

Commentary

The adaptation finance gap can only be closed by limiting the adaptation costs

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Although adaptation finance is increasing, the latest UNEP Adaptation Gap Report shows that it does not outweigh mounting adaptation costs. More funding is required, preferably for anticipatory adaptation. Closing the adaptation finance gap simultaneously requires a maximization of efforts to limit adaptation costs through ambitious mitigation and sustainable finance policies.

Introduction

Negotiations on a collective post-2025 climate finance target will commence at the United Nations (UN) climate negotiations in November 2021, in a context of high and rising costs of planning, facilitating, and implementing climate change adaptation measures. In developing countries alone, adaptation costs are estimated at US\$140–300 billion per year by 2030,¹ approximately 8 to 18 times more than the Organisation for Economic Co-operation and Development (OECD) estimate of international support for adaptation in developing countries in 2018 (see [Figure 1](#)). Costs are estimated to rise to US\$280–500 billion in 2050.¹ The adaptation costs are higher for developed countries in absolute terms. However, the burden relative to gross domestic product is significantly higher for developing countries² that already face more constrained financial and technical capacities. For some small island developing states and least developed countries, adaptation costs can be so high that it threatens their fiscal sustainability and future development.³

The latest United Nations Environment Programme (UNEP) Adaptation Gap Report¹ shows that finance for adaptation in developing countries is increasing and that the instruments (e.g., loans and equity), actors (e.g., developed countries, foreign direct investors), and approaches (e.g., anchor investment, financial disclosure) through which adaptation finance is delivered is becoming more diverse. While the adaptation finance gap cannot easily be

quantified, it is clearly not narrowing.¹ Lives, livelihoods, ecosystems, and economies are increasingly at risk from floods, heat waves, wildfires, and other climate-related disasters. How can we close the adaptation finance gap within the next 30 years?

Adaptation beyond costs

In order to identify how to close the adaptation finance gap, it is important to first put adaptation cost estimates in context. Such estimates clearly demonstrate the scale and urgency of the need for adaptation and adaption support to politicians, journalists, and the general public, but they have important limitations. All adaptation cost estimates are subject to large uncertainties. For example, higher emissions imply higher adaptation costs. Higher economic and population growth also increase adaptation costs because they increase the assets and people at risk. In addition, sectors such as ecosystems and biodiversity are not well reflected in model-based global cost estimates in particular.¹ Adaptation cost estimates can nevertheless create the illusion that all adaptation requires is putting money on the table. Things are not that simple, for three reasons.

First, adaptation has hard and soft limits that bound the net impact that funding alone can make. According to the Intergovernmental Panel on Climate Change (IPCC), hard limits occur when adaptive actions cannot avoid impacts and risks. For example, sea-level rise

combined with increased aridity and decreased freshwater availability could leave atoll islands uninhabitable, regardless of investments in adaptation. Soft limits arise when technological and socio-economic constraints prevent immediate adaptation.⁵ Under 1.5°C warming above pre-industrial levels, soft limits could expose 24–357 million people, particularly in developing countries, to hunger, disease, and other multi-sector climate risks and potentially push them into poverty.⁶ While more finance can help to address soft limits, it cannot address all hard limits.

Second, the amount of funding for adaptation says nothing about whether and how the money could be used effectively or efficiently, and no universal metrics exist to assess outcomes of adaptation.¹ Adaptation is a process, with resilience as the outcome. Adaptation should address the drivers of vulnerability as well as climate change effects in order to avoid the risk of maladaptation. Such drivers include inequality, gender norms, and dependency on infrastructure and institutional structures.⁷ Integrating adaptation in development decisions around these issues might be more effective than simply increasing adaptation finance for more adaptation projects.

Finally, increasing adaptation costs lead to higher inequality. The richest 10% of the world's population is responsible for 52% of the cumulative carbon emissions,⁸ but the poor and vulnerable suffer most from climate impacts.

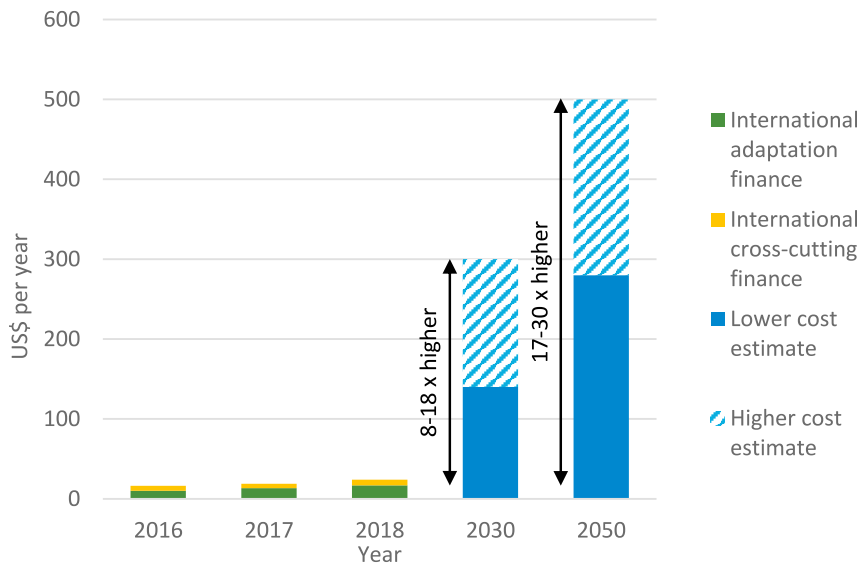


Figure 1. International adaptation finance and estimated adaptation costs in developing countries

Estimated adaptation costs for developing countries in 2030 are 8 to 18 times higher than international support provided in 2018. Cross-cutting finance addresses both mitigation and adaptation. Source of climate finance data: OECD, 2020.⁴

International support to developing countries only addresses this issue to a limited extent, and efforts to raise finance through international levies on CO₂ emissions, for example from aviation, have not reached scale. As adaptation costs rise, inequality will increase as long as there is no strong system in place to mobilize and transfer an increasing amount of finance from polluters to victims.

In order to close the adaptation finance gap, we should not only bank on more finance. Adaptation has hard and soft limits and is often not well integrated into development decisions, and increasing adaptation costs lead to increased inequality. Limiting adaptation costs is therefore key.

Finding adaptation funding

Adaptation funding comes from various sources and is increasing over time. Climate Policy Initiative (CPI) reports global annual adaptation funding at US\$30 billion for 2017–2018. The actual volume is higher since there are data gaps on public domestic climate finance as well as on private investments in land use and adaptation in particular.⁹ This section summarizes what we know about the three main sources of adaptation funding.

International support is increasing

Bilateral and multilateral support for adaptation is indispensable for developing countries. It is the source of adaptation funding

we know most about because developed countries report their mobilized finance to the United Nations Framework Convention on Climate Change and the OECD. At the UN climate negotiations in 2009, developed countries pledged to mobilize US\$100 billion per year by 2020 to support developing countries with mitigation and adaptation in a balanced way. Due to poor design of this pledge, it is nearly impossible to assess whether this target has been met.¹⁰ Bhattacharya et al.¹¹ estimate that it was missed, despite the significant increase in climate finance over the last decade. They estimate that US\$93–98 billion was mobilized in 2020 and conclude that adaptation finance remains “inadequate” with a share in total public international climate finance of 21%.¹¹

The UN climate negotiations for a new collective, quantified post-2025 goal for climate finance will take the US\$100 billion per year as the minimum, meaning international support for adaptation can be expected to increase. This is crucial from an equity perspective, but I think it can be ruled out that developed countries are willing to increase adaptation finance to cover all estimated adaptation costs in developing countries. It would also not be efficient from an economic perspective because it is in the self-interest of private sector actors to adapt.¹²

Domestic public finance will increase

There is no full overview or trend of domestic public finance for adaptation.¹ Available data are largely based on case studies in developing countries. For example, 2% of the total annual budget was found to be climate-relevant in Ghana between 2014–2017, compared with 3% in Antigua and Barbuda, 8% in Pakistan, and 31% in Nepal. The transparency and the comparability of such estimates is low. Furthermore, the remainder of the public budgets sometimes counteract the effectiveness of domestic adaptation finance when it leads to increasing emissions or increasing vulnerability.¹³

Data are also scarce in developed countries, but anecdotal evidence suggests that domestic public finance for adaptation can be substantial. For example, the Netherlands initiated a “Delta Programme” on water management with a budget of €18.6 billion for the period 2021–2034 that will to a large extent be used for adaptation.¹⁴ Translated into an annual average, this program alone would take up 0.4% of the government expenditure (2019 level).

Timing is key in order for domestic finance to narrow the adaptation finance gap. Anticipatory adaptation leads to more economic growth than either inaction or remedial action.³ However, due to high costs of early adaptation and budgetary constraints, countries are often inactive, adapt reactively, and/or rely on international support.³ The winter storm in February 2021 in Texas was probably climate induced and pointed out inaction. The storm led to dozens of casualties, many of which were linked to a power outage that could have been prevented with a relatively small investment in adaptation.¹⁵ An illustrative example of inefficient, reactive adaptation is a house in Mississippi with a value of US\$69,000 that has been rebuilt 34 times in 32 years, using US\$663,000 in federal tax dollars.¹⁶ Given that real estate worth US\$1.4 trillion is already located within 700 feet of the US coast, managed retreat may be a more cost-effective option than “resistant adaptation”¹⁶ such as seawalls. Finally, developing countries that face soft adaptation limits and that receive inadequate international support might remain too inactive or adapt reactively, causing overall costs to rise.

Ultimately, responsive governments will increase domestic adaptation finance by necessity. To narrow the adaptation finance gap effectively, such funding should be provided for anticipatory adaptation. Inaction and reactive adaptation reinforce the existing adaptation finance gap and increase developing countries' dependence on international support.

Shifting private investments

Private investments in adaptation can be witnessed all over the world and in every sector. For example, an analysis of voluntary public disclosures on physical climate change risks by 1959 companies (representing 69% of global market capitalization) demonstrated that 68% reports on implementation of adaptation actions.¹⁷ However, the extent to which this narrows the adaptation finance gap is not clear. Reporting on costs of investments is sporadic and inconsistent. Examples range from incremental costs of US\$0.012 million to model potential impacts of extreme weather event on new buildings to a US\$300 million investment in a seawater pumping system to address a mine's drought risks.¹⁷ Based on different data, CPI reports a minimal amount of US\$500 million of private adaptation finance per year for 2017–2018, noting that tracking is constrained by definitional challenges, conceptual and accounting issues, confidentiality restrictions, and a lack of universally accepted impact metrics.⁹ The data gaps imply that private adaptation finance could be much larger than current data show.

We also know little about the effectiveness of private investments in adaptation. Some investments only shift vulnerability to others. For example, a new dike around an industrial estate in Ayutthaya in Thailand increased the risk of those living in flood-prone areas just outside of the dike.¹² Private investments can also increase vulnerability when climate change is not considered. For example, property developers can make short-term financial gains from developing on vulnerable coasts, creating long-term risks for others.¹⁶

It is therefore important that investors are starting to ask companies to disclose climate change risks¹⁷ and that governments are starting to develop policies for sustainable financial systems.¹ This is a new approach to adaptation that also helps to implement Article 2.1c of the

Paris Agreement to make finance flows consistent with a pathway toward low-carbon and climate-resilient development.¹⁸ While it is too early to say anything meaningful about the results of this new approach, there are three reasons why it has the potential to increase private sector investments in adaptation and to avoid investments that lead to increased vulnerability.

First, countries are developing taxonomies and standards to identify the level of environmental sustainability of economic activities. While this is more straightforward for mitigation (e.g., comparing investments in renewable energy and coal-fired power plants), such taxonomies and standards could also help to identify and track adaptation-related finance flows. Second, regulation on climate-related financial disclosure can increase transparency on the vulnerability of investments and assets. It can make investments in assets that are vulnerable to, for instance, sea-level rise less attractive and therefore more expensive or impossible. Finally, while regulation aims at the financial sector, it will indirectly stimulate the mainstreaming of climate-related risk management by their clients in the real economy.¹

Taxonomies and disclosure regulation hold the potential to shift trillions of private investments toward low-carbon and climate-resilient development. This can narrow the adaptation gap both by limiting adaptation costs and increasing adaptation funding.

Outlook

Adaptation costs are mounting. However, ambitious mitigation can greatly reduce adaptation costs,² causing us to hit fewer hard and soft adaptation limits. It also allows for more effective and efficient adaptation. Finally, ambitious mitigation is the most equitable way forward toward the most vulnerable countries and people as it requires polluters to act, rather than victims of the climate crisis. In other words: prevention is better than cure.

Nevertheless, financing of adaptation also needs to increase faster. The UN climate negotiations on the post-2025 climate finance target in November 2021 provide an opportunity to discuss how to increase international support for adaptation. In this context, the importance of anticipatory adaptation can also be discussed, because it is more cost-effective

than inaction or reactive adaptation and in order to avoid that the climate crisis leads to unsustainable debt levels in developing countries in particular.

One more important option for anticipatory adaptation finance are the stimulus packages that countries are setting up in response to the COVID-19 pandemic. As this is mostly public finance, investments can go beyond strictly economic benefits of adaptation to include non-monetary co-benefits that increase the overall welfare of society, such as improved health, higher liveability in cities, and biodiversity conservation.

Another important option is the development of financial regulation that shifts finance flows away from activities that increase vulnerability toward activities that increase resilience, for example through taxonomies, standards, and financial disclosure regulation.

We can still close the adaptation finance gap but only if we act fast and not without simultaneously limiting adaptation costs.

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