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DISCUSSION PAPER

ENHANCING THE EFFECTIVENESS OF BLENDED FINANCE FOR CLIMATE ACTION IN INDIA

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1. Background

The mobilisation of private finance in addressing climate action has emerged as a critical area of focus within both international and national climate finance discussions. As the scale and urgency of investments related to climate action are increasing, it is recognised that public finance alone will be insufficient to meet the financial requirements associated with both mitigation and adaptation actions. At the global level, climate finance trends highlight a persistent shortfall in investment relative to need. Annual global climate finance requires atleast USD 6.3 trillion from 2023 through to 2030 and USD 9.2 trillion/year from 2031-2050, to avoid the impacts of climate change (CPI, 2025). In 2021–2022, private finance constituted only 49% of total global climate finance flows. In the Asia-Pacific region, private actors contributed merely 32% of the region's total during 2018–2019. Moreover, climate finance remains heavily skewed towards mitigation, particularly in the energy (44%) and transport (29%) sectors, with adaptation finance significantly lagging. Adaptation investments rose by 28% between 2019 and 2022 but still amounted to only USD 63 billion in 2021–2022, with 98% of that amount mobilised by the public sector (CPI, 2023).

India reflects many of these global patterns. The country's first Nationally Determined Contribution (NDC) projected a requirement of approximately USD 2.5 trillion between 2015 and 2030—equivalent to roughly USD 170 billion per annum—to meet its climate goals (DEA, 2020). More recent estimates suggest that investments in clean energy alone will need to range from USD 253–263 billion annually between 2026 and 2030, rising to USD 325–355 billion per annum between 2031 and 2035 (IEA, 2023). The current investment levels remain inadequate, the annual average investments of between 2021–2022, for clean energy amounted only to USD 23.8 billion, which only represents around 9 % of what is required for clean energy investments between 2026-2028. A significant proportion of India's climate finance continues to be directed towards mitigation activities, particularly in the renewable energy sector, with adaptation accounting for just 10% of total flows (CPI, 2024).

The limited availability of public and concessional finance further underscores the need for greater mobilisation of private capital. In this context, blended finance emerges as a potentially transformative mechanism. Blended finance[1] defined as the strategic use of public or concessional finance to attract additional private investment has consequently gained prominence as a viable mechanism to bridge the financing gap. It is designed for de-risking of investments in the geographies or the sectors which are otherwise unattractive to the private investors, thereby leveraging limited public funds to catalyse greater flows of private capital. While expectations around blended finance are high, its potential in specific contexts is not yet fully understood or appreciated as its efficacy depends not only on the design of blending instruments but also on the presence of clear, stable, and supportive regulatory and policy frameworks.

In India, the ecosystem of blended finance for climate-related investments is in its early stages. The regulatory reforms have been evolving to meet the increase the climate-related investments, with initiatives aimed at enhancing the ease of doing business. SEBI, for instance, has allowed Category I and II Alternative Investment Funds (AIFs) to offer co-investment opportunities directly within the fund structure. Additionally, RBI has broadened co-lending framework with Non-Banking Financial Companies (NBFCs) to engage in co-lending across all loan categories and India's Climate Finance taxonomy will enhance standardization and transparency for climate-related investments. Earlier policy efforts, such as establishment of Climate Change Finance Unit within the Ministry of Finance in 2011 and SEBI's issuance of green bonds disclosure guidelines in 2017, underscore growing institutional commitments to climate finance.

1 Globally, there is no universally accepted definition of blended finance. The OECD defines it as "the strategic use of development finance to attract additional funds for the SDGs in developing countries" (OECD, 2018). The DFI Working Group describes blended finance as "the combination of concessional finance with DFIs' own resources and/or commercial finance to promote private sector development, SDGs, and the mobilization of private capital" (DIF, 2023). Similarly, the Blended Finance Taskforce, which prioritizes the SDGs, defines it as "the strategic use of public or philanthropic development capital to mobilize additional private commercial finance for SDG-related investments" (BTF, 2018).

Moreover, the inclusion of renewable energy projects under RBIs priority sector lending enhance the private sector investments in the climate-related actions.

Despite the increased attention to mobilizing private finance through blending instruments several regulatory and institutional challenges persist. These include lack of a dedicated regulatory and legal framework for blended finance, ambiguity in risk sharing and return structures, restrictions on public and banking sector participation, lack of tailored tax incentives for investors and underdeveloped credit enhancement ecosystem. Moreover, limited institutional coordination between key financial and regulatory bodies such as Securities and Exchange Board of India (SEBI), Reserve Bank of India (RBI), Ministry of Finance and sector specific ministries challenges the effectiveness of blended finance ecosystem.

While the focus on **financial instruments** has been central to discussions on structuring blended finance, this paper argues that it is equally important to consider the role of **policy and regulatory frameworks** in enhancing the effectiveness of public or grant finance. Beyond financial innovation, aligning supportive policies and clear regulatory frameworks can create an environment that enables the attraction of private capital on a large scale. For instance, a well-defined green taxonomy, streamlined taxation rules, and government-backed guarantees can reduce uncertainties and risks for private investors, making investments in emerging sectors more attractive (IFC, 2023). By combining financial tools with regulatory reforms, the potential for blended finance to catalyze private investment—particularly for climate action and sustainable development—can be significantly enhanced. This paper explores how combining financial and policy/regulatory instruments can achieve a greater impact, thereby creating a more comprehensive approach to leveraging private capital in support of global development goals.

2. Landscape of Blended Finance

Globally, since 2015, the blended finance capital is observed to be averaging at USD 9 billion annually, with Development Financial Institutions (DFIs) and Multilateral Development Banks (MDBs) being the largest investors (Convergence, The State of Blended Finance 2021, 2021). DFIs play an important role in the operationalising blended finance. DFIs and MDBs operationalizing blended finance by deploying concessional capital to crowd in private investments, especially in sectors and regions considered high-risk. In 2021, DFIs through the support of blended concessional finance, mobilised a total volume of $13.4 billion towards long term project (DIF, 2023)s. About $1.9 billion of these were DFI financed concessional funds, and their own-account investments were almost $5.3 billion. Finance mobilised through private sector was merely about $4.6 billion (DIF, 2023).

The effectiveness of blended finance in mobilising private investment varies across income groups and geographies, it is observed that the ability of public finance to mobilize private finance is low, especially in LICs and LMICs. According to the estimates by ODI, $1 of public capital mobilizes just $0.37 of private investment in Low-Income Countries (LICs), $1.06 in Lower-Middle-Income Countries (LMICs), and $0.65 in Upper-Middle-Income Countries (UMICs (ODI, 2019)). At global level, for MDBs/ DFIs global average of the leverage ratio widely varies between 1:0.14 and 1:1.3 (ODI, 2019). Specifically, Lower-Middle-Income Countries (LMICs) saw a significant rise in mobilized private capital, increasing from $1.8 billion in 2020 to $3.1 billion in 2021 (DIF, 2023). However, the rate at which the private finance is mobilised is significantly low in the LMICs.

Though blended finance market in India is still evolving, the India blended finance market stood at USD 1.30 billion in 2022 and is projected to reach USD 2.64 billion by 2027 (Impact, 2023). Between 2010 and 2022, estimates suggest that India's blended finance market has achieved a leverage ratio of 5.06x with a cumulative market size of USD 5.06 billion (Impact, 2023). In one out of every two closed blended finance transaction in India involves guarantees, which form 40% of the market. In matured sectors, concessional and subordinated debt is gaining prominence as preferred tools of de-risking investments. Notably, concessional and subordinated capital transactions reported the highest leverage, exceeding 5-6x. Guarantees and risk insurance transactions saw leverage ratios ranging from 2.5x to 3x. Whereas, results based financing have delivered a leverage of approximately 2.2x. During 2010-2022, guarantees were the most frequently used instruments for climate-related initiatives (Impact, 2023). Yet, depite India's relatively high leverage ratio, the share of investments by volume in India remains limited, and average transaction size is much lower than the global average (Impact, 2023).

3. Blended Finance Ecosystem

For effective functioning of the blended finance market, the ecosystem requires coordination among its key actors. The ecosystem comprises of three key agents: investors, intermediaries, and project proponents. The functionality and effectiveness of these agents is influenced by the regulatory environment, institutional capacity, and the maturity of market. (See Figure below).

The three agents in the ecosystem play distinct roles as follows:

1. **Investors:** They ensure the effective availability of capital for projects which require large-scale and long-term capital. In India, the major investments have been led by NBFCs and banks ((From 2010-2022, NBFC and banks accounted for 43 % of 180 transactions), while the participation by domestic capital and CSR capital has been negligible (Impact, 2023). Whereas DFIs and MBDs accounted for 29 % of 180 transactions during this period (Impact, 2023). Further a limited participation was seen from the international and domestic philanthropic institutions.
2. **Intermediaries:** Intermediaries structure and manage blended finance vehicles and play a critical role in aligning the objectives of different capital providers. The MDBs/DFIs support in reducing risks, standardising the blended finance instruments, and shifting risk perceptions. In India, the presence of specialised intermediaries remains limited. This restricts the development of blended financial instruments, and which increases the risks for investors investing in the emerging areas such as climate adaptation, clean hydrogen, and nature-based solutions. Some of the intermediaries, for example, are:
   - Fund Managers/ Investment Vehicles- Managers will pool concessional and commercial capital to invest in development projects. They also structure deals to attract private investors, for example- Global Innovation Fund (GIF)
   - Development Finance Institutions- Provide concessional capital and co-invest with the private sector, for example- International Finance Corporation (IFC)
   - Guarantee and Insurance Provider- Offer credit enhancements or political risk insurance to de-risk investments, for example- Multilateral Investment Guarantee Agency
3. **Project Proponents:** The supportive regulatory reforms, policies and with an enabling environment is crucial to allow the institutional capital to invest in climate action. For climate action, the pipeline includes a range of mitigation and adaptation opportunities, such as renewable energy, green hydrogen, urban resilience, and sustainable agriculture. Yet, many of these projects are seen as high-risk due to market immaturity, regulatory uncertainty, and limited financial viability. This results in a shortage of 'bankable' projects that can absorb private capital at scale.

Each of these agents face significant barriers in disposing their role at potential which prevent the blended finance market from scaling.

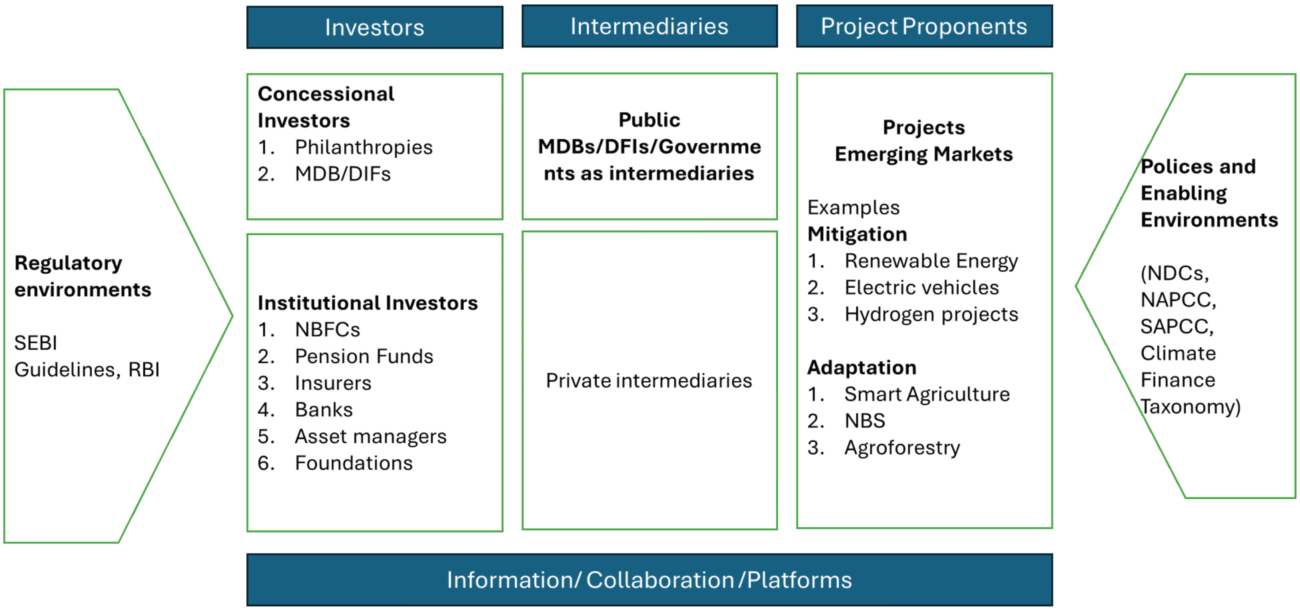

Figure 1: Blended Finance Ecosystem in India (illustrative)

Source: Adopted from Blended Finance Taskforce, (BTF, 2018)

4. Transaction Structures and Risk Mitigation

4.1 Transaction Structures

The operationalisation of blended finance is underpinned by a diverse set of transaction structures and instruments that are designed to attract and de-risk private capital. These mechanisms are typically shaped by a combination of international agreements, evolving market norms, and guidance issued by central banks, finance ministries, and regulatory agencies. There are four blended finance structures commonly used to address risks in climate-related investments: concessional capital, guarantees and risk insurance, technical assistance or design-stage grants, and results-based financing (Convergence, The State of Blended Finance 2021, 2021). These structures reduce risk or enhance returns for private investors, thereby enabling their participation in transactions that would otherwise be unattractive. The principal characteristics of these instruments are outlined below:

- **Concessional Capital:** Funding is attracted by offering concessional financing, where public or philanthropic investors provide capital at below-market rates within the capital structure, either to reduce the overall cost of capital or to offer an additional layer of protection for private investors. Some of the most common forms of concessional capital include subordinate and flexible debt and junior and first loss equity (Convergence, The State of Blended Finance 2021, 2021).
- **Guarantees / Risk Insurance:** Public or philanthropic investors offer credit enhancements in the form of guarantees or insurance at below-market rates, often referred to as guarantees or risk insurance. This is commonly used for bond or note issuances, especially in infrastructure projects. Some of the most common forms of insurance include first-loss credit guarantees, advanced market commitments and local currency hedging (BTF, 2018).
- **Technical Assistance/Design stage Grants:** The transaction is supported by a grant-funded technical assistance facility, which can be used either before or after the investment to enhance the project's commercial viability and developmental impact. The grant is usually provided at the project preparation or design-stage activities (Convergence, The State of Blended Finance 2021, 2021).

- **Results-Based Financing**: Instruments that provide incentives and disincentives to achieve desired impact outcomes or results. This type of financing is aimed at rewarding innovation and successful implementation of a project with clear impact benefits. Eg: Social/ Development Impact Bonds, debt swaps, outcome-based interest loans, and conditional cash transfers (BTF, 2018).

These instruments are not mutually exclusive and are often combined to develop a comprehensive financing package tailored to the specific risk-return needs of a project.

4.2 Risks Mitigated by Blended Finance Instruments

Blended finance instruments aim to address a wide array of risks faced by the private investors, include political risk (influenced by government decisions), currency risk (currency devaluation), credit risk (risk of default), demand risk (concerns about commercial viability and sales), liquidity risk (difficulty in exiting or selling assets), as well as financial and technical risks (Figure 2).

The effectiveness of various instruments, irrespective of the structure, in addressing different risk types vary according to the project context. Table 1 shows the summary of blended finance instruments with the potential risks mitigated.

- **Debt Instruments**: Subordinated and senior debt help mitigate credit risk by altering the capital structure. Subordinated debt absorbs initial losses, thereby protecting senior lenders and improving their willingness to invest. Although senior debt carries lower risk, it often results in lower leverage, whereas subordinated instruments can significantly enhance the leverage ratio.
- **Equity Instruments**: Equity investments, including concessional equity, offer capital infusion and promote risk-sharing between public and private investors. They support access to capital for high-risk ventures by taking on early-stage exposure, and when structured as catalytic first-loss capital, can unlock further private co-investments. This along with concessional capital

MACRO RISK	CREDIT/ COMMERCIAL RISK	FINANCE RISK	TECHNICAL RISK (CLIMATE MITIGATION SPECIFIC)	TECHNICAL RISK (CLIMATE ADAPTATION SPECIFIC)
Political and social Risks Refers to the uncertainty stemming from political events, decisions, or instability in the investment country. **Currency Risks** This risk is particularly pronounced in emerging markets with volatile monetary or fiscal environments.	**Credit Risk** Risk of default on debt repayments from the borrowers. **Liquidity Risks** inability to readily sell or exit an investment without incurring significant financial loss. **Demand Risks** Insufficient market demand may undermine the commercial viability and projected revenues of a project.	**Access to Capital** The risk of being unable to obtain necessary financing to initiate, continue, or complete an investment project.	**Design/Early-Stage Risks** The risk of technological failure during the design phase or the perception of failure due to uncertainties inherent in early-stage climate investments. **Technology off-take** The risk that the deployment or commercial adoption of a climate technology is hindered due to technical limitations or underperformance during implementation.	**Uncertain Investment Returns** Adaptation projects often exhibit low or unpredictable return profiles, making them less attractive to private investors. **Lack of Pipeline** There is a limited pipeline of scalable and bankable adaptation and climate resilience projects, and successful models may not be easily replicable across different regions due to context-specific factors.

Figure 2: Types of risk faced by investors, adopted from (BTF, 2018), (IFC, 2023)

Table 1: Examples of Blended Finance Instruments with potential risks mitigated

Blended Finance Structure	Instruments	Potential Risks Addressed	Indicative leverage	Case study Examples in India
Concessional Capital	Senior Debt	Credit Risk, Liquidity risks.	Low	Northern Arc PERSEC Transaction[2]
	Subordinated debt	Credit Risk, Liquidity risks.	Higher than senior debt	Battery Subscription Facility[3]
	Equity Instruments	Off-taker risks, construction risks, Revenues attractiveness	High	Green Growth Equity Fund (GGEF)[4] India's E-mobility Financing Program
Guarantees	Loan guarantees	Access to capital, Technology off-taker risks, credit risk	High	Sustainable Landscapes Portfolio Guarantee
	Partial risk guarantees	Access to capital, Technology off-taker risks, credit risk	High	Partial Risk Sharing Facility for Energy Efficiency[5]
Insurance	Political risk insurance	Political and social risks	Low	
	Performance insurance	Operation and output risks	Low	Insurance for mangrove conservation and restoration
Results-Based Financing	Social/Development Impact Bonds, debt swaps, outcome-based interest loans, and conditional cash transfers	Operation and output risks	Very high	

has a potential of high leverage compared to debt instruments.

- **Guarantees:** Guarantees, typically, risk sharing instruments provides an arrangement acts a risk mitigation facility by transferring the risk to guarantor, by instruments loan guarantees, partial risk guarantees first-loss guarantees. This enables to mobilise additional capital reducing the risks such as the access to capital by mobilising the additional capital required, especially in projects with higher risks. By providing guarantees to high risks projects, this instrument when used with an additional or supporting layer for other instruments, can have higher leverage potential. The Partial Risk Sharing Facility for Energy Efficiency (PRSF), targets to achieving India's energy saving targets by providing Sub-guarantees to financers and energy efficiency markets.
- **Insurance**: In addition to guarantees, insurance instruments are increasingly recognised as one of the most catalytic tools within blended finance structures, particularly for de-risking investments in high-risk environments. Insurance mechanisms provide compensation for predefined losses or damages in exchange for a premium, and are commonly deployed to mitigate political, credit, and climate-related risks. However, in the Indian context, the use of insurance specifically to cover political risk remains absent. The use of insurance-based models for addressing climate related risk in climate adaptation projects. One illustrative example is the *Restoration Insurance Service*

2 Northern Arc structured and arranged the first persistent securitization (PERSEC) transaction in India for impact MFIs. The structure typically has two tranches: a senior tranche where commercial banks come in and a subordinated tranche (catalytic) where Northern Arc is the investor

3 https://www.climatefinancelab.org/wp-content/uploads/2018/02/Battery-Subscription-Facility_Instrument-Analysis.pdf

4 The GGEF, anchored by India's National Investment and Infrastructure Fund (NIIF) and the UK FCDO, and managed by Ever Source (Mumbai), is a fund-of-funds structure that aims to raise US$900 million from a mix of institutional investors and development financial institutions (DFIs), supported by concessional funds in the form of subordinated equity from the GCF (via Dutch development bank FMO). GGEF plans to invest equity capital through sectoral platforms in climate technology growth firms in renewable energy, e-mobility, energy services, and resource efficiency projects with strong innovation potential. https://www.elibrary.imf.org/view/journals/066/2022/007/article-A001-en.xml#A001fn10

5 India - Partial Risk Sharing Facility for Energy Efficiency (PRSF) Project (English). Washington, D.C: World Bank Group. http://documents.worldbank.org/curated/en/968091468048913492/India-Partial-Risk-Sharing-Facility-for-Energy-Efficiency-PRSF-Project

Company (RISCO), which has invested in mangrove conservation and restoration. In this model, returns to investors are generated through two primary income streams, which is from fees collected from insurance companies and by selling the blue carbon credits on voluntary carbon markets (TheLab, 2024). Such approaches demonstrate how nature-based solutions can be structured to attract private finance when supported by innovative insurance mechanisms that internalise ecosystem service benefits and mitigate climate-related financial risks

- **Results -based instruments:** These are used for providing incentives or disincentives to achieves the desired impacts or outcomes. Since this instrument is designed to based in the measurable outcomes pre-agreed by all parties, and if combined with other instruments can reduce technical risks in the mitigation and adaptation actions potentially can have very high leverage.

4.3 Risks Beyond a Blended Solution

While blended finance instruments play a significant role in mitigating a range of macroeconomic and financial risks—such as currency volatility, political uncertainty, and capital market inefficiencies—certain unique and persistent risks continue to challenge climate-related investments, particularly in emerging markets and developing economies (EMDEs) like India. As highlighted in Section 3.2, these instruments can help certain risks; however, their application in climate finance remains constrained due to a number of structural and contextual limitations.

One of the primary challenges lies in the limited scalability and integration of blended finance instruments within conventional financial frameworks. Many financial institutions find it difficult to embed these instruments into established business models due to their complexity, bespoke nature, and high transaction structuring costs (NGFS, 2023). This is particularly problematic in climate mitigation and adaptation sectors that often entail high capital intensity, technological uncertainty, and regulatory unpredictability. These sectors frequently require long-term capital commitments with delayed or uncertain revenue streams—factors that significantly deter private capital participation.

In addition, the mobilisation of climate finance is shaped by broader supply and demand-side dynamics. On the supply side, factors such as innovation in low-carbon energy technologies and carbon dioxide removal mechanisms influence investment flows. On the demand side, changing patterns of consumption and behavioural shifts toward sustainability reshape the types and scale of investments required (IMF, 2022). These dynamics add layers of uncertainty, further intensifying perceived risks and limiting capital inflows.

Moreover, the risk-return profiles in unproven markets are often low and unattractive to investors, making it difficult to mobilize private capital (IMF, 2022). There is also a scarcity of public concessional funding, which is crucial for serving as catalytic capital to attract more private investments in climate-related projects (SFWG, 2023).

The complexity of blended finance instruments often presents challenges for investors, including high structuring costs and a lack of institutional support, making these instruments time-consuming and effort intensive. This complexity hinders the effectiveness of blended finance mechanisms (IMF, 2022).

Based on the above discussions, the table below maps potential of blended finance instruments in addressing risks including climate related risks from high potential to low potential. The next section explores in further depth the institutional, market, and policy-level barriers that constrain the growth of blended finance in India.

Table 2: Blended finance instruments and risks mitigation matrix

Instrument	Macro Risk		Credit/Commercial			Finance	Technical Risks: Mitigation Specific		Technical Risks: Adaptation Specific	
	Political Risk	Currency Risk	Credit Risk	Liquidity Risk	Demand Risk	Access to Capital	Design/ Early-Stage Risks	Technology off-take	Lack of Bankable projects	Uncertain Investment Returns
Guarantees	Low Potential	Low Potential	High Potential	High Potential	Medium Potential	High Potential	Medium Potential	Medium Potential	Medium Potential	Medium Potential
Insurance	High Potential	Medium Potential	Medium Potential	High Potential	Low Potential	High Potential	Medium Potential	Medium Potential	Medium Potential	Medium Potential
Junior/ Subordinated debt or equity	Low Potential	Low Potential	High Potential	High Potential	Medium Potential	Medium Potential	Low Potential	Low Potential	Low Potential	Low Potential
Technical Assistance and Grants	Low Potential	Low Potential	Low Potential	Low Potential	Low Potential	Medium Potential	High Potential	High Potential	Medium Potential	Medium Potential
Results Based Incentives	Low Potential	Low Potential	Low Potential	Low Potential	Low Potential	Low Potential	Medium Potential	Medium Potential	High Potential	High Potential

High Potential   Medium Potential   Low Potential

5. What Hinders Blended Finance in India?

The effectiveness of blended finance instruments depends on how well they are structured to address the specific risks faced in a given context. While blending may not address all kinds of risks, and may need additional interventions, the structuring itself may face constraints limiting the scope and effectiveness of these instruments. The scope of blended finance in India faces many such barriers.

5.1 Policy and Regulatory Barriers

The expected role of catalytic finance is to provide risk cushioning to improve the risk-return on transactions which attracts more commercial capital. However, it cannot address the non-risk barriers to the flow of commercial capital. The regulatory framework in India has been argued to be such a limiting factor. For example, according to Nishith Desai Associates, the SEBI regulations mandating equal treatment to all investors within an Alternative Investment Fund (AIF), irrespective of their risk appetite, necessitate different schemes catering to different investor risk appetites. This adds to the administrative and transaction costs associated with launching new schemes. In the context of international investors, this gets even more complex due to multiple routes of capital flows. International capital can flow through direct route (Foreign Direct Investment, External Commercial Borrowing, and service contract grants) and indirect routes (FCRA grants and various onshore/ offshore equity investment vehicles). Each route has is governed by a complex set of regulations. Overall, this limits the flexibility that investors require for appropriate blending of diverse risk-return expectations.

5.2 Market-barriers

Blended finance instruments aim at nudging the risk-return profile of projects, which is only a part of overall market dynamics. There are many aspects of the market which are beyond the scope of the commonly used blended finance instruments.

- **Lack of Scale and appropriate vehicles**: The median size of the blended finance vehicle is only around USD 65 million for the years 2017-2019 (Convergence, 2025). India's average transaction size are below global average and also lower than Asian neighbours. The average annual transaction sizes have ranged from approximately USD 10.4-22.3 million in the last 13 years (Impact, 2023). The availability of public or concessional capital to serve as a catalytic capital is limited effects scale of investments. The desire to maintain high credit ratings by public investors leads to insufficient risk mitigation for private investors, due to this the involvement of the private investors in sustainable projects have been limited.
- **Unattractive risk-return profiles:** In India, the blended finance market for climate action is in its early stages. The risk-return profiles in unproven markets are often low and unattractive to investors, making it difficult to mobilize private capital (IMF, 2022). There is also a scarcity of public concessional funding, which is crucial for serving as catalytic capital to attract more private investments in climate-related projects.
- **Lack of Bankable projects:** Private financial flows in the blended finance market are shaped by both supply and demand factors. In India, there is a limited pipeline of bankable projects. On the demand side, the limited availability of bankable projects in the mitigation and adaptation sectors constrains private investment. Climate-related investments often face challenges such as extended timeframes, a shortage of large investment-grade projects, less liquid markets, high upfront capital, and high transaction costs. The mitigation sector, particularly in hard-to-abate sectors and emerging mitigation technologies, often experiences high operating costs and low returns due to uncertainty of technology. Adaptation projects, on the other hand, tend to offer small-scale investment opportunities and low financial returns, making it challenging to attract private investors (NGFS, 2023). Additionally, limited investor familiarity and expertise with adaptation projects further hampers investment in this area.
- **Lack of financial intermediaries-** There is a gap between sustainability opportunities and investors due to the small size and complexity of available projects. Private financiers struggle to identify suitable investment opportunities aligned with their risk-return profiles. Further, the nature of blended finance transactions leads to high structuring costs, making it financially unviable for private investors, especially for smaller deals. The lack of intermediaries to aggregate and standardize projects further exacerbates this issue.

5.3 Accountability and Transparency barriers

Information asymmetry often leads to sub-optimal performance of policy instruments and financial products. This holds true for blended finance as well.

- **Lack of Transparency and data access:** The limited availability of information on blended finance hinders stakeholder's ability to make well-informed decisions. Investors face challenges in accessing essential data on investment risks and performance, affecting their ability to assess returns adequately. Regulators, too, often lack accurate data on critical metrics like default and recovery rates, leading to project ratings that may not reflect true market conditions (Convergence, 2025). Additionally, there is a lack of transparency in tracking blended finance mechanisms, particularly in verifying the appropriate utilization of concessional funds. There is a need for more data around transactions, structures, partners, returns, impact and learnings.
- **Non-standardised Impact Measurement:** The lack of robust frameworks for assessing and measuring the impact of blended finance projects raises concerns about "impact-washing." Disclosure of investment impacts is often limited due to the absence of standardized impact measurement systems for investors, such as NBFCs, DFIs, and banks, which often lack capacity in this area. The absence of recognized benchmarks and standardized terminology makes it challenging for investors to evaluate and compare the effectiveness of concessional finance in mobilizing private capital**.** The rigor of impact measurement has been relatively low, except for Development Impact Bonds (DIBs) and guarantee-backed pilot transactions which only represent 10-15 % of blended finance transaction (Impact, 2023).

6. Towards a Buoyant Blended Finance Market

From the discussion above, two critical insights emerge. First, it is insufficient to focus solely on risk reduction when designing blended finance instruments. There needs to be a more favorable regulatory and policy environment that not only allows for greater flexibility and space for diverse investor expectations but also facilitates easier commercial finance flows. Second, considering that many non-risk barriers may not be addressed immediately, innovation is needed to create safe zones for the blended finance market to flourish. A suite of blending instruments is perhaps needed so that diverse risks and barriers faced by different agents in the ecosystem are addressed. Below, we propose a combination of blending instruments that may help create a buoyant blended finance ecosystem in India.

6.1 Strengthen Blended Finance Intermediaries and Transparency

Barriers Addressed
Policy and Regulatory Barrier – addresses the gap between sustainability opportunities and investors due to the small size and complexity of available projects.
Accountability and Transparency Barrier- The lack of robust frameworks for assessing and measuring the impact of blended finance projects raises concerns about "impact-washing."

To effectively attract private financing for climate-related projects in India, the establishment of specialized financial intermediaries is imperative. These intermediaries would serve as crucial connectors between investors and investees, conducting thorough due diligence while creating an open database of data to facilitate private sector investments. By identifying suitable investment opportunities and structuring advantageous deals, these intermediaries can significantly enhance the appeal of projects to private investors. Moreover, they can aggregate investment opportunities from multiple smaller enterprises, enabling larger deals that are more attractive to private capital. This approach would also help reduce transaction costs through the use of standardized templates, ultimately fostering a more efficient investment landscape. As an immediate step strengthening existing intermediaries, say through collaborations, may bo considered.

In addition to facilitating investments, the implementation of robust monitoring and evaluation systems for development interventions supported by blended finance is essential. It is important for donors to align on common methodologies for assessing blended finance, ensuring consistency in data collection and reporting across various initiatives. Furthermore, promoting transparency and accountability in blended finance operations is vital. Transparency and accountability can be enhanced by conducting fund feasibility studies, and impact assessments. Information regarding the implementation and outcomes of these activities should be easily accessible to stakeholders, adhering to established transparency standards. This commitment to transparency will not only build trust among various stakeholders but also enhance the availability of market information and improve risk assessment, thereby mobilizing additional commercial capital for climate initiatives in India.

6.2 Build Partnerships and Capacities for Bankable Projects

Barriers Addressed
Market Barrier- address the lack of scale an appropriate vehicles, unattractive risk return profiles, and the lack of bankable projects
Market Barrier – enhance the scale of appropriate vehicles improving the risk return profiles
Accountability and Transparency Barriers

Enabling policy led partnerships that align with local contexts are essential for creating a pipeline of bankable climate-related projects in India. The development of efficient local financial markets is crucial for achieving sustainable financing for development. For example, at the subnational level, the partnership between the Government of Goa and the Power Finance Corporation (PFC) illustrates a pioneering model for blended finance.[6] Through this collaboration, PFC will utilize innovative blended finance mechanisms to fund key climate projects such as renewable energy, green hydrogen, and electric vehicles. This partnership aims to pool resources and expertise to attract private sector investments and advance sustainable development in line with India's ambitious net-zero goals.

To strengthen India's blended finance framework, the government can facilitate active involvement of philanthropic organizations alongside development partners like MDBs, DFIs, and other development banks. By aligning objectives, these entities can collaborate more effectively, creating funding mechanisms that better support India's sustainable development goals. Increased collaboration among asset owners, donors, and asset managers is also essential to structure financial vehicles that meet diverse investor and donor requirements. Facilitating access to donor capital, particularly for first-loss tranches or guarantees, could accelerate blended finance initiatives to mobilize private capital for India's climate priorities.

Capacity-building measures are crucial for India's blended finance landscape. Establishing project preparation facilities and platforms at local, national, and global levels would help mobilize finance for specific projects, especially for micro, small, and medium-sized enterprises (MSMEs). MDBs and DFIs can play a significant role in fostering institutional capacity by promoting sound policies, sectoral strategies, and sustainability standards through grant-funded technical assistance. Closer collaboration among asset managers, local government bodies, DFIs, and private developers is vital for effective project preparation and implementation, ensuring India meets its sustainability and climate finance targets.

6.3 Enhanced Finance De-risking mechanisms

Barriers Addressed
Market Barrier: address the lack of scale of appropriate vehicles, and the lack of bankable projects; enhance the risk-return profiles as the investors willingness to invest will increase
Policy and regulatory Barrier: address existing regulatory constraints by aggregating portfolios and donor funds. This will also improve risk return profiles making it more attractive to investors.

Public Guarantees to increase Leverage Ratio

In climate-focused blended finance, as previously discussed, the leverage ratio of public to private capital is frequently low, but public guarantees can enhance this ratio. A key benefit of guarantees is that they do not require an immediate cash outflow from donors, making them especially valuable for optimizing development budgets and enabling more efficient leveraging of guarantors' balance sheets. As a result, guarantees can mobilize significantly more private capital than direct lending or equity instruments, potentially offering a leverage effect up to fifteen times greater in low-carbon investments, compared to the typical 1:1 leverage ratio of direct financing (Hourcade, 2021)

Aggregation of portfolios and Pooling donor funds

Small projects in mitigation and adaptation face challenges in attracting private investment due to high transaction costs. Aggregating these projects into single investment packages enhances their appeal to large investors by reducing transaction costs and achieving economies of scale. For example, the India Lab-supported Sustainable Energy Bonds (SEB)[7] mobilized capital for small clean energy projects by bundling them into a diversified loan portfolio, making low per-transaction returns from projects like rooftop solar and energy efficiency retrofits cost-effective and appealing to investors.

Additionally, pooling donor funds under the management of a skilled administrator can significantly boost private

[6] Government of Goa and Power Finance Corporation come together to pioneer subnational Blended Finance Facility for Climate Action, PIB, Ministry of Power. Accessed on 24th October, 2024 https://pib.gov.in/PressReleaseIframePage.aspx?PRID=2007483

[7] Sustainable Energy Bonds (SEBs) | The Global Innovation Lab for Climate Finance Accessed on 24th October 2024.

capital mobilization by offering flexible, blended finance tools such as guarantees and subordinated positions. The Catalytic Capital Consortium[8] exemplifies this approach, with pooled funds managed by an experienced entity, like the MacArthur Foundation, effectively mobilizing private investment across sectors through scalable, flexible financial solutions.

Setting up of a Risk Guarantee Fund Facility

RGF is a financial mechanism that is designed to mitigate risks for lenders and investors. It can cover part or all of the losses a lender might incur if a borrower defaults. The guarantee can be leveraged to crowd in commercial lenders or investors, by offering lower interest rates it can improve lending terms and expand access to capital in underserved markets. Fund capitalization needs to be determined for RGF. The sources of capital can be obtained from government budget allocations, development finance institutions, multilateral agencies and philanthropic funds. The different types of risk based instruments that can be offered are:

- *Financial Guarantees (FG)* consist of loan guarantees which ensures the repayment of loans of the borrower defaults; bond guarantees- a third party guarantees the timely payment of interest and principal on bonds; payment guarantees- ensure that payment will be made for goods and services as per contractual terms. It is fundamentally designed to manage and transfer risk.
- *Partial Risk Guarantees (PRG)* is a risk-mitigation instrument that is designed to cover a specific political, regulatory or contractual risk. It has been used by World Bank in renewable projects to mitigate risks related to payment defaults.
- *First-loss guarantee (FLG)* de-risk the overall structure for participating investors. This ensures projects in lower income or fragile markets can proceed, The guarantee protects other investors by providing cushion against the losses and improving the risk return profile of the investment and crowding in private capital. FLG can be used for green energy projects by a philanthropic fund that encourages private investors to enter the renewable sector.
- *Partial credit guarantee (PCG)* is a credit enhancement mechanism for debt instruments. It covers a portion of the debt service to improve the credit rating of the borrower and make the investment more attractive to lenders. PCG can be used by independent power producers to attract long-term debt financing.

After the selection of an appropriate risk guarantee, risk sharing parameters should be designed. This can include mechanisms like deciding on risk sharing ratios like the first 50 percent of loss is covered by concessional donors, next 30 percent is covered by DFI and the remaining is borne by commercial investors. Guarantee coverage can be partial or full which depends on risk assessment and risk mitigation measures in place. Mechanisms for exit should also be designed. Guarantees or concessional financing must sunset after a defined period or be phased out.

6.4 Combine Blending Instruments with Government Policies

Barriers Addressed
Market Barrier: Create market, enhance the risk-return profiles as the investors willingness to invest will increase given the promise of certain market size, revenue floor, and low-cost capital.
Policy and Regulatory Barrier

Public Procurement

Public procurement by State and Central government has been an effective tool for creating market for desired product qualities. Public procurement can be indirectly linked to the implementation of more than 80% of the Sustainable Development Goals (SDGs (Bruno Monteiro, 2012). In fact, SDG 12.7 categorically focuses on adopting public procurement practices that are sustainable, in accordance with national policies and priorities. By combining public procurement policy with blended finance instruments, such as guarantees will lower financial risk for suppliers, manufactures, and service providers. A good example to build on is the combination of schemes: FAME II (Faster Adoption and Manufacturing of Electric Vehicles in India), PM E-DRIVE Scheme, and the

[8] Catalytic Capital Consortium, MacArthur Foundation, Accessed on 24th October 2024. https://www.macfound.org/programs/field-support/impact-investments/catalytic-capital-consortium/

Scheme to Promote Manufacturing of Electric Passenger Cars in India (SPMEPCI) which aim to boost EVs for public and private transportation along with domestic manufacturing. These schemes can be further enhanced with providing risk-guarantees to investors.

Use of Blended Finance with Carbon Markets

Under the Carbon Credit Trading Scheme (CCTS), India has set-up emission intensity targets to identified producers. The CCTS has evolved from the Perform, Achieve, and Trade (PAT) scheme which aimed at reducing specific energy consumption. The targets under the PAT scheme were supported by a Partial Risk Guarantee Fund, enabling the select financial institutions lending for energy efficiency interventions. A similar or modified arrangement could enable low-cost financing for the targeted producers. In addition, the CCTS also allows generating off-set credits by non-targeted producers on a voluntary basis. This creates a potential demand for climate finance in wider economy. A blending instrument to specifically support the offset credit generation can eventually help the CCTS not only discover lowest marginal abatement cost in Indian economy, but also enable increasing the overall mitigation ambition of the Scheme.

Another market-based guarantee mechanism is Carbon Contracts for Difference (CCfD). CCfD guarantees a minimum carbon price to carbon credit-generating projects. If the market price of carbon falls below the agreed price floor, the concessional capital provided by blended finance backed entity pays the project of the price difference. If the market price is above the guaranteed price, the project sells credit at a higher market price. Overall, the guarantee ensures a floor of revenues providing stability to the projects, reducing risks and enhancing bankability.

7. Way Forward

The experience with blending of low-cost capital to attract private capital has shown promise, yet its role in closing the climate financing gap has been limited. In India, the leveraging ratio has been encouraging and demonstrate the crucial role blended finance can play in enhancing investability in India. This, however, would require thinking beyond the traditional way of structuring blended finance instrument. We have tried to build a case for considering blending of not only finance from public, private, multilateral, and philanthophic sources but also combining it with specific policy initiatives. Moreover, a comprehensive ecosystem with a focus on enhanced regulatory facilitation, transparency, awareness and capacity building, along with partnerships with different stakeholders will play a crucial role in accelerating mobilization of climate finance in India.

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Appendix -Case Studies

Sustainable Landscapes Portfolio Guarantee

In 2018, the Rabo Foundation, in collaboration with USAID/India, launched a USD 15 million bank guarantee program[9] aimed at facilitating lending by local partner financial institutions to small and medium-sized enterprises (SMEs), cooperatives, producer companies, and microfinance institutions involved in sustainable landscape investments. This initiative supports sustainable agriculture and rural development by mitigating the risks financial institutions face when lending to these groups. The program partnered with Ananya Finance for Inclusive Growth and Samunnati Financial Intermediation and Services (Samfin) to enhance access to finance for organizations directly or indirectly contributing to sustainable landscapes. This partnership helps promote environmental sustainability while driving economic growth in rural areas.

Partial Risk Sharing Facility for Energy Efficiency (PRSF)

This facility aims to achieve energy savings by mobilizing private finance and encouraging the participation of energy service companies (ESCOs), offering partial credit guarantees to financial institutions. Launched through a collaboration between the Government of India, the Global Environment Facility (GEF), and the World Bank, it is managed by the Small Industries Development Bank of India (SIDBI).[10] The facility mitigates the perceived risks of lending to energy efficiency projects, which often face challenges such as long payback periods and uncertain returns. The total project cost is USD 43 million, with USD 37 million allocated for PRSF (to share the risks faced by financial institutions) and USD 6 million for technical assistance component (for capacity building and operational support).[11] By enhancing financial flows, PRSF has scaled up energy efficiency measures across sectors, reducing energy consumption, operational costs, and greenhouse gas emissions.

Climate Investor One

The Climate Investor One (CIO) is a cutting-edge blended finance facility designed to fund renewable energy projects in low-income (LIC) and lower-middle-income (LMIC) countries. It finances projects in the wind, solar and hydro sectors with an average size of 25-75 MW or USD 80-100m in total investment cost.[12] The facility operates in three stages. First, the Development Fund provides early-stage loans through technical assistance to support project development. Next, the Construction Fund finances up to 75% of the total construction costs. Finally, the Refinancing Fund steps in after operations begin, covering 40% of refinancing costs.[13] Compared to traditional project financing, CIO simplifies the process by eliminating the need for complex multi-party financing structures, which reduces both time and costs involved in delivering renewable energy projects. Over its 20-year duration, the project spans 18 countries, including India, with a total project value of approximately USD 821.5 million.[14] The Green Climate Fund (GCF) contributed a grant of USD 100 million (about 12.2% of the total), while the remainder is financed through co-financing equity and grants.

India's E-mobility Financing Program

This project aims to reduce the cost of electric vehicles (EVs) to levels comparable to conventional vehicles by providing financing solutions to EV owners, including support for EV charging infrastructure. The total project cost is USD 1.5 billion, entirely mobilized through private investments.[15] The Green Climate Fund (GCF) contributes co-financing equity, covering around 13.4% of the total cost. Macquarie plans to raise USD 250 million from institutional investors, while the remaining USD 1.1 billion will come from co-financing loans. The transition to EVs, particularly in urban areas, is expected to reduce pollution, leading to significant improvements in air quality and associated health benefits, including increased life expectancy for future generations. Over its 10-year duration, the project also aims to avoid 9.5 million tonnes of carbon emissions.

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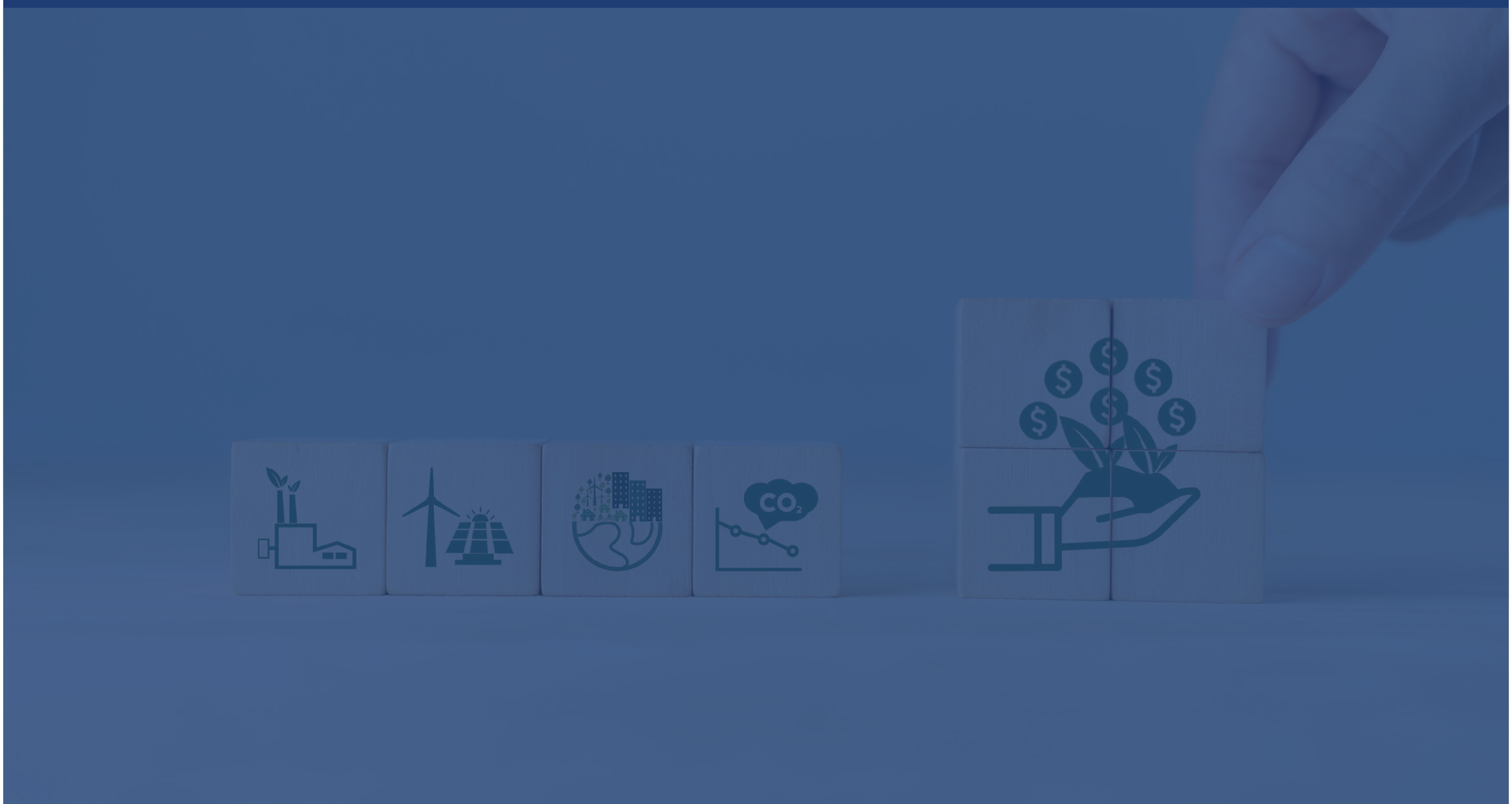

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