

ADAPTATION FINANCE LANDSCAPE IN INDIA: TRENDS, CHALLENGES AND WAY FORWARD

Pracheta Acharya¹

¹Research Associate, CUTS International, Energy Vertical, India

Corresponding author: Pracheta Acharya

E-mail: pah@cuts.org

Volume: 7
Number: 2
Page: 415 - 421

Article History:

Received: 2026-01-16

Revised: 2026-02-19

Accepted: 2026-03-29

Abstract:

In the face of growing climatic threats, adaptation and mitigation strategies have secured a significant place in the global discussions. In a developing country like India, adaptation is crucial to reduce the risk of grassroots communities carrying the double burden of poverty and climatic vulnerabilities. India, the largest economy from South Asia is potential to set an example for the Global South in terms of climate change actions. However, executing the actions requires sufficient finance flow as a prerequisite condition. The commentary briefly offers an overview of the current adaptation finance scenario in India and identifies the major obstacles in mobilizing funds to the adaptation sector. India's adaptation finance is overdependent on the union budget due to a lack of availability and accessibility of the international multilateral development funds. The meager involvement of the private sector in adaptation financing in India puts further pressure on the limited investment capabilities of the government. The definitional ambiguity and the integrated nature of development and adaptation in India make it difficult to track the finances. The weak governance further compounds the issue. The resultant climate change adaptation gap provides a glimpse of this whole scenario.

Keywords: Adaptation Finance, Challenges, Commentary, India.

INTRODUCTION

The recent G20 summit has strengthened the discussion on climate mitigation and adaptation. India, in the last few decades, has come up with promising adaptation-mitigation goals and is gradually becoming a leading face from the south in the international climate summits. However, no action can be realized without securing the finances. In line with it, the adaptation finance scenario in India is worth exploring to determine whether India is ready to meet the adaptation targets.

Despite adaptation finance having increased by 27 percent over 2018-2020 in India, the persisting adaptation finance gap raises a great concern. The adaptation finance gap is the difference between estimated adaptation financing needs and the available fund flows. The total adaptation finance required and the cost of adaptation estimated for 2020 were USD \$4 trillion and USD \$349 billion, respectively, but the amount invested was USD \$5 billion (Khanna et al., 2022; Srinivasan et al., 2023), implying an inadequate adaptation financing. One of the reasons behind this is the limited availability and inconsistency of adaptation funds from international and multilateral sources (Bose et al., 2012; KM & KJ, 2023).

Building resilience in agriculture, fishing, and other vulnerable sectors is a tough task to accomplish with the failure of developed countries to deliver the promised bilateral finance and imposition of a finance cap of USD\$10 million per country by the Green Climate Fund (GCF) (Prasad & Sud, 2019). Moreover, the structural complexities associated with the GCF have reduced its accessibility (Prasad & Sud, 2019; KM & KJ, 2023). This commentary piece aims to highlight some of the key challenges in addressing this gap and mobilizing adaptation finance in India.



Key features of India’s adaptation finance landscape: More funds from domestic sources than international. Most of the internationally funded adaptation projects have been small (Mandal, 2019). The domestic budget allocated for adaptation in the 2019-2020 period was INR ₹34,836 crores, constituting 94 percent of the total adaptation finance, while from the international sector, the investment comprised only 6 percent, including INR ₹59 crores from the bilateral channels, INR ₹2,011 crores from the multilateral channels and INR ₹17 crores from the philanthropic funds. However, the contribution of state governments to the total domestic adaptation financing is very low. They are largely dependent on union budgets and compete with each other to access the National Adaptation Funds for Climate Change, implying a ‘competitive federalism’ (Prasad & Sud, 2019).

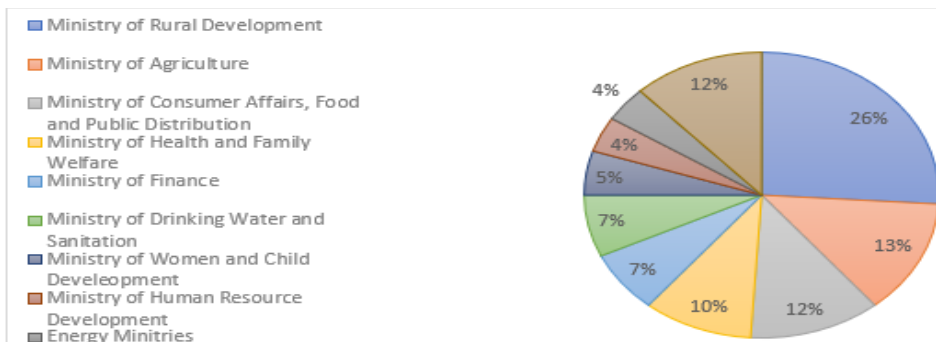
Table 1. Adaptation Spending by the Central Government in India

Year	Spending as a percentage of GDP
2000-01	1.45
2009-10	2.82
2015-16	3.70
2021-22	5.60

Sources: Garg et al. (2015), The Indian Express (2023).

Data (Table 1) highlights steady growth in the adaptation spending by the central government as a percentage of Gross Domestic Product (GDP). It has also been found that spending on development and adaptation has been increasing at a higher rate than the overall annual budget growth (Garg et al., 2015).

Integrated Development and Adaptation Finance. The adaptation component is mostly implied within the development plans. For example, the Ministry of Agriculture is allocated a part of the union budget to invest in agriculture with the aim of climate-resilient and sustainable agricultural development in India. Compared to mitigation, adaptation has few standalone funds, primarily philanthropic. Adaptation, being offered as a public good, is justified on three grounds: (a) if adaptation financing is left to the market, investment may suffer from undersupply (Allan et al., 2019), (b) the interconnectedness ensures better accountability on the government's end, and (c) the integration makes adaptation financing less costly for the government. Ministry of Rural Development, Ministry of Agriculture, and Ministry of Consumer Affairs are India's three most important channels of joint development-adaptation financing (Figure 1). However, questions about developmental goals aligning with the adaptation agenda remain unanswered.



Source: Estimated by Garg et al. (2015)

Figure 1. Ministry-Wise Distribution of Public Expenditure on Climate Change Adaptation Activities by the Central Government



This open-access article is distributed under a Creative Commons Attribution (CC-BY-NC) 4.0 license

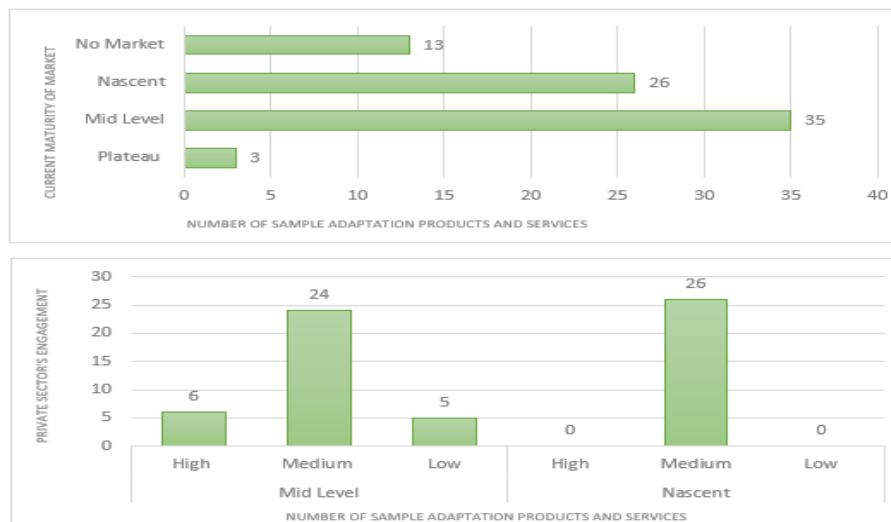
Fragmented Private Capital Base for Adaptation Finance. It is difficult to mobilize private investment in the adaptation because private players find profit-generation scope more explicit in mitigation projects. Less than 0.1 percent of the finance in adaptation comes from the private sector compared to 53 percent of total finance from the private sector in the mitigation (Gogoi et al., 2023). Some of the private players’ involvement in agri-services, such as the dissemination of information on weather and the agricultural market, tells us about the scope of the private sector in adaptation in India, as listed in Table 2.

Table 2. Private Sector’s Engagement in Agri-services in India

Agriculture Initiative	Private Sector’s Engagement
Nokia Life Services	Information on agriculture and allied sectors, weather, and markets.
Behtar Jindagi	Advisories on agriculture and allied sectors, weather, and markets.
Mkrishi	Information on agriculture and allied sectors, weather, and markets.
Avaaj Otalo	Advisories on agriculture and allied sectors, weather, and markets.

Source: Srinivasan et al. (2023).

However, the market is very small at present and needs to be expanded with the help of government intervention. As evident from Figure 2, the adaptation market is found mainly at the mid-level and nascent stages, within which the private sector is confined to low and medium levels of engagement.



Source: Prepared by authors based on the data from Gogoi et al. (2023).

Figure 2. Current Level of Maturity of the Adaptation Market for the Private Player

METHODS

Challenges in the adaptation of finance in India. Adaptation finance in India faces several institutional, governance, and policy challenges with both international and domestic financing, resulting in an inefficient trickling down of finance to the grassroots level, improper estimation, and ineffective adaptation or even maladaptation.

Definitional ambiguity and issues in tracking adaptation finance. Adaptation in India lacks clear definitional boundaries. No concrete list of adaptation activities is identified, resulting in an overlapping of projects and ambiguity, making finance tracking difficult. The integrated nature of



This open-access article is distributed under a Creative Commons Attribution (CC-BY-NC) 4.0 license

development and adaptation finance magnifies the tracking and monitoring issue (Srinivasan et al., 2023), which in turn hampers proper estimation and quantification of cost and investment benefits that are fundamental to private capital and global funds in the adaptation domain. The absence of formal monitoring of the adaptation finance further leads to poor project implementation, discouraging future funding.

Weak governance. A lack of clarity in the policies and an inadequate regulatory framework, coupled with the absence of coordination among different ministries, make finance accessibility difficult for the communities. As the administrative procedures are not clear and ministries do not intend to work collectively ('Silo Culture'), there is often a delay in the approval and disbursement of funds. The situation worsens due to a lack of proper institutional leadership. Climate change issues are considered to be the matters of the Ministry of Environment, Forest and Climate Change (MoEFCC), but the bulk adaptation financing does not come through the Environment Ministry but through the Agriculture and Infrastructure ministries, leading to a mismatch in the potential leadership. Moreover, the notion of the environment also leads to an insufficient engagement of the Ministry of Finance and Planning, which is at the forefront of budget allocation (Allan et al., 2019).

Lack of capacity and training. A noteworthy issue with international finance in the adaptation is the lack of community focus. The financed projects often fail to reflect local needs. The major underlying reason is a lack of technical capacity of the grassroots stakeholders to develop high-standard proposals and tap global funds (Doshi & Garschagen, 2020; KM & KJ, 2023). Local governments are not well-versed in the complexities of adaptation finance. The institutional barriers already make the finance mechanism complex, and the lack of local capacity and overly set project standards make the whole financing process more cumbersome at the grassroots level. NABARD, as a central nodal agency, has made global funds accessible in Indian agriculture, but other adaptation-specific activities of local immediate interest fail to grab the attention of international agencies and are sidelined. Inadequate access to empirical data for vulnerability assessment and future projections is a double constraint on quality project development, given the skills inadequacy.

Time-bound external assistance. India's reliance on a domestic budget stems from the inadequacy of external public and private assistance, including a time-bound project framework. Adaptation is a long-term resilience-building process against climate change. However, external agencies provide financial assistance for a time-specific project (Sharma et al., 2015), which often fails to meet local adaptation requirements sustainably and results in insufficient adaptation. In addition to the time rigidity, financial cap, inconsistent flows, and complexities of both bilateral and multilateral investments, these dampen India's adaptation finance.

Obstacles in mobilizing private finance. Alongside the uncertainties generated out of definitional and monitoring issues and suitable technical capacity to develop investment-worthy project proposals, suboptimal structural arrangements of private finance in India, and incomplete information on both the consumer and investors' sides pose grave challenges to the private adaptation financing. Private players are not fully aware of the potential business scope in adaptation. Even when aware, they cannot make an informed decision due to the lack of data on the demand side. For instance, while offering a new agricultural practice, private investors may face a fragmented consumer base as the farmers are unaware of the scale of the risk in the current farming practices and the potential benefits from the new adaptation practice. There are specific policy barriers as well that particularly arise in the market where the government is currently offering adaptation solutions, and private players rely on government contracts (Gogoi et al., 2023). The lack of coordination of the ministries, delays in contracts, and inefficient monitoring of funds in Public Private Partnership models discourage the private sector's expansion in adaptation.

RESULT AND DISCUSSION

The decision of global financing for an adaptation project goes beyond the vulnerability of the country and relies more on the suitability of the institutional arrangements of the country for absorbing the funds (Doshi & Garschagen, 2020). Therefore, India needs better coordination and collaborative efforts from different departments and active leadership of the Ministry of Finance in adaptation financing. An autonomous government body similar to the National Adaptation Funds for Climate Change can be set up to review and monitor the adaptation governance in India based on suitable parameters. The body can also be vested with the responsibility of formally tracking the finances and maintaining a database. The scope of work can be extended to preparing and managing an empirical database for informed adaptation financing for the private players to mobilize private capital.

The Union budget alone is unable to narrow down the adaptation finance gap, implying an immediate need for private investment. There should be efforts and suitable policies on the government's end for channelizing private funds. The private sector's primary concern is the risk associated with any adaptation project. Public finance should intervene in the primary risk area to incentivize private investment. Consequential risk constitutes the trickiest part, as the ultimate consequence of any project remains unexpected during implementation. This risk can be dealt with by sovereign or public resources, such as insurance and weather derivatives (Bose et al., 2012). Insurance is suitable for less probable and high-risk events, such as crop failure due to natural disasters, and weather derivatives undertake the highly probable and low-risk events, such as low crop yields due to drier summers.

While promoting the private sector's involvement through de-risking mechanisms and risk rewards such as incentives and subsidies, some precautionary measures are required. The revenue generation tendency of private capital may result in an inappropriate selection of adaptation projects. To address this, the government must prepare suitable guidelines for private financing in adaptation to ensure some community components. Moreover, developing countries have become a new marketplace for philanthropic funds ('Philanthropic Capitalism'), leading to a new form of dependency on the developed world (Chu, 2018). Enabling local governments and engaging civil society organizations (CSOs) through capacity-building programs and training is essential for grassroots stakeholders to deal with the complexities of adaptation finance, make global finance accessible, and facilitate a fair power balance.

To unlock the full potential of private capital in adaptation, awareness about the business opportunities in the adaptation domain and better access to technical support for the business players to bear the risk and grow are essential. Along with private capital, the government also needs to recognize the potential role of Corporate Social Responsibility (CSR) funds in adaptation financing. Currently, only 5-8 percent of the CSR fund is dedicated to environmental sustainability (Srinivasan et al., 2023), which requires more attention to improve the share.

CONCLUSION

Historically, India's adaptation finance has remained dominated by the domestic budgets, which alone are not sufficient to bridge the ever-widening finance gap. Global bilateral and multilateral funds are inclined more towards the mitigation sector, implying a financial barrier in the adaptation embedded in several institutional, technical, and policy-level issues.

India needs more global and private funds to bridge the adaptation finance gap through the changes in institutional and policy arrangements that will improve the country's finance absorption



capacity. The De-risking mechanism, co-operation of ministries, empirical database generation, and formal tracking mechanism of adaptation finance are core aspects. However, promoting an investment-conducive environment and more funds is not the ultimate goal; equitable access to the available funds is of greater concern.

Adaptation is critical to reducing the vulnerability exposure of local communities that bear the brunt of climate change the most. Unfortunately, India's current adaptation finance situation exhibits poor accessibility and community focus. Funds often do not reach the areas most exposed to the climatic risk. A lack of technical skills, good governance, and suitable policies is largely responsible for this. Community inclusion must be set as an immediate goal, currently absent in the G20 declaration. It talks highly about the public-private partnership and blended finance, but mentions nothing about community access. To effectively channelize external investment to the grassroots level, capacity building, local resilience centers, and active involvement of CSOs need policy focus.

India's promising adaptation goals on international platforms and adaptation financing trends are not coherent. The challenges identified point to the poorly performing adaptation financing in India. The government needs strong political zeal and strategic interventions to move towards more robust adaptation financing.

REFERENCES

- Allan, S., Bahadur, A. V., Venkatramani, S., & Soundarajan, V. (2019). The role of domestic budgets in financing climate change adaptation. Rotterdam and Washington, DC: Global Commission on Adaptation. <https://gca.org/reports/the-role-of-domestic-budgets-in-financing-climate-change-adaptation/>
- Bose, A., Wolf, J., & Sharma, S. (2012). The future of adaptation finance: Methods and perspectives. *International Journal of Regulation and Governance*, 12(2), 145-172.
- Chu, E. K. (2018). Transnational support for urban climate adaptation: Emerging forms of agency and dependency. *Global Environmental Politics*, 18(3), 25-46.
- Doshi, D., & Garschagen, M. (2020). Understanding adaptation finance allocation: Which factors enable or constrain vulnerable countries from accessing funding? *Sustainability*, 12(10), 4308.
- Garg, A., Mishra, V., & Dholakia, H.H. (2015). Climate Change and India Adaptation Gap 2015: A Preliminary Assessment. CEEW. <https://www.ceew.in/publications/climate-change-and-india-adaptation-gap>.
- Gogoi, E., Roy, R. D., & Krishnan, A. (2023, November). Mobilizing Private Investment for Adaptation to Climate Change in India [Working Paper]. Oxford Policy Management. <https://www.opml.co.uk/files/Publications/a4335-GGEF-TCF/private-sector-investment-in-adaptation-final-1-.pdf?noredirect=1>
- Khanna, N., Purkayastha, D., & Jain, S. (2022). Landscape of Green Finance in India: India's green investment flows in FY 2019-20. Climate Policy Initiative. <https://www.climatepolicyinitiative.org/wp-content/uploads/2022/08/Landscape-of-Green-Finance-in-India-2022-Full-Report.pdf>
- KM, D. S., & KJ, T. R. (2023). India in the landscape of Climate Finance: Prospects and Challenges. *EPRA International Journal of Climate and Resource Economic Review*, 11(5), 1-4.
- Mandal, K.K. (2019). Climate Finance. In Dubash, N.K. (Eds.), *India in a Warming World* (pp. 381-392). Oxford University Press.



- Prasad, R. S., & Sud, R. (2019). Implementing climate change adaptation: lessons from India's national adaptation fund on climate change (NAFCC). *Climate policy*, 19(3), 354-366.
- Sharma, A., Müller, B., & Roy, P. (2015). Consolidation and devolution of national climate finance: The Case of India. European Capacity Building Initiative. <https://ecbi.org/news/consolidation-and-devolution-national-climate-finance-case-india>
- Sinha, A. (2023, December 10). Spending on adaptation to climate change 5.6% of GDP, India puts on record. The Indian Express. <https://indianexpress.com/article/world/climate-change/spending-on-adaptation-to-climate-change-india-gdp-india-9061626/>
- Srinivasan, M., Ghoge, K., Haldar, S., Bazaz, A. B., & Revi, A. (2023). Climate finance in India 2023. Indian Institute for Human Settlements. <https://doi.org/10.24943/CFI11.2023>