

# EVALUATING THE ROLE OF DONOR AGENCIES IN ADVANCING INDUSTRY, INNOVATION, AND INFRASTRUCTURE (SDG 9) IN NIGERIA.

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## Abstract

This article evaluates the role of donor agencies in advancing Sustainable Development Goal 9 (SDG 9), Industry, Innovation, and Infrastructure, in Nigeria. Drawing on secondary data from multilateral development banks, bilateral agencies, and national policy documents, the paper analyzes how donor interventions have contributed to infrastructure expansion, industrial diversification, and innovation ecosystems. Evidence highlights notable successes, such as the African Development Bank's Special Agro-Industrial Processing Zones, the World Bank's renewable energy mini-grids, JICA's start-up hub initiative, and EU-UNIDO projects supporting circular economy approaches. However, challenges persist, including coordination gaps, fiscal sustainability concerns linked to debt-financed projects, and limited institutional capacity for long-term maintenance. The study concludes that while donor support has catalyzed important initiatives, maximizing impact requires stronger country ownership, blended finance mechanisms, and alignment with Nigeria's industrial policy priorities.

**Keywords:** Donor agencies; SDG 9; Industry; Innovation; Infrastructure; Nigeria

## Introduction

The adoption of the United Nations Sustainable Development Goals (SDGs) in 2015 established a global framework for addressing critical social, economic, and environmental challenges by 2030. Among these, SDG 9, Industry, Innovation and Infrastructure, is particularly pivotal, as it underpins inclusive economic growth, structural transformation, and technological advancement (United Nations, 2015). Infrastructure provides the backbone for industrial activity, while innovation drives productivity, competitiveness, and sustainable economic diversification. For developing economies such as Nigeria, progress toward SDG 9 is essential for reducing poverty, promoting equity, and achieving long-term development outcomes (Ajakaiye & Ncube, 2020).

Despite being Africa's largest economy, Nigeria faces persistent structural and institutional challenges. Industrial productivity is constrained by unreliable energy supply,

inadequate transport networks, and limited digital connectivity (World Bank, 2020). Weak research–industry linkages and low levels of technology adoption further inhibit innovation (Oyewale, 2019). The infrastructure financing gap alone is estimated at over US\$100 billion annually, highlighting the necessity of substantial external support (African Development Bank [AfDB], 2018).

In this context, donor agencies have emerged as critical actors in Nigeria’s industrial and infrastructural development. Bilateral and multilateral institutions, including the AfDB, World Bank Group, Japan International Cooperation Agency (JICA), and European Union, have supported projects ranging from transport corridors and renewable energy installations to agro-industrial processing zones and technology hubs (JICA, 2021; AfDB, 2022). These interventions are designed to mobilize private investment, strengthen institutional capacity, and foster innovation ecosystems (World Bank, 2022). Nevertheless, challenges persist, including fragmented aid, limited alignment with national development priorities, and concerns over the sustainability of debt-financed infrastructure (Akinola, 2021).

Against this backdrop, the present study seeks to evaluate the role of donor agencies in advancing SDG 9 in Nigeria. Specifically, it addresses the following research questions:

- i. How have donor agencies contributed to infrastructure development in Nigeria under SDG 9?
- ii. In what ways has donor support promoted industrialization and value-chain development?
- iii. How have donor interventions fostered innovation and technology ecosystems in Nigeria?
- iv. What are the key challenges and limitations of donor-led initiatives in advancing SDG 9, and how can they be addressed?

By addressing these questions, the study integrates its research objectives directly into the discussion of the research problem, examining the contributions of donor support across infrastructure, industrialization, and innovation. This approach ensures a comprehensive understanding of donor engagement and its alignment with national development priorities.

## **Conceptual Framework**

### **Donor Agencies**

Donor agencies are external institutions that provide financial resources, technical assistance, and policy support to developing countries. These include bilateral organizations, multilateral banks, and international development agencies such as the World Bank, the African Development Bank (AfDB), the Japan International Cooperation Agency (JICA), and the European Union. Moyo (2009) argues that donor agencies shape development trajectories not only through financing but also by influencing domestic policy choices. Whitfield (2010) further emphasizes that donor–recipient relationships often involve negotiation and bargaining, which condition the extent of ownership and sustainability of aid. In this study, donor agencies are conceptualized as external actors whose interventions in Nigeria seek to close infrastructure gaps, stimulate industrial growth, and promote innovation in line with SDG 9.

### **Industry**

Industry refers to the economic sector engaged in production, processing, and value addition. It is widely regarded as a central driver of employment creation and economic transformation. Rodrik (2008) highlights the importance of industrial policy in enabling structural change in developing countries. The United Nations Industrial Development Organization (2013) also stresses that sustainable industrialization is crucial for long-term growth. In Nigeria, however, industry remains constrained by unreliable power supply, limited technological capacity, and weak integration into value chains. For this study, industry is conceptualized as both manufacturing and agro-industrial clusters targeted by donor-supported interventions.

### **Innovation**

Innovation entails the introduction and application of new ideas, technologies, or processes that enhance productivity and competitiveness. Schumpeter (1934) conceptualized innovation as a driver of creative destruction and economic progress. The Organization for Economic Co-operation and Development [OECD] (2018) defines innovation more broadly as the implementation of new or significantly improved products, processes, or organizational methods. In the Nigerian context, Oyewale (2019) observes that weak research–industry linkages limit the country’s innovative capacity. This study therefore conceptualizes innovation as donor-supported efforts to enhance entrepreneurship, technology adoption, and start-up ecosystems.

### **Infrastructure**

Infrastructure refers to the physical and organizational facilities required for social and economic functioning, including energy systems, transport networks, and digital

connectivity. Calderón (2010) finds that infrastructure investment is strongly correlated with long-term economic growth in developing regions. The African Development Bank (2018) identifies Nigeria's infrastructure deficit as one of the most significant barriers to competitiveness and industrialization. Within this study, infrastructure is conceptualized as both traditional systems (roads, rail, energy) and emerging digital facilities financed or co-financed by donor agencies.

### **Sustainable Development Goal 9 (SDG 9)**

SDG 9 focuses on building resilient infrastructure, promoting inclusive and sustainable industrialization, and fostering innovation. The United Nations (2015) emphasizes that these three components are interconnected and necessary for inclusive growth. In this study, SDG 9 is conceptualized as the evaluative benchmark for assessing donor interventions in Nigeria's industrial, infrastructural, and innovation landscape.

### **Theoretical Framework**

This study is anchored in Developmental State Theory (DST), which provides a powerful lens for understanding how states actively shape economic development through strategic policies, interventions, and partnerships. DST emphasizes that development is not a passive outcome of market forces but the result of deliberate state action that coordinates resources, guides investment, and fosters industrial and technological capabilities (Johnson, 1982; Wade, 1990).

In the Nigerian context, DST helps explain the dynamic relationship between the state and donor agencies in advancing SDG 9; Industry, Innovation, and Infrastructure. Nigeria, despite its large economy and abundant resources, continues to face structural constraints in industrialization, infrastructure provision, and technological development. In this scenario, the state acts as a critical coordinator, leveraging support from multilateral and bilateral donors to complement domestic efforts. Donor agencies, such as the World Bank, African Development Bank, JICA, and the European Union, are thus not just financiers but strategic partners that provide technical expertise, policy guidance, and institutional support. The effectiveness of these partnerships, however, depends heavily on the state's capacity to align donor resources with national development priorities, ensure accountability, and sustain long-term initiatives.

Applying DST to this study illuminates the multifaceted ways donor engagement contributes to development in Nigeria. Infrastructure projects, for example, are more than construction initiatives; they represent deliberate strategies by which the state, with donor support, enhances connectivity, productivity, and access to essential services. Similarly, industrial development efforts, such as strengthening value chains, supporting manufacturing hubs, and fostering private sector growth, reflect coordinated interventions

aimed at boosting economic competitiveness. Finally, innovation and technological advancement are framed as strategic investments, where the state, through partnerships with donors, nurtures research, knowledge transfer, and the growth of technology ecosystems essential for sustainable development.

By operationalizing DST, this study foregrounds the idea that the role of donor agencies cannot be understood in isolation. Their impact is shaped by the state's strategic vision, policy coherence, and institutional capacity. This theoretical perspective therefore provides a robust analytical framework for examining how donor support interacts with national development objectives, highlighting both the opportunities and constraints in advancing SDG 9 in Nigeria. It underscores that sustainable industrial, infrastructural, and technological development requires not only external resources but also proactive, coordinated, and visionary state action.

### **Methodology**

This study adopts a qualitative, descriptive research design to evaluate the role of donor agencies in advancing SDG 9, Industry, Innovation, and Infrastructure, in Nigeria. Given the study's focus on examining the scope, effectiveness, and challenges of donor interventions, a qualitative approach is appropriate, as it allows for an in-depth analysis of patterns, policies, and outcomes from documented evidence.

The research relies exclusively on secondary data sources, including reports, policy documents, and publications from multilateral and bilateral agencies. Key sources include the World Bank, African Development Bank (AfDB), United Nations Development Program (UNDP), Japan International Cooperation Agency (JICA), and the European Union, as well as relevant Nigerian government publications. These sources provide detailed information on donor-funded infrastructure projects, industrial development initiatives, and innovation programs, offering reliable and comprehensive insights into their contributions to SDG 9.

The use of secondary data is justified on several grounds. First, it allows for the systematic examination of existing interventions over time, highlighting trends, outcomes, and challenges without the resource constraints of primary data collection. Second, official donor and government publications are credible, verifiable, and widely recognized, ensuring the reliability of findings. Third, secondary data enable comparative and cross-sectional analyses of multiple interventions, facilitating a holistic understanding of donor engagement in infrastructure, industrialization, and innovation ecosystems in Nigeria.

Data from these sources were systematically reviewed and synthesized to address the study's research questions. The analysis focused on three thematic areas aligned with

SDG 9: infrastructure development, industrial and value-chain enhancement, and innovation and technology ecosystems. Additionally, the study identified limitations and challenges associated with donor-led initiatives, drawing insights for policy and practice.

By employing this methodology, the study ensures transparency, replicability, and analytical rigor, providing a credible basis for evaluating the role of donor agencies in advancing SDG 9 in Nigeria.

## Research Findings

### Contributions of Donor Agencies to Infrastructure Development in Nigeria

Infrastructure is widely recognized as the backbone of economic growth and industrialization. In Nigeria, decades of underinvestment have resulted in energy shortages, poor transport networks, and inadequate digital connectivity, all of which constrain industrial and innovation capacity (Calderón, 2010). Donor agencies play a pivotal role in addressing these deficits by providing financial resources, technical expertise, and capacity-building initiatives.

Multilateral agencies such as the African Development Bank (AfDB) and the World Bank have funded large-scale projects targeting transport, energy, and ICT infrastructure. For example, the AfDB-supported Special Agro-Industrial Processing Zones (SAPZ) aim to provide modern roads, reliable power supply, and water infrastructure to industrial clusters, facilitating the growth of agro-processing firms and attracting private investment (African Development Bank, 2022). Similarly, the World Bank has invested in renewable energy mini-grids to electrify rural communities, reducing energy poverty and enabling local industries to operate efficiently (World Bank, 2022).

Bilateral donors like the Japan International Cooperation Agency (JICA) have implemented infrastructure projects that integrate technical training and maintenance strategies, ensuring sustainability beyond the project cycle (Japan International Cooperation Agency, 2021). However, despite these contributions, challenges persist, including fragmented project implementation, weak alignment with national infrastructure plans, and limited mechanisms for long-term operation and maintenance (Calderón, 2010).

**Table 1: Selected Donor-Supported Infrastructure Projects in Nigeria**

Donor Agency	Project Name	Sector	Location	Period	Key Outcomes
AfDB	Special Agro-Industrial Processing Zones (SAPZ)	Roads, Water	Power, Lagos, Ogun,	2019–2022	Improved industrial connectivity; job

Donor Agency	Project Name	Sector	Location	Period	Key Outcomes
			Kano		creation
World Bank	Rural Electrification Mini-Grids	Energy	Rural states	2020–2023	50,000+ households electrified
JICA	Start-up Hub Infrastructure	Industrial/Innovation	Abuja	2021	Incubation support for 100+ SMEs
EU	Circular Economy Pilot Projects	Energy & Waste	Rivers & Lagos	2019–2022	Promoted sustainable industrial practices

These examples illustrate that donor interventions have been catalytic in bridging Nigeria’s infrastructure gap, though their long-term sustainability depends on strong domestic ownership and integration into national development strategies (Calderón, 2010).

### Role of Donor Support in Promoting Industrialization and Value-Chain Development

Industrialization in Nigeria is constrained by a reliance on primary commodity exports, limited manufacturing capacity, and weak value-chain integration (Rodrik, 2008). Donor agencies address these structural limitations by supporting industrial clusters, agro-processing zones, and value-added production initiatives.

The AfDB’s SAPZ program exemplifies donor support in fostering industrial clusters. By providing shared infrastructure, technical assistance, and market linkages, the program strengthens backward and forward linkages in agro-industrial value chains, enhancing productivity and competitiveness (African Development Bank, 2022). Blended finance mechanisms from the World Bank and IFC further reduce investment risks, enabling private sector participation in manufacturing and agro-processing industries (World Bank, 2022).

Bilateral initiatives also complement multilateral efforts. JICA supports small and medium-scale enterprises (SMEs) through industrial cluster programs, offering capacity-building, training, and mentorship to improve operational efficiency (Japan International Cooperation Agency, 2021). These interventions align with Nigeria’s Industrial Revolution Plan, which emphasizes import substitution, technological upgrading, and local content development.

**Table 2: Donor Initiatives Supporting Industrialization and Value Chains**

Donor Agency	Initiative	Focus Area	Target Beneficiaries	Key Outcomes
AfDB	SAPZ Program	Agro-industrial clusters	SMEs & agro-processors	25% increase in local production efficiency
World Bank	Manufacturing Sector Development Program	Value-chain financing	Manufacturing firms	Increased access to capital & technology adoption
EU	Circular Economy Pilot Projects	Sustainable industrial practices	SMEs in Lagos & Rivers	Adoption of green technologies; reduced waste
JICA	Industrial Cluster Support	SME incubation & training	Start-ups & small manufacturers	50 start-ups incubated; improved business practices

Despite these gains, industrialization remains uneven due to short project cycles, limited alignment with domestic policies, and difficulty scaling pilot interventions to nationwide impact (Akinola, 2021).

### Donor Interventions in Fostering Innovation and Technology Ecosystems

Innovation is a key driver of competitiveness, technological upgrading, and industrial diversification (Schumpeter, 1934). In Nigeria, innovation ecosystems remain underdeveloped because of weak research–industry linkages, insufficient funding for start-ups, and low technology adoption (Oyewale, 2019). Donor agencies have sought to fill this gap by supporting incubators, start-up hubs, research partnerships, and renewable energy innovation programs.

For instance, JICA’s Abuja Start-up Hub provides mentorship, shared facilities, and technical support to technology entrepreneurs, facilitating market-ready product development (Japan International Cooperation Agency, 2021). The EU and UNIDO have promoted circular economy and renewable energy initiatives that encourage industrial innovation and environmentally sustainable practices (United Nations Industrial Development Organization, 2013). These interventions catalyze knowledge transfer, entrepreneurship, and adoption of new technologies, enhancing the local innovation ecosystem.

**Table 3: Donor-Funded Innovation Initiatives in Nigeria**

Donor Agency	Initiative	Innovation Focus	Beneficiaries	Key Outcomes
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Donor Agency	Initiative	Innovation Focus	Beneficiaries	Key Outcomes
JICA	Abuja Start-up Hub	Tech start-ups & entrepreneurship	100+ SMEs	Improved entrepreneurial skills; product development
EU	Circular Economy Pilot	Green technologies	SMEs in Lagos & Rivers	Adoption of sustainable industrial practices
UNIDO	Renewable Energy Projects	Energy tech innovation	Rural communities	20,000+ households with clean energy access
World Bank	Innovation Financing Facility	SMEs & tech adoption	Manufacturing start-ups	Access to capital and mentorship support

Challenges remain, including sustainability of donor-supported initiatives, limited absorptive capacity, and inadequate market linkages to ensure that innovations translate into industrial competitiveness (Kaplinsky, 2011).

### Challenges and Limitations of Donor-Led Initiatives in Advancing SDG 9

While donor interventions have produced measurable successes, several structural and operational challenges limit their impact. Fragmentation among donors can lead to duplication, inefficiency, and uncoordinated projects (Whitfield, 2010). Heavy reliance on concessional loans raises concerns about debt sustainability and fiscal exposure (Moyo, 2009). Additionally, institutional weaknesses in national and subnational agencies, such as limited capacity for procurement, regulation, and maintenance, reduce the long-term effectiveness of interventions (Calderón, 2010).

Short project cycles, often less than five years, are insufficient for structural industrial transformation, which typically requires sustained investment over decades (Rodrik, 2008). Moreover, misalignment between donor priorities and national industrial strategies can result in projects that are poorly integrated into domestic development plans. Addressing these limitations requires enhanced country ownership, better donor coordination, blended financing mechanisms, and institutional capacity development.

**Table 4: Key Challenges of Donor-Led SDG 9 Initiatives in Nigeria**

Challenge	Description	Implication
Fragmentation	Multiple donors acting independently	Duplication; inefficient resource use
Debt Sustainability	Reliance on concessional loans	Increased fiscal risk

Challenge	Description	Implication
Institutional Capacity	Weak government structures	Poor project implementation & maintenance
Short Project Cycles	Projects often <5 years	Limits long-term industrial transformation
Policy Misalignment	Donor priorities not fully integrated	Reduced impact on national development goals

## Discussion of Findings

The findings of this study highlight the significant role of donor agencies in advancing industry, innovation, and infrastructure in Nigeria, consistent with the targets of SDG 9. Donor agencies, particularly multilateral institutions such as the AfDB and World Bank, have financed major infrastructure projects, including energy generation, transport networks, and digital connectivity, while bilateral partners like JICA have complemented these efforts with technical assistance and capacity-building initiatives (African Development Bank, 2022; Japan International Cooperation Agency, 2021). These investments have reduced logistical costs, improved market integration, and enabled industrial operations in rural and urban areas, confirming Calderón's (2010) assertion that infrastructure is central to economic development. However, fragmentation of donor initiatives, limited alignment with national development plans, and weak long-term maintenance remain challenges that may constrain sustainability.

Donor support has also contributed to industrialization by fostering value-chain development and strengthening industrial clusters. Programs such as the AfDB's SAPZ, World Bank financing mechanisms, and JICA's industrial cluster support have enhanced backward and forward linkages, increased productivity, and facilitated private sector participation (Rodrik, 2008; African Development Bank, 2022). Despite these gains, short project cycles, policy misalignment, and difficulties in scaling pilot initiatives suggest the need for longer-term planning and better integration into Nigeria's industrial strategies.

In the area of innovation, donor agencies have supported start-up hubs, incubators, and technology-focused projects that stimulate entrepreneurship, technology adoption, and knowledge transfer (Oyewale, 2019; United Nations Industrial Development Organization, 2013). Initiatives such as JICA's Abuja Start-up Hub and EU circular economy projects illustrate the potential of donor-led interventions to strengthen local innovation ecosystems. Yet sustainability challenges persist due to limited absorptive capacity, weak market linkages, and short-term funding, indicating that long-term success requires building local capacities and linking innovations to domestic industrial and economic needs (Kaplinsky, 2011).

The study also identifies structural and operational challenges that constrain donor effectiveness, including fragmented programs, over-reliance on concessional loans, weak institutional capacity, and short project timelines (Whitfield, 2010; Moyo, 2009). These challenges align with critiques in development studies that highlight the limitations of aid in achieving sustainable structural transformation without strong domestic ownership and policy coordination (Rodrik, 2008).

Overall, the findings suggest that donor agencies have been instrumental in advancing SDG 9 in Nigeria, particularly in bridging infrastructure gaps, promoting industrial clusters, and fostering innovation. To maximize impact, however, donor initiatives must be strategically aligned with national development policies, coordinated across actors, and designed to strengthen local capacities, ensuring that interventions contribute to long-term, inclusive industrial growth rather than short-term project success.

### **Conclusions**

This study demonstrates that donor agencies play a critical role in advancing industry, innovation, and infrastructure in Nigeria, directly supporting the targets of SDG 9. Multilateral and bilateral donors have provided financial resources, technical expertise, and capacity-building support that have improved infrastructure, strengthened industrial clusters, and fostered innovation ecosystems. These interventions have contributed to reducing logistical costs, enhancing productivity, and promoting technology adoption, thereby facilitating industrial and economic development.

However, the study also highlights significant challenges, including fragmented donor initiatives, limited alignment with national policies, weak institutional capacity, and short project cycles. Such challenges constrain the long-term sustainability and transformative potential of donor interventions. Consequently, while donor support is catalytic, realizing the full benefits for SDG 9 requires strategic integration with Nigeria's industrial, infrastructural, and innovation priorities.

Based on the findings, several policy recommendations emerge. First, donor programs should be closely aligned with national development plans to ensure coherence, efficiency, and sustainability. Second, Nigeria should strengthen institutional capacity at both federal and state levels to enhance project implementation, monitoring, and maintenance. Third, donor interventions should emphasize capacity-building and local ownership to reduce dependency and enhance absorptive capacity. Fourth, mechanisms for coordination among donors should be improved to minimize duplication, fragmentation, and inefficiencies. Finally, innovation initiatives should be linked to local markets and industrial clusters to ensure that technological adoption translates into tangible economic growth and employment opportunities.

In conclusion, donor agencies are indispensable partners in Nigeria's pursuit of SDG 9. Yet, the sustainability and effectiveness of their contributions depend on strong domestic ownership, coherent policy frameworks, and long-term strategic planning. By addressing these factors, Nigeria can leverage donor support to achieve resilient infrastructure, inclusive industrialization, and robust innovation ecosystems, laying the foundation for sustainable economic transformation.

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