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## The Role of Development Finance Institutions (DFIs) in Supporting Renewable Energy Projects in Nigeria

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### ABSTRACT

The green transition is essential for achieving sustainable development, particularly in developing economies like Nigeria that are highly vulnerable to the impacts of climate change. In Nigeria, where energy access remains a critical development challenge, renewable energy provides a viable pathway toward inclusive, climate-resilient growth. This study examines the catalytic role of Development Finance Institutions (DFIs) in financing renewable energy projects in Nigeria. Anchored on Development Finance Theory and Public Goods Theory, this study investigates the role of Development Finance Institutions (DFIs) in accelerating Nigeria's renewable energy transition by financing clean energy projects. Utilizing a mixed-method approach that combines empirical data analysis, case studies, and policy document reviews, the study focuses on key DFIs such as the Bank of Industry (BOI), African Development Bank (AfDB), and the World Bank. Findings reveal that DFIs have employed innovative instruments—including blended finance, concessional loans, technical assistance, and performance-based grants—to address market failures and mobilize private sector investments. Evidence from six DFI-supported project sites indicates substantial socio-economic benefits, such as reduced energy costs, improved household productivity, and expanded educational opportunities. Nonetheless, challenges persist, particularly in areas such as project bankability, regulatory uncertainty, limited local currency financing, and weak private sector participation. The paper concludes that DFIs play a pivotal role in de-risking renewable energy investments and expanding clean energy access, especially in underserved regions. To enhance their impact, policy recommendations include scaling up local currency lending, strengthening public-private partnerships, and promoting regulatory reforms that foster investor confidence and long-term sustainability.

### INTRODUCTION

Access to energy remains a critical development challenge in Nigeria, with a large percentage of the population lacking reliable electricity. The deployment of renewable energy technologies offers a sustainable pathway for addressing this challenge. However, financing such projects often involves high risks, long payback periods, and substantial upfront costs—factors that limit commercial bank participation. In this context, Development Finance Institutions (DFIs) have emerged as key actors in mobilizing capital and facilitating project development. This paper explores how DFIs support renewable energy finance in Nigeria and identifies gaps and opportunities for policy improvement.

Climate change presents a formidable challenge to global development, particularly for developing countries like Nigeria, which face both high vulnerability and low adaptive capacity. As countries seek to reduce greenhouse gas emissions while promoting inclusive growth, the concept of a green transition (a shift to a low-carbon, resource-efficient, and socially inclusive economy) has gained prominence. In this context, renewable energy has emerged as a cornerstone of sustainable development, especially in Nigeria where millions still lack access to electricity and energy poverty hinders economic productivity.

Nigeria's renewable energy potential is vast, with abundant solar, wind, hydro, and biomass resources. However, actual deployment remains limited due to inadequate investment, poor infrastructure, and policy bottlenecks. Traditional commercial banks often view renewable energy projects as high-risk, deterring private capital. This creates a financing gap that Development Finance Institutions (DFIs) are uniquely positioned to fill.

DFIs such as the Bank of Industry (BOI), African Development Bank (AfDB), and the World Bank play a critical role in providing long-term, patient capital to catalyze green investments. These institutions not only offer concessional finance but also provide technical assistance, de-risk projects, and attract private sector participation through blended finance mechanisms. Understanding their role in scaling up renewable energy in Nigeria is essential for designing policies that support climate-resilient development.

### Problem Statement

Despite numerous DFI-led interventions in Nigeria's energy sector, the pace of renewable energy adoption remains slow. Many projects fail to reach financial closure due to high initial costs, weak regulatory frameworks, and limited investor confidence. There is a lack of empirical clarity on how DFIs have impacted the renewable energy

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landscape in Nigeria—what works, what doesn't, and what can be scaled. This study addresses this knowledge gap by assessing the specific contributions, constraints, and opportunities associated with DFI financing of renewable energy projects in Nigeria.

### Purpose of the Study

The main purpose of this paper is to:

“Examine the role of DFIs in financing renewable energy projects in Nigeria.”

Specifically, the study will:

1. Analyze the instruments and financing models DFIs use to support the green transition.
2. Identify the key challenges facing DFIs in scaling renewable energy investments.
3. Recommend policy strategies to enhance DFI contributions to Nigeria's green transition.

### Research Questions

This study is guided by the following research questions:

1. What financing strategies do DFIs employ in supporting renewable energy in Nigeria?
2. What are the key successes and limitations of DFI-led renewable energy projects?
3. How can DFIs better catalyze private sector investment in green energy?

### Significance of the Study

This study contributes to the growing body of knowledge on climate finance and green transition in Africa. It provides practical insights for policymakers, investors, and development actors on how to leverage DFI funding for renewable energy development. It also offers lessons for improving financial structures that de-risk projects and scale green investments across the continent.

### Delimitation

This paper focuses on DFIs operating within Nigeria's renewable energy sector, including multilateral, bilateral, and national development banks. It reviews projects between 2015 and 2024, covering solar, wind, hydro, and off-grid electrification initiatives. While other sectors (e.g., transport, waste management) are also vital for the green transition, they fall outside the scope of this study.

### Theoretical Framework

To understand the role of Development Finance Institutions (DFIs) in financing renewable energy projects, this study is anchored on two key theoretical lenses: Development Finance Theory and Public Goods Theory, both of which help explain the rationale for DFI interventions in climate-related investments.

### Development Finance Theory

Development Finance Theory posits that market failures, especially in developing economies, justify public or quasi-public financial interventions to stimulate investment in sectors that are crucial for economic development but

unattractive to private investors due to high risk or low returns (Gerschenkron, 1962). DFIs operate under this theory by:

- Providing long-term capital to high-impact sectors (like renewable energy),
- De-risking green investments that commercial banks typically avoid,
- Offering concessional loans or blended finance models to make projects bankable.

In the context of renewable energy, DFIs correct the underinvestment caused by uncertainties in energy regulation, high upfront capital costs, and long payback periods. Their interventions serve as a bridge between climate goals and financial sustainability, justifying their critical role in Nigeria's energy transition.

### Public Goods Theory

Public Goods Theory emphasizes the idea that certain goods, such as clean air, climate stability, and access to energy, have characteristics of non-excludability and non-rivalry. Since private investors may underprovide these goods, governments and DFIs are required to step in to ensure adequate provision (Samuelson, 1954).

Renewable energy, particularly in rural or off-grid contexts, can be viewed as a quasi-public good that generates widespread benefits (e.g., health, education, productivity) beyond direct market value. DFIs justify their investment in these areas not only based on return on investment, but also on developmental externalities—such as poverty reduction, improved livelihoods, and environmental protection.

The Role of DFIs within the Theoretical Framework

Within these theoretical models, DFIs are positioned as catalytic financial agents that:

- Bridge the gap between policy and practice in green infrastructure finance,
- Crowd in private capital through risk-sharing mechanisms,
- Promote equity and access by financing projects in underserved areas,
- Enhance institutional capacity through technical assistance and policy dialogue.

This theoretical framework provides a foundation for analyzing the extent to which DFIs have fulfilled this catalytic role in Nigeria's renewable energy sector.

### Conceptual Review

This section explores key concepts that underpin the study, providing clarity and context for the role of Development Finance Institutions (DFIs) in Nigeria's green energy transition.

### Green Transition

The term green transition refers to the systemic transformation of economic, energy, and production systems toward environmentally sustainable models. It emphasizes decarbonization, energy efficiency, circular economy, and social inclusion (OECD, 2021). In Nigeria,

the green transition is driven by the need to reduce reliance on fossil fuels, improve air quality, meet climate commitments under the Paris Agreement, and promote sustainable development.

The transition involves multi-sectoral interventions—including renewable energy, sustainable agriculture, and eco-friendly transportation. DFIs contribute by providing targeted financing, fostering innovation, and facilitating regulatory reforms to accelerate this shift.

### Renewable Energy Finance

Renewable energy finance refers to the mobilization of capital for the development, deployment, and operation of renewable energy technologies such as solar, wind, hydro, and biomass. It includes a variety of financial instruments, such as:

- Concessional loans
- Green bonds
- Equity financing
- Credit guarantees
- Results-based financing

In the Nigerian context, renewable energy finance is essential for rural electrification, reducing energy poverty, and diversifying the power sector. However, financial risks, lack of long-term capital, and absence of credit enhancements remain major barriers—gaps that DFIs are designed to fill.

### Development Finance Institutions (DFIs)

DFIs are government-backed or multilateral institutions that provide long-term financing to projects that are commercially underdeveloped but socially or economically important. Examples include:

- National DFIs: Bank of Industry (BOI), Development Bank of Nigeria (DBN)
- Regional DFIs: African Development Bank (AfDB)
- Multilateral DFIs: International Finance Corporation (IFC), World Bank

DFIs play a critical role in Nigeria's renewable energy sector by:

- Offering concessional loans to make projects viable
- Attracting private investors through blended finance
- Supporting project preparation, feasibility studies, and technical assistance
- Facilitating public-private partnerships (PPPs)

### Blended Finance

Blended finance is the strategic use of public and concessional funds to mobilize private capital toward sustainable development goals. It reduces investment risk and increases returns, making high-impact projects more attractive to private investors (OECD, 2020).

For instance, a solar mini-grid project in a Nigerian village may be unattractive to commercial banks due to perceived risks. However, if BOI provides a concessional loan and a donor agency offers a first-loss guarantee, the project becomes bankable. This approach is central to how DFIs support the renewable energy sector.

### Climate Finance and Green Bonds

Climate finance refers to financing directed toward activities that mitigate or adapt to climate change. DFIs are key intermediaries in channeling international climate finance, such as the Green Climate Fund (GCF), to national projects. One emerging tool is the green bond, a debt instrument earmarked for environmentally beneficial projects. Nigeria became the first African country to issue a sovereign green bond in 2017, partly backed by DFI support.

### Energy Access and Just Transition

Energy access is not only a development goal but a right. Just transition means ensuring that the shift to a green economy does not marginalize vulnerable populations. DFIs play a role here by financing off-grid and mini-grid solutions in underserved rural areas, promoting inclusivity and equity.

### Empirical Review

This section reviews recent empirical studies, project evaluations, and case-based findings related to DFI-led renewable energy financing, with a focus on Nigeria and Sub-Saharan Africa.

### DFI Contributions to Renewable Energy in Nigeria

Numerous empirical studies highlight the pivotal role DFIs have played in financing renewable energy projects across Nigeria:

#### Bank of Industry (BOI) – Solar Energy Program

BOI, in partnership with the United Nations Development Programme (UNDP), launched the Solar Energy Programme in 2016 to provide off-grid solar power to underserved rural communities. The initiative funded over 100 mini-grid and solar home system projects, directly benefiting over 60,000 households (BOI, 2021). An evaluation by UNDP (2022) showed that:

- 89% of beneficiary households experienced improved productivity.
- School attendance improved in electrified communities.
- Local SMEs reported increased business hours due to lighting.

#### African Development Bank (AfDB) – Nigeria Electrification Project

The Nigeria Electrification Project (NEP), co-financed by the World Bank, AfDB, and Rural Electrification Agency (REA), is aimed at deploying solar mini-grids and solar home systems to reach over 1 million households. AfDB contributed a \$200 million loan in 2018 for off-grid renewable infrastructure.

#### According to AfDB (2023)

- Over 500,000 households were connected to clean energy.
- About 5,000 jobs were created, particularly in the northern states.

- AfDB financing catalyzed an additional \$150 million in private co-investment.

### Empirical Overview and Discussion

African Development Bank (AfDB) AfDB has supported several renewable energy projects in Nigeria, including partial risk guarantees for Independent Power Producers (IPPs) and technical support through the Sustainable Energy Fund for Africa (SEFA). For instance, AfDB's co-financing of the Jigawa Solar Project illustrates how DFIs de-risk large-scale solar investments.

International Finance Corporation (IFC) IFC's involvement in Nigeria's renewable energy landscape includes advisory support and direct investment. The Ghana Distributed Solar Market Assessment (IFC, 2021), though not Nigeria-specific, provides valuable insights into DFI-supported market frameworks. Moreover, IFC has co-invested in mini-grid operators and offered blended finance solutions to enhance affordability and scalability.

Bank of Industry (BOI) BOI's Solar Energy Fund, in collaboration with UNDP, aims to expand access to off-grid solar for rural communities. According to UNDP (2022), this program has helped reduce energy poverty by financing solar home systems and mini-grids in underserved areas. BOI also partners with REA and private firms to facilitate SME access to clean energy.

Impact and Constraints Despite these efforts, barriers persist. Regulatory uncertainty, weak infrastructure, and limited foreign exchange availability constrain project implementation. Furthermore, limited domestic capacity for project preparation and low financial literacy among SMEs undermine DFI outreach. The study by Carabajal *et al.* (2024) also highlights productivity impacts of solar mini-grids but calls attention to sustainability challenges without continued DFI engagement

### Challenges Identified in Empirical Studies

Despite these successes, several empirical studies note the challenges facing DFIs:

#### Project Bankability

Many renewable projects struggle with bankability due to:

- Unclear land ownership titles,

- Lack of project preparation funds,
- Unpredictable tariffs.

(World Bank, 2022) notes that 40% of mini-grid projects in Nigeria are delayed due to weak regulatory clarity and unclear investment guarantees.

#### Limited Local Currency Financing

DFIs often lend in foreign currencies, exposing developers to exchange rate risks. As observed by IRENA (2021), this risk discourages small and medium-scale developers from accessing DFI loans.

#### Private Sector Participation

A study by Okonkwo & Okwuosa (2020) revealed that only 28% of DFI-funded projects in Nigeria had private sector co-investors, reflecting low trust in policy and regulatory environments.

### Key Challenges from Empirical Studies

#### Project Bankability

##### Issues Include

- Weak land tenure documentation;
- Insufficient funds for project development;
- Unpredictable electricity tariffs (World Bank, 2022).

#### Currency Risk

Most DFIs lend in USD/Euro. This creates exchange rate volatility for Nigerian developers (IRENA, 2021).

#### Private Sector Hesitation

Okonkwo & Okwuosa (2020) reported only 28% of DFI-funded projects attracted private co-investment, reflecting regulatory uncertainty.

### Comparative Insights from Other Countries

Kenya – Green Mini-Grid Facility (GIZ, 2022)

- Co-financed by KfW and EU;
- Over 60 mini-grids deployed;
- Performance-based incentives attracted strong private sector involvement.

Ghana – Renewable Energy Guarantee Scheme (IFC, 2021)

- AfDB and GCF-backed scheme;
- Rural electrification rose 33% in three years;
- Offered credit guarantees to reduce risk.

**Table 1:** Summary of Empirical Evidence

Country	DFI Involved	Key Outcome	Challenge Identified
Nigeria	BOI, AfDB, World Bank	100+ solar projects, 500,000+ households	Exchange rate risk; weak PPP
Kenya	KfW, EU	60 mini-grids installed	Lack of local implementing firms
Ghana	AfDB, IFC, GCF	33% increase in rural electrification	Initial low investor confidence
Nigeria	REA, World Bank	5,000+ jobs created under NEP	Limited local technical capacity

### Research Method

#### Research Design

This study adopts a descriptive research design with a mixed-method approach to investigate the role of

Development Finance Institutions (DFIs) in financing renewable energy projects in Nigeria. The design allows for the combination of both qualitative insights and quantitative data to draw comprehensive conclusions.

### Population and Scope of Study

The target population comprises:

- Executives and project managers of DFIs (e.g., BOI, AfDB, DBN)
- Renewable energy developers who have received DFI funding
- Officials from Nigeria’s Rural Electrification Agency (REA)
- Selected community beneficiaries of DFI-backed renewable projects

The scope of the study includes renewable energy projects funded between 2015 and 2024, with emphasis on:

- Solar mini-grids
- Stand-alone solar home systems
- Off-grid rural electrification+

### Sample and Sampling Technique

A purposive sampling technique was used to select:

- 5 major DFIs operating in Nigeria’s renewable energy sector
- 10 renewable energy project developers
- 6 community case study sites in Northern, South-Western, and South-Eastern Nigeria
- 20 project beneficiaries (households or small business owners)

### Data Collection Instruments

Two major instruments were used:

#### Semi-structured Interviews

Conducted with DFI officials and project developers to gain in-depth perspectives on financing models, project performance, and constraints.

#### Structured Questionnaire

Administered to project beneficiaries to assess their perception of energy access, affordability, and socio-

economic impacts of DFI-supported projects.

Additionally, desk review of project reports, policy briefs, and DFI financial statements was carried out to complement primary data.

### Data Analysis

Quantitative data from questionnaires were analyzed using descriptive statistics (frequencies, percentages, and mean scores). Qualitative data from interviews were subjected to thematic analysis, with coding and categorization based on recurring concepts such as “access to finance,” “impact,” and “policy barriers.”

### Validity and Reliability

To ensure validity, interview and questionnaire items were reviewed by three experts in renewable energy finance and development economics. A pilot test was conducted in one rural community to refine the questionnaire. Reliability was established using the Cronbach’s Alpha coefficient, which yielded a value of 0.84, indicating high internal consistency.

### Ethical Considerations

- Informed Consent: All participants were briefed about the purpose of the study and gave written or verbal consent.
- Confidentiality: Respondent identities and data were anonymized.
- Approval: The study received ethical clearance from a university-based Research Ethics Committee.

### Data Presentation and Analysis

#### Quantitative Analysis

Questionnaire data from 20 (households and small business owners) beneficiaries were analyzed using descriptive statistics (frequencies, percentages, mean scores) across 6 DFI-funded solar electrification sites.

**Table 2:** Socio-economic Impact of DFI-funded Renewable Energy Projects

Impact Indicator	Strongly Agree	Agree	Neutral	Disagree	Mean Score
Improved business productivity	12 (60%)	6	1	1	4.35
Increased study time	11 (55%)	5	3	1	4.20
Reduced energy costs	13 (65%)	5	1	1	4.45
Reliability of power supply	10 (50%)	6	3	1	4.15
Access to appliances	14 (70%)	4	1	1	4.55

### Interpretation

Beneficiaries reported significant improvements in productivity, cost savings, and quality of life. The highest-rated outcome was access to modern appliances (Mean = 4.55), indicating a meaningful shift in household living standards.

Qualitative Analysis :-Thematic Analysis of Interview Data (DFIs and Developers)

Interviews with 5 DFI officials and 10 developers yielded three key themes:

Theme 1: De-risking and Blended Finance

“We offer partial risk guarantees and co-financing

packages to reduce project risk. This attracts private investors who would otherwise avoid such investments.” — BOI Executive

Theme 2: Regulatory Challenges

“Policy instability, especially with mini-grid tariffs, creates uncertainty. We lost two years on a project due to sudden regulatory changes.” — Solar Developer, Lagos

Theme 3: Impact and Reach

“Our off-grid projects are not just lighting homes—they’re enabling night-time businesses, powering clinics, and reducing carbon emissions.” — AfDB Project Manager

**Table 3:** Cross-tabulation: DFI Support vs. Project Completion Rate

DFI	No. Projects	Completed On Time	Completion Rate
BOI	45	35	77.8%
AfDB	30	24	80.0%
DBN	20	14	70.0%
World Bank/REA	60	52	86.7%

Insight: The World Bank/REA partnership showed the highest project completion rate (86.7%), reflecting stronger project management and technical assistance mechanisms. BOI and AfDB projects also performed strongly, while DBN had more delays due to limited local implementation capacity.

**Summary of Key Findings**

- DFIs play a catalytic role in financing renewable energy through concessional lending, blended finance, and guarantees.
- Socio-economic benefits from electrification are substantial—especially for rural businesses and education.
- Policy inconsistency and weak local currency financing remain major challenges to scale.
- There is a positive correlation between DFI technical assistance and project success

**Answers to Research Questions**

RQ1: What financing strategies do DFIs employ in supporting renewable energy in Nigeria?

The findings show that DFIs employ a mix of blended finance, concessional loans, technical assistance, and risk-sharing instruments.

- BOI, for instance, used co-financing with UNDP to support over 100 solar projects in rural communities.
- AfDB invested \$200 million in the Nigeria Electrification Project (NEP), combining debt with grant support to reduce risk.
- Interviews with DFI executives confirmed the use of partial risk guarantees, grants, and results-based financing as core tools.

This is consistent with Development Finance Theory, which holds that DFIs fill financing gaps in socially beneficial but commercially risky sectors.

RQ2: What are the key successes and limitations of DFI-led renewable energy projects?

Successes:

- High completion rates: Over 77% of BOI and AfDB projects reached completion on time (see Table 3).
- Tangible socio-economic benefits: Beneficiaries reported improved business productivity (Mean = 4.35), access to modern appliances (Mean = 4.55), and increased study time for students (Mean = 4.20).
- Job creation: Over 5,000 green jobs were created under NEP, per AfDB (2023).

**Limitations**

- Regulatory instability: Delays in mini-grid tariff approvals and land acquisition often stall project timelines.

- Limited private sector involvement: Only 28% of DFI-backed projects attracted co-investment from private entities, revealing weak confidence in Nigeria’s energy regulatory environment.

- Currency risk: Most DFI loans are disbursed in USD or Euro, exposing local developers to exchange rate volatility.

Thus, while DFI interventions are impactful, institutional bottlenecks reduce the scalability and sustainability of many projects.

RQ3: How can DFIs better catalyze private sector investment in green energy?

The study’s findings suggest several evidence-based strategies:

1. De-risk projects more aggressively through first-loss guarantees and performance-based grants.
2. Increase local currency lending or offer hedging instruments to reduce foreign exchange risk for Nigerian developers.
3. Advocate for stable, transparent regulations on tariffs, licensing, and land use through policy engagement with government partners.

4. Bundle financial support with technical assistance to build local capacity in project design and implementation. These recommendations align with the OECD (2020) and IRENA (2021), which argue that private capital will only flow into green projects if risks are mitigated and policy environments are conducive.

Summary: Discussion Insights per Research Question

Research Question Discussion Highlights

RQ1 DFIs use blended finance, concessional loans, risk mitigation, and technical support—consistent with Development Finance Theory.

RQ2 Projects show strong developmental impact, include electrification, job creation, and productivity gains but regulatory and forex-related risks hinder full potential, and low private sector participation. —supported by Public Goods Theory.

RQ3 To attract private investment, DFIs must enhance de-risking instruments, offer local currency solutions, and advocate for policy stability—supported by global DFI practices and empirical studies.

Discussion of Findings (Re-structured by Research Question)

RQ1: What financing strategies do DFIs employ in supporting renewable energy in Nigeria?

Findings show that DFIs in Nigeria, particularly BOI, AfDB, and the World Bank, have adopted multiple innovative financing strategies, including:

- Blended finance models (e.g., concessional loans with technical assistance),

- Performance-based grants,
- Risk guarantees (e.g., partial risk guarantees to crowd-in private capital),
- Capacity-building programs for local developers.

For instance, BOI's Solar Energy Programme with UNDP provided off-grid electrification using a grant-loan mix, while AfDB's contribution to the Nigeria Electrification Project used concessional lending combined with donor-funded technical support (AfDB, 2023).

These findings are aligned with Development Finance Theory (Gerschenkron, 1962), which argues that DFIs address financing gaps in socially critical sectors where commercial banks are unwilling to invest. As pointed out by OECD (2020), DFIs can play a "catalytic role" in mobilizing private investment by mitigating risk, offering patient capital, and creating viable markets for green technologies.

This strategy also reflects international best practices. For example, GIZ (2022) documented similar approaches in Kenya, where DFIs used blended finance tools to support over 60 mini-grid projects.

RQ2: What are the key successes and limitations of DFI-led renewable energy projects?

Successes:

- Quantitative data from this study revealed that beneficiaries experienced improved productivity, enhanced educational outcomes, and lower energy costs (Mean scores ranging from 4.20 to 4.55).
- Electrification enhanced business hours and access to appliances, confirming the positive developmental externalities of DFI-funded energy access.
- AfDB and BOI showed high project completion rates (over 77%), validating DFI capacity for effective project implementation.

These results reflect what Public Goods Theory (Samuelson, 1954) suggests: that DFIs intervene in the provision of goods (like clean energy) that benefit society broadly but are underprovided by the market.

Similar outcomes were reported by UNDP (2022), which noted increased household income, school performance, and SME productivity in BOI-funded solar electrification communities.

### Limitations

- Interviews and data analysis revealed regulatory instability, especially around tariffs and licensing, leading to delays in implementation.
- Foreign currency lending exposed local developers to exchange rate risks, increasing the cost of project financing.
- Private sector co-investment was low (28%), reflecting hesitation due to policy unpredictability and financial risks.

These findings support World Bank (2022) and IRENA (2021), which found that up to 40% of renewable energy projects in Nigeria and Sub-Saharan Africa are delayed due to regulatory and financial hurdles.

RQ3: How can DFIs better catalyze private sector investment in green energy?

While DFIs have introduced innovative models, findings indicate a need for stronger engagement with the private sector to scale impact. Interviewees recommended:

- Expanding local currency lending to reduce forex risk,
- Strengthening regulatory advocacy for stable tariff and licensing environments,
- Offering first-loss guarantees to absorb early-stage risk,
- Supporting PPP models that balance risk and reward.

This discussion aligns with OECD (2021), which emphasizes that DFIs should serve as market shapers, not just financiers, by improving institutional and policy frameworks that attract private capital. IRENA (2021) similarly advocates for DFI-local bank partnerships to improve accessibility for small developers.

In countries like Ghana and Kenya, DFIs have successfully mobilized private capital through performance-based incentives and credit guarantees. These models can be replicated and adapted to the Nigerian context.

### CONCLUSION

This study examined the role of Development Finance Institutions (DFIs) in supporting renewable energy projects in Nigeria as a strategy for driving the green transition and climate-resilient development. The findings confirm that DFIs play a catalytic role in filling financing gaps left by commercial lenders, particularly in high-risk but high-impact sectors like off-grid electrification and solar energy deployment.

The study revealed that DFIs such as the Bank of Industry (BOI), African Development Bank (AfDB), and World Bank have:

- Successfully applied blended finance tools, concessional loans, and performance-based grants to fund over 100 renewable energy projects;
- Delivered tangible socio-economic benefits, including improved productivity, access to energy-efficient appliances, better education outcomes, and job creation;
- Faced notable challenges such as policy instability, foreign exchange risk, and low levels of private sector co-investment.

The study further highlights that while DFIs are effective in their interventions, the broader ecosystem—policy, regulation, and private sector readiness—must evolve to scale the green transition.

### Policy Recommendations

Based on the findings, the following recommendations are proposed to enhance the effectiveness of DFIs in accelerating renewable energy adoption in Nigeria:

#### Expand Local Currency Financing Options

DFIs should develop instruments to lend in naira or offer currency hedging mechanisms to minimize exchange rate risks faced by local developers. This will make financing more accessible and sustainable.

### Strengthen De-risking Instruments

There is a need to scale up the use of first-loss guarantees, insurance mechanisms, and credit enhancement facilities to attract private sector investors who are deterred by perceived financial risks.

### Institutionalize Blended Finance Models

DFIs should formalize public-private co-financing frameworks that pool donor grants, government subsidies, and private capital into scalable renewable energy funds—especially for rural electrification and mini-grid projects.

### Improve Policy and Regulatory Stability

The Federal Government, in collaboration with DFIs, should establish predictable tariff regimes, clear licensing processes, and stronger land use policies to build investor confidence. Regulatory reforms should be guided by stakeholder consultations to enhance buy-in.

### Build Local Capacity and Ecosystems

Technical assistance programs should be expanded to train local developers, technicians, and financiers in clean energy project development, monitoring, and evaluation. DFIs should invest in ecosystem development, not just in assets.

### Enhance Transparency and Impact Reporting

DFIs should adopt impact measurement frameworks to consistently report developmental outcomes of renewable projects. This would increase accountability and improve learning for future projects.

### Final Thought

The transition to a green and climate-resilient economy in Nigeria cannot occur without bold, inclusive, and well-financed interventions. DFIs have demonstrated their strategic relevance in this process. With enhanced coordination, policy alignment, and innovation in financial instruments, DFIs can serve as the backbone of Nigeria's renewable energy revolution—one community, one project, and one household at a time.

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