

**PROJECT INFORMATION DOCUMENT (PID)
CONCEPT STAGE**

Report No.:AB6580

Project Name	Nigeria Irrigation and Water Resources Management Project
Region	AFRICA
Sector	Irrigation and drainage (50%); Water, sanitation, and flood protection (50%);
Project ID	P123112
Borrower(s)	THE FEDERAL GOVERNMENT OF NIGERIA
Implementing Agency	The Federal Government of Nigeria
Environment Category	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> FI <input type="checkbox"/>
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I. Key development issues and rationale for Bank involvement

Country Context

1. Nigeria is a federal system comprising the federal government at the centre, a federal capital territory administration, 36 state governments and 774 local government councils (LGCs). Under the revenue sharing formula currently operating in the country, about 54.5%, 24.7% and 20.6% of federation account revenues are allocated to the federal, state and local tiers of government respectively. Nigeria is the most populous country in Africa with 158 million people (8th highest in the world) and is growing rapidly at about 2% annually (with 40% of this population estimated to be below 14 years of age). It is also the third-largest economy in Africa, with a GDP of about USD 340 billion annually (about USD 2,400 per capita) in PPP terms, split almost equally between agriculture, industry, and services. It is one of the fastest growing economies in the world, with a GDP growth rate of about 9% in 2008 and 8.3% in 2009. The economy is dominated by oil (it is the 8th largest oil exporter globally); and gas, which constitute 25% of GDP and provides 85% of government revenue. Over 75 percent of agricultural households in the north live below the poverty line of which Jigawa State has the highest percentage of the population below the poverty line (91 percent). Nigeria's Human Development Index ranking is 158th in the world.

Sectoral and Institutional Context

- a. The Irrigation Sector in Nigeria. Agriculture is an important sector of the Nigerian economy being the second largest sector employing over 60% of the labour force and accounting for about 40% of the Gross Domestic Product (GDP) in recent years. Irrigation development has long been considered essential to the sustainable growth of agricultural production in Nigeria. So far, however, of the 624,408 ha planned for irrigation in 2004, only an estimated 293,117 ha was equipped for irrigation but only

218,840 ha was actually cropped. The existing irrigated area is thinly spread, mainly consisting in narrow strips flanking the rivers. Nevertheless, the 1 percent of land that is irrigated produces 4.4 percent of the value of Nigeria's agricultural produce. Even compared to African peers, Nigeria's water storage capacity looks relatively low. It stands at 339 cubic meters per capita, compared with 838 cubic meters per capita for Sub-Saharan Africa.

In the mid 70s, the Federal Government of Nigeria (FGN) embarked on a substantial investment programme facilitated by the oil boom, in dam construction and formal large-scale surface irrigation schemes that were executed under the 11 (now 12) River Basin Development Authorities (RBDAs). The RBDAs were conceived as large scale irrigation development and operating agencies providing both irrigation infrastructure management and agricultural support services. With the down turn of oil prices in 1982, the programme slowed down considerably. A review carried out in 2004 under the Review of Public Irrigation Sector in Nigeria (ROPISIN) with FAO support showed that the overall state and performance of the RBDA public irrigation schemes is poor. Of the over 424,000 ha planned irrigable area 92, 317 ha was equipped for irrigation and only 29,140 ha were actually under irrigation in 2003/2004 season. Of these total equipped and cropped areas, the Hadejia-Jama'are RBDA and Sokoto-Rima RBDA comprised 46,325 ha (50%) and 26,290 ha (40%) respectively: i.e. the Lake Chad RBDA and other 9 southern RBDAs only contributed about 10% of the total cropped area.

- b. The poor utilization of the developed irrigation area can be attributed to a number of factors continuously reducing irrigation economic and financial viability including: (i) the lack of a coherent irrigation subsector development policy and strategy exacerbated by piecemeal planning and political interference in their management; insufficient attention to effective dam and irrigation management, (including essential climatological & hydrological data collection discontinued in the 1990s); (iii) inadequate and sporadic capital funding of initiated projects; (iv) high operating costs due to rising energy prices for lift irrigation and poor cost recovery with water charges converted from a service fee to a general revenue tax; (v) inadequate irrigated farming support services; (vi) very poor dam, headworks, canal and equipment maintenance due to declining & inadequate recurrent budgets; (vi) severe RBDA experienced staff attrition; and (vii) top-down management and low level of project ownership acceptance by the direct beneficiaries.. As a result of these deficiencies, RBDAs have degraded from a development & management parastatal to a mere construction agency. Thus all the RBDA schemes (especially in the north) have deteriorated badly and are in urgent need for renovation and repairs less than 20 years after their construction. It is recognized that some of these problems and constraints can be reduced via appropriate sector management reforms as well as giving adequate support to irrigated agriculture by the active participation of the private sector. The private sector, however, has continued to be active mostly in the form of small-farmer initiated motorizations of lift irrigation from rivers and shallow wells. Realising the advantages of this approach Federal Government's strategy shifted, favouring more private sector initiative including the provision of technical and financial assistance through mostly World Bank funded "fadama" development projects. This strategy is complemented by FGN's recent policy to revitalise the public sector irrigation infrastructure by enhancing their utilization through institutional and physical

improvements including rehabilitation *wherever economically viable*, and to try a public private partnership (PPP) approach for the efficient management of these infrastructures.

5. *Policy environment:* The National Water Resources Policy and the draft Water Resources Bill (WRB) will provide the legal ground for the necessary reforms to be implemented. The draft WRB defines the authorities and functions of FMWR and proposes to split the RBDAs into River Basin Management Commissions (RBMC) in charge of the regulatory, planning and coordination functions on the one hand and Irrigation Development and Management Agencies (IDMA) responsible for the provision of the irrigation and drainage (I&D) services on the other hand. However, given the uncertainty of whether FMWR will remain as a stand-alone entity or be recombined with FMARD, the RBMC concept has been pre-empted by a Nigeria Integrated Water Resources Management Commission (NIWRMC) Bill expected to be enacted soon after the national elections. The NIWRMC Bill provides for a river basin (“catchment”) planning and regulatory agency under FMWR with licensing and water allocation powers and 8 Catchment Management Offices (CMOs) based on hydrological boundaries. Each CMO will have a Stakeholder Advisory Committee with Federal, State, LGA and non-government representation.

Relationship to Country Partnership Strategy II and Rationale for Bank Support

6. The project is consistent with the Country Partnership Strategy CPS (2010-2013) of the World Bank, UK DFID, USAID and the African Development Bank, which seeks to support sustainable and inclusive non-oil growth. Improving infrastructure is a central part of the CPS which states that ***challenges to non-oil growth and reducing poverty are high*** in spite of good progress in macroeconomic reforms. Recent agricultural growth has been driven mainly by expansion in area, while yields of most crops have declined from two decades ago. The challenge in this sector is to increase agricultural productivity, both in staples for local and regional consumption, and in the longer term, for products for export. The project is also in line with the ***governance pillar of the CPS***. Governance support in this project will be addressed through increasing participation of farmers/water user associations (WUAs) and WUAs federated up to the scheme level, improved sector & river basin governance and capacity development of institutions, agencies and WUAs. The project also supports both pillars of the Africa Regional Strategy – competitiveness and employment as well as vulnerability and resilience, in addition to a common foundation of improving governance. The project is also in line with the Federal Government’s Vision 20:2020 and 7 Point Agenda, under which the Bank is also supporting several other growth-oriented investment lending programs, DPLs, and technical assistance programs.
7. The Bank is well-placed to support this project given its lead role among Development Partners in Nigeria and its work to support several complementary sectors. As far as the Bank’s involvement in the agriculture sector in Nigeria is concerned, support to the water resources and irrigation sub-sector would be in line with the Bank’s overall commitment to support implementation of National Agricultural Investments Plans coming out of the Comprehensive Africa Agriculture Development Program (CAADP) process across Sub-Saharan Africa (SSA) More specifically, support to irrigation, which falls under the Land

and Water Management Pillar of CAADP, would complement on-going Bank support to the Food Security and Vulnerability Pillar of CAADP through Fadama III, as well as on-going Bank support to the Markets and Infrastructure Pillar of CAADP through the Commercial Agriculture Development Project. The National Agricultural Investment Plan (NAIP) that was prepared as part of Nigeria's involvement in the Economic Community of West African States Agricultural Policy (ECOWAP)/Comprehensive Africa Agriculture Development Program (CAADP) process and finalized in September 2010, recognizes the critical importance of the irrigation sub-sector by listing the rehabilitation and completion of existing irrigation projects as a strategic goal and seeking to ensure that "all existing dams and irrigation facilities are exploited and managed through Public-Private-Partnership (PPP) arrangements".

8. Renewed commitment of donors to step up engagement in agriculture in Africa is also generating interesting co-financing opportunities as reflected by the expressed interest of the French Development Agency to be associated with the proposed project. JICA is carrying out an update of the 1995 water resources master plan that will also include preparing catchment management plans in two key river basins – one of which (Sokoto-Rima) falls under the proposed project. The project will also complement USAID's MARKETS program and will work closely with DfiD's proposed agriculture program in northern Nigeria and its current basin management improvement program in the H-J-KYB.

The proposed project seeks to address the issue of significant sunk costs in dam infrastructure over the years and how best to make them generate the envisaged results and expected returns and reduce the considerable current safety hazards to their downstream populations, property and civil infrastructure. Capturing these returns along with the net benefits of improved irrigation and flood control would require careful attention to the following inter-related design aspects of any new investment operation in the sub-sector, including: (i) proper selection of existing large scale irrigation rehabilitation and improvement investment sites; (ii) containment of investment costs per ha; (iii) establishment of sound O&M arrangements for dams and irrigation infrastructure; and (iv) improving river basin governance and river infrastructure management institutions agencies.

The Bank is well-placed to support investments on the ground given that it can draw upon its global expertise in supporting large-scale irrigation, dam safety and water resources management projects that bring into play significant institutional reforms and increased private sector participation (e.g., irrigation and water resources management reform projects in India, China, Indonesia and elsewhere; PPP in irrigation in Ethiopia, Egypt, Morocco; dam safety projects across Asia) that have demonstrated innovative approaches to bringing in reforms in irrigation agencies and supporting institutional development. In addition, the Bank's recently approved Public Private Partnership Initiative Project provides a complementary vehicle that can underpin the legal and regulatory frameworks that need to be established to make the PPP in irrigation schemes and operational reality.

c. Project Development Objectives

PDO: Improved performance of irrigation and water resources infrastructure and institutions in targeted areas.

A. Proposed Key Performance Indicators (KPIs) to measure project success in achieving the PDO may include the following:

1. Area provided with irrigation and drainage services
 - (i) Improved area
 - (ii) New area

2. Number of water users provided with irrigation and drainage services
 - (i) In improved area
 - (ii) In new area

3. Number of operational water user associations
 - (i) In improved area
 - (ii) In new area

Area with new or improved irrigation services (ha.)

4. Number of dams with safety hazard risks to downstream populations, private property and public infrastructure reduced to international "as low as reasonably practicable" (ALARP) standards.

5. NIWRMC has established effective participatory water resources management and water allocation decision-making institutions in each selected basin.

d. Project Context

A. Project Concept

13. The strategic thrust of the project is to achieve improvement and expansion of the decaying irrigation infrastructure on a viable and sustainable footing. The lack of sound operations and maintenance (O&M) arrangements is widely recognized as the

most critical challenge that needs to be addressed to improve the performance of the RBDA irrigation sub-sector focusing first on improvement of the existing irrigation areas. There is also a need to define how users, organized in Water Users Associations (WUAs) or other forms of community organization, can participate and have greater voice so as to enhance relevance of the irrigation design and improve accountability during implementation of irrigation investments and O&M. The project will focus on how to achieve a transformational change in how O&M arrangements for dams, river infrastructure and large irrigation schemes are organized and complied with because without enabling policies, legislation, governance institutions, and funding arrangements required for such transformational change, it would be premature to embark on a major scale-up of irrigation investments. Accordingly, the project is thus limited in geographical scope to the two most relatively successful RBDAs and their river basins by piloting interventions which, if successful, can be nationally replicated in future Bank and donor operations. This will require strong political leadership and commitment.

14. *Choice of sites:* The project would focus on the Federal RBDA irrigation schemes and those of the river basins in which they are located with a view to improving the overall sector governance arrangements. Since the project is proposing innovative institutional arrangements, it is prudent to restrict the scope of the project to 2 RBDAs in the initial stage – Hadeija-Jama’are and Sokoto-Rima since these two entities currently account for about 90% of the RBDA cropped irrigated area and 7 of the largest dams in Nigeria. The initial list of schemes thus proposed are: (i) Kano River Irrigation Project (KRIP) (ii) Hadeija Valley Irrigation Project (HVIP); (iii) Zobe Irrigation Project (ZIP); and (iv) Bakalori Irrigation Project (BIP).

15. Project Description

16. The proposed project components are as follows:

Component 1: Irrigation Development and Management

Sub-component 1.1: Establishment of PPP for performance-based O&M – legal establishment of viable PPP arrangements for O&M including scheme-level governance arrangements with WUAs in a leading role, identification and recruitment of technical private operators specialized in irrigation water management and infrastructure maintenance, formulation of service agreements with monitorable performance standards for water service delivery and maintenance of infrastructure functionality, and regulatory arrangements for oversight of the activities of WUAs and O&M service providers in PPP including periodic inspections, contract adjustments, and dispute resolution.

Sub-component 1.2: Improving Irrigation Management – this will support the participatory planning and implementation of improved procedures for irrigation operation and maintenance. It will provide training and capacity building for all key

stakeholders involved in irrigation development and management, including RBDAs, private service providers, and WUAs/apex WUAs to properly handle their respective roles. It will emphasize practical, hands-on activities to learn by doing in diagnosing performance problems, developing solutions, putting changes in O&M into practice, monitoring their results and further adapting management based on lessons learned. The objective of the capacity development will be the application of better O&M resulting in improved service delivery.

Sub-component 1.3: Irrigation Infrastructure Investments. The Project will finance the improvement of existing irrigated schemes including rehabilitation of 11,200 ha and consider an expansion of existing schemes to the extent of 22,400 ha. The environmental and social impacts of all expansion of existing schemes will need to be assessed before a final decision can be made on the extent of improvements/rehabilitation and expansion investments. In particular, mitigation options and measures to reduce the existing adverse impacts --and those of command area expansion --on the Hadejia-Nguru Wetlands will merit careful consideration with economic analyses based on dam operation and irrigation studies. In addition, the project will finance feasibility studies for rehabilitation and expansion of irrigated areas in for 4-6 other potential schemes (yet to be identified) with the aim to build a pipeline of viable investments.

Component 2: Water Resources Management and Dam Operations Improvement

Sub-component 2.1: Supporting Integrated Water Resource Management. The proposed IWRM sub-component would be developed with the NIWRMC during project preparation to support participatory development of viable Catchment Management Plans and, capacity building of CMOs, Stakeholder Advisory Committees etc. needed for sustainable basin water resources management institutions as foreseen by the provisions of the forthcoming NIWRMC Act. In particular, the project will support the large river training works required for atrophied channels of the Sokoto River below Goronyo Dam just upstream of the Wurno Dam¹ and the Hadejia River.

Sub-component 2.2: Dam Operations Improvement and Safety: These are to: (a) ensure the sustainable operational safety of large dams and ancillary headworks structures in selected RBDAs via remedial works, dam safety monitoring & assurance programs, adequate O&M funding, reservoir sedimentation surveys, a dam hydromet & inflow hydrology programme and, publicly approved and practiced Emergency Action Plans (EAPs) for high spillway discharge & dambreak contingencies); and (b) support & consolidation of the FMWR Dept. of Dams & Reservoirs² and, possibly, setting up a National Dam Safety Inspectorate as envisaged by the draft Water Resources Bill (especially, in light of the 2010 Goronyo Dam failure. in September 2010). This component could include inter alia, special studies to determine needed dam structural

¹ The atrophied and sedimented channel reach of the Sokoto River has caused normal river flow to be diverted into the 51-year old Sokoto State off-channel Wurno Dam's reservoir and the consequent Wurno Dam failure during the September 2010 Goronyo dam failure .

² The dept. of Dams & Reservoirs has already begun establishment of a computerized national inventory of dams and has asked for support for its completion and improvement.

conditions, potential failure modes & risk analysis; designs and implementation of remedial works, electro-mechanical repairs and their certification; and TA and operational support for the FMWR Dam Safety Inspectorate and Dept. of Dams & Reservoirs.

Component 3. Project Management and M&E: This component would aim to support the Federal government to implement this project. This will include support for project management, including fiduciary aspects (procurement, financial management, environmental and social safeguards), M&E, strategic communications, and documentation. In particular, a strong monitoring and learning framework will be set up to learn from past and ongoing interventions for adaptive management all through the process of project planning, implementation, and evaluation.

17. *Proposed instrument and scope.* The proposed operation seeks to support the FGN in its quest to optimize its investments in large-scale irrigation and water resources infrastructure. The Government strongly supports and is ready to embark on major reforms to ensure sustainability of its infrastructure investments, based on public-private partnership arrangements, including, *inter alia*, partnership with water user associations, concessions for irrigation schemes, and promoting private service providers, with the government no longer responsible for directly running the operation and maintenance of irrigation systems. The essential principle underlying such PPP arrangements would be for the irrigation agency (in whatever form) would be accountable to the farmers rather than to the government. As such, it calls for significant paradigm shift that calls for changes in behaviours and the establishment of a conducive legal and regulatory framework that will take time to take root and flourish in a high-risk environment. Given these factors, the project is envisioned as a seven-year Strategic Investment Loan (SIL). While the financial needs for the rehabilitation and expansion of the selected schemes are considerable, of even more crucial importance will be in the “software” – the changes in operation and maintenance activities, and their institutional development that has to accompany the “hardware” investments in order to ensure their sustainability. The final project cost will be determined during further project preparation, but a notional IDA financing envelope of US\$ 400M is proposed along with co-financing of \$100M from AFD.

Safeguard policies that might apply

18. The project involves the rehabilitation of existing dams and associated irrigation schemes as well as ancillary facilities. Due to the anticipated potential environmental and social impacts that may result from the implementation of the above project activities, it is expected that seven of the ten safeguard policies will likely be triggered. However, the exact locations and the full set of schemes in which the project will be intervening are not known in sufficient details at the time of project preparation. There are social and environmental legacy issues involved in some of the proposed schemes. The proponent will prepare an Environmental and Social Management Framework (ESMF) that will be reviewed and approved by the Bank. This is a Category A project and a full assessment will be required. Both the ESMF

and the RPF will be prepared and disclosed by May 2012 prior to appraisal scheduled for September 2012. In addition, riparian notification will be issued prior to appraisal. Site specific ESIA's, ESMP's, ARAP's and RAP's will be prepared and disclosed before the commencement of any civil works.

Safeguard Policies Triggered by the Project	Yes	No	TBD
Environmental Assessment (OP/BP 4.01)	X		
Natural Habitats (OP/BP 4.04)	X		
Pest Management (OP 4.09)	X		
Physical Cultural Resources (OP/BP 4.11)	X		
Involuntary Resettlement (OP/BP 4.12)	X		
Indigenous Peoples (OP/BP 4.10)		X	
Forests (OP/BP 4.36)		X	
Safety of Dams (OP/BP 4.37)	X		
Projects in Disputed Areas (OP/BP 7.60)*		X	
Projects on International Waterways (OP/BP 7.50)	X		
Piloting the Use of Borrower Systems to Address Environmental and Social Issues in Bank-Supported Projects (OP/BP 4.00)		X	

Tentative financing

Source:	(\$m.)
BORROWER/RECIPIENT	\$50M
IDA	\$400M
Farmers/beneficiaries	tbd
AFD	\$100M
Total	\$550M

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* By supporting the proposed project, the Bank does not intend to prejudice the final determination of the parties' claims on the disputed areas

