on average needed from then until 2050. This means that climate finance must increase by at least five-fold annually, as quickly as possible, to avoid the worst impacts of climate change.

Figure ES3: Global tracked climate finance and average estimated annual needs through 2050[3]



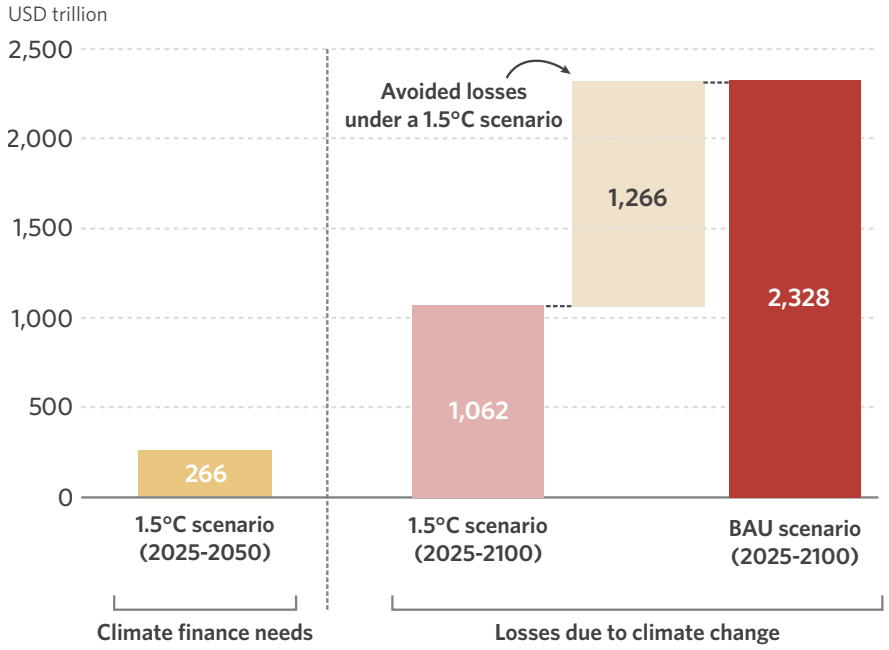
Note: Climate finance needs estimates for 2023-2050 include direct investments in climate-specific physical assets and excludes transition-related unabated fossil fuel finance. Estimates are based on secondary data collected from over 15 sectoral scenarios (see Methodology document for detail). Climate finance needs for 2023-2050 are expressed in 2022 USD to ensure comparability of estimates from several different scenarios.

3 For further details, see the Methodology document that accompanies this report. Changes in our climate finance needs estimates compared to the 2022 Landscape report are due to regular updates and improvements in our coverage of climate finance needs scenarios. Compared to the last report, we include additional scenarios, particularly for the AFOLU, buildings, and industry sectors. Further changes include the revision of hydrogen and storage investment needs figures following updates in underlying scenarios, and the re-classification of some CCUS (carbon capture, use and storage) needs estimates from the energy to the industrial sector, based on improvements in our internal data collection approach.

THE COST OF INACTION

The longer we delay meeting total climate investment needs, the higher the costs will be, both to mitigate global temperature rise and to deal with its impacts.

Figure ES4: Cumulative climate finance needs vs. losses under 1.5°C and BAU scenarios



Source: *CPI analysis and NGFS (2022).*

Although annual climate investment needs are large, the amount required is a fraction of the estimated losses likely to be incurred if we continue with business-as-usual (BAU) investments that cause global temperature increases well above 1.5°C.

Using numbers based on 95th percentile estimations of BAU and 1.5 damages scenarios, the estimated losses shown in Figure ES4 are based on direct economic impacts of increased weather-related and other uninsurable damages, increased production costs, productivity losses, and health costs (NGFS, 2022). These are likely to be a dramatic underestimate as they do not capture capital losses caused by stranded assets, losses to nature and biodiversity, or those from increased conflict and human migration that cannot yet be reasonably costed.

Even though data and methodology on estimating future losses are still rudimentary, they are forming a picture that clarifies the economic imperative to invest now, while also highlighting the immense opportunities for businesses to adopt increasingly low-carbon and climate-resilient pathways.

WHAT DOES THE DATA TELL US?

We are making progress on increasing climate finance and on improving the sourcing of data to better understand it.

Climate finance is on the rise

Global climate finance approached USD 1.3 trillion on annual average in 2021/2022 compared to USD 653 billion in 2019/2020. Most of this growth is due to an increase in mitigation finance, with the largest growth in the renewable energy and transport sectors.

Climate finance data is also improving

A key function of the Global Landscape of Climate Finance (the Landscape) is to highlight where data gaps exist and how to improve them. This year's Landscape reflects additional estimates on green bonds' use of proceeds, which resulted in particularly improved coverage in three sectors: agriculture, forestry, other land use, and fisheries (AFOLU); buildings and infrastructure; and waste.

Approximately 28% (USD 173 billion) of the 2021/2022 increase is attributable to improved data.

However, growth is not sufficient nor consistent across sectors and regions

The growth in global climate finance largely results from significant increases in clean energy investment in a handful of geographies. China, the US, Europe, Brazil, Japan, and India received 90% of increased funds. While this marks promising progress, large climate finance gaps remain even in these geographies, and climate finance in other high-emissions and climate-vulnerable countries has shown meager progress in meeting their needs.

Climate finance is also uneven across sectors, for both mitigation and adaptation efforts. In terms of mitigation finance, which totaled 1.15 trillion in 2021/2022:

- **Energy and transport**, which are the two largest-emitting sectors and where private finance dominates, continue to attract the majority of flows: energy attracting 44% of total mitigation finance; transport receiving 29%). There was an exponential growth in the sale of electric vehicles (EVs) in 2021/2022 led by China, Western Europe, and the US.
- **Agriculture and industry**, the next-largest sources of emissions, receive disproportionately little (less than 4% of total mitigation and dual benefits finance). These two industries have a combined mitigation potential of 20 GTCO2 by 2030, higher than that of the energy and transport sectors according to the Intergovernmental Panel on Climate Change.
- **Emerging technologies**, such as battery storage and hydrogen, are beginning to attract private finance thanks to falling production costs, increased consumption, and policy support. However, they remain far from their potential scale.

Adaptation finance continues to lag

- While adaptation finance reached an all-time high of USD 63 billion, growing 28% from 2019/2020, this still falls far short of estimated needs of USD 212 billion per year by 2030 for developing countries alone.
- Tracked adaptation finance remains dominated by public actors (98%), with fragmented flows from the private sector. Adaptation finance tracking challenges continue to impede our understanding of progress of both public and private flows.
- AFOLU, a critical sector with considerable vulnerability and wide-ranging adaptation needs, received only USD 7 billion (11% of all adaptation finance).

Climate finance is geographically concentrated

Developed economies continued to mobilize the most climate finance, primarily from private sources.

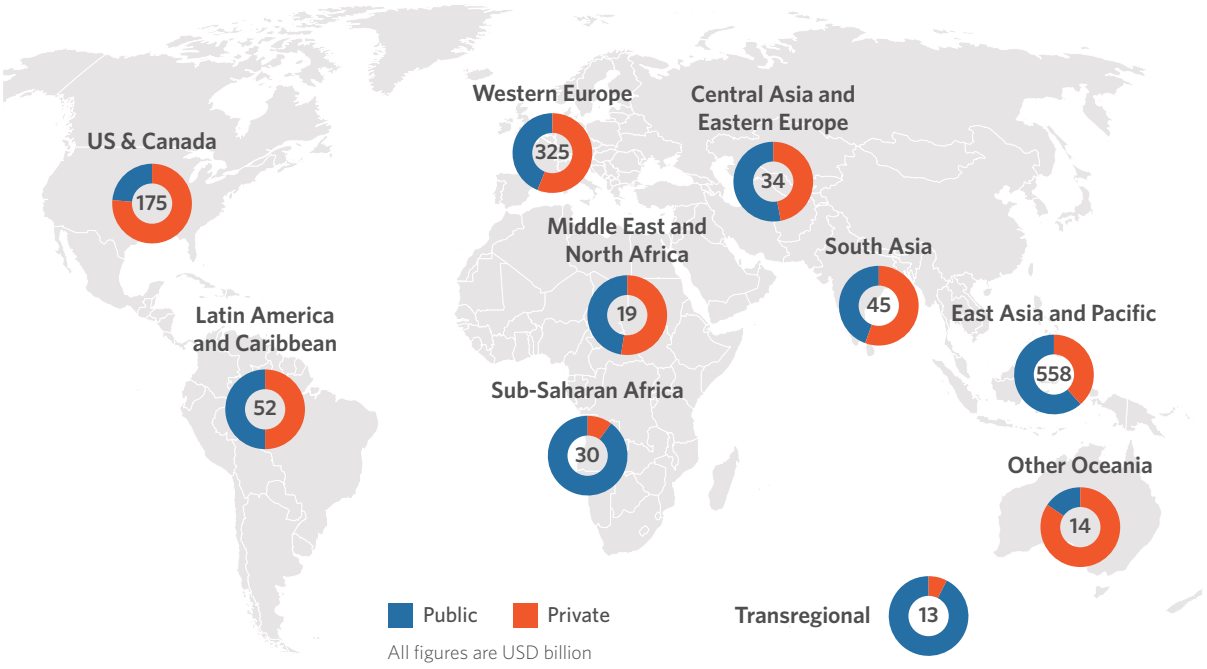
- East Asia and the Pacific, the US and Canada, and Western Europe account for a combined 84% of total climate finance. These regions also significantly outpace others in mobilizing domestic sources, which are critical to achieving scale.
- China's domestic climate finance mobilization was greater than that of all other countries combined, accounting for 51% of all domestic climate finance globally.
- International finance increased by 35% from 2019/2020, largely due to enhanced commitments from developed economies. Developed economies committed 84% of international finance, while emerging markets and developing economies (EMDEs), including China, committed 13%. South-South climate finance accounted for under 2% of total flows.
- Flows continued to fall short of needs, particularly in developing and low-income economies. Less than 3% of the global total (USD 30 billion) went to or within least developed countries (LDCs), while 15% went to or within EMDEs excluding China. The ten countries most affected by climate change between 2000 and 2019 received just USD 23 billion;[4] less than 2% of total climate finance.

Private finance is growing, but not at the rate and scale required

Private actors provided 49% of total climate finance (USD 625 billion). As with mobilizing domestic sources of finance, developed economies are much more successful at mobilizing private finance than EMDEs.

4 According to the Long-Term Climate Risk Index (2021), the ten countries most affected from 2000 to 2019 are: Puerto Rico, Myanmar, Haiti, Philippines, Mozambique, The Bahamas, Bangladesh, Pakistan, Thailand, Nepal.

Figure ES5: Public vs. private climate finance by region



- The largest private sector growth came from household spending, which reached 31% of all private finance.
- This is the largest share that households have represented of private finance since CPI started its tracking over a decade ago. This was driven predominantly by EV sales, which doubled from 2020 to 2021. Such household spending growth was supported by strong domestic fiscal policies to support uptake of low-carbon technologies.
- Development finance institutions continue to provide the majority of public finance, channeling 57% of all public finance. However, more than 17% of public finance going to LDCs comes in the form of market-rate debt, increasing their already substantial debt burdens. In this context, renewed emphasis on the strategic use of public funds and other concessional finance to mobilize significantly more private capital is imperative.

HOW CAN WE SCALE THE QUANTITY AND QUALITY OF CLIMATE FINANCE?

The context in which climate finance is being mobilized is evolving rapidly. Multiple ongoing crises vie for political and financial attention, while raising the cost of capital. Yet, the pressure to turn climate commitments into deployed climate finance, both public and private, is growing on all fronts.

CPI proposes the following priorities to accelerate climate finance deployment and create real economy impact:

Agenda	Action	
Transforming the financial system	**Reforming international financial institutions**	Build on existing momentum to reform mandates, operations, and business models to reduce the cost of capital and ensure private capital mobilization
	Leveraging concessional finance to expand private flows	Transform the use of scarce concessional finance so it is accessible, flexible, and applied where it is most needed
	Strengthening private financial sector net zero integrity	Expand from announcing 2050 targets to establish transparent and verifiable shorter-term transition plans with a focus on impacts in the real economy
Bridging climate and development needs	**Harnessing synergies between development and climate action**	Align more closely on these two investment agendas to accelerate action on both fronts
	Mainstreaming climate adaptation and resilience into financial systems	Increase understanding of climate risks to improve resilience and financial flows
	Phasing out unabated fossil fuels through a just transition	Ensure that pathways for ending fossil fuel development account for the impacts on all key stakeholders at all levels, from national to local
Mobilizing domestic capital	**Aligning Nationally Determined Contributions (NDCs) with 1.5°C scenarios**	Better align NDCs with Paris Agreement goals to create stronger domestic policy and investment signals
	Improving the local ecosystem for climate investment	Bolster capacity building and create stronger enabling environments to unlock untapped domestic private capital, particularly in EMDEs
Acting to improve data	**Simplifying and standardizing taxonomies and reporting**	Work across countries to harmonize and enhance the interoperability of these tools to reduce reporting burdens
	Making climate finance data widely available and accessible	Achieve greater transparency and leadership from governments and DFIs on a new, standardized, and centralized approach to tracking climate finance data

The above topics are discussed in detail in the Recommendations section of this report.

While pursuing low-carbon and climate-resilient development makes the most long-term economic sense, winning the public debate on its urgency and bringing along all groups is key to success. Revealing not only the effectiveness of climate investment to achieve the Paris Agreement goals, but also its necessity in reaching longer-term development, resilience, and security goals will help build the case for faster change.

CONTENTS

1. INTRODUCTION

Amid adjacent crises, the climate emergency continues to deepen, increasingly weighing on lives and livelihoods across the globe. High inflation has raised borrowing costs. Yet the climate crisis demands our attention. Illustrations of the scale and severity of climate change are proliferating, with associated losses and damages to income, assets, people, and ecosystems strengthening the need for immediate action.

Despite recent momentum on climate finance and emerging solutions, extensive further action is urgently required. Political pressure backing the climate finance agenda is building, with the first ever Global Stocktake in 2023 under the Paris Agreement urging an increase in climate finance, the G20 leadership prioritizing sustainable finance, and ongoing calls to reform international financial institutions. Significant country-specific cooperation is also emerging, including through platforms such as the Just Energy Transition Partnerships and the V20 Climate Prosperity Plans.[5] Meanwhile, the potential for, and realization of, South-South climate finance flows is growing. Public pressure is pushing climate change up the political agenda. Moreover, there is a notable rise in awareness of the many co-benefits of climate interventions, inter alia for nature and air quality.

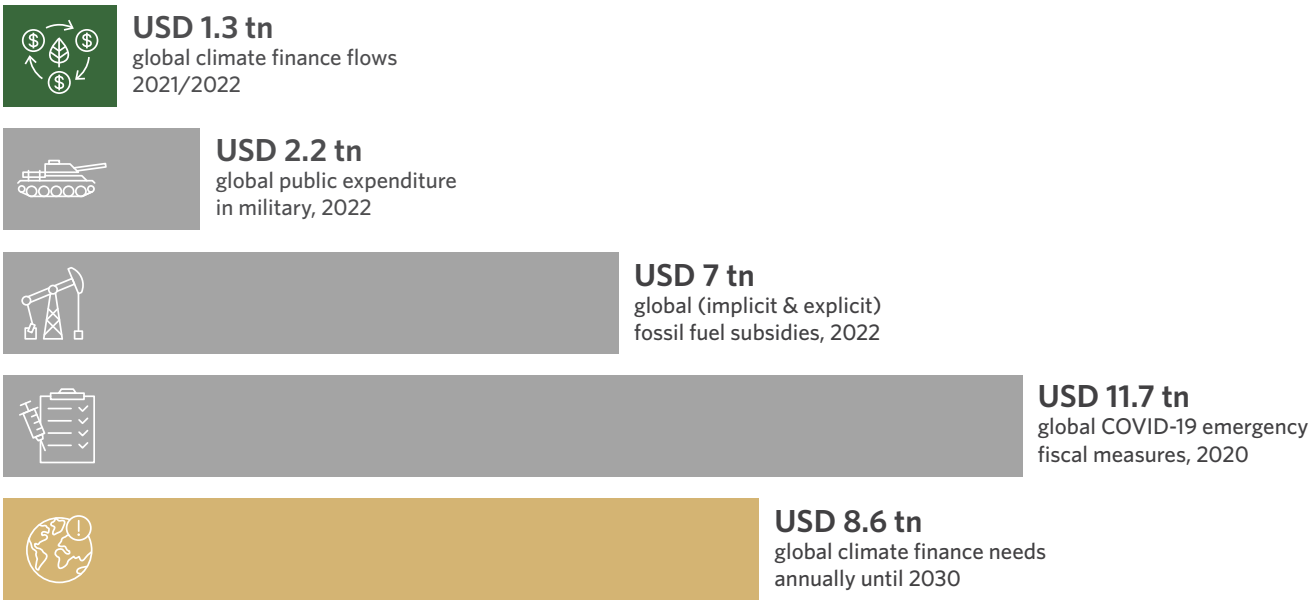
Ultimately, the necessary funds are available, but need to be redistributed or reallocated to uses consistent with global climate goals. In 2021/2022, CPI tracked USD 1.27 trillion in global annual climate flows. Estimated needs to mitigate and adapt to climate change range from USD 5.4 trillion to USD 11.7 trillion per year until 2030, and between USD 9.3 trillion and 12.2 trillion per year in the following two decades.[6] While the funding gap is large, taking a broader perspective on global spending reveals the feasibility of closing it: global military expenditure in 2022 was estimated at USD 2.2 trillion (SIPRI, 2023); global fossil fuel subsidies in the same year reached USD 7 trillion (IMF, 2023a);[7] and the International Monetary Fund (IMF) estimated that USD 11.7 trillion in emergency fiscal measures were announced globally in 2020 in response to the COVID-19 pandemic (IMF, 2020) (see Figure 1). There is, undoubtedly, enough liquidity in capital markets, with approximately USD 114 trillion in assets under management globally by the end of 2022 (TAI, 2023).

5 For further details on the V20 see https://www.v-20.org/climate-prosperity-plans.

6 For further details, see the Methodology document that accompanies this report. Changes in our climate finance needs estimates compared to our 2022 Global Landscape report are due to regular updates and improvements in our coverage of climate finance needs scenarios. Compared to last year, we include additional scenarios, particularly for the AFOLU, Buildings, and Industry sectors. Further changes include the revision of hydrogen and storage investment needs figures following updates in underlying scenarios, and the re-classification of some CCUS (carbon capture, use and storage) needs estimates from Energy to Industry based on improvements in our internal data collection approach.

7 This figure includes explicit and implicit fossil fuel subsidies, for example, pricing in local pollution costs.

Figure 1: Climate finance in context



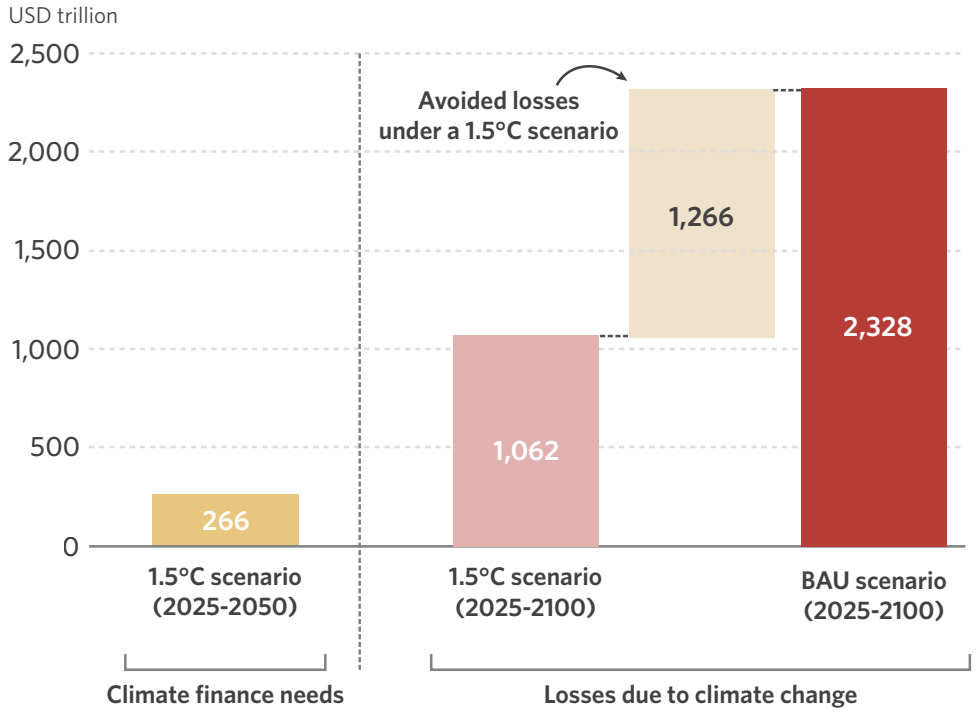
On the other hand, delaying climate action and failing to keep the world on a 1.5°C trajectory will result in significantly higher costs down the line. Climate change impacts, such as increasing temperatures, rising sea levels, and more frequent extreme weather events, will result in labor losses, reduced agricultural yields, and decreased global tourism, as well as damages to assets, capital, and productive land. Rising temperatures and worsening air quality will also increase rates of mortality, climate-related illness, and overall healthcare spending.

Various studies suggest that under current policies, warming will exceed 3°C, leading to macroeconomic losses of at least 18% of GDP by 2050 and 20% by 2100 (Swiss Re Institute, 2021; NGFS, 2022). However, these are likely to be dramatic underestimates since they fail to capture costs related to biodiversity loss, stranded assets, and broader social issues.[8]

Overall, the projected social and economic costs of a warming world will far outstrip those of transition. And the costs of inaction will rise the longer we delay. Figure 2 shows how increasing climate investments to the levels needed by 2050 (USD 266 trillion cumulatively), will lead to a considerable reduction in social and economic losses by 2100: USD 1,266 trillion lower compared to a business-as-usual (BAU) scenario. In other words, sticking to BAU would create more than double the losses of a 1.5°C scenario.

8 Estimates of costs of inaction are discussed in more detail in the Methodology document which accompanies this report.

Figure 2: Cumulative climate finance needs vs. losses under 1.5°C and BAU scenarios



Note: Productive investments, or expenditures on either climate or non-climate investments, will generate additional economic returns, and are greater under a 1.5°C scenario. Social and economic costs represent losses without additional returns. All figures are expressed in 2022 USD to ensure comparability of estimates from different scenarios. Numbers based on 95th percentile estimations of BAU and 1.5 damages scenarios

***Source**: CPI analysis and NGFS (2022).*

METHODOLOGICAL IMPROVEMENTS TO THE LANDSCAPE

The 2023 Global Landscape of Climate Finance provides the most comprehensive update on climate finance flows to the real economy, globally, providing a consistent baseline against which to measure changes over time. It aggregates multiple data sources and analyses climate finance committed by both public and private actors in 2021/2022.[9]

The Landscape captures primary financing in real economy sectors that reduce greenhouse gas (GHG) emissions and build climate resilience. While the term climate finance is increasingly used to refer to all 'climate aligned' finance – including investments that do no harm to the climate – our analysis focuses on deployment of climate-specific capital. It excludes secondary financial market transactions, such as equity market movements or refinancing, given that these are not new investments but rather exchanges of money linked to existing assets. This approach helps to maintain data consistency and comparability across data sources and to avoid double counting flows. Additionally, financing through instruments such as insurance, guarantees, tax credits, and subsidies are not included in order to avoid overestimating those finance flows that essentially represent 'promises' of future funds.

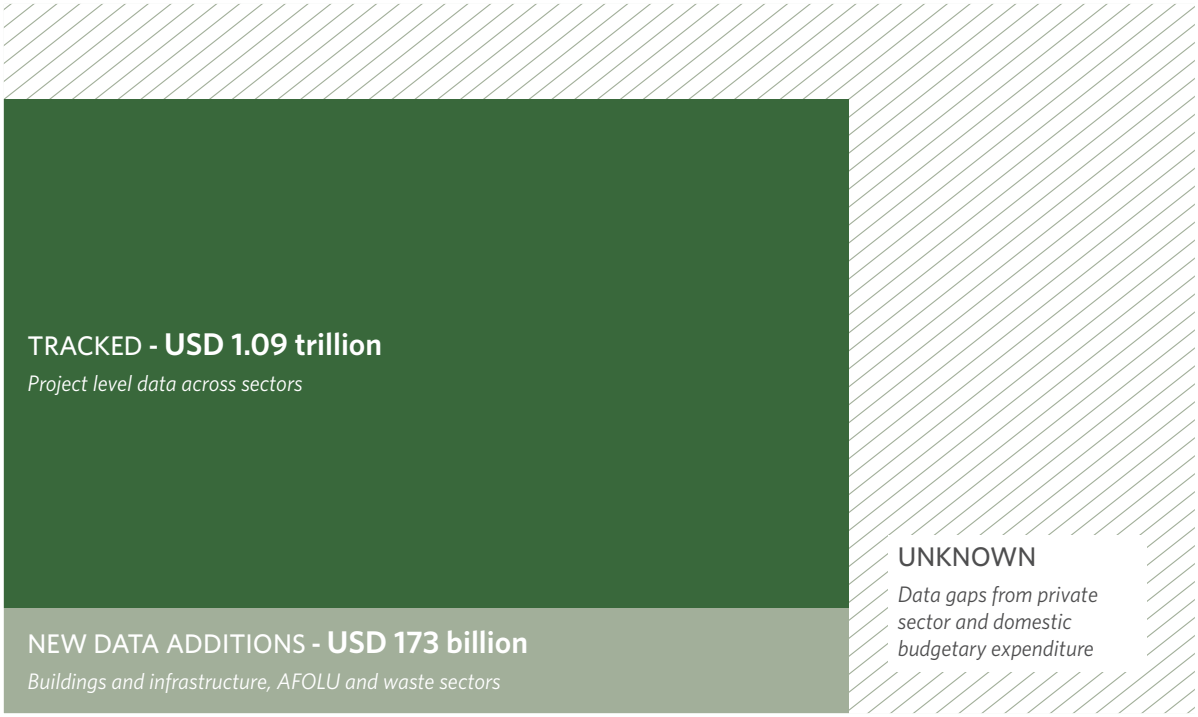
9 A biennial average over the two years is taken to smooth out fluctuations in the data.

The 2023 Global Landscape of Climate Finance has made methodological advancements in filling data gaps. The flows tracked in this report represent the conservative, lower bound amounts going to project-level activities, based on rigorous analysis that roots out double counting. Nevertheless, certain limitations persist due to lack of data, definitional clarity, and granularity (See Figure 4). To address these issues, we continually evolve our methodology and data sources.

For the first time, tracked project-level data has been complemented with new aggregated estimates of climate finance reported by third parties including the IEA's World Energy Investment report, and green bond use of proceeds estimates generated by Climate Bonds Initiative (CBI). After omitting double-counted flows,[10] these represent an additional USD 173 billion (14%) of the USD 1.3 trillion annual average tracked climate finance flows in 2021/2022 (see Figure 3). This improved data capture is particularly notable for domestic public and private finance to three sectors: agriculture, forestry, and other land use (AFOLU); buildings and infrastructure; and waste.

The Sankey diagram (Figure ES1) presents a combination of CPI-tracked project-level data and third-party estimates, giving a more complete picture of the lifecycle of climate finance in 2021/2022.[11] **Throughout this report, we clarify which increases on previous years' figures are due to methodological changes and which represent market trends.**

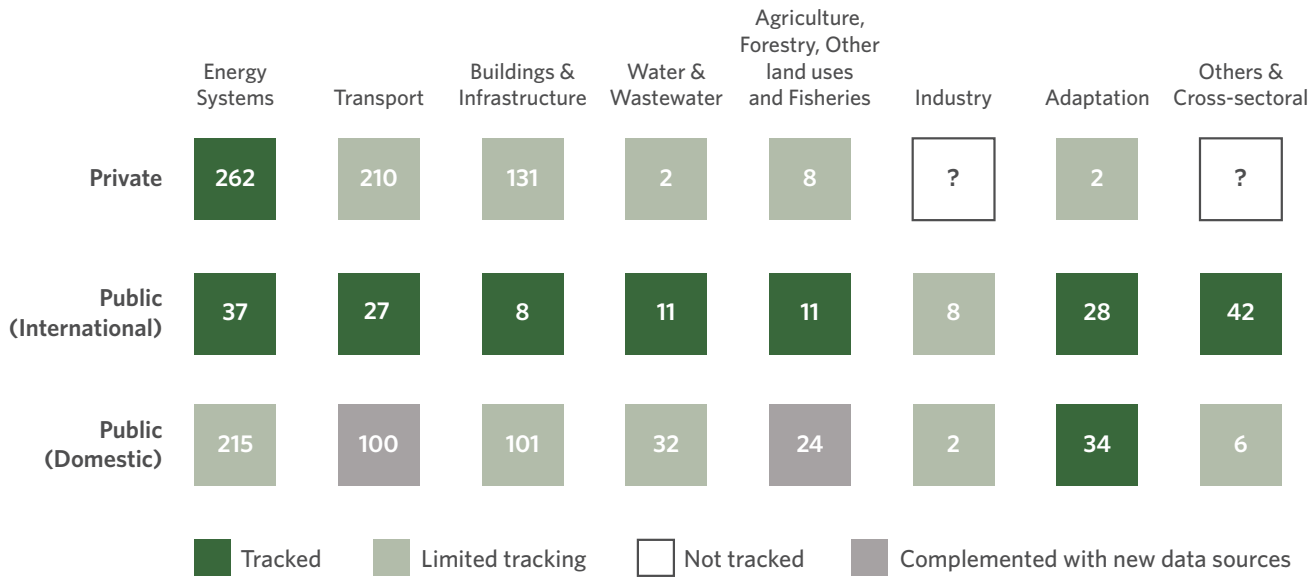
Figure 3: Summary of tracked and additional data (2021/2022)



10 We added the regional and sectoral aggregated data with low or no coverage in CPI data, to eradicate double-counting in additions to the data.
11 More information on the methodology is available here.

Data availability continues to prevent a full account of domestic governments' climate finance (see Box 4) and South-South flows, as well as private investment in sectors other than energy. These gaps can be reduced through improved reporting and tracking by domestic and private climate finance actors, spurred by regulations for mandatory and standardized disclosure.

Figure 4: Tracked and untracked climate finance by actor and sector (2021/2022, USD bn)



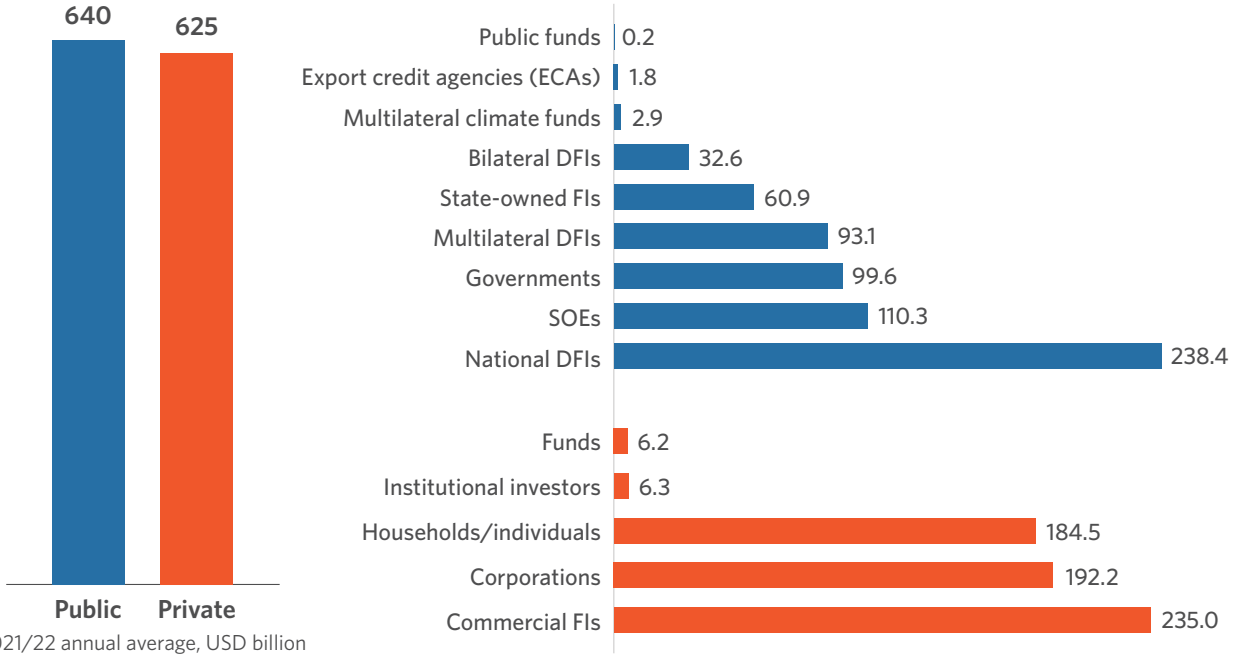
Contextualizing climate finance flows is key. To this end, CPI has conducted a literature review on climate finance needs and the cost of inaction. We considered a wide range of literature with projections across various timeframes and warming scenarios (for further details, see the Methodology document).

In addition, for the first time, our assessment includes country classifications pertaining to least developed countries (LDCs), emerging markets and developing economies (EMDEs), and developed economies.

2. SOURCES AND INTERMEDIARIES

Global climate finance flows continued to be largely equally split between public and private actors in 2021/2022. Both prioritize the energy, transport, and buildings and infrastructure sectors, though public finance also targets relatively underserved sectors, such as AFOLU, water and wastewater, and industry.

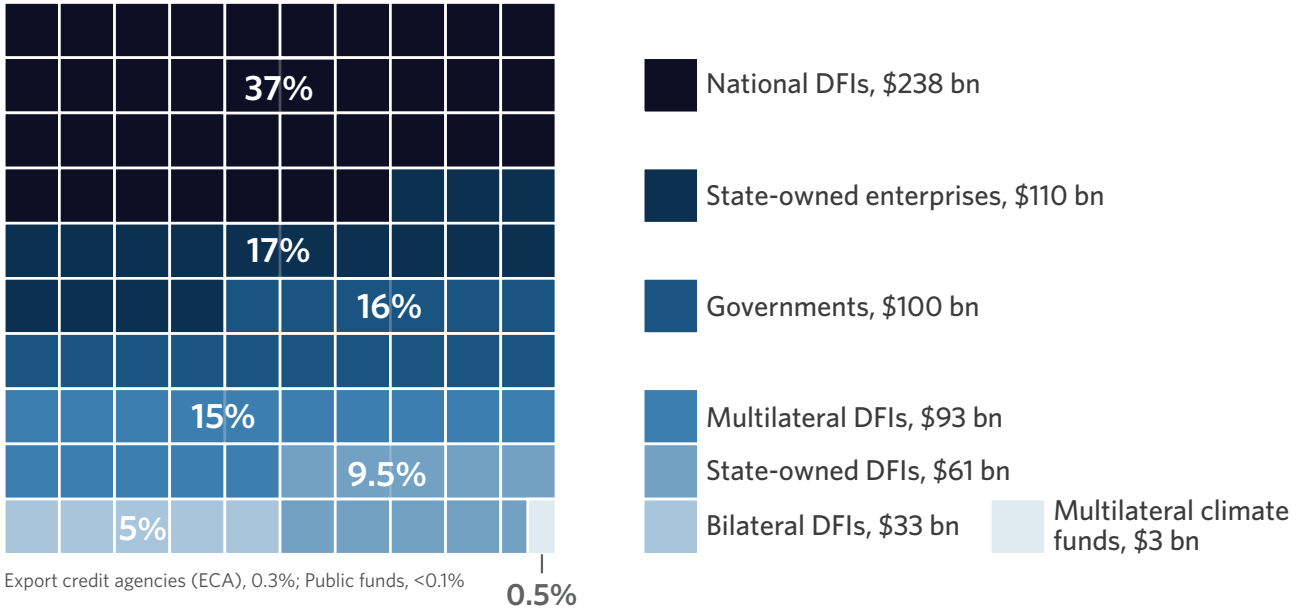
Figure 5: Sources of public and private climate finance (USD bn)



2.1 PUBLIC FINANCE

Public actors committed an annual average of USD 640 billion in climate finance in 2021/2022, approximately half of the global total. This represents a 91% (USD 305 billion) increase from USD 335 billion in 2019/2020, of which USD 57 billion stems from improved data on flows to the buildings and infrastructure, AFOLU and water sectors.

Figure 6: Climate finance by public actor (USD bn)



Development finance institutions (DFIs) provided the majority of public climate finance in 2021/2022, committing USD 364 billion.

National DFIs remained the largest source, committing USD 238 billion (or 37% of the public total), dominated by domestic commitments by institutions in East Asia and the Pacific. Of the USD 33 billion provided by bilateral DFIs, 64% was in the form of low-cost project debt, demonstrating their role in scaling concessional finance for low-carbon and climate-resilient development. Additionally, 67% of finance from national and bilateral DFIs originated from EMDEs, with nearly all of this either remaining in the originating country or going to other EMDEs.

Multilateral DFIs provided USD 93 billion, or 15% of total public commitments in 2021/2022, up 36% on USD 68 billion in 2019/2020. Roughly 45% of financing from multilateral DFIs went to EMDEs, and 40% to developed countries. LDCs received 14%, or USD 13 billion, approximately USD 7.8 billion (60%) of which was in the form of debt. Climate finance from multilateral DFIs is increasing and there are further developments analyzing ways to increase the lending capacity of multilateral development banks (MDBs), such as the Independent Review of MDBs Capital Adequacy Frameworks (MDBs, 2023a). Calls to reform international financial institutions – especially MDBs and the IMF – have gained momentum (see Box 1).

Tracked climate finance from governments and their agencies reached USD 100 billion, or 16% of total public commitments, up from USD 32 billion in 2019/2020. This is largely attributable to the inclusion of new data sources in the Landscape from CBI on Use of Proceeds (UoP) and from the IEA on EV investment. Sovereign green bond issuances outpaced the wider green bond market in 2021 (CBI, 2022). The four largest issuers – France, Germany, the UK, and Italy – contributed almost a third of sovereign green bonds' UoP (USD 26 billion) in 2021/2022. Enabling policies for EVs, such as incentives for car makers and purchasers, spurred EV investment in the US, China, and Western Europe in 2021/2022. This is expected to continue as countries in these regions implement strengthened domestic

climate finance policies. For instance, the US Inflation Reduction Act 2022 commits nearly USD 370 billion in direct funding and tax credits for energy transition and clean technologies within the country.

Multilateral climate funds (MCFs) provided USD 3 billion, representing 0.5% of public climate finance. This is a 21% decrease from 2019/2020. The Green Climate Fund (GCF) provided 71% of total MCF commitments, with a 45% increase in its adaptation finance. Financing from MCFs is expected to rise further as they receive new donor replenishments. In 2022, the GCF passed a significant milestone, launching its second replenishment process which will determine its funding from 2024 to 2027 (GCF, 2022). The Global Environment Facility (GEF), which funded USD 190 million worth of climate projects in 2021/2020, down from USD 960 million in 2019/2020, also received new donor pledges in 2023 (GEF, 2023). The Least Developed Countries Fund, the only fund dedicated to supporting climate adaptation needs in LDCs, provided 3% of MCF finance in 2021/2022.

State-owned financial institutions (SOFIs) and state-owned entities (SOEs) continued to augment their roles as climate finance providers, contributing USD 61 billion and USD 110 billion respectively, particularly in East Asia and the Pacific. Most commitments of SOFIs and SOEs were for GHG mitigation in the energy sector. Heavy industry SOEs are major energy consumers in many countries and have potential to drive the transition from polluting to green practices, addressing climate and biodiversity challenges (ADB, 2021).

Less than 15% of public climate finance was channelled to AFOLU, water and wastewater, and industry, collectively. This indicates an alarming delay in climate action in these sectors, which are critical to reducing GHG emissions and climate vulnerability. Together, these industries represent 21.8 GtCO2 net emissions reduction potential by 2030, which is higher than that of the energy, transport and building and infrastructure sectors combined (IPCC, 2022a). Energy systems and sustainable transport remain the top recipient sectors of public climate finance, receiving USD 252 billion (39%) and USD 127 billion (20%) respectively. Public investment in buildings and infrastructure reached USD 109 billion (17%), owing to state support for increasing the energy efficiency of buildings in major economies in Western Europe, as well as in the US and Canada (IEA, 2023a).

Box 1: Reforms in international financial institution architecture

2023 was a pivotal year in the international finance arena, with a strengthening call for reforms of the international financial architecture. Recommendations include revising MDB strategies and operations to better catalyze public and private finance for climate change, biodiversity and nature, as well as infrastructure in developing economies. While a consortium of MDBs committed in 2021 to disburse USD 65 billion in climate finance globally, including doubling adaptation finance to USD 18 billion, consideration is needed to ensure that these funds are effective in mobilizing private sector finance. The IMF found that, on average, MDBs only crowd-in private finance of about 1.2 times the resources they commit themselves (IMF, 2022a). In 2022, USD 100 billion of MDB climate finance was supported by USD 120 billion of co-finance. Of this amount, 57% (USD 69 billion) came from private sources, while the rest was from other public sources (MDBs, 2023b). International financial institutions require not only more capital but also innovations in their operating models to increase the effectiveness of their climate finance, particularly to mobilize private capital. To this end, CPI proposes advancing four high-impact, risk-sharing instrument categories, which can help MDBs to target concessional capital that addresses risks and leverages private climate investment.

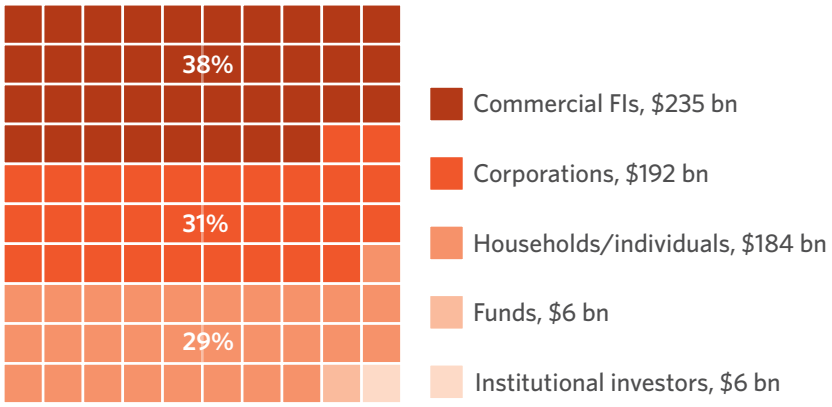
1. **Greater use of guarantees to address credit risk**: Studies suggest that increased and purposeful credit guarantee facilities with standardized contracts and agreed criteria have the potential to mobilize 6-25 times more financing than loans (BTF, 2023; CPI, 2023a). Effective implementation of blended concessional guarantees would require long-term reforms of MDB capital allocation rules to incentivize guarantees by altering MDB internal risk weightings and Official Development Assistance accounting rules.
2. **Local and affordable currency lending to address currency risk**: By lending in local currencies, MDBs can shoulder the responsibility for hedging against currency mismatches, which is currently borne by borrowers. Existing and proposed hedging facilities can scale significantly with additional investment, including using subsidies to provide below-market hedging rates for climate projects (TCX, 2023). A non-profit facility that offers currency hedges for climate projects in high-emitting countries at concessional rates can also be considered. Addressing currency risks also requires capacity building in borrowing countries to support the development of local currency markets.
3. **Project development models to support development risk**: Project development typically averages 2-5% of total project cost, and can leverage 20-50 times more early-stage investment (CPI, 2022a). Using concessional finance to build and scale project development facilities that provide technical assistance, advisory services, and tailoring models to attract earlier investment can help to scale bankable, investment-ready projects in developing countries.
4. **Originate-to-distribute models**: Such models could effectively bundle diverse projects into attractive portfolios through securitization or similar means by using pre-agreed underwriting criteria, thereby de-risking investments for private sector participation.

Such innovative risk-mitigation instruments are not currently tracked under CPI's Landscape analysis. Instruments such as guarantees and insurance are not included as climate finance, given that the funds they commit would only materialize upon a payment default by a borrower, or upon an insurance claim being made. However, increasing use of such instruments could warrant a separate tracking category in future. The Joint MDB Group reported climate finance guarantees of USD 2.7 billion (across low-, middle- and high-income countries) in 2022 alone (MDBs, 2023c).

2.2 PRIVATE FINANCE

Private actors provided 49% of total climate finance, averaging USD 625 billion in 2021/2022 compared to USD 318 billion in 2019/2020. Approximately USD 120 billion of the increased amount results from improved data in the buildings and infrastructure, and AFOLU sectors, with the remaining USD 187 billion annual increase attributable to higher financial flows to the energy and transport sectors.

Figure 7: Climate finance by private actor type (USD bn)



Less than 1%: Unknown - $1 bn

Most private finance was concentrated in the US, Western Europe, and other developed economies, and mainly targets mitigation efforts. More than USD 571 billion or 91% of this funding was channelled domestically. International private finance to EMDEs reached around USD 15 billion, or 28% of total international private finance.

Commercial finance institutions (banks) provided 38% of private climate finance in 2021/2022, mainly in the form of debt. Their financing to the energy sector slightly decreased, particularly in 2022, likely due to the rising cost of capital. Although bank lending to climate-positive sectors is increasing, fossil fuel funding remains prevalent, with particularly high lending to Africa and the Middle East (IEA, 2023a).

Corporations provided USD 192 billion or 31% of private flows in 2021/2022. As in previous years, renewable energy and low-carbon transport dominated, representing 91% of total corporate flows. We estimate that 25% of corporate flows, or USD 46 billion on annual average, went to energy-efficient buildings and infrastructure. A third of the largest public and private corporations have net-zero pledges, however, less than 10% are on track to meet them. Achieving net-zero and climate resilience targets would require a major shift in investment and business models by corporations, which create direct impacts in the real economy. Companies will need to adopt holistic climate finance approaches that strategically target their financial resources to meet climate goals at pace (CPI, 2023b).

Household spending on climate mitigation reached USD 184 billion in 2021/2022 which is an increase of USD 130 billion from 2019/2020. This is driven by rising global EV purchases, reaching 142 billion in 2021/2022. This was supported by strong domestic policies sustained over a decade, including support for the uptake of low-carbon technologies, tightening technical specifications, and the designation of low- and zero-emissions zones to reduce air

pollution and reduce congestion particularly in China, Europe, the US, and Japan. In addition, EVs are cheaper to run than internal combustion cars in many countries, despite the current increases in electricity prices. Residential solar PV, solar water heaters, and energy efficiency related home improvements account for the remaining climate-related household spending.

In 2021/2022, institutional investors and funds each provided USD 6 billion in direct climate finance. These mostly represent direct investment in renewable energy projects, and philanthropic giving. Institutional investors' indirect allocation of capital through equity and bond markets falls outside the scope of this assessment, which tracks direct investment in the real economy. Institutional investors also tend to acquire portfolios of renewable energy projects after they have been commissioned due to large ticket size requirements, therefore, they may not be captured in the Landscape in an effort to avoid double counting.

Despite growing adoption of environmental, social and governance considerations and net zero targets by private finance providers, much remains to be done to examine how these actors are channeling climate finance to the real economy, and whether their efforts are creating change on the ground (see Box 2).[12]

Box 2. Climate finance integrity: real economy impacts of financial institutions

As climate finance increases – driven partly by more financial institutions' setting of net zero goals – ultimately what matters are the impacts such institutions are creating in the real economy.

For example, while 98% of the 565 financial institutions who are members of the Glasgow Financial Alliance for Net Zero have announced some form of net zero target for their financing activities and portfolios, less than half have set well-developed goals with specific targets and timelines. This leaves capital waiting on the sidelines, rather than being deployed effectively. To shift net zero targets to actual investment practices, financial institutions should identify climate risk leadership within their organizations, align internal incentive systems to well-defined targets, and engage with policymakers, clients, and shareholders on transition planning and finance.

Regulatory bodies are starting to put more pressure on financial institutions to address and report on climate risks. For example, the UK became the first G20 country to require its largest companies to report in line with the Taskforce on Climate-Related Financial Disclosures, and the EU's Corporate Sustainability Reporting Directive will require any large company that raises money on European stock exchanges to disclose climate-related information. In addition, California, the world's fifth-largest economy, enacted legislation in October 2023 that will set in motion climate-related disclosure requirements for companies doing business in the state, a first for the US.

An increasing number of financial institutions are also making progress on voluntary disclosure of their portfolio/financed emissions. However, none are currently able to demonstrate full coverage, and disclosure of investment data is still very patchy. More startling, evidence suggests that **75% of financial institutions who are starting to positively engage on net zero alignment are also still actively opposing progress on climate legislation** (CPI, 2023c).

To increase accountability for financial institutions to move beyond making long-term announcements to near-term action, CPI is releasing an updated version of its Net Zero Finance Tracker (NZFT). The NZFT leverages more than 250 data sources to provide a comprehensive assessment of how selected public and private finance institutions are progressing on Paris Agreement goals and delivering net zero impact on the ground.

The NZFT is available from November 9, 2023, at https://netzerofinancetracker.climatepolicyinitiative.org

12 More analysis from the OECD on tracking net zero commitments from financial actors can be found here

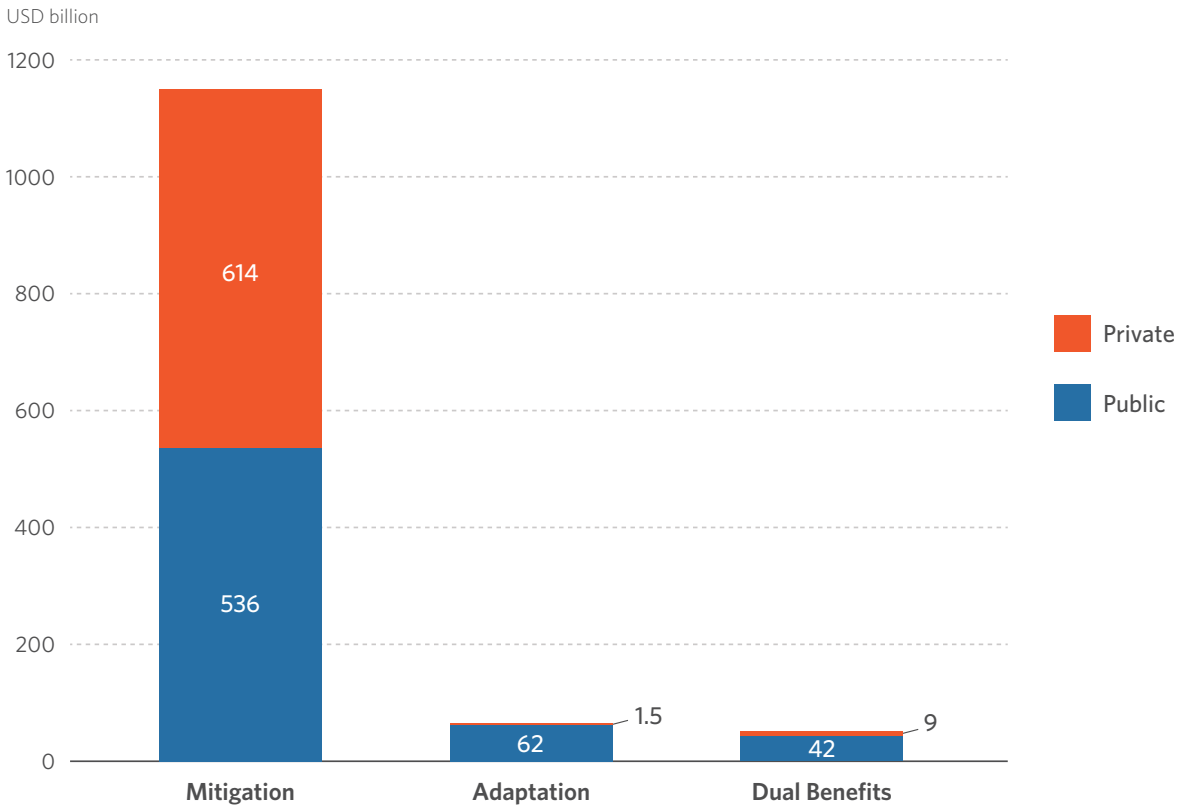
3. USES AND SECTORS

Global climate finance continues to be channelled primarily towards mitigation efforts, which received 91% of the total in 2021/2022 (a slight increase from 89.7% in 2019/2020).

Mitigation projects in the energy and transport sectors were together responsible for two-thirds of total climate finance flows in 2021/2022.

While adaptation finance increased by 29% in 2021/2022 to USD 63 billion, compared to USD 49 billion in 2019/2020, the share of total climate finance directed to adaptation almost halved in the same period. This demonstrates a worrying lack of progress at a time when climate risks are escalating and countries' climate vulnerabilities are growing. Adaptation finance also seems to remain a prerogative of the public sector. While this is at least partly due to limitations in tracking private adaptation finance (see Section 2.2), there are also several barriers that prevent private actors from financing and facilitating adaptation to climate change (CPI, 2022b). This means that the public sector continues to play a pivotal role in ensuring the availability of adaptation finance.

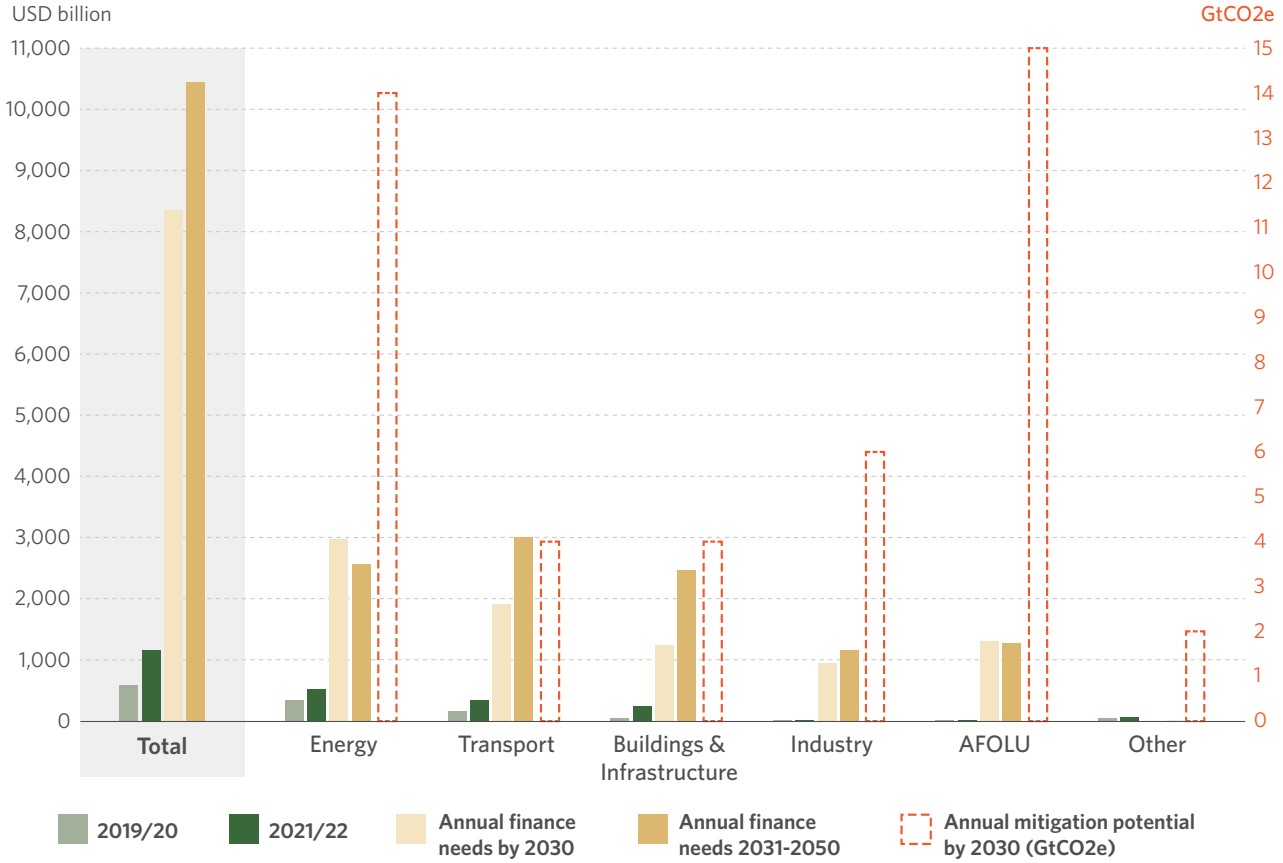
Figure 8: Uses of climate finance with private-public splits



3.1 MITIGATION

In 2021/2022, mitigation finance reached almost USD 1.2 trillion per year. The investment gap, however, remains considerable: mitigation finance needs to surpass USD 8.4 trillion per year between now and 2030, and to rise to USD 10.4 trillion per year in the following two decades. The largest investment gaps in absolute terms are observed in the transport and energy sectors, where an additional USD 2.4 trillion and USD 2.2 trillion per year is needed, respectively, between now and 2050. In relative terms, the largest gaps are observed in AFOLU and industry, where funding needs to grow over 180 times and 136 times, respectively, compared to 2021/2022 levels. Underfunding in these sectors is concerning, given their large mitigation potential (see Figure 9). AFOLU is estimated to have the largest mitigation potential, at an average of 14.5 GtCO2e by 2030 (IPCC, 2022a), yet the sector received minimal finance in 2021/2022 (USD 7 billion in mitigation and a further USD 29 billion for dual benefits).

Figure 9: Climate finance flows in key mitigation sectors, finance needs and mitigation potential



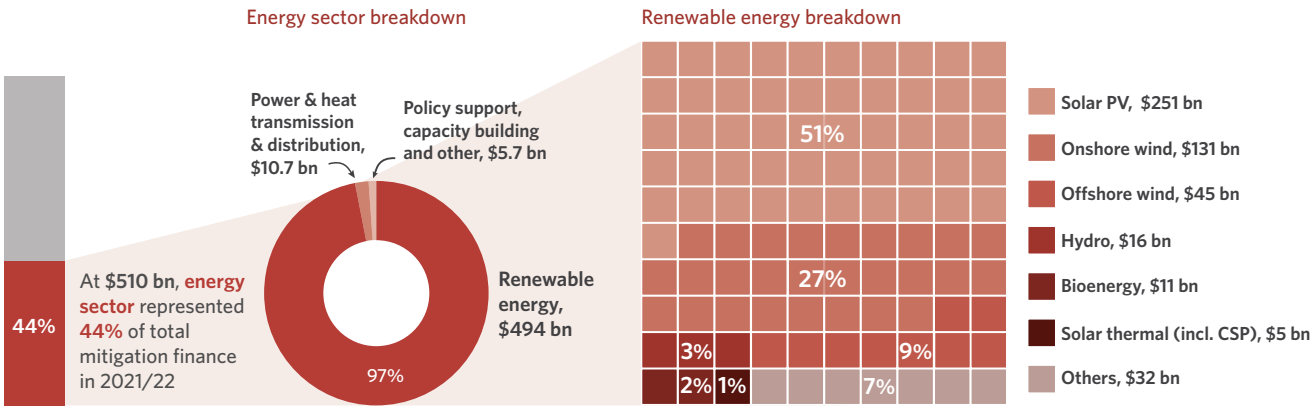
Note: Historical finance flows (2019-2022) are expressed in nominal USD. Climate finance needs for 2023-2050 are expressed in 2022 USD. Average mitigation potential is sourced from the IPCC AR6 (2022a). This applies to similar analyses hereafter.

3.1.1 ENERGY

Mitigation investments in low-carbon energy systems reached USD 510 billion per year in 2021/2022 (or 44% of total mitigation finance), of which USD 490 billion went to renewable energy generation.

Despite the increase, annual investment in the sector needs to at least triple by 2030, with 65% of financing expected to come from private sources (IEA, 2023a). Long-term clear policy signals in the real economy are key to enabling further private capital mobilization.

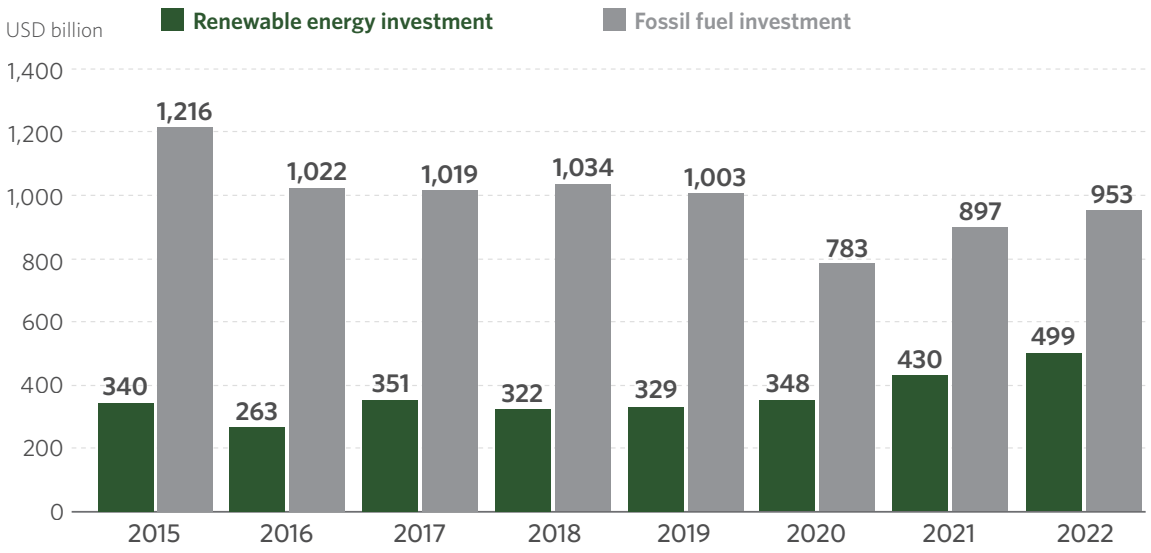
Figure 10: Mitigation finance to the energy sector, and by sub-sector



Solar PV dominated renewable energy investment (USD 251 billion), followed by onshore wind (USD 131 billion). Strong growth was observed in offshore wind, receiving USD 45 billion, up 42% on 2019/2020. Year-on-year growth in renewable energy investment in the past decade has spurred a 130% increase in global renewable energy capacity, compared to only 24% growth in non-renewable capacity (IRENA, 2023). As of 2022, renewables constituted 30% of electricity generation globally (IEA, 2023b).

An estimated USD 925 billion was channelled to new fossil fuels in 2021/2022, rebounding to pre-pandemic levels.

Figure 11: Renewable energy vs. fossil fuel annual investment, 2015-2022



Source: *IRENA and CPI, 2023*

In addition to direct investments, as captured in Figure 11, considerable funds are channelled to fossil fuels via subsidies. The IMF estimates that in 2022 alone USD 1.3 trillion was spent on explicit fossil fuel subsidies, globally, with an additional USD 5.7 trillion in implicit subsidies (IMF, 2023).[13]

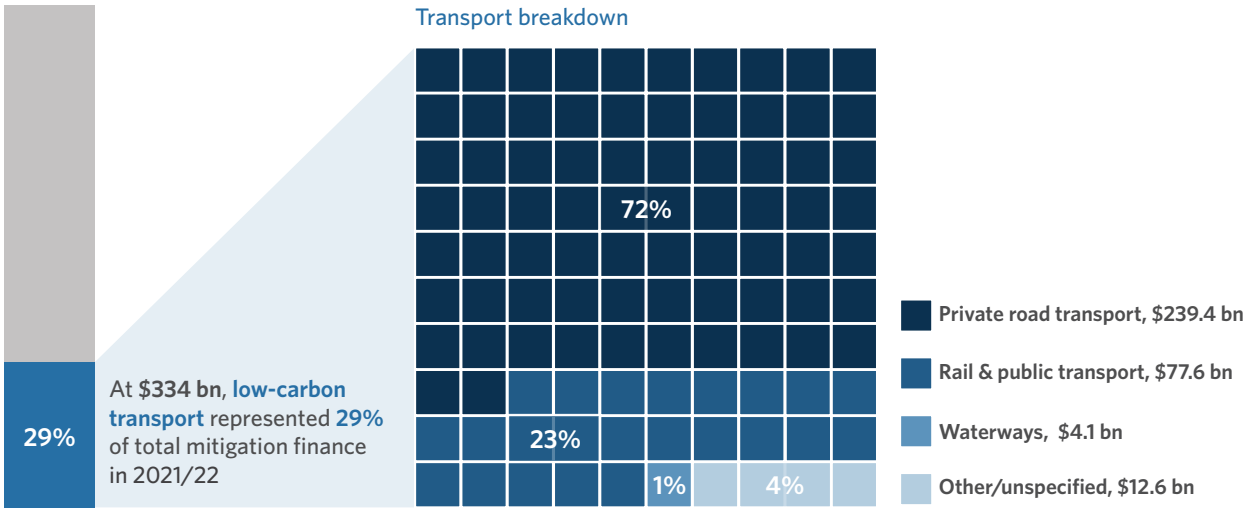
While renewable energy investment is growing, the past two years were not without challenges. Rapid inflation of materials and component costs has reduced profit margins for clean energy projects. Nonetheless, the market for renewable energy investment remained resilient.

Renewables continued to attract higher shares of private finance than other mitigation sectors, with increasingly diverse financial instruments being deployed. Higher overall interest rates have increased capital costs, including for the energy sector. This has affected the composition of renewable energy finance to a higher equity proportion, as the provision of debt is reduced.

3.1.2 TRANSPORT

Low-carbon transport finance reached an all-time high of USD 334 billion per year, in 2021/2022, accounting for 29% of mitigation finance. EVs continue to fuel investment in the sector.

Figure 12: Mitigation finance to the transport sector, with sub-sectoral breakdown



Note: "Other" low-carbon transport support areas include transport infrastructure projects such as roads, urban transit, and EV charging infrastructure.

Private road transport dominated investment in the sector (72%), followed by rail and public transport (23%).

13 Implicit subsidies are those implied by charging below efficient fuel prices.

Finance for private road transport more than doubled from USD 73 billion annual average in 2019/2020 to USD 239 billion in 2021/2022. Public subsidies represented 13% of total private road transport finance in 2021/2022, compared to 10% in 2019/2020. EV markets are maturing and becoming competitive, especially for cars, and public subsidies are therefore now shifting to areas such as heavy transport and charging infrastructure (IEA, 2023c). Nonetheless, EVs still have a long way to go to fully replace fossil fuel alternatives. For example, only 16% of sport utility vehicles were electric in 2022. Prices for some low-carbon transport technologies rose in 2021 and 2022, largely due to rising prices of critical minerals, semiconductors, and bulk materials.

Box 3: Low-carbon transport investments spur global health benefits

Climate change and air pollution are closely interconnected in their causes. Many outdoor air pollutants have a climate warming effect and GHG emissions can exacerbate outdoor air pollution (CAF and CPI, 2023a).

Therefore, action to tackle climate change often has direct positive impacts on air quality, with enormous benefits to human health, economic development, and social justice. Finance for low-carbon transport can deliver positive local and national health outcomes in the short-to-medium term, through:

- The adoption of cleaner vehicle technologies, such as low-emission vehicles (including electric and hybrid vehicles) and alternative fuels, which can reduce tailpipe emissions.
- The increased use of public transport, including buses, trams, and trains (which tend to have lower per-passenger emissions than personal vehicles), as well as non-motorized transportation, such as cycling and walking, which all reduce overall emissions.
- Imposition of more stringent emissions standards for internal combustion engine vehicles, as well as regular inspection and maintenance programs, to reduce tailpipe emissions can help to ensure that vehicles operate with minimal emissions.

According to a recent study by the Clean Air Fund and CPI, of total outdoor air quality finance provided by international public funders in 2015-2021, 67% (USD 11.6 billion) went to projects that tackled both air pollution and climate change (CAF and CPI, 2023b). Transport-sector projects received the largest share of these flows (57% or USD 5.4 billion). Investments targeted rail and public transport system projects, which have an immediate positive impact on air pollution, particularly in urban areas.

3.1.3 SUPPORTING INFRASTRUCTURE

CPI acknowledges that supporting infrastructure investment, such as for electricity transmission and distribution, battery storage and EV chargers, is an important enabler of energy transition. For example, transmission and distribution lines need to grow in parallel with renewables to accommodate increases in supply of clean energy. Transmission and distribution investment is only tracked in our analysis if the investments are specifically tagged for renewable energy distribution, given the risk that grids also transmit fossil fuel energy. Global transmission and distribution investment, however, is estimated to have reached USD 274 billion in 2022, whereas investment in public charging infrastructure reached USD 24 billion in the same period (BNEF, 2023).

3.1.4 INDUSTRY

While directly accounting for 5% of total global emissions, and 29% when indirect emissions from energy use are counted, the industry sector lacks investment progress. Total investment tracked averaged USD 8.5 billion annually in 2021/2022, primarily targeting energy efficiency improvements, and upstream and midstream renewables for industrial use. Technologies required to decarbonize the steel and cement sectors are at varying stages of development (CPI, 2023c). In addition, such interventions have relatively high perceived risks, unproven business models, and do not offer market-based competitive returns. Global hydrogen investment, which is critical to decarbonize hard-to-abate sectors such as steel and heavy-duty transport, is estimated at USD 1 billion in 2022 compared to annual needs of USD 80 billion through 2050 (BNEF, 2023; ETC, 2023). Studies suggest that the industrial sector needs roughly USD 70 billion per year for decarbonization (ETC, 2023).

3.1.5 BUILDINGS AND INFRASTRUCTURE

Energy efficiency investments for buildings and infrastructure totaled USD 240 billion in 2021/2022. This figure includes new data additions of USD 130 billion. Western Europe, and the US and Canada accounted for 49% and 28% of flows, respectively, followed by China (9%). These regions have more developed policies including building energy codes, and heating intensity standards, as well fiscal incentives for heat pumps and clean technologies.

Energy efficiency building codes are particularly lacking in EMDEs. Energy efficiency related efforts need to be stepped up, given that total energy consumption in the buildings sector has increased by an average of 1% per year over the last decade (IEA, 2023b). Although tracked climate finance in the buildings sector focuses on energy efficiency, the greatest opportunities lie in reducing embodied carbon in construction materials, and in cleaner and more efficient heating and cooling, including through passive design (CCFLA, 2022).

3.1.6 AFOLU

Finance for the AFOLU sector tagged as mitigation reached an annual average of USD 6.5 billion in 2021/2022. However, we tracked further USD 29 billion with dual benefits, of which USD 25 billion comes from estimates on the UoP of green bonds. This excludes other investments in the sector such as farm-level renewables or biofuels, which are captured under energy systems in this report. While data sources are improving, granularity on subsectors and solutions is lacking. For example, there is no standardized reporting framework on UoP, resulting in uneven details and formats of reporting by bond issuers. A centralized reporting platform and guidance on standardized reporting would assist in assessing the investment gap.

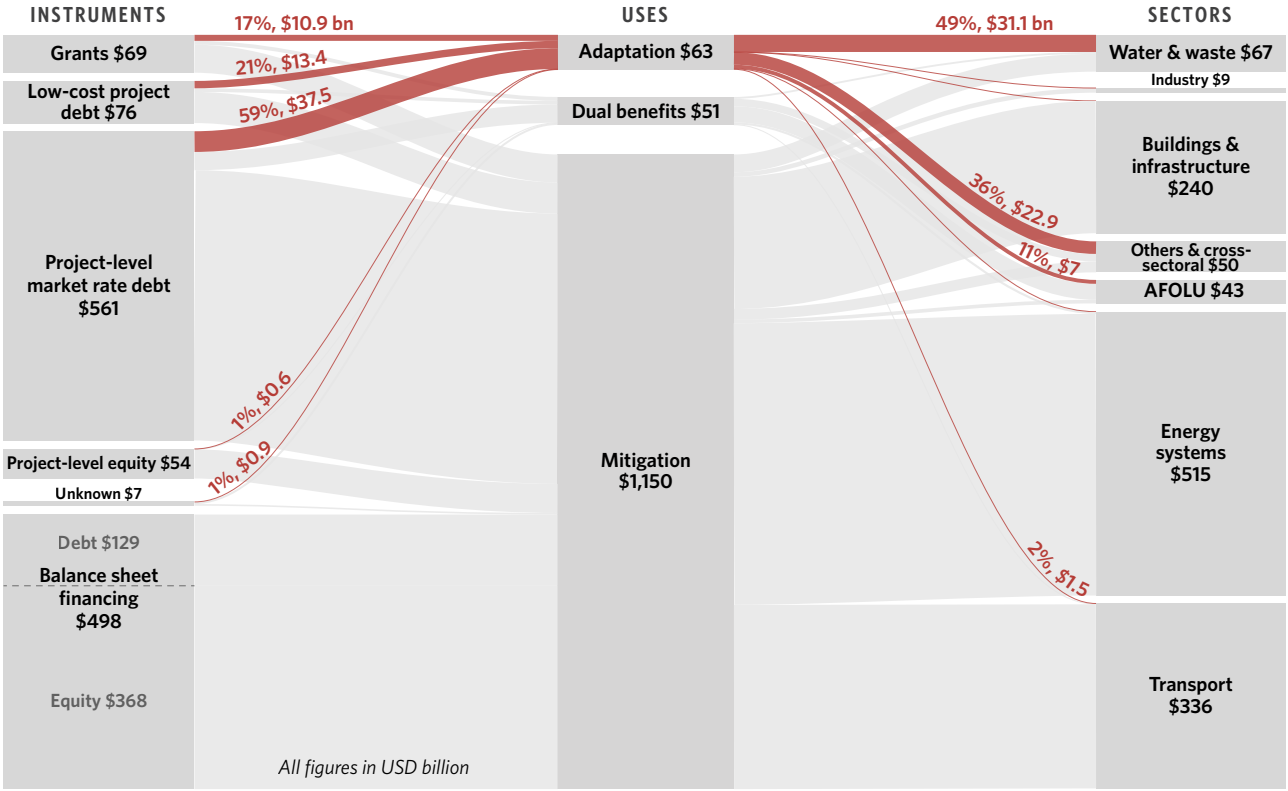
Overall, climate finance to agrifood systems[14] has been strikingly low considering its mitigation potential: it represents just 4.3% of total climate finance with an annual average of USD 28.5 billion in 2019/2020 (CPI, 2023d). Climate finance for agrifood systems must increase by at least sevenfold from current levels to reach the most conservative estimated needs for the climate transition, which is in the order of hundreds of billions of dollars annually (FOLU, 2019).

14 This includes sectors at systemic level beyond what is historically tracked as AFOLU such as food loss, waste changes in consumption patterns and low-carbon diets, livelihoods of rural populations etc. (CPI, 2023d)

3.2 ADAPTATION

Adaptation finance grew modestly in 2021/2022 reaching USD 63 billion in 2021/2022. Adaptation increased by 29% to an annual average of USD 63 billion in 2021/2022, compared to USD 49 billion in 2019/2020. This reflects a drive by public financial institutions to avoid or minimize the adverse impacts of climate change. Indeed, the Joint MDB Group doubled their collective adaptation finance on 2019 levels to USD 18 billion in 2021, four years ahead of their 2025 deadline (MDB, 2023).

Figure 13: Adaptation finance by source and instrument



Nevertheless, the global adaptation funding gap is widening. CPI analysis indicates that developing countries need USD 212 billion per year in adaptation finance up to 2030, and USD 239 billion per year between 2031 and 2050 (see Figure 15).[15] This is roughly 3.5 times higher than the USD 63 billion adaptation finance tracked in 2021/2022. CPI analysis also suggests that the adaptation needs of African countries alone will require roughly USD 52 billion per year until 2030 (CPI, 2022c).

Urgent pursuit of climate-resilient development is key to address the growing costs of climate change. Recent analysis by the World Meteorological Organization found that there is a high likelihood the world will breach the 1.5°C temperature threshold prior to 2030 (WMO, 2023). This would exacerbate multiple climate hazards, posing numerous risks to people, ecosystems, and assets. According to the IPCC (2022b), some soft limits for adaptation have already been reached globally, and hard limits for adaptation have been reached in some ecosystems. Warming exceeding 3°C could lead to macroeconomic losses of

15 These estimates are based on an extensive review of existing literature around adaptation finance needs. For more details, please see Methodology document.

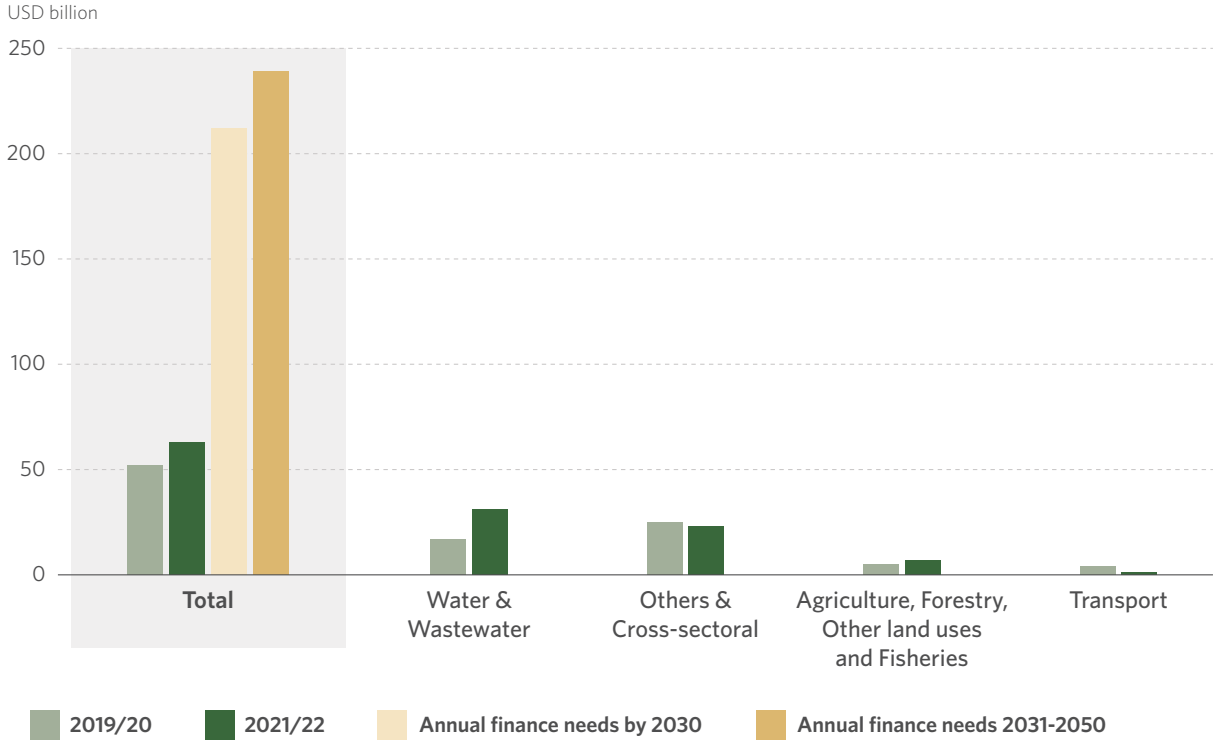
at least 18% of GDP by 2050 and 20% by 2100 (Swiss Re, 2021). With further temperature rises, losses and damages will increase, and human and natural systems will reach the limits of their ability to adapt. Some soft limits for adaptation have already been reached globally, and hard limits for adaptation have been reached in some ecosystems.[16]

Tracked adaptation finance remains dominated by public actors (98%). DFIs together provided 86% of total tracked adaptation finance (USD 54.2 billion). national DFIs were the largest source therein (USD 26.5 billion, 42%), followed by multilateral DFIs (USD 21.2 billion, 34%). However, DFIs face several challenges in scaling up adaptation finance, including aligning flows with national development priorities, building project pipelines, mobilizing private sector finance, screening projects for adaptation benefits (e.g., standardizing metrics to categorize projects as adaptation), climate-proofing investments (e.g., large-scale infrastructure projects), and tagging and tracking adaptation finance across their portfolios (IDFC, 2022).

The water and wastewater sector received almost half of tracked adaptation finance (USD 31 billion). This high share is partly due to the capital-intensive nature of large water and wastewater treatment and desalination plants, but also underscores the relevance of such infrastructure to building resilience against floods and drought. At the sub-sectoral level, adaptation finance largely went to water supply and sanitation projects (USD 15 billion), and wastewater treatment (USD 7.5 billion).

In addition, cross-sectoral solutions that are critical for adaptation, such as policy and capacity-building support and disaster risk management, received USD 3.9 billion and USD 6.7 billion, respectively. AFOLU, a high-emitting and climate-vulnerable sector with wide-ranging adaptation potential, received only USD 7 billion of adaptation finance in 2021/2022.

Figure 14: Adaptation finance by sector vs. needs



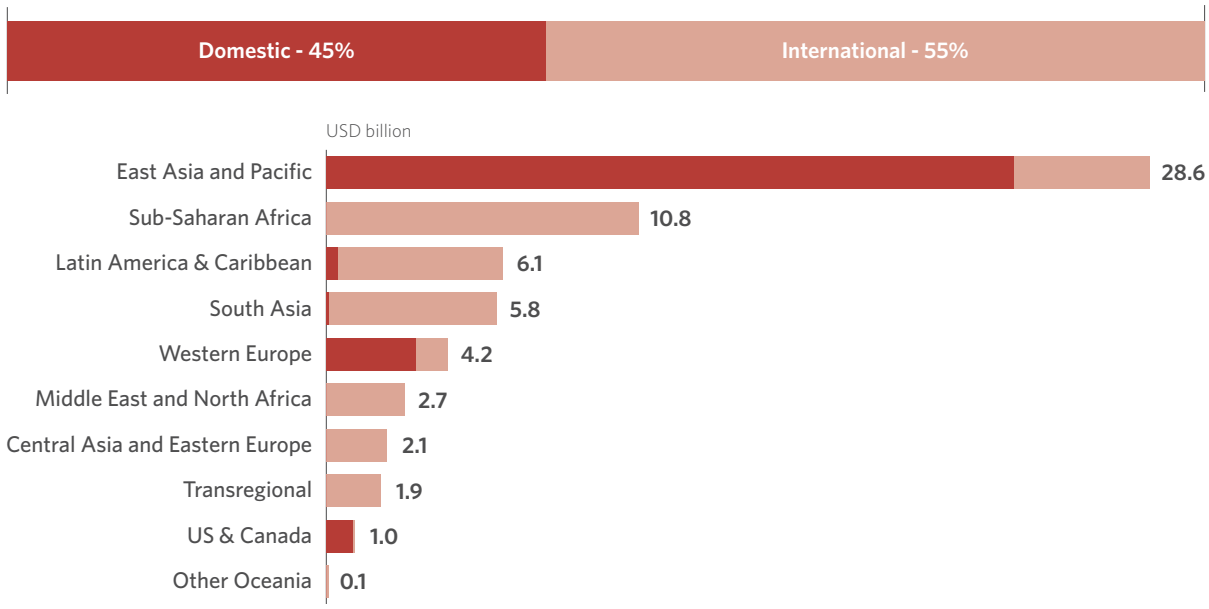
16 Adaptation limits: The point at which an actor's objectives (or system needs) cannot be secured from intolerable risks through adaptive actions. Hard adaptation limit: No adaptive actions are possible to avoid intolerable risks. Soft adaptation limit: Options may exist but are currently not available to avoid intolerable risks through adaptive action.

Monitoring adaptation finance from the private sector and local governments remains fraught with tracking challenges. These include the context-specificity of what counts as adaptation, the complexity of linking climate risks with adaptation measures, the absence of clear impact metrics, and confidentiality concerns. In addition, unlike mitigation finance, adaptation finance is usually counted as incremental or proportional to total project costs, especially by international public climate finance providers. While rigorous, this approach is often resource-intensive for private sector and domestic public actors to follow. To overcome such challenges, concerted efforts are needed across public and private sector actors to agree upon a common language for tracking adaptation finance (CPI, 2022d).

The private sector needs to step up adaptation efforts. Every dollar invested in adaptation could provide net economic benefits in the range of 2-10 dollars in the form of reduced risks, losses, increased productivity, and innovation (GCA, 2019). The business imperative to avoid climate-related losses, as well as factors such as changing consumer demand, emerging technologies and operational efficiencies are creating opportunities for the private sector to invest in adaptation (Randall et al., 2023). Improving understanding of climate impacts and risks can help to influence investment decision making, and to price climate risks into business models and associated revenue streams (IIGCC, 2022).

Sub-Saharan Africa is the largest recipient of international adaptation finance; however, an immense funding gap persists. Sub-Saharan Africa received 31% (USD 11 billion) of international adaptation finance in 2021/2022. However, analysis of African countries' collective Nationally Determined Contributions (NDCs) and National Adaptation Plans suggests that the continent needs at least USD 52 billion, or 2.5% of Africa's GDP per year, to meet its adaptation goals by 2030. International support must scale at least five-fold by 2030 (CPI, 2022c).

Figure 15: Adaptation finance by region



LDCs strike a better balance between adaptation and mitigation finance than EMDEs, but unprecedented international support is needed across both groups. A larger portion of LDCs' total climate finance was for adaptation, accounting for 38%, whereas for EMDEs, adaptation represented only 6% of their total climate finance. However, in absolute terms, the 50 LDCs, which have a collective population of more than 1 billion and contribute less than 4% of world's GHG emissions (WRI, 2023) received only USD 11 billion (18%) of total global adaptation finance. These countries will face severe impacts from climate change and require urgent financial support to implement climate-resilient development along with the necessary institutional and technical capacity and expertise (IMF, 2022b).

Analyses of the NDCs of LDCs indicate that these countries need USD 40 billion per year for adaptation between 2020 and 2030 (IIED, 2021) Considering this, LDC adaptation finance alone needs to quadruple each year. At COP26, developed countries were urged to double adaptation finance to developing countries to USD 40 billion per year by 2025. However, this would only cover the needs of LDCs alone.

Box 4: Mainstreaming climate change in domestic budget expenditure

Assessing domestic climate-related expenditure is essential to complement the picture provided by international flows, helping to prioritize action based on national context. Developing the necessary capacity and data systems for climate budget tagging can help domestic actors to monitor progress, identify gaps, and raise ambition accordingly. Increased transparency can also help to mobilize additional finance from other sources (World Bank, 2023b). This process often requires concerted efforts and coordination from various government ministries, for example, ministries of finance and environment.

Reported domestic climate finance varies widely as a percentage of countries' GDP – from less than 0.01% in Eswatini to 2% in France (see Annex II).

Domestic tracking varies in scope and period, meaning that CPI is unable to aggregate these figures to include in its tracked data for its Landscape reports.

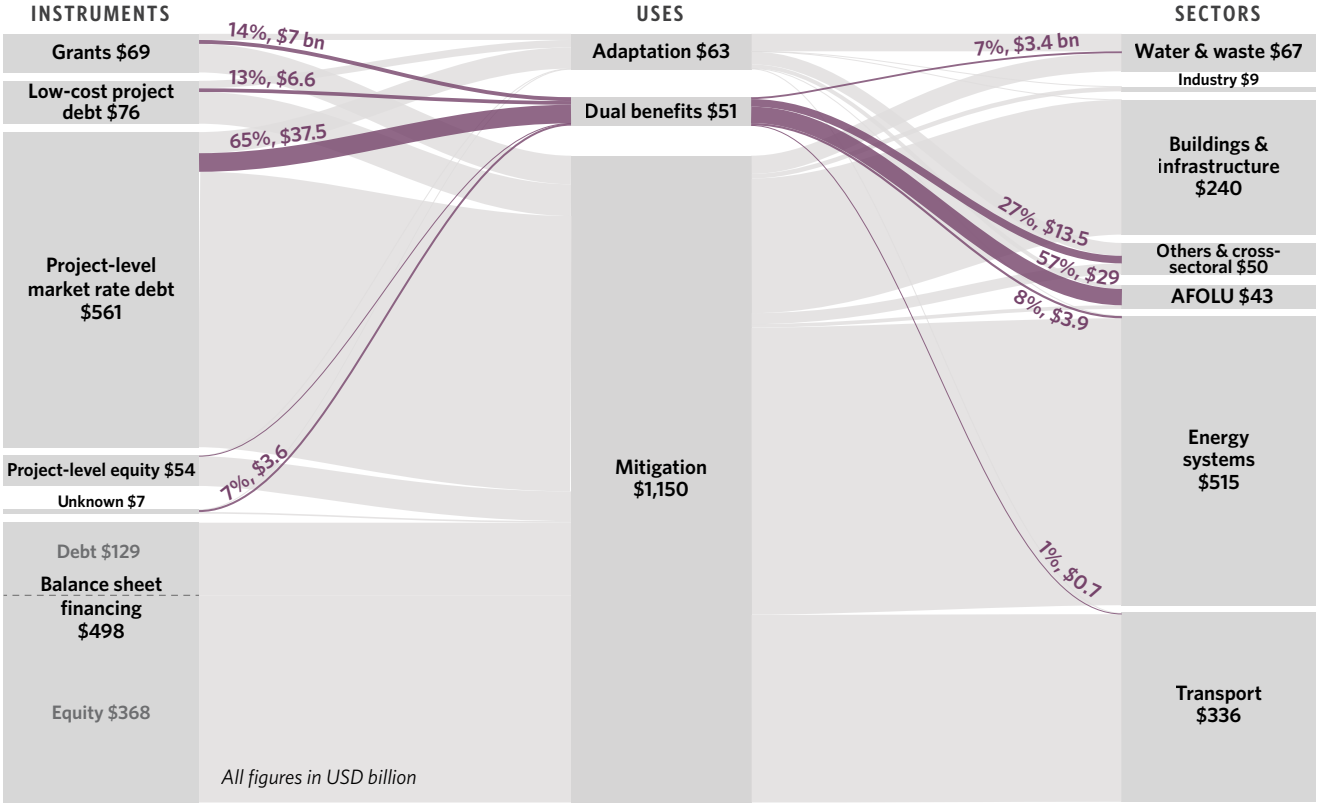
Nonetheless, assessments of domestic budget expenditure offer learnings for other countries seeking to start climate finance budget tagging. For example, some countries are "learning by doing" via small pilot exercises, prior to broadening tagging across all ministries (World Bank, 2023b). Learnings from established systems such as gender responsive budgeting, can be transferred to climate budget tagging. Finally, budget tagging exercises can be extended beyond climate to track progress on other key policy goals such as air quality, and other aspects of the UN SDGs.

Dedicated national climate finance tracking studies by independent bodies also offer valuable insights to identify key investment gaps and barriers to scaling up finance. For example, South Africa's Presidential Climate Commission will be producing regular climate finance landscapes to track progress against the country's recently agreed energy transition investment plan, and adjusting its approach as needed.

3.3 DUAL BENEFITS

Funding tagged as dual benefits – delivering both climate mitigation and adaptation benefits – reached USD 51 billion in 2021/2022, a 200% increase on USD 17 billion in 2019/2020. Governments contributed almost half of this, much of which was spent domestically, followed by multilateral DFIs (USD 8.9 billion, or 17%). This reflects public sector efforts to invest in projects that deliver both mitigation and adaptation outcomes, thereby maximizing the efficacy of limited public finance (Bhattacharya, A et al, 2022). The majority of dual-benefit finance went to the AFOLU sector (57%), with many funded projects yielding biodiversity co-benefits, for example through afforestation or reforestation.

Figure 16: Dual-benefit finance by source and instrument

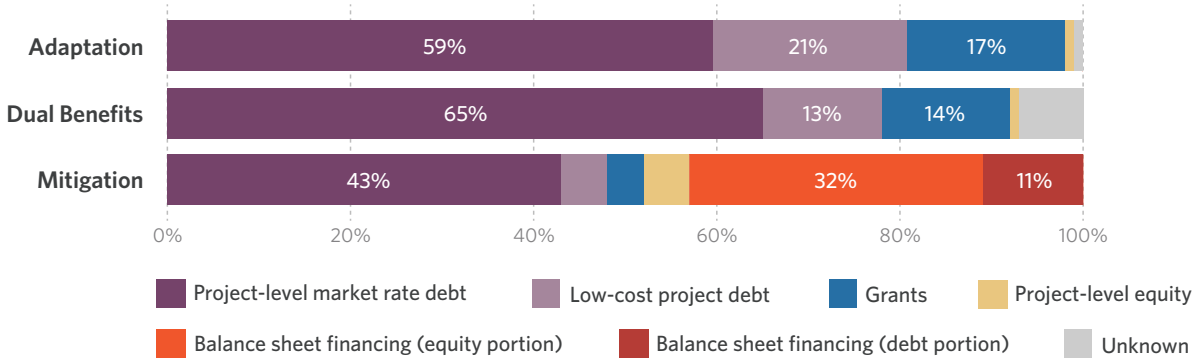


4. INSTRUMENTS

Debt was the most common financial instrument used to channel climate finance globally (USD 766 billion, or 61%) with a smaller role played by equity (USD 422 billion or 33%) and grants (USD 69 billion, or 5%). Of the total debt finance, USD 561 billion was provided at market rate, representing 53% of total tracked climate finance. Debt issued directly through balance sheets averaged USD 129 billion (10%). Concessional finance was 11% of total climate finance. Low-cost project-level debt constituted only 6% of tracked climate finance and reached USD 76 billion in 2021/2022, 96% of which came from DFIs. Grants averaged 5% of total climate finance (USD 69 billion), compared to USD 30 billion in 2019/2020.

Mitigation flows were disbursed via a broader range of financial instruments than those for adaptation, given the more diverse actors involved, with differing risk-return profiles (Figure 17).

Figure 17: Climate finance by use and instrument



4.1 MITIGATION INSTRUMENTS

The majority of mitigation finance in 2021/2022 was raised through debt, accounting for USD 676 billion (59%). USD 490 billion (73%) of this was provided as project-level market-rate debt. Debt issued for mitigation directly through balance sheets of companies totaled USD 129 billion (19% of all mitigation debt) while a smaller share (12%, or USD 56 billion) was provided as low-cost project debt.[17]

Three sectors – energy, buildings and infrastructure, and transport – received the majority of market-rate debt for mitigation. In 2021/2022, the energy sector accounted for 41% of total market-rate debt for mitigation (USD 252 billion), followed by buildings and infrastructure (28%, or USD 172 billion) and transport (23%, or USD 144 billion). In the energy sector, concessional finance (grant financing and low-cost project debt) was low as a proportion of total mitigation financing (4%), reflecting the maturity and commercialization of several renewable technologies. For the buildings and infrastructure, and transport sectors, concessional finance accounted for 19% and 13% of each respective mitigation finance total.

17 debt extended at terms more preferable to those prevailing on the market

Overall, public actors provided the majority of total mitigation debt (60%, or USD 404 billion), while private actors were responsible for 81% of total mitigation equity financing (USD 342 billion). Public actors, mainly national and multilateral DFIs, reduced their share of project-level market-rate debt for mitigation from 72% in 2019/2020 to 56% in 2021/2022, reflecting the rising share of private finance for mitigation projects, particularly for renewable energy, energy-efficient buildings, and sustainable transportation. Indeed, commercial financial institutions and corporations together provided 43% of total market-rate debt for mitigation projects.

Almost half of total market-rate debt financing for mitigation (47%, or USD 291 billion) was for projects in EMDEs. High inflation in 2021/2022 has increased the cost of capital, globally, with implications for borrowing countries investing in mitigation projects (IMF, 2022c). DFIs – whether national, bilateral, or multilateral – are therefore increasingly important given their ability to reduce the cost of capital by tackling geographical-, technology-, and project-specific risks. International DFIs can use blended finance structures to provide concessional funding that supports project preparation, deploy risk-sharing, and provide data aggregation and standardization support during the operation phases of mitigation projects in developing countries.[18]

Governments further provided USD 30 billion in grants for mitigation on annual average, USD 26 billion of which was in the form of domestic subsidies for the transport sector. The remaining USD 4 billion was channelled internationally to energy, transport and other cross-sectoral projects. Government subsidies are expected to increase following major climate-related domestic policy initiatives such as the US Inflation Reduction Act (2022), the European Green Deal (2019) and Japan's Green Growth Strategy (2020), among others.

4.2 ADAPTATION INSTRUMENTS

Market-rate debt dominates adaptation finance, amounting to USD 37.5 billion or 60% of the total in 2021/2022. National DFIs, primarily in China, were the largest source of market-rate debt for adaptation (63%), mainly funding domestic projects for water treatment plants, and water supply and sanitation systems (92%). Multilateral DFIs were the second-largest providers of market-rate debt for adaptation, mostly in the 'other and cross-sectoral projects' category (60%), as well as AFOLU (30%), and water and wastewater (15%). Only approximately 1%, or USD 500 million, of adaptation finance was in the form of (project-level) equity.

Concessional lending and grants combined constituted USD 24 billion, or 38% of tracked adaptation finance. Concessional lending amounted to USD 13 billion, while grant financing totaled USD 11 billion. The share of grants in total adaptation financing has slightly decreased from 20% in 2019/2020 to 17% in 2021/2022. DFIs together provided 93% of total concessional loans for adaptation, while governments were most prominent in grant financing for adaptation (USD 5 billion, or 49% of total adaptation grants). Half (USD 5 billion) of international adaptation grants went to Sub-Saharan Africa whereas all other regions each received less than USD 1 billion in grants. There is further opportunity to strategically scale concessional finance to remove persistent investment barriers and unlock capital at scale, particularly in EMDEs and for emerging technologies.

18 Ibid.

It is difficult to provide an accurate picture of the instruments used by private actors for funding adaptation due to a lack of standardized, accessible information. Based on available data, of the USD 1.5 billion tracked private adaptation finance in 2021/2022, 38% was debt from commercial financial institutions, followed by grants from philanthropies (30%), with the remainder funded as equity by corporations.

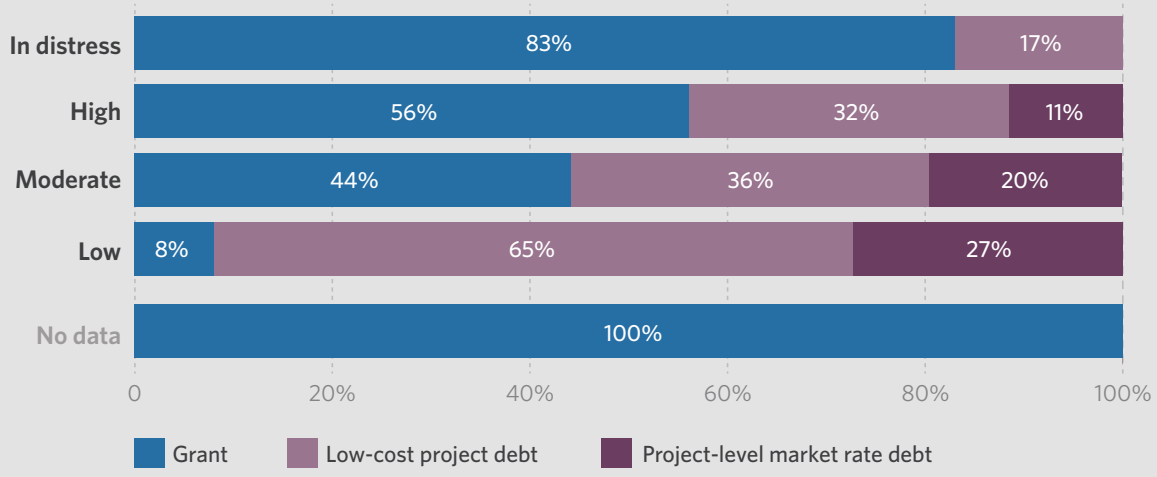
Box 5: Debt vulnerability, concessionality, and climate finance

To achieve both climate and development objectives, developing economies need investment of USD 2.4 trillion each year until 2030. Of this total, USD 1 trillion should ideally be sourced externally (Songwe et al., 2022).

However, multiple global crises have exacerbated challenges to raising the required finance and impede advancements toward climate and development goals. Studies suggest that exchange rate depreciation and high primary fiscal deficits are affecting debt burdens to a comparable extent as historical drivers like real GDP growth, and interest expenditure. In addition, G20 international debt service suspension initiatives ended in 2021, which will put heavily indebted countries under additional stress (Bretton Woods, 2022).

Our analysis shows that countries in debt distress received 17% of their international public climate finance as loans – further raising their debt burdens. As of August 2023, 29 countries had a high risk of debt distress and ten were already in it (IMF, 2023b). These countries collectively received about 6% of international public climate finance in 2021, while 11% went to countries with low and moderate debt distress. Highly distressed and in distress countries received 43% and 17% of their international public climate finance in the form of loans, respectively. In comparison, those countries at low and moderate risk of debt distress received 92% and 56% of their international public climate finance as loans, respectively (OECD, 2023).

Figure 18: Share of climate finance instrument by debt distress level (2021)



Note: The figure above disaggregates the share of international public climate finance mobilized in 2021 (particularly bilateral climate-related official development assistance) by finance instrument type (i.e., grants and loans) for each debt distress risk category. Countries captured include low-income countries for which the World Bank's Debt Sustainability Analysis had debt distress data.

5. GEOGRAPHY

5.1 DOMESTIC AND INTERNATIONAL FLOWS

In 2021/2022, a substantial majority (84%, or USD 1 trillion) of tracked climate finance was raised and spent domestically. This continues the trend observed since 2011 whereby the bulk of climate finance is derived from domestic sources. This emphasizes the importance of cultivating a domestic enabling environment with greater levels of assurance for investors. The Songwe and Stern report (2022)on scaling climate investment suggests that around half of climate finance required by emerging markets could be attracted from local sources, by strengthening public financial policies, institutions and domestic capital markets (Songwe et al., 2022).

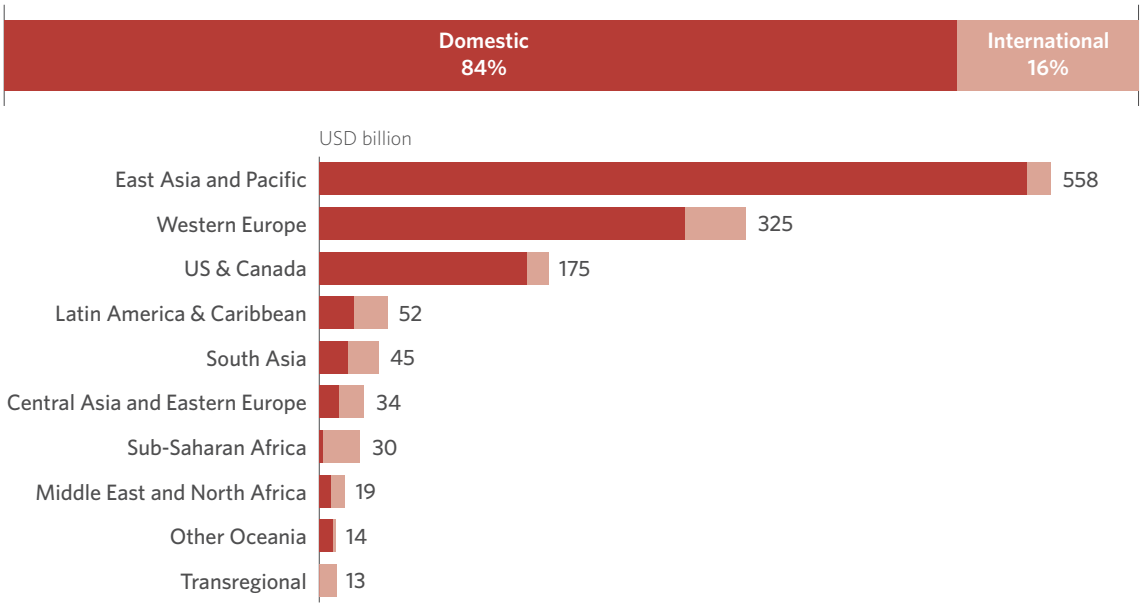
The remaining USD 203 billion was channelled internationally to fund projects across borders, 74% of which was from public actors. International finance increased by 28%, from USD 158 billion in 2019/2020, with EMDEs and LDCs together providing 14% of the total. There is growing opportunity for EMDEs to finance internationally, complementing their domestic policy with external policies that ensure climate-friendly trade and investment links with the rest of the world (World Bank, 2022).

Private investment outpaced public finance for climate projects funded domestically, accounting for 54% of total domestic finance. Domestic private investment in battery EVs constituted approximately a third of overall domestic private investment, primarily in East Asia and the Pacific. A confluence of factors such as the right enabling conditions, regulatory certainty, better standardization, skilled local financial intermediaries, and a pipeline of bankable projects need to be enhanced to further scale up private climate investments.

Domestic climate finance was heavily concentrated in East Asia and the Pacific, particularly in China, with the region accounting for 51% of total domestic flows. Western Europe followed at 26% of total domestic flows, and the US and Canada at 15%. In East Asia and the Pacific, national DFIs accounted for one-third of total domestic climate finance (USD 176 billion), whereas commercial finance institutions in Western Europe and the US and Canada played a more prominent role in total domestic climate finance (37% and 35%, respectively). Some of the most prominent policy initiatives influencing the uptick in domestic climate finance include the Inflation Reduction Act in the US, the Green Deal Industrial Plan of the EU, and the direct incentives across the EV value chain in China (IEA, 2023g).

Climate finance in Sub-Saharan Africa was dominated by international flows (92%). Several other regions – Central Asia and Eastern Europe; Latin America and the Caribbean; Middle East and North Africa; and South Asia – had a more balanced split between domestic and international climate finance flows (see Figure 19).

Figure 19: Domestic and international climate finance by destination region



5.2 LDCS AND EMDES

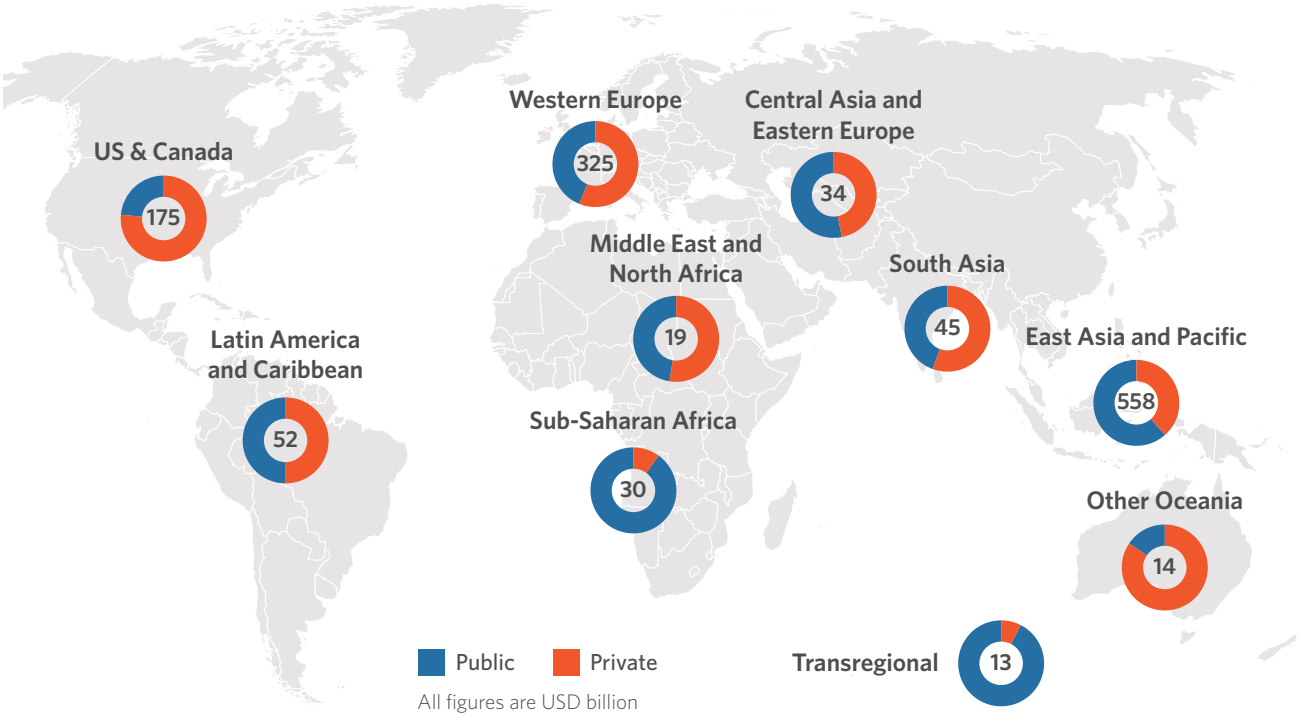
USD 30 billion, or just over 2% of global climate finance in 2021/2022, flowed to or within LDCs, while USD 179 billion, or 14% of the total, went to EMDEs excluding China. Approximately 44% of total tracked climate finance flowed to or within developed countries. The ten countries[19] most affected by climate change between 2000 and 2019 received only USD 23 billion, less than 2% of total climate finance. While not responsible for high emissions historically, EMDEs and LDCs are disproportionately vulnerable to the impacts of climate change and face substantial related funding challenges. The urgency of addressing climate change is intertwined with the multifaceted development challenges that these countries face, while high existing debt levels further constrain= their ability to finance a clean and just transition (see Box 5) (Brookings, 2023).

Balance sheet financing (equity portion) and market-rate debt are the major instruments used to channel climate finance to EMDEs, at 38% and 35% respectively, which contribute to these countries' rising debt service burdens (Songwe et al., 2022). On the other hand, climate finance to LDCs is mainly channelled through grants (42%), followed by concessional loans (28%).

Average project ticket sizes are lower than USD 100,000 in LDCs and USD 2.2 million in EMDEs, which is substantially lower than the USD 6.3 million average in developed countries. This reflects the difficulties faced by LDCs and EMDEs in securing finance for large-scale projects. Such challenges arise from these projects' relatively high risk profiles, both perceived and actual, as well as the complex funding application processes of major MCFs and DFIs (WRI, 2021).

19 According to the Long-Term Climate Risk Index, the ten countries most affected from 2000 to 2019 were Puerto Rico, Myanmar, Haiti, Philippines, Mozambique, The Bahamas, Bangladesh, Pakistan, Thailand, Nepal (2021).

Figure 20: Destination region of public and private climate finance



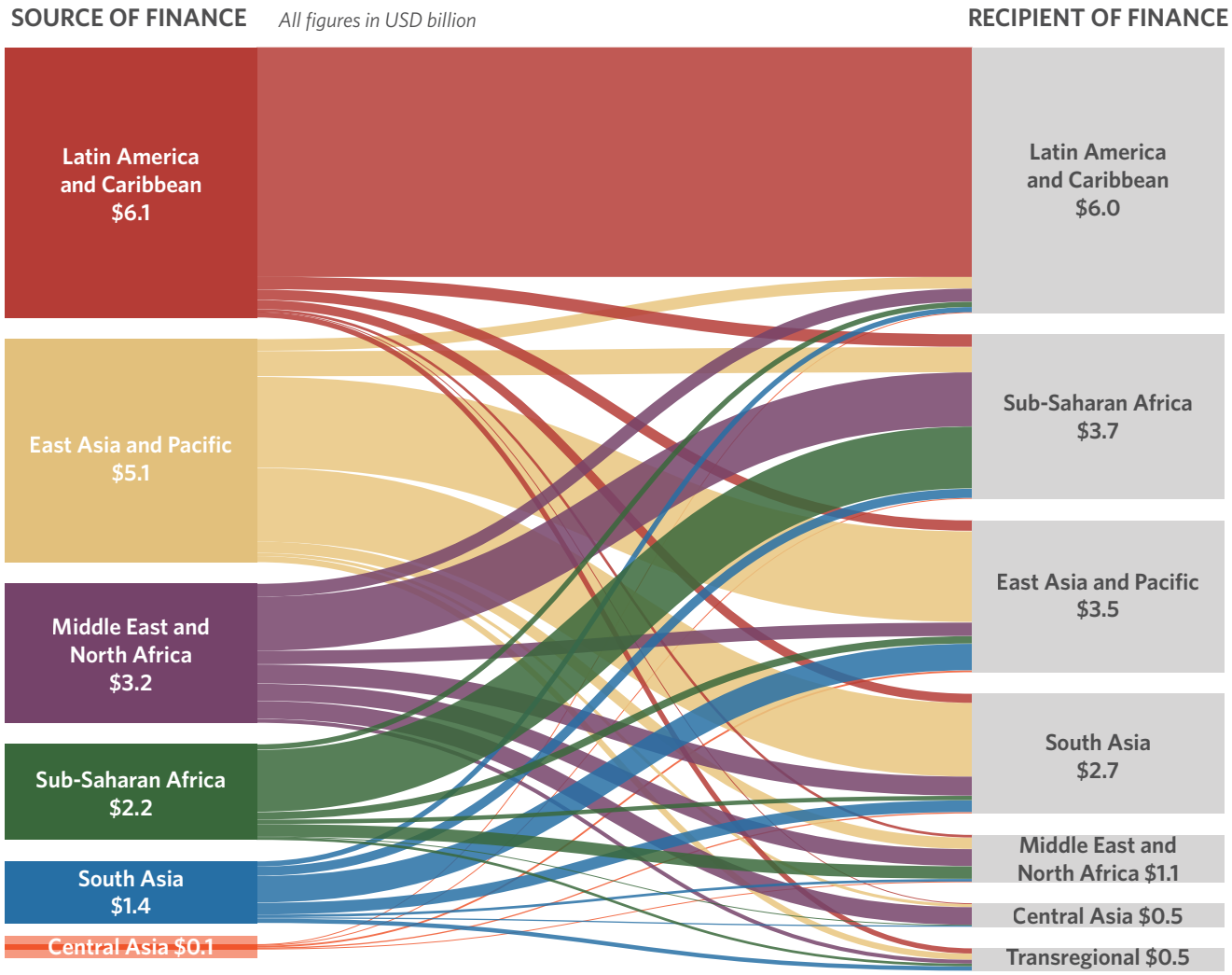
5.3 SOUTH-SOUTH FLOWS

In 2021/2022, USD 18.1 billion, under 2% of global climate finance, was committed by and for countries in the global south, 86% of which was provided by public actors. While such flows cannot substitute for North-South climate finance, there is growing recognition of the potential for South-South collaboration to tackle the climate crisis, given that these countries often share similar financial, capacity-building, and technological needs and constraints. Moreover, countries in the Global South may face similar climate risks and can therefore learn from each other to build resilience and reduce vulnerabilities as their shared climate threats escalate. As is the case with South-South collaboration in general, South-South climate finance may be built on common values, including solidarity, fairness, mutual benefit, and sovereign ownership (IsDB, 2019). This is particularly important as the current North-South development model, including climate projects therein, is generating debt distress in many low- and middle-income countries (see Box 5). Moreover, South-South climate finance can be raised and distributed regionally, where there is better understanding of the particular market context. Data on climate finance flows within the Global South remain scarce, however, especially given the lack of official data reporting and aggregation platforms for such flows.

The majority of South-South climate finance was committed by countries in Latin America and the Caribbean (USD 6.1 billion, or 34%), followed by those in East Asia and the Pacific (USD 5.1 billion, or 28%). For East Asia and the Pacific, approximately two-thirds of South-South flows remained in the region, while in Latin America and the Caribbean 86% stayed within the region. Latin American countries are particularly well-positioned for South-South partnerships on climate change, given that nine countries have part of the Amazon rainforest

within their borders and could pursue cross-border land management and knowledge exchange for mitigation and adaptation-related forestry projects (UNDP, 2021).

Figure 21: South-South Climate Finance



Note: For the purposes of this analysis, South-South climate finance is considered international finance committed to and by G77 countries (including China) for climate change mitigation and adaptation projects. This includes these countries' weighted contributions to multilateral financial institutions' climate projects, for example, the World Bank.

6. CONCLUSIONS AND RECOMMENDATIONS

Reaching an average of almost USD 1.3 trillion per annum in climate finance for the first time in 2021/2022 was a noteworthy milestone. However, this figure is modest when set in the wider global context, accounting for only about 1% of global GDP. Climate finance must increase by at least five-fold annually, as quickly as possible, to avoid the worst impacts of climate change.

Despite the significant climate investment gap and persistent barriers to filling it—including high cost of capital, real and perceived investment risks, and competing political priorities—2023 has demonstrated that action for increasing climate finance is building momentum. There are emerging opportunities for a step change towards achieving our shared climate and sustainable development goals, while also safeguarding nature.

To mobilize capital at the scale required, there is a need to increase both the quantity of climate finance and to improve its quality by focusing on using resources more efficiently and effectively. To this end, CPI proposes the following four priorities to build on emerging opportunities:

1. Transforming the financial system
2. Bridging climate and development needs
3. Mobilizing domestic capital
4. Acting to improve data

1. TRANSFORMING THE FINANCIAL SYSTEM

There are growing debates around the need for broad financial system reform that ensures financial institutions are sustainable, fit-for-purpose to address multiple crises, and able to finance global public goods. Action to harness this momentum for financial system transformation could include:

1a. Reforming international financial institutions. Such institutions are uniquely positioned to scale up climate finance. Reforms to their operating models – such that their rules, processes, and incentives are aligned with climate and development needs – will need to be prioritized to create near-term finance mobilization. MDBs and other multilateral DFIs can also focus on:

- **Creating country-sector climate finance disbursement platforms** that fund programs based on countries' developmental priorities and needs.
- **Prioritizing support for mobilizing domestic finance** to strengthen and deepen local capital markets. Through investment and technical assistance, they can engage and support capacity building with key national and sub-national capital providers.
- **Evolving their business models** through standardization of their processes; balance sheet optimization through new originate-to-distribute models; revising eligibility for concessional finance; improving cross-country risk diversification and data-sharing; and ensuring that their responses meet the needs of current crises (CPI, 2023e).

1b. Leveraging concessional finance to expand private flows. Concessional finance is crucial for managing risks and uncertainties related to emerging technologies and markets. Nevertheless, market-rate debt was the most-used climate finance instrument globally between 2011 and 2022. Grant and concessional finance, which consistently remained below 7% of total flows in 2011 to 2022, needs to increase and become more strategically coordinated.

This can be achieved through expanding institutional capacity to work with concessional finance and reforming the mandates of and metrics used by international financial institutions to allow for more, and more innovative, use of concessional finance. This includes using concessional finance more flexibly based on the type of risks faced, and reforming eligibility requirements of concessional finance providers to ensure access for sectors and regions most in need.

1c. Strengthening private financial sector net zero integrity. Private sector and voluntary coalitions, such as the Glasgow Financial Alliance for Net Zero and The Institutional Investors Group on Climate Change, are helping to drive the adoption of long-term net zero commitments and transition planning. They are supporting global-and country-level efforts for policy changes designed to mobilize private capital to support the low-carbon transition. However, these commitments are yet to clearly translate into meaningful changes in private capital flows towards climate solutions and away from harmful activities. To accelerate the transition, private investors need to:

- Set short-term targets for portfolio alignment and deliver transparent transition planning.
- Align all new investments with Paris Agreement and net zero goals, ensuring attribution is set at the activity or asset-level in the real economy, as well as at the individual entity-level, instead of solely at the ownership and portfolio levels.
- Assess the alignment of investment activity using country- and region-specific temperature pathways, and as a function of their exposure to climate risks.

2. BRIDGING CLIMATE AND DEVELOPMENT NEEDS

Climate and development goals need be treated as mutually reinforcing and integrated pathways. Achieving both entails adopting a systems approach to secure longer-term sustainability while using existing resources more effectively and efficiently. In this context, the following areas warrant more attention:

2a. Harnessing synergies between development and climate action. The climate change and development agendas are strongly interconnected. The pursuit of low-emission and climate-resilient development provides multiple opportunities to deliver co-benefits for nature, public health, energy access, energy and water security, food systems reliability, and gender equality, among others. Investors should consciously evaluate projects to harness the synergies between social, economic, and environmental goals, pricing co-benefits into project appraisals to fully capture, and subsequently monitor, the efficacy of climate finance.

2b. Mainstreaming climate adaptation and resilience into financial systems. In addition to targeted interventions to reduce the impacts of physical climate risk, such as improving sustainable building codes and establishing early warning weather systems, it is necessary to integrate and mainstream adaptation activities across all financial systems. For example,

many private actors operate in sectors with significant climate risks, such as multinational corporations in agricultural supply chains, real estate developers in coastal zones, and infrastructure investors in water systems. However, public and private financial actors often lack the strategic and technical capacity to conduct thorough climate risk assessments, price risks and to incorporate adaptive measures. Clear terminology, asset classes, and concrete typologies, with stronger consensus on what comprises finance for adaptation and resilience, and finance for loss and damage, would help to bolster the business case for adaptation and resilience finance.

2c. Phasing out unabated fossil fuel through a just transition. The data continues to reveal that fossil fuels are deeply embedded in economies and communities. Pathways for ending fossil fuel extraction and consumption must account for the impacts on all key stakeholders at all levels from national to local – this includes workers and communities, public and private employers, governments, and financial institutions. Properly structured and transparently executed financing mechanisms can enable an early and equitable retirement of fossil fuel production, while also expanding renewable energy, especially in EMDEs (CPI, 2023f).

3. MOBILIZING DOMESTIC CAPITAL

While 84% of climate finance (USD 1 trillion) was raised and spent domestically, the results vary significantly; emerging markets struggle to mobilize their private sector capital report (2022) suggests that around half of emerging markets' climate finance needs could be met by local sources if public financial policies, institutions, and markets are strengthened. To facilitate this, governments and international organizations can focus on:

3a. Aligning NDCs with 1.5°C scenarios. Current NDCs are still significantly misaligned with the Paris Agreement goals, and are predicted to lead to a global temperature rise well above 2.5°C (UNEP, 2022). Providing capacity and support to update NDCs will enable a more detailed picture of needs by sector and country, helping increase ambition, provide the much-needed policy signals, and more clearly define where investment is needed. Countries which go further to translate comprehensive NDCs into sector-by-sector investment plans will be better positioned to unlock their own domestic resources and attract competitive international financial flows.

3b. Improving the local ecosystem for climate investment. In addition to clear and ambitious policy frameworks, this can be achieved by supporting capacity building of domestic financial institutions, funding needs assessments and creating readiness assessments roadmaps, expanding project facilitation and technical support, and advancing monitoring, reporting, and verification systems. These activities will enhance collaboration between local public development banks and domestic private capital.

4. ACTING TO IMPROVE DATA

High-quality climate finance data is crucial for understanding investment gaps, building effective solutions, informing investors, and measuring collective progress. Despite advancing data efforts for more than a decade, pervasive data gaps across actors and sectors still exist.

4a. Simplifying and standardizing taxonomies and reporting. The abundance of frameworks related to climate finance creates more confusion than clarity. There are at least 30 taxonomies and 200 frameworks, standards, and guidelines on sustainability reporting and climate-related disclosures across 40 countries.

- Countries need to work on harmonizing and enhancing the interoperability of these tools to reduce reporting burdens and inconsistency of reporting for climate finance actors. The efforts of the G7 and G20 are key to building cohesion on reporting and disclosure between the major economies; while the efforts of other states help demonstrate what is possible.
- Existing initiatives such as those of the International Sustainability Standards Board, the International Platform on Sustainable Finance, the Net Zero Public Data Utility, and Network for Greening the Financial System Data Directory can be collectively leveraged to help investors standardize the climate finance reporting process. This is crucial to make decision-useful data available and to foster understanding of how and where to prioritize investment going forward.

4b. Making climate finance data widely available and accessible. Governments need to build consensus on a new, standardized, and centralized approach for tracking climate finance data. Existing efforts such as the G20 Data Gaps Initiative can be leveraged for this.

DFIs can provide greater transparency and leadership by making climate finance data and methodologies accessible for activities including assessment of climate risks and impact outcomes. For example, making the credit default data from MDB and DFI investments provided by the Global Emerging Markets (GEMS) risk database consortium publicly available would build investor understanding and strengthen the risk assessment of MDB assets, incentivizing thereby private sector financing.

Private data providers can consider where opportunities lie to harmonize and collaborate; what data to release publicly and what needs to be retained behind paywalls. Civil society organizations can go further to build partnerships, share analysis and data, to improve scrutiny across different climate finance sectors. Improvements in data collation methods and in technology will continue to create opportunities to enhance coverage.

FUTURE DEVELOPMENTS

The two-year Global Stocktake process for implementation of the Paris Agreement will conclude at COP28 in December 2023. Its findings will inform the path ahead to limit global temperature rise to 1.5°C.

The growing political momentum to reform our global financial architecture, with a focus on international finance institutions, may see them strengthen their commitments to eradicate poverty and reduce inequality, while also ensuring finance for and protection of global public goods.

Parties to the UNFCCC, and all financial actors globally, urgently need to embrace these calls for action and reach a consensus on respective responsibilities and means of implementation – including climate finance – to create practical action at the scale and speed that is required.

7. ANNEX I: DATA TABLES

Table A.1: Breakdown of global climate finance by public and private actors (USD bn)

Actors	2017	2018	2019	2020	2021	2022
Private	**266**	**280**	**303**	**333**	**565**	**685**
Commercial FIs	46	50	116	128	223	247
Corporations	165	147	118	132	182	203
Funds	6	10	8	3	5	7
Households/individuals	41	65	51	59	147	222
Institutional investors	8	8	3	5	7	5
Unknown			7	7	0.3	1
Public	**339**	**259**	**337**	**332**	**549**	**730**
Bilateral DFIs	18	26	23	25	27	38
Export credit agencies			1	1	2	2
Governments	30	35	36	31	93	106
Multilateral climate funds	3	3	4	4	4	2
Multilateral DFIs	56	58	62	75	82	104
National DFIs	174	94	160	130	209	268
Public funds	2	2	2	2	0.3	0.1
SOEs	26	23	12	13	88	133
State-owned FIs	30	18	38	52	44	77
Total	**605**	**539**	**639**	**664**	**1114**	**1415**

Table A.2: Breakdown of global climate finance for adaptation & mitigation split by public and private sources (USD bn)

Use	2019	2020	2021	2022
Private	**303**	**333**	**636**	**685**
Adaptation	0.5	2	2	2
Mitigation	301	328	629	674*
Dual benefits	1	3	5	9
Unknown			0.4	0.2
Public	**338**	**332**	**549**	**730**
Adaptation	42	55	54	70
Mitigation	282	261	453	619
Dual benefits	14	16	42	41
Unknown			0.2	0.3
Total	**640**	**665**	**1114**	**1415**

Table A.3: Breakdown of global climate finance by instruments (USD bn)

Instrument	2017	2018	2019	2020	2021	2022
Balance sheet financing (debt portion)	209	224	104	119	102	156
Balance sheet financing (equity portion)			142	170	306	431
Grants	25	30	31	29	57	80
Low-cost project debt	51	79	55	66	78	74
Project-level equity	52	38	56	46	50	58
Project-level market-rate debt	271	168	246	225	513	609
Unknown			6	10	8	6
Total	**608**	**539**	**640**	**665**	**1114**	**1415**

Table A.4: Breakdown of global climate finance by use and sector (USD bn)

Use/Sector	2017	2018	2019	2020
Adaptation	**23**	**34**	**49**	**57**
Water & Wastewater Management	8	11	16	20
Agriculture, Forestry, Other land uses and Fisheries	7	7	6	5
Disaster Risk Management	4	8		
Infrastructure, Energy, & Other Built Environment	1	3	2	1
Other / Cross-Sectoral	3	5	24	30
Industry, Manufacturing, & Trade			0.03	0.01
Transport			2	1
Information and Communications Technology			0.3	0.2
Mitigation	**575**	**493**	**582**	**590**
Renewable Energy Generation	350	322	323	346
Sustainable/Low-Carbon Transport	155	115	172	155
Energy Efficiency	36	32	46	57
Other / Cross-Sectoral	14	9	22	14
Agriculture, Forestry, Other land uses and Fisheries	13	9	8	10
Non-energy GHG reductions	1		9	5
Waste & Wastewater Management	2	3	3	4
Policy, National Budget Support & Capacity Building	1			
Transmission & Distribution Systems	3	3		

Use/Sector	2021	2022
Adaptation	**55**	**72**
Agriculture, Forestry, Other land uses and Fisheries	7	7
Buildings & Infrastructure	0.2	0.2
Energy Systems	1	0.1
Industry	0.4	0.1
Information and Communications Technology	0.1	0.2
Others & Cross-sectoral	21	25
Transport	2	1
Unknown	0.1	0.1
Water & Wastewater	23	39
Mitigation	**1008**	**1293**

Use/Sector	2021	2022
Agriculture, Forestry, Other land uses and Fisheries	6	7
Buildings & Infrastructure	224	255
Energy Systems	462	559
Industry	2	14
Information and Communications Technology	1	1
Others & Cross-sectoral	16	17
Transport	260	407
Unknown	2	2
Waste	21	20
Water & Wastewater	13	10
Dual Benefits	**51**	**50**
Agriculture, Forestry, Other land uses and Fisheries	31	27
Buildings & Infrastructure	0.1	0.1
Energy Systems	2	6
Industry	0.2	0.1
Information and Communications Technology	0.02	0.02
Others & Cross-sectoral	9	11
Transport	0.1	1
Unknown	5	2
Waste	1	0.4
Water & Wastewater	2	3
Unknown	1	0.5
Transport	0.5	0.2
Unknown	**0.1**	**0.3**
Total	**1114**	**1415**

Table A.5: Breakdown of energy system sector climate finance by sub-sector (USD bn)

Energy System Sub-sector	2019	2020	2021	2022
Fuel Production	1	1	5	2
Other/Unspecified	1	1	1	0.4
Policy & National Budget Support & Capacity Building	1	1	4	2
Power & Heat Generation	313	332	446	544
Power & Heat Transmission & Distribution	8	8	9	17
Total	**324**	**343**	**464**	**565**

Table A.6: Breakdown of transport sector climate finance by sub-sector (USD bn)

Transport Sub-sector	2019	2020	2021	2022
Aviation			0.2	0.05
Other/Unspecified	92	60	6	17
Policy & National Budget Support & Capacity Building	2		2	3
Private Road Transport	59	106	184	295
Rail & Public Transport	17	10	68	88
Transport-oriented Urban Development and Infrastructure	1	1		0.0004
Waterway			2	6
Total	**171**	**178**	**263**	**410**

Table A.7: Breakdown of buildings & infrastructure sector climate finance by sub-sector (USD bn)

Buildings & Infrastructure Sub-sector	2019	2020	2021	2022
Appliances & Lighting			0.04	0.05
Building & Infrastructure Construction Work	21	9	90	99
HVAC & Water Heaters	14	14	13	15
Other/Unspecified			122	141
Policy & National Budget Support & Capacity Building			0.1	0.1
Total	**36**	**23**	**225**	**255**

Table A.8: International & Domestic climate finance flows by OECD/Non-OECD destination (USD bn)

OECD/Non-OECD destination	2019	2020	2021	2022
Domestic	**478**	**479**	**921**	**1203**
Non-OECD	294	302	457	675
OECD	184	176	463	528
International	**145**	**161**	**193**	**212**
From Non-OECD to OECD	3	4	6	5
From Non-OECD to Other Non-OECD	19	29	17	23
From OECD to Non-OECD	78	79	93	102
From OECD to Other OECD	44	49	81	73
From Transregional to Non-OECD	1	1	1	0

Table A.9: International & Domestic climate finance flows by Developed/EMDEs/LDCs destination (USD bn)

Developed/EMDEs/LDCs destination	2021	2022
Domestic	**921**	**1203**
Developed	451	515
EMDEs	466	686
LDCs	**3**	**2**
International	194	212
From Developed to Other Developed	80	73
From Developed to EMDEs	64	77
From Developed to LDCs	20	24
From EMDEs to Developed	3	3
From EMDEs to Other EMDEs	18	22
From EMDEs to LDCs	3	5
From LDCs to EMDEs	1	1
From LDCs to Other LDCs	0.2	0.5
Unknown	**5**	**8**

Table A.10: Breakdown of global climate finance by region of destination (USD n)

Region	2017	2018	2019	2020	2021	2022
Central Asia and Eastern Europe	19	24	34	26	32	36
East Asia and Pacific	309	191	279	284	455	660
Latin America and the Caribbean	37	37	37	33	45	59
Middle East and North Africa	15	14	16	17	18	20
Other Oceania	12	10	10	8	12	15
South Asia	30	31	30	33	40	50
Sub-Saharan Africa	15	23	21	22	26	34
Transregional	10	15	13	17	14	12
US and Canada	68	93	90	74	160	190
Western Europe	96	101	110	150	312	338
Total	**608**	**539**	**640**	**665**	**1114**	**1415**

8. ANNEX II: DOMESTIC BUDGET TAGGING

Table A.11: Various national tracking initiatives differing in scope, timeline, and approach [1]

Country	Biennial Update Report	Climate Budget Tagging	Climate Public Expenditure and Institutional Review	Climate Finance Landscape	Domestic Climate Finance USD mn / % of GDP
Armenia			2019		73
Austria		2019-2020			922f
Bangladesh		2019-2020	2010-2014		228
Cambodia			2019-2020		568
Columbia			2019-2020		711
Cabo Verde		In planning			
Chile		2019-2020			365
Cote d'Ivoire				2017*	28
Eswatini		In design	2021		0.43 / 0.01%
Ethiopia		In design	2014a	2019-2020	1,700
France				2011-2021	23,812 / 2%
Ghana	2019-2020	In action			357 / 0.31%
Honduras		2019-2020			2,466
India				2019-2020	8,184
Ireland		2019-2020			2,061
Italy					1,224e
Indonesia		2019			5,775
Kenya		In action	2016	2018	2,400
Lesotho	2019-2020				37
Malawi			2019		12.5
Mauritania	2019-2020				0.3
Mauritius	2021	Pilot	2016d/2018d		55 / 0.03%
Mexico			2019-2020		4,305
Namibia		In design			
Nepal		2019-2020			4,122
Niger			In design		
Nicaragua		2019-2020			80
Nigeria		Pilot			27.41
Rwanda	2019-2020				9.59
Philippines		2019-2020			37,116
South Africa	2019-2020				203
Fiji		2019			180
South Africa	2019-2020	Pilot		2020, 2023 ongoing	203
Timor Leste			2018-2021		191
Sweden		2020			362
European Commission		2019			39,326

Notes: *1- period for which tracking was conducted a-partial; b- pending; c- unsuccessful due to consultant issues in 2018/2019; d- environment expenditure review; *The study was for the AFOLU sector, e -Air and climate share of Ecorendiconto only, f-national Ministry of finance analysis Source: Authors' compilation on a best effort basis; World Bank (2020). CABRI (2021), UNDP (2019), **Onyimadu & Uche (2021), Eswatini, France, EU, UNFCCC (2022), various CPI reports*

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