



THE
AFRICAN
CLIMATE
FOUNDATION



**SCALING UP
RENEWABLE ENERGY
SOLUTIONS IN AFRICA**
POLICY PROPOSALS
FOR DEVELOPMENT
FINANCE INSTITUTIONS



Africa's¹ energy production and consumption reflects the unsustainable use of its well-endowed hydrocarbon resources, manifesting in profoundly unequal access and grossly uneven socio-economic economic outcomes. Beset by considerable energy deficits² and structural challenges, including inadequate capacity of power utilities, the energy markets in numerous African countries are fragmented and unsustainable. While some progress had been made in the last decade, investment in energy transition³ across Africa remains low, accounting for only 2% of global investments in renewable energy in the last two decades. Given that many African countries have limited fiscal space and weak capital markets to address its numerous challenges – at the current rate of investment (foreign and domestic) – it is unlikely that Africa will achieve the Agenda 30 Sustainable Development Goals (SDG) and its decarbonisation targets. Meeting the ambitious targets for Africa's decarbonisation and sustainable development will require an equally ambitious plan to tackle these twin energy challenges. Importantly, a comprehensive strategy to finance its growing energy requirements and energy transition is imperative – one that includes financial mobilisation from multiple sources and innovative instruments.

This policy brief acknowledges the significant role of development finance institutions (DFIs) in mobilising development finance, de-risking investments and transforming financial markets to increase public and private investment in renewable energy solutions in Africa. It argues for DFIs to increase financial mobilisation and reweight their portfolio to support Africa's energy transition and development. Key research findings are highlighted, focusing on the background and current investment deficit, as well as the chief barriers faced by African countries in addressing energy poverty and fostering transition to sustainable energy. Based on these findings, it concludes with some recommendations to upscale investment in renewable energy, and emphasises the need for further research.

1 Important to note the vast diversity in the magnitude and materiality of risks which vary across African countries.

2 Over 600 million households without access to reliable electricity – International Renewable Energy Agency (IRENA).

3 Transition in this brief refers to transition towards low-carbon energy generation and a low-carbon economy.

INTRODUCTION

Secure energy access and climate resilience are essential to sustainable development⁴ in Africa. With abundant deposits of fossil fuels, Africa has reflected its dependence on these captive hydrocarbon fuels and biofuels.⁵ While Africa contributes 3–4% of global emissions,⁶ it experiences the most devastating impact of climate change, accounting for 35 of the 50 most vulnerable countries globally.⁷ However, it also has considerable potential to harness clean energy⁸ from its extensive natural renewable resources (wind, solar, hydro and geothermal resources). Crucially, transitioning to ‘clean’ sources provides an opportunity to address energy poverty and inequity. The brief argues that, by bringing climate change interventions to the forefront of development thinking and planning, Africa can foster a vibrant, climate-resilient, just and inclusive socio-economic development path that delivers sustainable and equitable growth.⁹

Additionally, given its energy deficit, Africa offers a lucrative market for investment in renewable energy, with potential estimates for energy generation ranging from 110 gigawatt (GW) for wind to around 10 terawatt (TW) for solar.¹⁰ Underpinned by the Paris Agreement, numerous African countries have made commitments and begun to invest in, or upscale, their energy transition programmes. The market potential is further bolstered by the opportunity to develop and supply scalable solutions to the continent’s 759 million (and growing) unserved people and local businesses.¹¹ Crucially, affordable sustainable electricity must be at the forefront of Africa’s new development path – one that prioritises inclusive economic growth, just and shared prosperity, as well as enabling new economic opportunities for industrialisation. In essence, I argue that improved development outcomes and clean energy transition should not be viewed as mutually exclusive development programmes.

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4 SDGs 7 & 13.

5 Biofuels, particularly wood, is used in household heating and cooking.

6 Carbon Disclosure Project (CDP) 2021.

7 World Economic Forum (WEF) 2021.

8 Clean energy and green energy are used interchangeably to represent renewably energy.

9 African Climate Foundation Strategic Framework 2021-2025.

10 African Development Bank (AfDB) and IRENA.

11 Ernst & Young (E&Y), Attractiveness Programme in Africa.



INVESTMENT GAP AND BARRIERS

Estimates to finance Africa's energy transition, addressing both technology change and inequitable access, are estimated around US\$35 billion per annum on average¹² or 6% of its GDP¹³ over the next decade. While investment has grown rapidly since 2009, the participation levels from investors has varied across countries.¹⁴ The energy sector attracted about 45% of total inflows,¹⁵ mainly from DFIs, bilateral investment (largely Chinese) and limited private investment.¹⁶ Private sector investment in renewable energy¹⁷ was, however, modest and insufficient to meet the burgeoning infrastructure requirements. Additionally, private participation was often limited to bespoke contractual agreements specific to individual projects and technology. Investment in transmission infrastructure, often owned and managed by the state and critical to encourage investment both upstream and downstream projects, was driven mainly by public sector concessional funding.

Despite the growing appetite for renewable energy investment in Africa over the last decade, the investment deficit remains considerable, and uneven across the continent, heightening concern over the looming impacts of continued anthropogenic climate change and

12 UNEP (2021), AfDB (2020), World Bank (2021).

13 European Investment Bank (EIB).

14 This is often ascribed to the diversity of policy, uncertainty and poor transparency.

15 Gutman, J.; Sy, A.; Chattopadhyay, S. *Financing African Infrastructure: Can the World Deliver*; The Brookings Institution: Washington, DC, USA, 2015.

16 Baumli and Jamasb (2020).

17 Despite the growth of private sector investment in other sectors, particularly communication infrastructure, which has grown significantly.

unsustainable energy poverty. Several factors are cited as drivers of this trend, including the fragile risk-return profiles of long-term projects, policy uncertainty and macroeconomic risks,¹⁸ complexity in the regulatory environment, modest revenue recovery levels, structural impediments (including limited financial markets), weak technical capacity, and perceptions on political complexity. Many of these factors are specific to each country, with varying degrees of materiality and consistency. While all these factors are considered in decisions, six factors that require attention are worth highlighting:

- i. Policy uncertainty as well as a lack of confidence in policy effectiveness is identified by IRENA¹⁹ and econometric studies respectively.²⁰ Given the bulky upfront sunk costs in technology and the long-term nature of the projects, renewable energy projects are especially sensitive to these potential or perceived policy risks.
- ii. At the substantive level, policy frameworks that reflect bias and historical vested interests in incumbent fossil fuel technologies are significant investment disincentives for renewable energy investors.
- iii. Institutional weaknesses (such as complex regulatory environments), lack of coherent regulatory frameworks, opaque judicial independence,²¹ poor contractual enforcement, corruption and lack of transparency impact unfavourably on investor confidence.
- iv. Microeconomic, macroeconomic and structural factors are fundamental considerations for investment, as they have an influence on other risks. They include monetary policy and related currency risks, weak domestic capital markets, dependency on volatile commodity markets, weak manufacturing capacities and price distortions.
- v. Limited capital and capacity to support project preparation and a suitable pipeline of bankable projects is also a major constraint in attracting investors. Bankable project pipeline development at scale is often a reassurance to financiers of the potential in domestic markets and captures their attention.
- vi. New technologies and technology gaps continue to pose a risk in emerging markets, particularly in Africa. These risks include some resistance to transformation, the high cost of introducing these new technologies, a technical skills deficit, and adequacy of existing transmission and distribution infrastructure to accommodate the new technologies.²²

These factors are emblematic of the political, economic and structural challenges faced by African countries (to varying degrees), and explains the relatively low levels of actual investment in renewable energy despite its endowments of natural resources and the huge demand for energy access. Changing mindsets about these factors (real or perceived) are critical to upscale investments in Africa. DFIs have played a significant role in addressing some of these constraints and barriers to foster investment in the renewable energy sector across the continent. To close the investment gap, DFIs will need to build on their existing programmes and develop new strategies to radically upscale investment to meet Africa's combined nationally determined contributions (NDCs).

18 Often ascribed to the dependency on price-volatile primary commodities for many African countries.

19 IRENA (2016).

20 Econometric analysis of investments by Masini and Menichetti, along with a study by Baumli and Jamasb.

21 That supports fair contractual settlement and enforcement.

22 In most instances, transmission and distribution infrastructure is either absent or poorly maintained. Often these assets are controlled by vertically integrated state-owned utility companies that are often under financial stress requiring repeated government bailouts and other exceptional measures. An advantage, however, is the scalability of renewable energy technologies that can be adapted for outlying remote and rural areas as standalone micro-utilities, not requiring a new grid.



ROLE OF DFIs

Given the investment risks discussed above, multilateral and national DFIs have played an important catalytic role in mobilising finance and mitigating risks. Supported by rapidly declining technology costs in renewable energy, the Global Climate Agenda 2030 and the pressure to address energy poverty in Africa, DFIs have increased their support for investment in clean energy projects. The current trends show a greater (not sufficient) appetite for investment in renewable energy technologies in Africa, driven mainly by:

- Commitment by major development partners at COP26, including Multilateral Development Finance Institutions (MDFIs) to increase support for mitigation programmes.²³
- Commitment from bilateral financiers, including the Bank of China, to no longer provide financing for new coal mining and coal-fired power projects.²⁴ This shift in investment emphasis will create opportunities for African countries to leapfrog towards renewable technologies.
- Rapidly reduced capital costs and the proven success of new renewable technologies, contributing to lower tariffs compared with fossil fuel generated power and relative price stability. To an extent, this has begun to attract greater private sector participation in this sector.²⁵
- DFI agreements to support capacity enhancement in targeted African countries, with technical support programmes in project preparation, design and implementation.
- Renewed commitment to Article 6 of the Paris Agreement, particularly the potential of internationally transferred mitigation outcomes (ITMOs) to raise finance and revitalise the managed carbon market environment. Note that Africa's participation in its design is critical.

23 Decision -/CP.26 Glasgow Climate Pact. (n.d.). [online] Available at: https://unfccc.int/sites/default/files/resource/cop26_auv_2f_cover_decision.pdf. In particular sections: 26. *Notes with deep regret* that the goal of developed country parties to mobilise jointly USD 100 billion per year by 2020 in the context of meaningful mitigation actions and transparency on implementation has not yet been met,; 27. *Urges* developed country parties to fully deliver on the USD 100 billion goal urgently and through to 2025, and *emphasises* the importance of transparency in the implementation of their pledges.

24 South China Morning Post – 25 September 2021, and Unfccc.int. (2021). [online] Available at: <https://unfccc.int/news/end-of-coal-in-sight-at-cop26>.: 'Most countries have now committed phase-out or phase-down approach to financing of coal-generated power projects, prompting some concern in coal-endowed countries. To support this, 20% of funding from DFIs will target the technology transition from coal to renewable energy.'

25 This has also encouraged additional private investment for green energy technologies, particularly in middle income countries with enabling policies, such as South Africa (REIPP Programme).



POLICY PROPOSALS FOR DFIs TO SCALE UP INVESTMENT IN RENEWABLE ENERGY IN AFRICA

Meeting the ambitious targets for African decarbonisation and sustainable development will require an equally ambitious plan to tackle Africa's twin energy challenges. This includes mobilising substantial capital (around US\$350 billion) over the next ten years from all possible sources, with significant private sector participation.²⁶ DFIs, in addition to upscaling their investments, will need to play a substantive role in unlocking public and private capital markets. To support this catalytic role, we highlight key policy proposals (not exhaustive) that DFIs should consider in providing a leadership role to support the energy transition without crowding out private financing.

- 1. Improving the institutional environment²⁷ to enable substantial investment for long-term climate risk mitigation and facilitate sustainable development opportunities.** An enabling investment environment is identified as a critical factor to foster investment, and DFIs can play a proactive role at varying degrees to improve the investment environment. This includes the following:
 - Strengthen the mandate to support policy development that will deliver on transformative climate action** in line with the United Nations 2030 Agenda for Sustainable Development (2030 Agenda) and respective NDCs. While creating an enabling policy framework is primarily a public mandate, as public institutions, DFIs and the domestic private sector can also play an influential role in shaping policy by leveraging their ability to dialogue with governments.²⁸

²⁶ AfDB estimates that, in order to meet the targets, it will require around 75% of the finance from private sources.

²⁷ Broadly defined, the institutional environment includes the public policy framework, institutions, stakeholders and their interrelations. In this context we focus on financing and investment environment and the role of DFIs.

²⁸ Zulkhibri, M. (2017). Rethinking the Catalytic Role of Private Sector for Inclusive Growth. *Journal of Development Policy and Practice*, 3(1).

- **Align and accelerate support for the attainment of the Sustainable Development Goals and Agenda 2030.** Aligning with the broader global and African agenda (UN's SDGs, Paris Climate Commitments, COP26, African Union's Agenda 2063, etc.), presents excellent opportunities to improve financial mobilisation and development impact.²⁹
 - **Adopt well-defined safeguard policies and programmes to enable a 'just transition'.** Often projects experience resistance from local communities facing unmitigated job losses and economic decline, particularly in areas that are dependent on the coal mining or petrochemical industries. DFI policy safeguards³⁰ should ensure a holistic approach that considers economic, environment and social impact.
 - **Develop simplified and standardised administrative and transactional processes.** The range and complexity of financial instruments, processes and contracts are often raised as a constraint, particularly by countries with limited capacity to engage with DFIs and Private Finance Initiatives (PFIs). Simpler financing contractual mechanisms³¹ by DFIs will reduce administration and transaction costs, thus making it easier to approve potential financing opportunities.
2. **Urgently invest in pipeline development of bankable projects.** The 2017 OECD review of government planning practices identified 'lack of detail, inadequate links to climate policy and the broader development goals'. Developing project pipelines for investment has become a focal point in many countries, highlighting the investment opportunities and priorities. This provides confidence and important demand signals to investors (particularly private investors) to meticulously appraise and redesign projects with beneficiary governments. Additionally, it assists with developing plans that address both long-term needs and projected returns.
3. **Shaping investment portfolios and financial instruments³² to scale up investments in Africa for renewable energy.** Meeting Africa's NDC need requires DFIs (national and multilateral) to reweight their portfolios to support Africa's climate resilience capacity, improve the effectiveness of existing instruments and develop more innovative financial instruments to mobilise appropriate finance at scale. Some of the more successful instruments include:
- **Reweight investment portfolio:** It is critical that DFIs collectively increase their weight of investments in better yielding and replicable renewable energy projects – to both upscale investment and create the pace to invest in more risky projects. Clearly, this requires raising additional capital that is deployed strategically to crowd in public and private capital to address the twin³³ energy challenges.

²⁹ Reinforcing this message, Kanini Mutooni (an impact investor) proposed at the Private Finance for Sustainable Development (PF4SD) that DFIs, asset managers and public investors ensure that every dollar of investment be aligned with the SDG. Furthermore, they should commit to improving the transparency, consistency and disclosure of data on sustainability, and actively deploying capital to better leverage strengths of the private, public and civil society towards realising these decarbonisation and social goals.

³⁰ These country-specific economic and social protection policies must include policies to mitigate job losses, retraining for alternative economic activities, and cushioning the negative social impacts of the transition. In short, the energy transition must be underpinned by a social compact that integrates socio-economic protection policies with its investment in clean energy transition.

³¹ A coordinated approach by DFIs across the continent in developing simple standardised financial instruments and contractual terms will assist in scaling up and developing pooled financial portfolios for renewable energy. This can be done without negatively affecting the integrity of the financial instruments and must include standardised processes, templates and documents that assist from project preparation to financial close.

³² The typical financial instruments and models utilised by DFIs include grants, concessional loans, green bonds, loan syndication, equity financing, risk mitigation capital and technical assistance support.

³³ Twin refers to the challenges of both improving access of energy to more than 50% of households on the continent while also transforming the energy generation to clean energy sources.

- **New innovative instruments:** These are essential for DFIs to pilot and mobilise additional finance. One that has significant potential is the opportunities presented by Article 6 of the Paris Climate Agreement. These include accelerating the process to develop and define instruments for Internationally Transferred Mitigation Outcomes (ITMOs).³⁴ The new instruments must address the challenges with the previous Clean Development Mechanisms (CDM) offset schemes and include African countries in designing the instrument.
- **Increase loan syndication:** This involves pooling of resources by two or more financial institutions to finance big ticket projects or large portfolios. DFI involvement assists in scaling up, reducing risk through syndication, and crowding private participation.³⁵
- **Blended finance:** This is a structured financial instrument (or collective investment vehicle) that uses a mix of public, concessional and private finance to fund development projects. Concessional and public finance, with a propensity for higher risks, attracts private sector financing through mitigating their risks. The OECD Study (2017) claims that most of the blended finance in LDCs mobilised most of the private capital from high-income countries.³⁶
- **Green (or sustainability) bonds:** DFIs have pioneered and often used green bonds to raise capital. The adoption of green bonds has been remarkably successful, growing over 300-fold over the last ten years.³⁷ While Africa has some success in raising green bonds, it is important that the continent embraces this trend to raise finance from domestic and international markets. Driven by financial returns, the challenges faced by less-developed domestic capital markets include the lack of financially attractive bankable projects, foreign exchange, and political volatility, that have dampened appetite by green bond investors.³⁸
- **Original Equipment Manufacturers (OEM) finance:** while not a typical financial instrument, it is becoming increasingly popular in renewable energy projects for the OEM to finance the implementation of its own technology risk.³⁹

4. Mitigate investment risks to increase private finance⁴⁰ and mainstream frontier financial markets: As part of their core developmental mission, DFIs have the capacity to take higher risks and, by doing so, increase private participation and strengthen domestic financial markets.

- **DFIs continue with incubating and maturing new technologies and development models** to higher levels with acceptable risk profiles. While investment in new renewable energy technology has proven its success, risks continue to exist, particularly with technology gaps in new storage technologies, green hydrogen,

³⁴ ITMOs derived under article 6 of the Paris Climate Agreement use a carbon dioxide equivalent to replace carbon credit issued under Kyoto CDM mechanisms. They are not clearly defined as a trading mechanism yet. However, it is seen as a useful way to channel technology, finance and capacity building from developed to developing countries.

³⁵ Examples of loan syndication in Mexico and Indonesia suggest that this approach could be adapted to rapidly scale up investment in Africa to finance larger portfolios in an instrument that optimises the use of concessional financing.

³⁶ 57% of private finance mobilised for least developed countries are sources from a third high-income countries. Blended finance is popular in Africa and has significant potential to crowd-in private capital for the renewable sector. At the same time, there is a need for greater definitional clarity on the different structures of blended finance, clarity on its impact metrics, and the need for greater transparency.

³⁷ Brookings Institute (2021).

³⁸ Leveraging the creditworthiness and expertise of the World Bank, AfDB, IFC and other MDFIs will be useful in providing investor comfort, minimising transactional costs and attaining competitive pricing of green bonds. To maximise financial potential, DFIs can also deploy technical capacity to develop a sound pipeline of green bond eligible projects on the continent.

³⁹ In both South Africa and Botswana, OEMs have committed to finance their proprietary technologies with performance guarantees. While the technology 'lock-in' may limit competition, some OEMs are willing to participate in competitive procurement processes. DFIs can assist with providing technical support to independently evaluate the efficiency of OEM funding.

⁴⁰ The assumption is that public sector funding has the appetite for riskier, but fiscally sound, investment.



micro-utility models and smart grid security. Greater investor confidence in emerging technologies will require continued DFI investment in R&D, supporting pilot projects in diverse contexts and improving socialisation.

- **Increase local currency lending and manage foreign currency risks.** Foreign exchange currency risks are one of the most significant challenges faced by DFIs in recovering loans or investments. This is largely due to a mismatch of imported financing technology in foreign currency, against revenue for services provided in local currencies that often depreciates in the long run. The policy rationale for supporting local currency financing solutions to reduce exchange rate risks is clear, particularly in countries with high currency volatility. While currency risk mitigating measures have had constrained success, DFIs must increase support for:
 - **Local currency lending** is the most effective way to manage domestic currency fluctuations for investors. A few DFIs offer local currency lending. However, the volumes are limited, and the interests associated with local currency are higher than loans in hard currency. Local currency solutions, in partnership with local financial institutions, are better suited to comply with domestic capital market regulations.
 - **Reducing costs and dearth of exchange rate hedging instruments**,⁴¹ which are either expensive (costs borne by either consumer or governments) or unavailable where SWAP markets are absent.
- **Risk guarantee instruments to mobilise additional capital and deepen domestic financial markets.** These structured guarantee instruments for credit enhancement measures assist in reducing risks and attracting higher volumes of capital through a

⁴¹ Foreign exchange Hedge instruments or derivatives leverages its value from the underlying asset value to mitigate depreciating domestic currency risks. They either lock in an acceptable exchange rate over time or choose an 'option' that allows exchange at the more favourable rate either between the agreed or the spot exchange rate.

multiplier effect.⁴² Credit and risk guarantee instruments continue to support and attract over 60% of private capital (OECD).⁴³ Sovereign guarantees required by some MDFIs legally bind governments to take on debt during any uncertainty resulting in a default. This gives rise to explicit contingent liabilities and related fiscal management issues and should be provided as a measure of last resort with the required fiscal due diligence and transparency.

Other non-sovereign guarantee mechanisms have also had some success. These full or partial risk guarantees are carefully designed instruments that mitigate specific risk associated with lending to high-risk developing countries and extending credit, particularly in the context of long-term uncertainty.⁴⁴ DFI-sponsored risk guarantee instruments can assist in reducing the costs associated with these guarantees.⁴⁵

- 5. Accelerate learning, research and development.** Renewable energy technology solutions have gained significant traction in the last two decades and are expected to provide more than 80% of energy requirements. Much of this is precipitated by significant investments in research capacity and knowledge sharing, and ongoing technology development in new sources of clean energy, as well as cost-effective energy storage solutions. It is vital that Africa builds domestic capacity for new technology development and domestic manufacturing strategy to increase local content in the renewable energy sector. It is imperative that DFIs finance and promote Africa's capacity to develop new generation technologies, exchange knowledge and support its local manufacturing.

CONCLUDING REMARKS

DFIs have historically played a role in addressing financial market failures, through risk mitigation and mobilising finance in frontier markets. Its role is not without criticism, particularly on distorting markets, crowding out PFIs and sometimes a lack of transparency. This policy brief relies on limited published research findings and papers on the impact of DFIs in developing countries particularly in Africa. Further systematic research is required to understand the precise developmental impact of DFIs relative to other financial institutions, the efficacy of different financial instruments in mobilising additional finance, and the factors essential to fostering success in clean energy transitions.

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⁴² These instruments can be designed to assist in improving creditworthiness, crowding in capital, risk mitigation, enhancing creditworthiness of securities, improving term-sheet conditions for project financing and providing security in unfamiliar markets.

⁴³ Both the MDFIs and institutions such as GurantCo (part of the Private Infrastructure Development Group) have successfully provided guarantees to mitigate specific currency and other risks for financing for renewable energy projects in Africa.

⁴⁴ Often financed by DFIs and bilateral donors, these guarantees are powerful instruments that mitigate political (e.g. MIGA), regulatory, contractual, credit and foreign exchange risks. In Africa, the Initiative for Risk Mitigation in Africa (IRMA) of AfDB, was established to evaluate risks and find appropriate instruments to mitigate risks for mainly infrastructure financing. IRMA has effectively utilised AfDB's partial risk guarantee instrument to mobilise private capital for infrastructure projects in Africa. Risk guarantees are powerful instruments to mobilise capital for African markets.

⁴⁵ These include IPPs in Nigeria, South Africa, Kenya, etc. – supported by the MDFAs and South African government for the REIPPP programmes.

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ABOUT THE AFRICAN CLIMATE FOUNDATION (ACF)

The African Climate Foundation, established in 2020, is the first African-led and -based strategic grantmaker and think-tank working at the nexus of climate change and development in Africa.

ABOUT THIS SERIES

The ACF commissioned a series of expert briefs undertaken for its Energy Access and Transitions Programme, focused on specialised topics on the political economy of Africa's power sector transformation, and the opportunities and challenges for scaling renewable-based electrification.

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ABBREVIATIONS AND ACRONYMS

ACF	African Climate Foundation	NDC	Nationally determined contributions
AfDB	African Development Bank	OECD	Organisation for Economic Coordination and Development
CDM	Clean Development Mechanism	OEM	Original Equipment Manufacturers
CDP	Carbon Disclosure Project	PF4SD	Private Finance for Sustainable Development
COP26	United Nations Conference of the Parties (November 2021)	PFI	Private Finance Initiative
DFI	Development Finance Institution	SDG	United Nations Agenda 2030 Sustainable Development Goals
EIB	European Investment Bank	UNEP	United Nations Environment Programme
IRENA	International Renewable Energy Agency	WEF	World Economic Forum
IRMA	Initiative for Mitigation Risk in Africa		
ITMO	Internationally transferred mitigation outcomes		
LDC	Least Developed Countries		
MDFI	Multilateral Development Finance Institutions		



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