

Project-Based Guarantees in Climate Finance: Enhancing Effectiveness and Scale

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Executive Summary

Guarantees are a type of blended finance instrument and a critical tool for mobilizing private capital for climate finance. Capable of covering part or all of the amount owed on loans, equity, or other financial instruments in cases of default or loss of investment value, guarantees are essential in project development. Unlike traditional climate finance tools such as subsidies and concessional loans, project-based guarantees directly mitigate key risks, like performance, technology, and liquidity, making projects more bankable and attractive to private investors. As a result, there is an increasing opportunity for more climate-focused products to align with global climate goals. Only a handful of institutions, particularly those specializing in climate finance, offer guarantees focused solely on this area.

However, despite their potential, guarantees remain significantly underused. For example, guarantees account for only about 4% of total multilateral development bank (MDB) commitments, while loans make up roughly 70% of MDB portfolios (Blended Finance Taskforce, 2023). Geographically, guarantees tend to favor higher-income countries, leaving lower-income nations—those most vulnerable to climate change—with limited access to these financial tools (Bandura & Ramanujam, 2019). Guarantees are generally more effective when their crowding-in effect exceeds that of other de-risking instruments, such as concessional loans and subsidies.

This paper makes a significant contribution by providing a structured framework for assessing and improving the effectiveness and scalability of project-based guarantees in climate finance. By systematically analyzing how guarantees mitigate risk and mobilize private investment, the paper clarifies the optimal conditions under which guarantees outperform alternative climate finance tools, such as concessional loans and subsidies. This enables policymakers and financial institutions to strategically design guarantees that maximize their leverage effect, effectively address investor risk perceptions, and significantly boost climate investments. As a result, the paper informs practical policy decisions, facilitating more efficient allocation of public resources toward instruments capable of attracting substantial private sector involvement in climate finance.

Demand-side constraints, such as limited project pipelines and transparency issues among project promoters, further hinder the scalability of guarantees. These are worsened by broader environmental challenges—such as inadequate legal frameworks, macroeconomic instability, underdeveloped financial markets, and political risks—that make developing countries less attractive for deploying guarantees. On the supply side, MDBs and DFIs often prefer loans due to liquidity benefits and simpler structures, thus reducing their incentive to offer guarantees. As a result, smaller projects find it harder to secure guarantees because financiers see these projects as higher risk with lower returns.

Overall, this paper examines the crucial role of guarantees in mobilizing private capital for climate finance and offers recommendations for enhancing their effectiveness and scalability. It contextualizes and underscores the underutilized potential of guarantees in development finance, comparing them empirically with other de-risking instruments such as loans and subsidies, and analyzing optimal conditions for each. The paper provides detailed recommendations for the key

parties involved: the guarantor (or surety), the creditor (or obligee), and the principal (or obligor/debtor), with a focus on improving effectiveness and scalability for each. Additionally, it calls for expanding the use of guarantees through innovative structuring and increased collaboration among MDBs, DFIs, and bilateral agencies, which is essential to extend their reach into more challenging geographies and underserved sectors, ultimately driving greater development impact.

List of Acronyms

ADB	Asian Development Bank
AfDB	African Development Bank
COP	Conference of the Parties
DAC	Development Assistance Committee
DFI	Development Finance Institution
EBRD	European Bank for Reconstruction and Development
ECA	Export Credit Agencies
EFSD+	European Fund for Sustainable Development Plus
EMDEs	Emerging Market and Developing Economies
GCF	Green Climate Fund
IBRD	International Bank for Reconstruction and Development
IDA	International Development Association
IFC	International Finance Corporation
IMF	International Monetary Fund
LDCs	Least Developed Countries
LTWP	Lake Turkana Wind Power
MDB	Multilateral Development Bank
MIGA	Multilateral Investment Guarantee Agency
ODA	Official Development Assistance
OECD	Organization for Economic Co-operation and Development
SDGs	Sustainable Development Goals
SIDs	Small Island Developing States
UAE	United Arab Emirates
UK	United Kingdom
UNGA	United Nations General Assembly

1. Introduction: Contextualizing the Need and Use of Guarantees

1.1. Role and Potential of Guarantees in Blended Finance

Guarantees are a vital tool in blended finance and play an important role in development and project funding. Despite their strategic value, guarantees remain underused and fragmented. They have a large potential for mobilizing funds—able to attract up to five times more financing than typical mobilization ratios (SYSTEMIQ, 2023). However, current use is uneven, with notable sectoral and regional differences. The financial services and energy sectors dominate, accounting for 70% of private capital mobilized via guarantees (Bandura & Ramanujam, 2019). Geographically, guarantees are unevenly distributed, with Asia and Africa attracting only 41% of such capital despite making up 80% of the world’s population (Bandura & Ramanujam, 2019). Additionally, 87% of guarantees are climate-agnostic, revealing opportunities to align guarantee tools more closely with global climate goals (CPI, 2024).

Guarantees work by reallocating investment risks—such as credit, regulatory, or political risks—to parties better able to handle them, thus unlocking significant private finance flows into high-impact sectors, including infrastructure and climate adaptation. To fully realize the potential of guarantees, Multilateral Development Banks (MDBs) and other development finance institutions need to revisit current capital accounting practices, clearly distinguishing guarantees from direct loans to accurately reflect their lower inherent risk. Additional policy measures include standardizing guarantee products, increasing transparency in administrative processes, and implementing risk-based pricing strategies to boost investor participation. Explicitly aligning guarantee instruments with global policy goals, especially climate adaptation and resilience, could further enhance their mobilization impact, accelerating progress toward sustainable development objectives.

1.2. Public Climate Finance Trends and the Role of the Private Sector

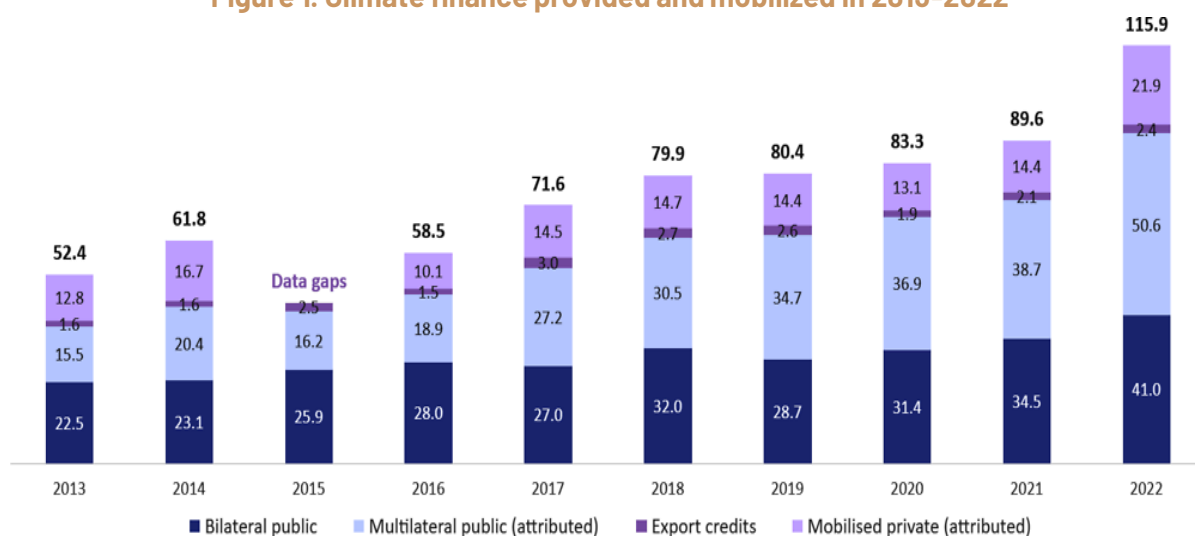
Limited fiscal space remains a key constraint for public climate finance, particularly in low-income and climate-vulnerable countries. Many least developed countries (LDCs) and small island developing states (SIDS) are grappling with unsustainable debt levels and limited national budgets, leaving little room for scaling public investments in climate action (CPI, 2024). While international public actors—especially multilateral and bilateral development finance institutions—have stepped in to provide most adaptation finance in these regions, their contributions are insufficient to meet growing needs. Concessional finance, once a major component of international support to EMDEs, has declined in relative terms, falling from 57% to 47% of public climate finance between 2018 and 2022 (CPI, 2024). At the same time, private finance contributions remain low, accounting for under 10% of total flows to LDCs in most years, and less than 2% for lower-income SIDS during 2018–2022. These figures point to a persistent gap in mobilizing private capital, particularly for countries that are least capable of funding climate responses from domestic resources.

This financing gap in emerging markets and developing economies (EMDEs) is especially significant in regions like Africa, where unmet needs are most acute for infrastructure and climate adaptation projects. Purely commercial financing remains extremely costly in these situations, highlighting the need for risk-sharing mechanisms. Blended finance—particularly through guarantees—offers a promising solution by lowering perceived investment risks and attracting private capital. However, guarantees are still greatly underused, making up only 4% of total MDB commitments, compared to

around 70% allocated to loans (Blended Finance Taskforce, 2023). Factors like investor unfamiliarity, limited structuring capacity, and institutional preferences for simpler instruments limit their use. This paper aims to address this gap by offering practical insights on when and how guarantees can be used to mobilize investment more effectively.

As debt burdens in EMDEs continue to grow, the need for innovative financial solutions becomes more urgent. From 2013 to 2020, public finance accounted for 70% of climate investments in developing countries, supporting efforts in energy, agriculture, land use, and adaptation (Songwe et al., 2022). However, public sources alone cannot cover the scale of investment required. Bridging the climate finance gap will require targeted efforts to de-risk investments and incentivize greater private sector participation (Clark et al., 2018).

Figure 1. Climate finance provided and mobilized in 2013-2022



Source: OECD (2023). Climate Finance Provided and Mobilized by Developed Countries in 2013-2022

1.3. Challenges and Opportunities in Private Climate Finance Mobilization

The mobilization of private finance for climate action in developing countries remains limited, despite the global commitment of USD 100 billion annually. In 2021, the private sector contributed only USD 14.4 billion out of the USD 89.6 billion in total climate finance provided (OECD, 2024). According to the Foresight Africa report by Brookings Institution (2024), in Africa, the private sector's contribution to adaptation activities is particularly low, making up less than 3% of total climate finance. Key constraints include high perceived political and economic risks in developing countries, weak regulatory frameworks, and uncertainties about climate policy directions. These factors have led to a concentration of private finance in middle-income countries, primarily for climate mitigation projects, especially in renewable energy and transport sectors, which accounted for 62% of private finance mobilized between 2016 and 2021 (OECD, 2024). Adaptation finance remains especially low, representing just 9% of the total, as projects often lack scalability and viable business models for investors. For example, in Africa, closing the energy access gap will require approximately USD 25 billion in annual investment through 2030 (IEA, 2022).

While significant investments are directed toward energy and infrastructure projects, climate adaptation initiatives receive minimal funding. The reliance on loans and government budgets for nearly 80% of financing worsens this gap (OECD, 2024). Mechanisms such as direct investments (39% of total mobilized private finance) and guarantees (19%) have been used to lower risks, but they have been insufficient to cover the substantial financing needs, particularly in low-income countries facing more political and macroeconomic uncertainties (OECD, 2024).

Because the significant climate funding gap cannot be filled with public finance alone and private sector involvement remains limited, adopting catalytic tools to attract private capital is essential.

Private climate finance comes from a diverse range of investors, including individuals, companies, institutional investors, asset managers, and philanthropic groups. From 2016 to 2020, the energy sector dominated private climate finance, accounting for 53% of investments (OECD, 2022). Despite instances of political instability and substantial infrastructure needs, Africa, along with other emerging markets and developing economies (EMDEs), offer promising opportunities for climate-related projects. For example, Africa has huge renewable energy potential but still relies heavily on fossil fuels, with fossil fuel-based electricity and heat generation accounting for 40% of emissions, while transportation and industrial processes contribute 25% and 17%, respectively (IEA, 2022).

Given that traditional commercial investors dominate private climate finance, blended finance instruments like guarantees emerge as potential solutions to overcome funding barriers.

Guarantees, as a de-risking tool, improve the risk-return profile of climate-related projects, making them more attractive to investors who might otherwise be deterred by high perceived risks. Along with direct investments and syndicated loans, guarantees account for 77% of private sector mobilization, addressing project risks and bridging financing gaps (OECD, 2022). The ability of countries to mobilize financing varies significantly based on their perceived investment risk. Additionally, guarantees mostly target mitigation rather than adaptation projects, a trend likely influenced by the shorter tenors typically associated with guarantees—often limited to periods of 5 to 10 years—as seen with projects financed under the Green Climate Fund (GCF).

While the supply of guarantees is concentrated among a small group of entities, including governments¹, financial institutions, and multilateral organizations, the demand for these financial safeguards is widespread. MDBs, for example, provide a broader range of tools for climate finance. Although MDBs have effectively used guarantees in climate mitigation efforts, such as improving the creditworthiness of carbon credits or clean energy projects, their overall deployment remains limited. For instance, despite MDBs collectively investing USD 38.2 billion in climate mitigation and USD 22.7 billion in adaptation in 2022, only 3% of their guarantees in low- and middle-income countries explicitly supported climate-related projects (MDBs, 2022).²

¹ State-owned enterprises (SOEs) use guarantees, just like lenders and investors to manage risks. SOEs, with high risk tolerance, rely heavily on guarantees for large projects and may act as guarantors to support sector-specific investments. However, many SOEs face growing debt burdens due to their dependence on credit guarantees (Prats & Moskovits, 2020).

² Multilateral Development Banks (MDBs) support local banks with partial credit guarantees, loans, and equity injections, helping provide longer-term, affordable financing and boosting economic growth (MDBs, 2022). Through Public-Private Partnerships (PPPs), MDBs mobilized USD 7.3 billion for low- and middle-income countries, with a global increase of 12% to USD 166.6 billion (MDBs and DFIs, 2024). Over the next

Moreover, MDBs also play a key role in the increased use of guarantees, both as providers and recipients. In each case, guarantees allow risk to be shifted to the party most willing to accept it and help leverage their high credit ratings. In Africa, for example, the African Development Bank (AfDB) recently approved a EUR 400 million partial credit guarantee for Senegal's Sustainable Financing Framework. Earlier in 2023, AfDB approved another partial credit guarantee in Renminbi, valued at USD 345 million, for Egypt's Panda bond market (AfDB, 2023a, 2023b). AfDB provided this partial guarantee alongside the Asian Infrastructure Investment Bank (AIIB), both with triple-A ratings. Conversely, donors can provide space on MDBs' balance sheets by de-risking part of their portfolios. For example, the UK Government agreed to guarantee up to USD 59 million of a loan from AfDB to Kenya, aimed at improving the country's power transmission lines. Countries that have previously benefited from this UK-AfDB agreement include Tunisia, Benin, and Mauritius (AfDB, 2023c). Additionally, AfDB recently secured a UK FCDO guarantee of USD 1 billion to support South Africa's energy projects in line with the country's Just Energy Transition (JET) initiative (Power Technology, 2023). These examples highlight different roles: the AfDB as guarantor spreads risks away from project-level borrowers (e.g., Senegal, Egypt), while the AfDB as recipient transfers portfolio-level risks to donors, underscoring the strategic risk distribution among stakeholders.

A study by the Blended Finance Taskforce (2023) revealed that guarantees are more effective at attracting private capital, bringing in USD 1.50 in private funding for every MDB dollar, and significantly outperforming loans and equities. Currently, MDBs mobilize less than 30 cents in private capital for every public dollar allocated to climate, resulting in a mobilization ratio of 0.3 to 1. The World Bank's Enhanced Guarantee Program, which supported the Azura power project in Nigeria, is a prime example of the impact of such guarantees (Hansen & Molle, 2016). Recognizing their potential, institutions like MIGA and the World Bank have expanded their use, as these guarantees primarily mitigate government or public entity payment defaults within public-private partnerships.

Guarantees also act as key countercyclical tools, supporting investment flows during economic downturns. When private investment contracts sharply during downturns, guarantees help stabilize markets by ensuring access to financing, especially in developing economies. This countercyclical role was demonstrated during the Global Financial Crisis (2008–2009), when institutions such as the IFC and MIGA significantly expanded their guarantee portfolios to maintain investment flows (IFC, 2010; MIGA, 2011). However, despite their proven effectiveness, the countercyclical use of guarantees is still not fully understood. The necessary institutional awareness, readiness, and frameworks for quick deployment of guarantees during crises are limited, offering important opportunities for further development and policy growth (OECD, 2022; IMF, 2022).

This paper focuses on project-based guarantees and is supported by three main objectives:

- a) Exposition on the use of project-based guarantees as a catalytic instrument for climate finance:** As a significant contribution to the ongoing debate on restructuring the global financial architecture, including MDB reforms, this paper explores how these guarantees can attract private capital to finance climate mitigation and adaptation. Rethinking current financial instruments, or those available, is essential for restructuring the international finance system to better address and respond to the impacts of the climate crisis in developing regions.

three years, MDBs aim to grow private investment by 25–35% by enhancing public-private collaborations and implementing progress-tracking metrics (MDB Task Force on Mobilization, 2018).

b) Examination of barriers in the utilization and effectiveness of project-based guarantees:

This paper explores the obstacles to the effective use and scaling of guarantees in developing countries.

c) Recommendation of actionable measures: Our suggestions cover essential design features and components of a well-structured guarantee mechanism, drawing from case studies and real-world examples. Their ability to optimize public resources, support local financial markets, and promote private sector participation makes them crucial for closing the financing gap in developing countries. However, to unlock their full potential, challenges such as structural complexity, lack of ODA eligibility, and limited use of guarantees in the most vulnerable countries must be addressed. By fostering partnerships, building financial expertise, and targeting guarantees more effectively, development actors can scale up the use of guarantees to meet the growing demand for sustainable development finance. These comprehensive recommendations intend to ensure that climate finance guarantee schemes are not only effective but also well-designed to attract private capital and maximize their impact.

2. Understanding Use of Guarantees as Climate Finance Instruments

Guarantees are crucial tools for promoting sustainable development by reducing risks, opening new financial markets, and increasing credit access in areas or sectors where investment is scarce (Box 1). Guarantees are highly versatile and can be adapted to fit various financial structures, offering necessary flexibility to mobilize capital for climate projects. The Green Climate Fund (GCF) has played a pioneering role in innovative financial structuring by combining guarantees with other instruments, such as loans and equity, to lower risks and improve project returns. For instance, GCF's risk-sharing mechanisms cover up to 90%, while the partner entity provides the remaining 10% of specific risks, ensuring that market participants are introduced to green finance at reduced costs (Green Climate Fund, 2022).

Case studies presented in the Appendix underscore several key lessons: guarantees successfully mobilize private capital by greatly reducing perceived risks. Strong public-private collaboration and proactive risk management (e.g., AfDB's guarantee in Kenya's Lake Turkana project) are crucial for overcoming institutional challenges and gaining community buy-in. Capacity-building and targeted technical assistance (such as in Vietnam's energy efficiency and Tanzania's agricultural resilience programs) significantly enhance the effectiveness of guarantees. Lastly, blending guarantees with other financial instruments, such as concessional loans, mezzanine financing, and insurance, increases flexibility and scalability, making it easier to replicate in different sectors and regions (as seen in Pakistan's distributed solar project).

Box 1: Developmental Role of Guarantees as a Blended Finance Instrument

1. Guarantees to Disaggregate Risk: One of the primary functions of a guarantee is to disaggregate and allocate risks more efficiently among different market actors.

2. Guarantees to Enhance Credit Standing and Provide Leverage: One of the most significant advantages of guarantees is their ability to enhance the credit standing of sovereigns, municipalities, or corporations, effectively lowering the cost of borrowing. The leverage effect of guarantees is a critical element of their developmental impact. Guarantees allow a relatively small amount of MDB capital to mobilize significantly larger amounts of private sector investment. This leveraging power is particularly valuable in big projects, which typically require substantial upfront investments and long-term financing.

3. Guarantees to Create and Develop Missing Markets: Guarantees can be instrumental in creating or developing financial markets where none exist or where markets are underdeveloped. By mitigating operational and market-entry risks, guarantees encourage private sector participation and foster sustainable growth in new or emerging markets, including those related to climate finance.

4. Guarantees as Countercyclical Tools: During economic downturns, guarantees act as countercyclical tools, helping maintain investment flows when markets tighten. By supporting sovereigns or corporations in accessing credit, even during crises, guarantees help stabilize economies and ensure the continuation of projects.

Source: Authors' compilation.

Comparison between Guarantees and other Climate Finance Instruments

Given the variety of financial structures, risk profiles, and investor behaviors, it is vital for policymakers and financial analysts to understand each instrument's unique benefits and characteristics to optimize investment results. Notably, the **choice among guarantees, subsidies, concessional loans, or direct private loans, highly depends on their respective crowding-in effects**. However, to establish an optimal instrument the comparison is based on the interaction between guarantee coverage rate and the crowding-in multiplier effect ($G \cdot \theta$), i.e., the extent to which public financial guarantees encourage or attract additional private-sector investment into climate finance³ and the relative benefit of concessional loan interest rate reduction ($\frac{r_m - r_c}{r_c}$).

For instance, if: $G \cdot \theta > \frac{r_m - r_c}{r_c}$, guarantees will be the optimal choice when the risk premium reduction and crowding-in effect surpass the financial advantage of concessional loan interest rate reductions. This situation often occurs in projects with substantial risk but significant potential to attract private capital once de-risked. Numerical examples are provided below to support the comparative analysis of the various financial instruments⁴.

Numerical Example of Project-Based Guarantees

Suppose there is a renewable-energy project with the following features:

³ Specifically, it quantifies how much additional private capital is mobilized per unit of public resources provided through guarantees

⁴ A theoretical derivation of the models of the optimality conditions of the financial instruments is available upon request from the authors.

$$I_0 = \$100 \text{ and } G = 20\%$$

Where I_0 is the fixed initial investment, and G is the percentage of the project covered by guarantees. In this example, the fixed initial investment is \$100, and the guarantee coverage rate is 20%, meaning that \$20 is explicitly guaranteed. Therefore, the "crowding-in" or leverage ratio is 4:1, meaning every dollar of guarantee can mobilize four additional dollars from private investors.

Thus, the leveraged (crowding-in) total is computed as:

$$I_0 \cdot (1 + G \cdot \theta) = \$100(1 + 20\% \cdot 4) = \$180$$

This extra \$80 million is not part of the initial minimal requirement (\$100 million); it is the additional capital mobilized due to the guarantee's effectiveness. Private investors, reassured by the partial guarantee, contribute additional investments that enhance the project's scale, technology, or scope.

Numerical Comparison Between Guarantees and Direct Private Loans

- Consider a project requiring financing with the following parameters: Risk-free market rate: $r_m = 2\%$
- Project risk premium: $\sigma_p = 6\%$
- Risk reduction factor: $\beta = 0.2$ (i.e., on the unguaranteed portion, only 20% of the project's risk premium is charged)
- Guarantee coverage: $G = 70\%$ of the project's financing
- Official concessional loan rate: $r_o = 5\%$

In this setup, the private lender—partially protected by the guarantee—charges:

- $r_m + \beta\sigma_p$ on the unguaranteed 30% portion, and
- $r_m + \sigma_p$ on the guaranteed 70% portion.

However, the guarantor (MDB) also typically charges a periodic guarantee fee (α)⁵ on the guaranteed portion. The developer's effective cost of capital under this guarantee structure is therefore:

$$R_g = G \cdot (r_m + \beta\sigma_p + \alpha) + (1 - G) \cdot (r_m + \sigma_p)$$

(Note: Risk reduction applies explicitly on the guaranteed portion).

Case 1: No Guarantee Fee ($\alpha = 0$)

Substituting the values:

$$R_g = 70\% \times [2\% + 0.2 \times 6\% + 0\%] + 30\% \times [2\% + 6\%]$$

$$R_g = 0.7 \times 3.2\% + 0.3 \times 8\%$$

$$R_g = 2.24\% + 2.4\% = 4.64\%$$

⁵ A higher guarantee fee directly increases the project's effective cost of borrowing, potentially diminishing the benefit from the guarantee. In this case,

In this scenario, the effective rate with the guarantee (4.64%) is lower than a direct private loan rate of 5%. This clearly illustrates the value of guarantees in substantially reducing borrowing costs compared to fully private market financing.

Case 2: With Guarantee Fee ($\alpha=4\%$)

If a guarantee fee is introduced, reflecting the MDB's cost of providing the guarantee:

$$R_g = 70\% \times [2\% + 0.2 \times 6\% + 4\%] + 30\% \times [2\% + 6\%]$$

$$R_g = 7.44\%$$

Here, the effective borrowing cost rises to 7.44%, which is slightly higher than the concessional loan rate of 5%, reinforcing the importance of balancing the guarantee fee to maintain attractiveness.

Policy Implication: The numerical analysis underscores that guarantees can significantly lower borrowing costs compared to concessional loan rates, particularly in environments characterized by high market risk premiums. However, this advantage diminishes as the guarantee fee increases. Policymakers must carefully set guarantee fees at levels balancing risk compensation to the guarantor and cost attractiveness for borrowers. Optimal structuring ensures guarantees remain competitively priced to effectively mobilize private capital without overly burdening MDB resources.

Numerical Comparison Between Guarantees and Concessional Loans

Suppose the market interest rate $r_m=8\%$ and the concessional rate $r_c=4\%$.

The intuition here is from the perspective of the public entity providing concessional financing or guarantees. Each percentage point by which the concessional rate is below the market rate "frees up" cash flow for the project, effectively improving its profitability and attracting private investors. In contrast, guarantees primarily reduce perceived risk, improving the project's appeal by enhancing its risk-return profile. To assess when guarantees outperform concessional loans, we examine the inequality:

$$G \cdot \theta > \frac{r_m - r_c}{r_c}$$

This inequality implies that guarantees are more potent at crowding in private capital (from the public perspective) than concessional loans if it holds true. If it does not, concessional loans may be more efficient at mobilizing private investment.

From the previous section, given that $G = 20\%$ (guarantee coverage ratio, that is the fraction of the project's total financing covered by the guarantee from the earlier section), and $\theta = 4$ (crowding-in multiplier which measures how much additional private capital each unit of public resource mobilizes when deployed as a guarantee), then $G \cdot \theta = 20\% * 4 = 0.8$.

The right-hand side (RHS) of the inequality (that is $\frac{r_m - r_c}{r_c}$) is given by

$$= \frac{8\% - 4\%}{4\%} = 1.0$$

Thus, $0.8 < 1.0$, indicating that in this specific scenario, concessional loans may provide greater benefits (by freeing up cash flow more effectively) than guarantees. However, as the coverage ratio (G) increases, guarantees become more optimal. For instance, if $G = 50\%$, and $\theta = 4$, then $G \cdot \theta = 50\% * 4 = 2.0 > 1.0$.

4 = 2. Then $2 > 1$, so guarantees are a more potent mechanism to crowd in capital, assuming the guarantee provider is willing and able to cover that higher coverage ratio. From this example, we demonstrate how exactly how changes in coverage (G), multiplier (θ), and interest rate differentials ($r_m - r_c$) can determine which instrument—concessional loan or guarantee—offers the greatest crowding-in effect.

Overall, guarantees are often optimal when bridging a *risk gap*⁶ is more crucial than shaving a few percentage points off the cost of capital—particularly if coverage can be high and the crowding-in multiplier (θ) is large. However, if market rates are much higher than concessional rates, or if guaranteeing that level of risk is unpalatable for the guarantor, concessional loans may provide a stronger net benefit.

Policy Implications: From the above analysis, concessional loans outperform guarantees when the concessional rate is significantly below the market rate, making the loan cheaper overall. Conversely, guarantees become preferable when the primary challenge is perceived risk rather than the cost of capital alone, especially if guarantee coverage (G) is substantial and the crowding-in multiplier (θ) is large

Numerical Comparison Between Guarantees and Subsidies

Suppose a project requires initial investment $I_0 = \$100$ and $G = 20\%$, and I_0 and G and the parameters are as earlier defined, then consider two different policy instruments to crowd in private capital:

- **Subsidy (S):** \$20 million provided directly to lower costs. Assume a multiplier effect (θ) of two, meaning each dollar of subsidy attracts an additional \$2 of private capital.
- **Guarantee Coverage (G):** MDB provides no direct subsidy but instead guarantees a fraction of financing. Consider $G=30\%$ coverage.

The total mobilization under each scenario:

$$\text{Crowding In with subsidies} = I_0 + S \cdot \theta = \$100 + \$20(2) = \$140$$

$$\text{Crowding In with Guarantees} = I_0 \cdot (1 + G \cdot \theta) = \$100(1 + 30\%(2)) = \$160$$

At 30% guarantee coverage, guarantees crowd in more total capital (\$160) compared to the subsidy scenario (\$140), despite subsidies being "free" money to the recipient. This occurs because subsidies, while attractive, are directly drawn from the MDB's limited resources and thus can be provided only in relatively small amounts. Guarantees, however, do not require immediate cash outlay, enabling higher coverage and potentially larger mobilization of private funds.

However, if the guarantee coverage, $G = 10\%$, then:

$$\text{Crowding In with Guarantees} = I_0 \cdot (1 + G \cdot \theta) = \$100(1 + 10\%(2)) = \$120$$

⁶ We define the "risk gap" as the disparity between actual risk and investors' heightened perceptions of risk. This gap often arises from unfamiliar technologies, regulatory uncertainties, market volatility, or country-specific risk factors.

Now, subsidies (\$140) clearly dominate guarantees (\$120) because at lower coverage levels, guarantees lose their advantage in mobilizing private capital.

Policy implications: Subsidies offer immediate financial relief—reducing the upfront capital burden or operating costs—but impose a direct fiscal outlay, which can limit their use. They do not lower the project’s perceived risk or cost of capital; rather, they boost feasibility for early-stage or unproven technologies by overcoming investor reluctance. In contrast, guarantees transfer downside risk to a creditworthy entity, helping high-risk projects obtain financing at improved terms without an immediate drain on public budgets (though they create contingent liabilities). Thus, while subsidies effectively lower net costs, guarantees excel at risk mitigation, making them especially potent where bridging the “risk gap”⁷ matters more than shaving financing costs. Both instruments are often combined to strike a balance between feasibility, budget constraints, and investor confidence.

Overall, the effectiveness of guarantees, or any other instrument, depends on the context, requiring careful assessment of market conditions, investor behavior, and project characteristics. The ability of guarantees to mobilize private capital is well documented (Bandura and Ramanujam, 2019). Although guarantees by MDBs and DFIs have significant potential, they represent only a small fraction of these institutions’ portfolios and are rarely triggered. Only thirteen out of 30 OECD DAC members have structured guarantees for development purposes. While these guarantees aim to attract private capital, their actual leverage effect largely depends on the risk level of each project (Bandura and Ramanujam, 2019). Riskier projects are more likely to benefit from guarantees but also face a higher chance of default. For instance, according to a report by Bandura and Ramanujam (2019), by utilizing USD 7.4 billion in commitments, the World Bank structured 48 guarantees that mobilized USD 30.2 billion in commercial financing, resulting in a leverage ratio of 4:1. In another example, the World Bank structured 13 guarantees worth USD 1.7 billion, which mobilized USD 5.9 billion in commercial financing, achieving a leverage ratio of 3.5.

In summary, the following can be inferred from the case studies presented in the **Appendix**:

- **High Leverage and Risk Mitigation:** Guarantees directly transfer political, credit, and performance risks to institutions with deeper risk tolerance, thus lowering risk premiums. This not only reduces borrowing costs but also enables private investors to step in—often at a 3- to 4-fold leverage ratio—unlocking multiple times the guarantee amount in capital.
- **Deal Closure and Bankability:** In high-risk projects, guarantees serve as a “seal of quality” that transforms potentially unbankable deals into viable investments. They address investor concerns directly, ensuring that projects move forward by securing financing on favorable terms, which is crucial for the long-term success of infrastructure.
- **Credit Uplift and Investor Confidence:** With robust guarantee backing, projects achieve improved credit ratings, sometimes moving from non-investment grade to investment grade. This rating uplift opens up access to a broader base of institutional investors and results in lower interest spreads, further reducing the cost of capital.
- **MDB Capital Efficiency and Trade-Offs:** While guarantees are typically recorded on MDB balance sheets as contingent liabilities at the full-face value—equivalent to direct loans—they typically require significantly lower actual capital provisioning upfront compared to loans or

⁷ We defined the “risk gap” as the disparity between actual risk and investors’ heightened perceptions of risk. This gap often arises from unfamiliar technologies, regulatory uncertainties, market volatility, or country-specific risk factors.

subsidies. Capital provisioning rates may vary across MDBs, but guarantees often remain more capital-efficient due to lower immediate disbursement requirements. These leverages limited public funds to mobilize significantly larger volumes of private finance. However, MDBs must carefully manage these contingent exposures.

- **Optimal Instrument Selection:** Guarantees excel when investor risk perception—rather than underlying project risk—is the binding constraint. Projects that are fundamentally sound yet stalled due to overstated investor concerns or uncertainty benefit most from guarantees. Conversely, when affordability or actual project economics pose the primary challenge, concessional loans or direct subsidies may be more suitable. Typically, the optimal financing structure blends these instruments, strategically targeting different barriers—whether perceived risks, real economic constraints, or both.

3. Barriers to the Use and Effectiveness of Guarantees

Despite their advantages, guarantees face several challenges that limit their broader application:

- **Guarantees are only recognized in the ODA when paid.** According to the Official Development Assistance (ODA) under current Development Assistance Committee (DAC) rules, this could be a reducing factor of their appeal to bilateral donors (Humphrey & Prizzon, 2014).
- **Capital Treatment:** MDBs typically apply the same capital accounting treatment to guarantees as they do to direct loans, which means guarantees consume an equivalent amount of capital even though they usually pose lower risk (IEEFA, 2023). This uniform approach does not accurately reflect the inherent advantage of guarantees in transferring rather than directly absorbing risks. As a result, it limits MDBs' ability to leverage their balance sheets more effectively. Adjusting capital adequacy frameworks to differentiate between guarantees and loans—recognizing guarantees' lower risk profile and enabling risk-based capital allocation—could greatly enhance MDBs' capacity and incentives to issue more guarantees, thereby encouraging greater mobilization of private capital.
- **Moral hazard:** Moral hazard is a major challenge in using guarantees for large infrastructure projects. Borrowers, knowing their losses may be partly covered by guarantees, might be encouraged to take on excessive risk. Similarly, lenders might become less diligent if they are fully or substantially protected by guarantees, which can increase moral hazard. This issue can be effectively reduced by using partial guarantees, ensuring lenders still face some risk and stay motivated to conduct thorough due diligence. Additional strategies include clear subrogation clauses that let guarantors recover losses from borrowers, risk-sharing schemes where lenders are required to co-invest, and performance-based pricing that ties guarantee costs to loan performance.
- **Supply-Side Constraints and Limited Transparency:** In LDCs and underserved markets, there is often a limited pipeline of bankable projects and insufficient market data to inform proper pricing and structuring of guarantees. Transparency issues in the blended finance space also

hinder the scalability of guarantees. Confidentiality around financial performance data, engagement terms, and project outcomes limits access to vital information needed for investors to evaluate similar projects' success. This lack of transparency reduces investor confidence and makes it harder for guarantees to mobilize additional capital for climate finance projects. Initiatives like the Global Emerging Markets Risk Database (GEMS), which compile and publish standardized risk and performance data, can greatly improve transparency. By offering reliable benchmarks and historical data, GEMS supports informed investment decisions, enhances investor confidence, and strengthens guarantees' ability to draw in more private funding. Without greater transparency, blended finance instruments, including guarantees, remain underutilized in scaling up investment (OECD, 2022). Transparency is critical for building investor confidence, as guarantees can amplify debt financing—often by five times the guarantee amount (SYSTEMIQ, 2023).

- **Inadequate Legal Frameworks:** Additionally, the legal and administrative requirements for these guarantees are often cumbersome. Legal uncertainties in many developing countries create significant challenges for the implementation of guarantees. Inadequate or unclear legal frameworks around the rights and obligations of guarantors, lenders, and borrowers create risks, particularly in enforcing claims in case of default. Without a clear, enforceable legal environment, guarantors may struggle to recover funds or assert claims, which reduces their willingness to provide guarantees. This adds another layer of complexity to deploying guarantees in climate finance (European Investment Bank, 2014).
- **Macroeconomic Instability and Underdeveloped Financial Markets:** Macroeconomic instability and underdeveloped financial markets further impede the deployment of guarantees. A lack of comprehensive climate finance data increases perceived risks, limiting the flow of private capital into climate projects (Oman et al., 2022). Moreover, in developing economies with underdeveloped financial systems, the complexity of guarantee mechanisms can overwhelm local institutions, making it difficult to deploy guarantees effectively. This issue is particularly evident in sectors like water and sanitation, where guarantees have been underutilized (Bhattacharya et al., 2019).
- **Political and Regulatory Risks:** While instruments such as political risk insurance (e.g., those offered by MIGA and others) are specifically designed to mitigate the risks associated with instability and policy uncertainty, their effectiveness still depends on a basic level of institutional predictability. In many developing countries, particularly in Sub-Saharan Africa, high levels of political instability and regulatory volatility continue to deter private investment—even in the presence of guarantees. Inconsistent policies, shifting regulations, and weak enforcement mechanisms undermine investor confidence and dilute the perceived protection offered by guarantees. As a result, private actors often remain reluctant to commit to long-term projects in these environments (Bhandary et al., 2021; Bhattacharya et al., 2016).
- **Investor Perception:** Private investors often prefer loans over guarantees, especially with sovereign borrowers, as loans tend to offer more liquidity and simpler structures. Furthermore, the market perceives loans as easier to negotiate and implement than guarantees, especially in sovereign-guaranteed (SG) transactions. Additionally, a limited pipeline of investible projects and fragmented funding ecosystems weaken investor confidence and hinder effective deployment of guarantees. Project owners frequently face high capital costs due to factors like low sovereign credit ratings, poor project returns, and limited funding for adaptation projects,

which increase the cost of capital. Moreover, smaller or community-driven projects, which often have significant potential for climate impact, find it difficult to secure guarantees because of their smaller scale and perceived higher risks. This gap results in many promising projects remaining underfunded, reducing the ability of guarantees to fully address climate finance needs (Vogel & Adams, 1997; Bhattacharya et al., 2016).

4. Recommendations for More Effective Use of Guarantees

To maximize the potential of guarantees in development finance, several actions can be taken to address the challenges outlined above and scale up their use:

4.1. Recommendations for Guarantors

Promoting standardization among donors and development finance institutions (DFIs) is a vital step in unlocking the potential of guarantees. Standardizing guarantee products can lower transaction costs and reduce complexity, making these guarantees more attractive to private investors. This streamlined approach would not only facilitate faster deal-making but also foster a global framework that accelerates capital mobilization.

Capital accounting reform is another critical step. Multilateral Development Banks (MDBs) should adjust their capital accounting rules to favor guarantees over loans, reflecting the lower risk and likelihood of capital calls associated with guarantees. This change would incentivize MDBs to provide more guarantees, unlocking private investment at a larger scale. Additionally, MDBs might consider expanding the use of full credit substitution guarantees—where the MDB fully assumes the borrower’s debt-service obligations in case of default, effectively replacing the borrower’s creditworthiness with the MDB’s strong credit rating. This type of guarantee significantly boosts the borrower’s creditworthiness, often reducing borrowing costs and enabling access to finance on better terms. By covering principal and interest payments entirely, full credit substitution guarantees can attract institutional investors who generally seek lower-risk investments, thereby broadening the investor base and greatly increasing private capital mobilization for infrastructure and climate projects.

Another key strategy involves optimizing coverage ratios. Successful guarantee programs must balance risk mitigation with investment incentives. Guarantors should adopt more dynamic and tailored approaches to risk management, aligning their risk tolerance with the unique profile and impact potential of individual projects. The Green Climate Fund (GCF) exemplifies this approach by customizing guarantee terms based on specific project characteristics, sectoral risks, and anticipated development outcomes. Making dynamic adjustments to guarantee coverage ratios and expanding partial risk coverage would further enhance private sector involvement, particularly in higher-risk regions where traditional financing is limited. MDBs and policymakers can realistically adopt such models by clearly defining flexible risk frameworks, facilitating targeted risk-sharing, and effectively mobilizing private capital—especially for innovative or climate-focused projects where conventional financing falls short.

To further encourage private sector participation, MDBs should focus on enhancing communication with investors. Showcasing the benefits of guarantees, particularly through successful case studies, can build investor trust. Highlighting MDB involvement in governance and transparency improvements will also enhance demand for guarantees. Additionally, strengthening coordination and partnerships among donors, DFIs, MDBs, and private sector players is essential.

A key enabler for effective guarantee deployment is building financial expertise. DFIs and aid agencies must invest in training programs and form partnerships with private sector institutions to design, manage, and implement guarantee schemes effectively. Such capacity building will bridge expertise gaps and improve program outcomes. In fragile sectors and markets, including agriculture, healthcare, and climate finance, **targeting the least developed countries (LDCs)** is vital.

In addition to these strategies, increasing the use of local currency guarantees is crucial. By issuing guarantees in local currencies, MDBs can effectively reduce foreign exchange (FX) risks for borrowers, promote financial stability, and strengthen local capital markets—especially in regions with high currency volatility. Specifically, MDBs can establish targeted FX risk guarantees that focus on tail risks—covering severe or unexpected depreciation events rather than everyday currency fluctuations. Brazil’s Eco Invest Program illustrates this approach, employing specialized currency hedging instruments designed specifically to handle extreme currency volatility. Such FX guarantees provide liquidity and protect projects from unanticipated currency shocks, boosting investor confidence and encouraging sustainable foreign investment in high-risk environments.

Diversifying funding sources is another key priority. Guarantors should leverage a variety of funding streams, including philanthropic contributions and government grants, to sustain guarantee programs. While philanthropic organizations generally do not provide direct loans under guarantees, they can offer essential concessional resources, grants, or first-loss capital to help grow and sustain guarantee facilities. Issuing green or sustainable bonds can expand the investor base and drive demand for climate finance. Partnerships with development banks and reinsurance companies can also provide additional funding, strengthening the resilience of guarantee programs and aligning with the global climate finance agenda.

A dedicated climate mobilization mandate is essential to ensure public funds are directed toward climate-related projects. This mandate should incorporate strong risk management strategies and enhanced reporting standards to improve transparency and accountability. Promoting private sector participation through risk-sharing mechanisms will greatly increase investment in climate initiatives.

Rather than creating new facilities, the strategy should focus on scaling existing guarantee products. Leveraging established institutions with proven track records can expedite the deployment of guarantees, ensuring rapid support for climate investments in emerging markets. This approach reduces setup time and costs, allowing for efficient capital deployment.

4.2. Recommendations for Investors and Lenders

Investors and lenders—often the primary beneficiaries of guarantees—must first ensure they thoroughly understand the guarantee structure to make informed decisions. This requires clarity on the specific risks covered by the guarantee and the conditions under which claims can be filed. Transparency in these terms, along with an assessment of the guarantor’s financial strength, is crucial for determining the guarantee’s reliability. Additionally, aligning the fees associated with the guarantee with the expected returns is essential for making sound investment decisions.

While guarantees provide partial risk mitigation, thorough due diligence remains essential for investors. This includes a comprehensive evaluation of market conditions, project risks, and borrower creditworthiness. For impact-focused investors, there is also a focus on ensuring that investments support broader social and environmental goals alongside financial returns. Conducting comprehensive due diligence helps investors develop a solid investment strategy and reduces potential project risks.

Finally, diversification and risk management are key to maximizing the benefits of guarantee-backed investments. Investors should spread their portfolios across various projects and guarantors to reduce risk. Hedging strategies, such as currency and interest rate swaps, can also help lower financial exposure. Additionally, using third-party project monitoring and co-financing arrangements can strengthen risk management and improve overall project results. These methods are already commonplace, and by adopting them, investors can better navigate the complexities of guarantee-backed investments and enhance their chances of success.

4.3. Recommendations for Project Developers and Debtors

For project developers seeking to secure financing, a strong understanding of guarantee structures and financial modeling is crucial. This knowledge helps developers customize their proposals, making projects more appealing to potential lenders. With the right expertise, developers can recommend guarantees that best fit their projects, significantly increasing their chances of obtaining the necessary funding.

When it comes to guarantee applications, a well-structured and detailed submission is essential for a favorable evaluation. Developers should clearly outline the project's specifics, associated risks, and the coverage they seek. Highlighting the project's viability, along with robust financial returns supported by the guarantee, is essential. Additionally, demonstrating a proven track record and risk mitigation strategies beyond the guarantee can greatly improve the chances of approval. Partnering with banks already supported by guarantors can strengthen the application, but if such collaborations are not possible, developers may need to invest in building internal capacity to handle the guarantee process efficiently.

Clear and consistent communication with guarantors and investors throughout project implementation is vital for maintaining trust and ensuring smooth operations. Regular financial reporting and diligent risk monitoring not only keep stakeholders informed but also provide tangible proof of project performance and compliance with guarantee terms.

5. Relevance and Implications

A strong, well-functioning guarantee market acts as a catalyst for financial innovation, encouraging the creation of new instruments tailored to the evolving demands of climate finance. By expanding the pool of investable projects and deepening private sector involvement, guarantees can help reshape the global financial architecture, aligning it more closely with the Sustainable Development Goals (SDGs).

As demand for sustainable investments continues to rise, well-designed guarantee programs will establish benchmarks that attract a broader range of investors, ensuring capital is allocated efficiently.

- a) Reforming Project-Based Guarantees:** Implementing the recommendations outlined earlier will greatly enhance the guarantee process by reducing market obstacles and speeding up project timelines. Using standardized terms and clearer guidelines will lower transaction costs, while more tailored structures and optimized coverage ratios will make guarantees more appealing to private investors.
- b) Contributions to Global Financial Architecture and MDB Reforms:** The recommendations for guarantors, investors, and project developers are highly relevant to ongoing reforms in the global financial system. These proposals resonate with discussions at major climate platforms such as COP28, the Africa Climate Summit, and the Summit for a New Global Financial Pact.
- c) Strategic Impacts of Guarantee Reforms:** The recommendations outlined for enhancing the use and effectiveness of project-based guarantees hold immense potential to shape the future of climate finance.
- d) Implications for Investors and Project Developers:** For investors and project developers, understanding guarantee structures is essential to make informed decisions that align with broader social and environmental objectives. Transparent terms and thorough due diligence will build trust and unlock the potential of climate finance.

Conclusion

This paper has highlighted the crucial role of guarantees in mobilizing private capital for climate finance, particularly in EMDEs where perceived risks often deter investment. By analyzing various de-risking strategies—including guarantees, concessional loans, and subsidies—it is clear that each approach offers unique benefits depending on the financial structure, risk profile, and market conditions of climate projects. Guarantees consistently prove effective in high-risk environments by reducing perceived risks and enhancing the attractiveness of projects to private investors.

The comparative analysis and select case studies have shown that well-structured guarantees can unlock substantial investment in important sectors like renewable energy, energy efficiency, and climate adaptation. However, the success of guarantees depends on their design and implementation, including strong risk-sharing mechanisms, alignment with project goals, and safeguards to prevent moral hazard. When used wisely, guarantees can lower financing costs, attract diverse sources of capital, and support large-scale climate projects.

Despite their proven benefits, guarantees are still underused in the current climate finance landscape. Many regions, particularly those most vulnerable to climate change, continue to face barriers to accessing these financial tools. To unlock the full potential of guarantees, it is important to expand their use, tailor them to meet the needs of small and medium-sized projects, and make them accessible to a broader range of stakeholders. Expanding the scope of guarantees and pairing them with complementary financial instruments—such as concessional loans and blended finance—will be key to building an inclusive and resilient climate finance system.

Looking ahead, the effective scaling of guarantees will require stronger collaboration between multilateral development banks, governments, and private sector actors. These partnerships will be key to unlocking the capital needed to drive the transition to a low-carbon, climate-resilient future. As climate goals become increasingly urgent, guarantees must become a central pillar of international efforts to mobilize finance for sustainable development.

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Appendix: Case Studies of Guarantee Use

The following case studies highlight the practical application of guarantees in diverse contexts, showcasing their ability to de-risk investments, mobilize capital, and drive sustainable development.

a) Case Study 1: Lake Turkana Wind Power (LTWP) Project

The Lake Turkana Wind Power Project (LTWP) is the largest wind energy project in Africa, delivering 310 MW of renewable energy, which constitutes 17% of Kenya's total electricity generation. It is situated in the remote region of Marsabit County.

Case Study 1: Lake Turkana Wind Power (LTWP) Project	
Objective	Mobilize private investment for a 310 MW wind farm while mitigating political and contractual risks.
Stakeholder Landscape	African Development Bank (AfDB), the Kenyan government, private investors, and European Investment Bank.
Financing Mechanism	A Partial Risk Guarantee (PRG) from the African Development Bank (AfDB), combined with mezzanine debt, equity, and senior loans, de-risked the project, unlocking USD 600 million in private sector financing.
Implementation and Operations	<p>Timeline:</p> <ul style="list-style-type: none"> • <i>Planning (2006–2009):</i> The project secured financial backing and dealt with initial institutional hurdles. • <i>Construction (2010–2017):</i> Faced delays due to infrastructure and regulatory issues, but collaboration between the Kenyan government, private investors, and AfDB helped resolve them. • <i>Full Operation (2018):</i> Began delivering power to the grid, with 365 wind turbines generating renewable energy.
Challenges and Constraints	<ul style="list-style-type: none"> • <i>Financial Challenges:</i> High perceived risks of government payment delays and the construction of the transmission line posed a threat. These were mitigated by the AfDB's PRG, which facilitated investor confidence and unlocked private capital. • <i>Institutional Challenges:</i> Delays in bureaucratic approvals and regulatory uncertainties required proactive stakeholder engagement and government assurances. • <i>Social and Environmental Barriers:</i> The remote location posed logistical challenges, and securing community buy-in was essential. These issues were addressed through infrastructure development, such as road construction and electrification, benefiting local communities.
Risk Management	<ul style="list-style-type: none"> • The PRG was crucial in addressing key risks, including potential government defaults and delays in grid connection, which ensured that the project remained viable and attracted investors.

Case Study 1: Lake Turkana Wind Power (LTWP) Project	
Impact	The project is expected to prevent up to 16 million tons of CO2 emissions over its lifecycle. Additionally, it created 2,500 jobs during construction and over 200 permanent jobs, while enhancing local infrastructure.
Lessons	The PRG de-risked the project, ensuring private sector participation. Collaboration between public and private actors was key, and the project's strategic location maximized wind energy potential. Challenges such as transmission line delays underscored the need for synchronized project timelines and sustained political risk management. The model used for this project can be scaled in other countries with abundant renewable resources and can be extended to sectors like solar power and infrastructure projects.
Reference	link

b) Case Study 2: Pakistan Distributed Solar Project

Pakistan’s energy sector relies heavily on fossil fuels, driving high emissions. The Pakistan Distributed Solar Project aims to reduce this dependency by scaling up solar PV energy generation, aligning with the country’s climate resilience and emissions reduction goals under the Paris Agreement.

Case Study 2: Pakistan Distributed Solar Project	
Objective	Expand solar PV energy generation in Pakistan by mobilizing private capital through guarantees and risk-sharing mechanisms.
Stakeholder landscape	The Green Climate Fund (GCF) provided the guarantee, with JS Bank handling project financing. Local solar PV vendors were key players in implementation, supported by public and private sector collaboration.
Financing mechanism	A USD 9 million GCF guarantee enabled JS Bank to offer loans worth up to five times the guarantee (approximately USD 44 million). The guarantee covers 90% of potential defaults, with JS Bank responsible for the remaining 10%.
Implementation and Operations	The project is ongoing, with a focus on building capacity for solar vendors, disbursing loans, and continuous monitoring by JS Bank and GCF. JS Bank conducts due diligence on projects, while GCF provides oversight and claims recovery through subrogation rights.
Challenges and Constraints	<p><i>Financial Challenges:</i> Investor reluctance, driven by perceived risks in the solar sector, posed a barrier. The GCF guarantee addressed this by covering most potential losses, attracting private capital.</p> <p><i>Institutional Challenges:</i> Regulatory delays and bureaucratic hurdles could slow implementation but are mitigated by thorough planning and coordination.</p> <p><i>Social and Environmental Barriers:</i> Raising awareness about renewable energy and securing community support remain priorities for promoting solar PV adoption.</p>
Risk Management	The pro-rata risk-sharing mechanism mitigates financial risks, while thorough due diligence by JS Bank reduces the likelihood of defaults.
Impact	The project is expected to prevent 848,700 tons of CO2 emissions, stimulate renewable energy investment, and create jobs in solar PV installation and maintenance.
Lessons	Success Factors: This project illustrates the power of guarantees to unlock private capital for renewable energy. Strategic public-private partnerships, robust risk-sharing, and local capacity building were crucial to its success.
References	link 1 , link 2

c) Case Study 3: Scaling Up Energy Efficiency for Industrial Enterprises in Vietnam

Vietnam’s industrial sector is highly energy-intensive, contributing significantly to greenhouse gas emissions. Improving energy efficiency is critical for reducing energy consumption, enhancing energy security, and meeting the country's climate commitments under the Paris Agreement.

Case Study 3: Scaling Up Energy Efficiency for Industrial Enterprises in Vietnam	
Objective	Improve energy efficiency in Vietnam’s industrial sector by mobilizing private capital through risk-sharing mechanisms, loans, and equity investments.
Stakeholder Landscape	Key stakeholders include the Ministry of Industry and Trade, local Private Financial Institutions (PFIs), the Green Climate Fund (GCF), and the World Bank. The Ministry provides guidance, PFIs manage project financing and implementation, and the GCF provides risk-sharing support.
Financing mechanism	The project is structured around a USD 75 million GCF risk-sharing facility. This includes an initial USD 3 million to establish the facility and USD 8.3 million allocated for technical assistance, with total mobilization expected to exceed USD 400 million through loans and equity investments.
Implementation and Operations	The project proceeds in phases, beginning with the establishment of the risk-sharing facility, followed by loan disbursements and continuous monitoring. Technical assistance and training are provided to PFIs and industries to ensure effective financing and energy efficiency improvements.
Challenges and Constraints	<p><i>Financial Challenges:</i> High upfront costs and limited access to financing for energy efficiency projects were key obstacles. These were addressed by the GCF risk-sharing facility and concessional financing options.</p> <p><i>Institutional Challenges:</i> Limited capacity within local PFIs to assess and manage energy efficiency projects posed difficulties. This was mitigated through technical assistance and capacity-building programs from the GCF.</p> <p><i>Social and Environmental Barriers:</i> Although there were few significant social or environmental barriers, some industry resistance to adopting energy efficiency measures was addressed through financial incentives and awareness campaigns</p>
Risk Management	The risk-sharing facility, supported by GCF guarantees and IBRD loans, reduced financial risks for PFIs and investors, encouraging their participation.
Impact	The project mobilized over USD 400 million in total financing. Energy consumption was reduced by an estimated USD 69 million annually, contributing significantly to Vietnam’s climate goals and enhancing the energy efficiency of its industrial sector.
Lessons	The GCF risk-sharing facility played a pivotal role in de-risking investments and mobilizing private capital. Strong collaboration between the GCF, World Bank, PFIs, and local industries ensured the project’s successful implementation. Capacity-building efforts were essential for equipping local institutions to handle energy efficiency financing.

References

[link 1](#), [link 2](#)

d) Tanzania Agriculture Climate Adaptation Technology Deployment Programme

Tanzania’s agricultural sector is highly vulnerable to climate change, with smallholder farmers disproportionately affected by erratic rainfall and droughts. The programme aims to enhance climate resilience in agriculture by introducing financial innovations, including credit enhancement and parametric insurance.

Case Study 4: Tanzania Agriculture Climate Adaptation Technology Deployment Programme	
Objective	De-risk agricultural investments and improve climate resilience for Tanzania’s agricultural sector, particularly for smallholder farmers and SMEs.
Stakeholder landscape	Key stakeholders include the Green Climate Fund (GCF), CRDB Bank, local insurance providers, and smallholder farmers. CRDB Bank manages project implementation, with GCF and local partners providing risk-sharing mechanisms.
Financing mechanism	The programme uses a blended finance model, combining GCF grants, guarantees, and low-interest loans to de-risk agricultural investments. A USD 10 million credit enhancement facility increases lending capacity, while parametric insurance offers protection against climate-related losses.
Implementation and Operations	The project is executed in phases, starting with the establishment of the credit enhancement facility and the rollout of a parametric insurance pilot. Capacity-building initiatives provide technical assistance and training to financial institutions, insurance providers, and farmers to ensure sustainable use of financial products.
Challenges and Constraints	<p><i>Financial Challenges:</i> Smallholder farmers often face high interest rates and limited access to credit. The credit enhancement facility, backed by low interest loans, helps address these barriers.</p> <p><i>Institutional Challenges:</i> Capacity constraints within local banks and insurance providers can delay implementation but are mitigated by the technical assistance provided by GCF.</p> <p><i>Social and Environmental Barriers:</i> Limited awareness among farmers about climate risks and insurance products presents challenges. This is addressed through targeted outreach and education initiatives to promote understanding and adoption.</p>
Risk Management	The pro-rata risk-sharing mechanism between the GCF and CRDB Bank mitigates credit risks, while parametric insurance provides coverage against climate impacts like drought and erratic rainfall.
Impact	The programme enhances climate resilience by increasing farmers’ access to climate adaptation technologies and finance. It promotes financial inclusion, particularly for smallholder farmers, and supports gender equity by focusing on women farmers who are highly involved in the agricultural sector.
Lessons	The successful use of blended finance to de-risk agricultural investments demonstrates its potential for replication in other sectors. Strong partnerships

	between international and local financial institutions, along with capacity-building efforts, were critical in ensuring the programme's sustainability and scalability.
References	link 1



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