



# Project Information Document (PID)

Concept Stage | Date Prepared/Updated: 10-Jul-2023 | Report No: PIDC34888



## BASIC INFORMATION

### A. Basic Project Data

Country Nigeria	Project ID P179684	Parent Project ID (if any)	Project Name Sustainable Power and Irrigation for Nigeria Project (P179684)
Region WESTERN AND CENTRAL AFRICA	Estimated Appraisal Date Mar 01, 2024	Estimated Board Date Jul 01, 2024	Practice Area (Lead) Water
Financing Instrument Investment Project Financing	Borrower(s) FEDERAL GOVERNMENT OF NIGERIA	Implementing Agency Federal Ministry of Water Resources	

### Proposed Development Objective(s)

to improve utilization of existing storage for irrigation and hydropower generation and strengthen institutional arrangements for integrated water resources management in Nigeria

## PROJECT FINANCING DATA (US\$, Millions)

### SUMMARY

Total Project Cost	700.00
Total Financing	700.00
of which IBRD/IDA	700.00
Financing Gap	0.00

### DETAILS

#### World Bank Group Financing

International Development Association (IDA)	700.00
IDA Credit	700.00

Environmental and Social Risk Classification  
High

Concept Review Decision  
Track II-The review did authorize the preparation to continue



Other Decision (as needed)

## B. Introduction and Context

### Country Context

- 1. Nigeria is the most populous country and the largest economy in Sub-Saharan Africa.** Its population is above 200 million and it has an estimated Gross Domestic Product (GDP) of USD 473 billion in 2022. An estimated 80 million people in Nigeria still live in poverty, highlighting the urgent need for policy actions and sustained economic growth. Despite its potential, Nigeria faces significant challenges, including fragility, conflict, and insecurity, particularly in the northeast. In addition, the public sector suffers from insufficient capacity, and the country ranks low on many human development indicators.
- 2. In 2021-2022, the economy recovered from the recession induced by the COVID-19 pandemic and lower oil prices and real GDP growth exceeded population growth for the first time since 2015, but welfare has continued to deteriorate.** Following the contraction of 1.8 percent in 2020, the Nigerian economy grew by 3.6 percent in 2021 and by 3.3 percent in 2022. However, the recovery seen in 2021-2022 has not been enough to cover the per capita income losses of the last 6 years. By the end of 2022, a Nigerian is projected to have the same level of income per capita as in 2012 and it will take about roughly a decade to return to the same level of GDP per capita seen in 2014.
- 3. Macroeconomic stability has weakened considerably due to multiple foreign exchange (FX) rates, high and increasing inflation, rising fiscal pressures, and declining forex reserves.** Nigeria's chronically high inflation has increased since 2019, especially for food items, eroding the purchasing power of poor and vulnerable Nigerians and increasing poverty. High inflation since 2020 has pushed an estimate of 13 million Nigerians into poverty<sup>1</sup>. The effectiveness of monetary policy is compromised by multiple FX windows, the central bank's provision of development finance at subsidized rates, and monetization of the fiscal deficit.
- 4. Nigeria's vulnerability to climate shocks has increased due to a combination of political, geographic, and social factors and, specifically, the recent spike in insecurity in the country. Nigeria is highly prone to river, urban, coastal floodings, water scarcity, extreme heat, and wildfires.**<sup>2</sup> These climate-related risks can have severe implications on livelihoods and result in increased food insecurity, famine, population displacement, conflicts, and biodiversity loss. Climate inaction could cost Nigeria between 6-30 percent of GDP by 2050, equivalent to a loss of US\$100-460 billion.<sup>3</sup>
- 5. Nigeria is considered an FCV country and majority of its regions are faced with violence and disturbance.** Currently, there are different peculiarities amongst the six (6) geopolitical regions of Nigeria which include political, civil unrest, identity, resource-based and terrorism namely. The North-East is faced with insurgency and terrorism. Boko

<sup>1</sup> World Bank. 2022. The Continuing Urgency of Business Unusual. Nigeria Development Update (NDU).

<sup>2</sup> <https://thinkhazard.org/en/report/182-nigeria>

<sup>3</sup> World Bank. 2021. Climate Risk Profile: Nigeria. The World Bank Group; World Bank Group. 2020. Country Partnership Framework (CPF) for the Federal Republic of Nigeria for the Period FY21-FY25. World Bank, Washington, D.C.



Haram and Islamic State's West Africa Province (ISWAP) are primarily responsible for the instability and displacement of over 2 million people in the region. In North-Central and North-West, the scourge of banditry and few pockets identity and communal clashes. They also face Herder-farmer conflicts typically involving disputes over land and/or cattle.

## Sectoral and Institutional Context

**6. While Nigeria is not a water-poor country, available resources per capita are declining and are unevenly distributed.** Nigeria's annual surface water resources are estimated at 375 billion cubic meters (BCM). The renewable groundwater resources potential is estimated at 156 BCM/year. With a water scarcity index of 1,800 m<sup>3</sup> / capita, Nigeria is not a water-poor country for now. However, available water resources per capita continues to decline due to population growth. The resources are also extremely unevenly distributed, with mean annual precipitation ranging from 50mm in the North to 1500mm in the South. This large variability makes Nigeria extremely vulnerable to climate shocks manifesting in periods of droughts and floods.

**7. The recent devastating flooding events (both in 2012 and now 2022) suggests the need for urgent action to increase resilience.** Nigeria is one of the 10 countries most vulnerable to climate change in the world<sup>4</sup>. Without the implementation of suitable risk mitigation measures, the reliability and quality of both ground and surface waters will continue to deteriorate, while water-related natural disasters will persistently threaten Nigeria's infrastructure and the livelihoods of its people.

**8. In the face of climate change and variability, enhanced storage and multi-purpose dams help water managers to store and allocate water resources for productive uses.** Nigeria has over 340 storage dams of all types and capacity with over 180 of them classified as "large dams" by the International Commission on Large Dams (ICOLD) standard. More investments on storage are needed both for rehabilitation and retrofitting of existing dams for downstream uses (irrigation, water supply, hydropower generation, etc.), and to build multi-purpose dams, especially on the Benue basin.

**9. The Federal Ministry of Power (FMP) and the Federal Ministry of Water Resources (FMWR) play a key role in hydropower projects but there is sub-optimal coordination.** There is no clear institutional arrangement and strategy to streamline the initiation, development, coordination and implementation of hydropower projects in the country. In general, FMWR is responsible for the construction and maintenance of dams that serve water supply, irrigation and storage, as well as all multipurpose dams including hydropower. FMP is responsible for single purpose hydropower dams, which are put under concession to the private sector for operation. Challenges also include the absence of standardized national dam safety guidelines to ensure that the dams are up to specification.

**10. Irrigation development is essential to the sustainable growth of agricultural production in Nigeria.** The country has an estimated 3.1 million ha of potentially irrigable area, of which over 1 million ha are in the North. Of a total of 624,000 ha planned for irrigation in 2004, only an estimated 293,117 ha has been equipped for irrigation and only approximately 218,000 ha has been cropped. To improve irrigation development, the Federal Government in 2016 launched the National Irrigation Development Programme (NIDP) 2016-2030 with the goal of developing 500,000 ha of irrigable land. The World Bank financed Transforming Irrigation Management in Nigeria (TRIMING) project (\$500 million) provided a boost to the achievement of the NIDP program with the addition of about 37,000 ha and to address the policy

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<sup>4</sup> According to the 2017 Climate Change Vulnerability Index



reform and institutional issues noted below, which the proposed SPIN Project would build on the successes and lessons learned.

**11. Over the past two decades, efforts to reform the irrigation sector and improve its governance system has been ongoing.** Between 1998 and 2007, several policy documents were produced including the National Water Resources (NWR) Policy, drafts of National Irrigation Policy, Water Resources Infrastructure Operation and Maintenance policy, and the final Report of the Water Resources Strategy. An attempt to establish an independent regulatory commission with clear powers and an enabling Act called the Nigeria Integrated Water Resources Management Commission (NIWRMC), only partially succeeded when the President refused to sign the Bill approved by the National Assembly till it lapsed. The NIWRMC exists today borrowing from extant laws and regulations but without the framework it needs to fully take off. The NWR Policy and Strategy formed the foundation of the NWR Bill that is yet to be passed by National Assembly. It builds on much of the earlier work and is consistent with the global principles of Integrated Water Resources Management (IWRM). Key features of the Bill include (a) assigning regulatory responsibilities to the NIWRMC and the water resources development to RBDA, and (b) promoting stakeholder participation in water management such as Water User Associations (WUAs). The Bill also advocates the need for participation and consultation with states, local governments, communities, women and other stakeholders to achieve its objective. Notwithstanding the intentions behind these reform efforts, many have not borne fruit or have enjoyed limited success.

**12. Several institutions with overlapping and duplication of mandates which are controlled by the Federal Government with poor coordination.** This has resulted in a preference for massive, multi-state, multi-year infrastructure procurements without paying sufficient attention to subsequent operations and maintenance. The multiplicity and frequent reconfiguration (in number and function) of agencies and institutions has, in turn, led to lack of a coherent irrigation subsector development policy and legal framework exacerbated by piecemeal planning, political interference in their management and institutions that are both service deliverers and regulators at the same time. The coordination between RBDAs and other agencies, particularly the Ministry of Agriculture has been weak.

**13. The participation of WUAs has traditionally been weak from design to operation and maintenance of irrigation projects, as these have tended to be top-down.** Participatory Irrigation Management (PIM) principles, even though gaining in recognition, are yet to be institutionalized as the guiding philosophy for the sector, and participation of stakeholders continues to be weak. The WUAs do not see sufficient incentive to keep paying and much less to pay higher rates if they do not first see better water delivery and higher yields due to improvements in farming support services along the value chain, and, in some cases, there remains a perception that government should take charge of providing farmers with water for free.

**14. The World Bank financed Transforming Irrigation Management in Nigeria (TRIMING 2014-2024) project (\$500 million)** provided a boost to the achievement of the NIDP program with the addition of about 37,000 ha and to address the policy reform and institutional issues noted above. The project has achieved four (4) key results to transform the irrigation management to address above issues. Such results are: i) enhanced government commitment to financial sustainability and institutional reforms; ii) institutionalized accountability of irrigation agencies to farmers, including commitments from agencies to provide satisfactory services; iv) strengthened participation of water users through empowered WUAs; and iv) increased farmers' willingness and ability to pay O&M fees. The proposed SPIN project would build on the successes and lessons learned.



**15. Nigeria has the highest electricity access deficit worldwide.** Despite the unbundling and privatization efforts, the power sector in Nigeria continues to face challenges due to inadequate follow-through from both the private and public sectors. These challenges include insufficient investments, technical and commercial losses, and stagnant tariffs. To address these issues, the Power Sector Recovery Program (PSRP, 2017) was introduced. However, the underperformance of the sector has required significant federal funding to sustain the utilities, resulting in limited investment in essential infrastructure. Consequently, Nigeria has the highest rates of electricity access deficits globally, with 43 percent of the population (85 million people) lacking grid electricity. The energy access gap is particularly severe for the poorest 40 percent, with only approximately 31 percent having nationwide grid access. To bridge this gap and improve energy access, there is a critical need for the development of hydropower projects, which offer clean and cost-effective generation options. The insufficient energy access affects all Nigerians, and women often bear the responsibility of ensuring access to traditional fuels.

**16. The power market structure in Nigeria reflects the country's efforts to enhance its performance through unbundling and privatization.** Guided by the Electric Power Sector Reform Act (EPSRA) of 2005 and the accompanying Roadmap for Power Sector Reform, the Nigerian power sector underwent significant reforms. This restructuring led to the establishment of the Nigerian Electricity Regulatory Commission (NERC) and later the Nigerian Bulk Electricity Trading Company (NBET) in 2010. The sector was subsequently divided into six generation companies (GENCOs), eleven distribution companies (DISCOs), and the Transmission Company of Nigeria (TCN). Most DISCOs and GENCOs were privatized in 2013, with the exception of Afam GENCO and Yola DISCO. Furthermore, three thermal GENCOs, utilizing natural gas, were sold, and two private operators<sup>5</sup> were granted concessions to manage three hydropower plants<sup>6</sup>. TCN, a fully government-owned company, operates the national transmission network and fulfills the roles of both the Systems Operator (SO) and Market Operator (MO). NERC and NBET play crucial regulatory and facilitative roles in electricity trading between GENCOs and DISCOs.

**17. The power sector and climate change.** The PSRP has been implemented for seven years since 2017, aiming to bring about improvements in the sector. While progress has been made in certain areas, such as reaching 97 percent cost recovery for end-user tariffs, significant strides in addressing climate change are yet to be achieved. The Nigerian government has shown commitment to combat climate change through the introduction of the Energy Transition Plan (ETP). Approved by the Federal Executive Council (FEC) on February 2, 2022, the ETP sets ambitious goals, including the aim of achieving universal energy access by 2030 and establishing a carbon-neutral energy system by 2060. This plan envisions the transformation of Nigeria's energy sector, with targets such as expanding hydro and utility-scale solar capacities, electrifying the transport fleet, and promoting the use of zero-emission cookstoves. However, the road to carbon neutrality requires substantial investment, estimated at approximately US\$410 billion over the next three decades, surpassing business-as-usual spending. The ETP also foresees a transitional role for natural gas, with a 48 percent decrease in gas production by 2050 compared to 2019 levels.

**18. As the energy transition progresses, the share of hydropower in the energy mix is expected to increase while the role of gas diminishes.** Hydropower not only provides a clean and cost-effective source of electricity but also enables the integration of various renewable energy sources. Nigeria possesses a vast untapped hydropower potential, estimated at over 14,120 MW, with the capacity to generate more than 50,800 GWh of electricity annually. With approximately 85 percent of this potential remaining untapped, hydropower presents promising solutions to address existing challenges

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<sup>5</sup> Mainstream Energy Solutions Limited (MESL) and North South Power Company Limited (NSP).

<sup>6</sup> Kainji (760 MW), Jebba (580 MW), and Shiroro (600 MW) hydroelectric power plants.



such as gas supply limitations, power shortages, and climate change concerns. In conjunction with the ETP, Nigeria's 2015 National Renewable Energy and Energy Efficiency Policy (NREEEP) underscores the government's commitment to fully harnessing the country's hydropower potential. This policy framework prioritizes decarbonization and promotes private sector and indigenous involvement in hydropower development. As part of the efforts outlined in NREEEP, the 700 MW Zungeru hydroelectric power plant is currently under construction and nearing completion. The project is also in the negotiation phase with the potential concessionaire, Mainstream Energy Solutions Limited (MESL), further progressing towards its successful implementation.

#### Relationship to CPF

**19. The proposed project is aligned with the Country Partnership Strategy (CPS, FY21 – FY25) for Nigeria.** In particular, the proposed project is very closely aligned to the CPF on the following objectives:

- Core Objective 8 - Increase access to reliable and sustainable power for households and firms
- Core Objective 10 – Enhance climatic resilience
- Complementary Priority 6 - Modernize agriculture.

#### **C. Proposed Development Objective(s)**

To improve utilization of existing storage for irrigation and hydropower generation and strengthen institutional arrangements for integrated water resources management in Nigeria.

#### Key Results (From PCN)

**20. The key results (PDO Indicators) expected are as follows:**

- i. Improved irrigation and drainage service provided area (hectares);
- ii. Increased or reoperated water storage capacity (cubic meter);
- iii. Increased hydropower generation efficiency (percentage);
- iv. Direct project beneficiaries, including the percentage of females benefiting from improved services disaggregated into improved irrigation and allied services, and/or enhanced supply of hydroelectric power (number, percentage); and
- v. Increased number of dams following safe operational procedures and safety measures in place (number).

#### **D. Concept Description**

**21. The objective of this project is to address water resources management, food security, and energy security challenges in Nigeria** through investments in irrigation, dams, storage infrastructure, and hydropower facilities. By mobilizing water for productive purposes, optimizing the use of existing storage facilities, and enhancing hydropower generation capacity, the project aims to promote sustainable development, efficient water resource utilization, and strengthen integrated water resources management practices. The proposed project includes four main components (the US\$ amounts for each component are indicative at this stage, and may vary substantially during preparation, in



particular between components 2 and 3). Building upon the lessons learned and achievements of past projects such as TRIMING, the project moves to promoting a more holistic water and storage management by the inclusion of hydropower sector and supporting institutional strengthening, such as on dam safety regulations and guidelines. The project components and related interventions would be chosen through economic, technical and geographical criteria, to act synergistically and promote an integrated water and storage management. It would also strengthen institutional coordination on storage and water management between the related ministries and departments. The proposed project includes four main components:

- i. Institutional strengthening and capacity building for Irrigation, Hydropower and Storage Management;
- ii. Irrigation and Agricultural Services Modernization;
- iii. Rehabilitation and Improvement of Hydropower and Storage Services; and
- iv. Project Management.

### **Component 1: Institutional strengthening and capacity building for Irrigation, Hydropower and Storage Management**

**22.** The objective of this component is to strengthen irrigation, hydropower and storage management and to improve the operation and maintenance of storage infrastructure, irrigation perimeters, and flood management systems at the national and local levels. This will be conducted through two areas of intervention: i) development and adoption of monitoring systems and decision-making institutional framework and tools; ii) institutional and human resources capacity reinforcement. The inclusion of a PBC is considered for this component to promote institutional changes on dam safety (this will be discussed in more detail during preparation).

### **Component 2: Irrigation and Agricultural Services Modernization**

**23.** This component will support the rehabilitation and revitalization of about 30,000 hectares of irrigated command area. The availability of appropriate water resources will be ensured at all stages through detailed studies on the feasibility, which are also ready from the existing work, such as under TRIMING. Investments under this component will be selected from the list of national irrigation schemes provided by the government using technical and economic selection criteria, which ensure the IWRM support approach of having irrigation, hydropower and dam safety components in the same geographical locations.

### **Component 3: Strengthening of Hydropower Storage Infrastructure**

**24.** The proposed component focuses on two key sub-components: (1) enhancing dam and storage safety, and (2) improving hydropower through studies, improvement measures, investments, and technical assistance. By integrating these elements, Component 3 aims to improve the overall performance and sustainability of hydropower and storage infrastructure, promote responsible investment, and build the technical capacity of stakeholders involved in the sector.





## Component 4: Project Management

**25.** The objective of this component is to effectively implement, monitor, and evaluate project activities. It involves establishing the National Project Management Unit (NPMU) to oversee and coordinate project implementation, as well as setting up a monitoring and evaluation (M&E) system. An external M&E agency will be contracted to assess project activities and their impact. The component includes financing for consultancies, training, materials, office equipment, and operating costs. It also provides investment and technical support for a robust management information system (MIS) and ICT system. The Component will also support and strengthen the capacity of the government counterparts on the application of Environmental and Social Framework (ESF) and Citizen Engagement activities. These measures ensure efficient project management, monitoring, and citizen participation, contributing to the successful achievement of project outcomes.

Legal Operational Policies	Triggered?
Projects on International Waterways OP 7.50	Yes
Projects in Disputed Areas OP 7.60	No
Summary of Screening of Environmental and Social Risks and Impacts	

### CONTACT POINT

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#### APPROVAL

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#### Approved By

Country Director:	Shubham Chaudhuri	07-Aug-2023
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