Combined Project Information Documents / Integrated Safeguards Datasheet (PID/ISDS)

Appraisal Stage | Date Prepared/Updated: 02-Jun-2020 | Report No: PIDISDSA26683

BASIC INFORMATION

A. Basic Project Data

Country	Project ID	Project Name	Parent Project ID (if any)
Cameroon	P166072	Valorization of Investments in the Valley of the Benue	
Region	**Estimated Appraisal Date**	**Estimated Board Date**	**Practice Area (Lead)**
AFRICA WEST	19-Feb-2020	25-Aug-2020	Agriculture and Food
Financing Instrument	**Borrower(s)**	**Implementing Agency**	
Investment Project Financing	MINEPAT	MEADEN	

Proposed Development Objective(s)

To provide sustainable irrigation and drainage services and improve agricultural production in irrigated areas of the Benue valley

Components

Improvement of Infrastructure and Water Management
Support Services for Agricultural Production
Capacity Building and Implementation

PROJECT FINANCING DATA (US$, Millions)

SUMMARY

Total Project Cost	200.00
Total Financing	200.00
of which IBRD/IDA	200.00
Financing Gap	0.00

DETAILS

World Bank Group Financing

International Development Association (IDA)	200.00
IDA Credit	200.00

Environmental Assessment Category

A-Full Assessment

Decision

The review did authorize the team to appraise and negotiate

B. Introduction and Context

Country Context

1. **A lower middle-income country of about 24 million people, Cameroon is strategically located on the Gulf of Guinea.** With a per capita Gross Domestic Product (GDP) of US$1,374 (current prices) in 2017, the economy is largely driven by its primary sectors, agriculture and mineral resources, and benefits from its location in the Congo Basin, the world's second largest tropical forest zone, which provides an exceptional ecological diversity. Despite having one of the most diversified economies in the Central African Economic and Monetary Community (CEMAC) region, Cameroon's economic activity slowed in 2016. Growth dipped to 3.5 percent in 2017. However, continued implementation of the Government's ambitious infrastructure plan and interventions to boost the agriculture and forestry sectors have significantly contributed to sustained, strong growth in public works, construction, and services, resulting in GDP growth of 4.1 percent in 2018.

2. **The Government of Cameroon's (GoC's) long-term vision, *Cameroon Vision 2035*, is of an emerging, democratic and united country in diversity.** To operationalize this Vision, the Government adopted a Growth and Employment Strategy *(DSCE–Document de* Stratégie *pour la Croissance et l'Emploi)* in 2009 and defined specific objectives to be achieved by 2020, like to reduce poverty to less than 29 percent, and to 10 percent in 2035. The GoC has further adopted the United Nations 2030 Agenda for Sustainable Development. It has also endorsed the Paris Agreement under the United Nations Framework Convention on Climate Change and published Cameroon's Nationally Determined Contributions (NDC), setting out its contribution to climate change mitigation and priorities for adaptation. The NDC includes a focus on the intensification of environmentally sustainable agricultural practices.

3. **The DSCE identifies inadequate infrastructure and an unfavorable business environment as the main factors impeding economic growth and employment creation.** The agriculture sector, which currently employs about 70 percent of the active population in Cameroon (primarily in the informal sector), is regarded as the engine for economic growth and job creation if it can be transformed from traditional farming to diversified and commercially viable farming (see below). The DSCE recognizes the need for agricultural diversification, increased productivity, and large-scale public investment projects in the sector. In fact, notwithstanding Cameroon's abundance of natural assets and tremendous climatic and land potential, the primary sector's contribution to growth is very limited, about one percentage point of GDP annually, and it is dominated by food crops grown by smallholder farmers.

4. **As population growth outpaces poverty reduction, the number of people below the poverty**

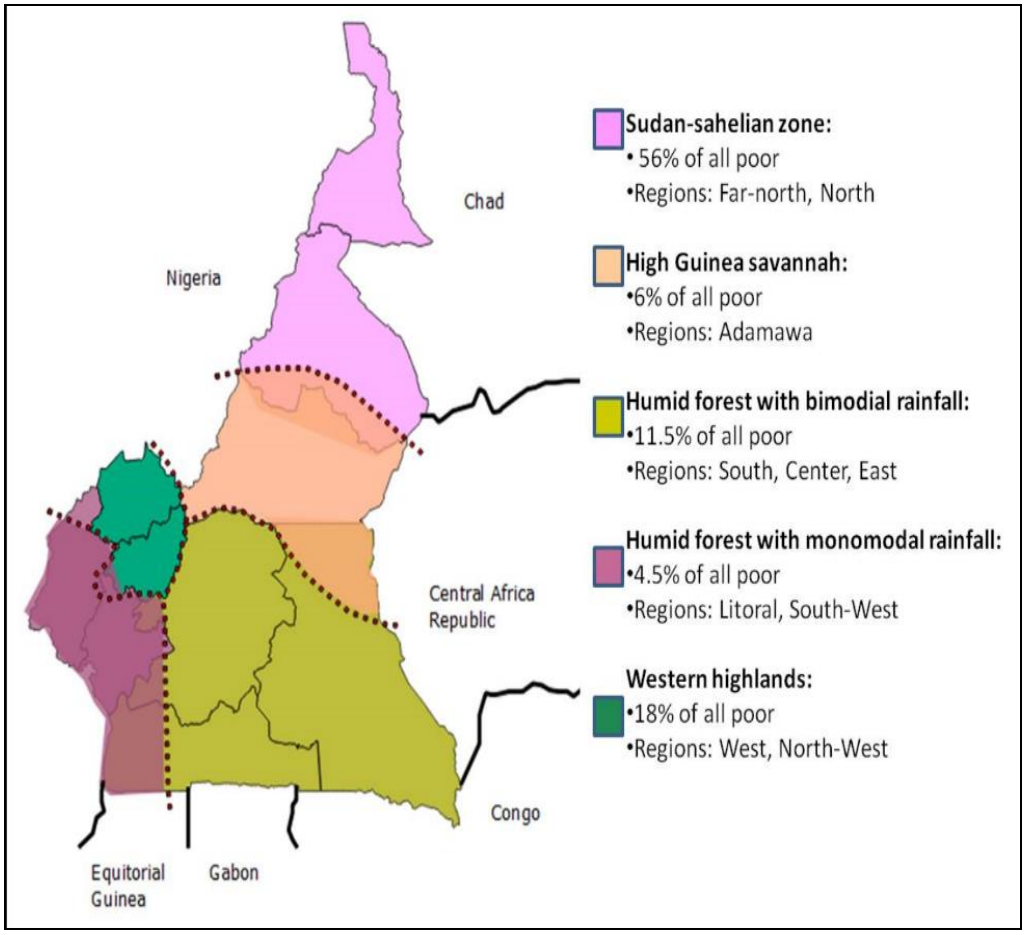
line increased by 12 percent to 8.1 million people between 2007 and 2014, with important regional disparities. The northern regions exhibit by far the highest poverty rates in Cameroon, with an estimated 56 percent of the poor living in the North and Far North regions alone. In these two northern regions poverty and inequality levels have steadily increased over time relative to the rest of the country where poverty and inequality have declined. Those two categories are subject to multiple poverty traps, which are documented extensively in the World Bank Systematic Country Diagnostic (SCD, Report 103098-CM)[1], including low agriculture productivity, increasing vulnerability to climate change, poor infrastructure, and limited access to health and education services.

5. **Poverty incidence is correlated with agroecological zones.** The northern regions of Cameroon, i.e. the four poorest regions (the Far-North, the North, the North-West, and the Adamawa), belong to three agroecological zones – the Sudano-Sahelian, the Western Highlands, and the Guinea Savannah zones which together account for 80 percent of all poor (see Figure 1). In the largely arid Sudano-Sahelian zone, comprising the Far North and North regions, agricultural output (millet, maize, peanuts, and cotton) depends heavily on rainfall. Animal production is also vulnerable to drought. In this zone 72 percent of the population lives below the poverty line, while malnutrition is rampant with 3 out of 4 food insecure people located in the North and Far North regions. Nationwide, female-headed households are more vulnerable to food insecurity (18 percent versus 15 percent of male-headed households) and especially the single-headed households in rural areas (27 percent versus 22 percent of those with two members or more).

6. **Social and economic gaps between regions are likely to worsen as a result of** climate **change.** The Sudano-Sahelian area (North and Extreme North) is the most environmentally fragile zone in Cameroon. It is particularly exposed to drought and increased temperatures with serious implications for the majority of inhabitants who depend on agriculture and livestock for their livelihoods. Regional climate change projections suggest that an overall decrease in the quantity of the water available could exacerbate water shortages in many rural areas of northern Cameroon. The quality of water will also be affected. An increase in temperatures and greater dryness are likely to result in net capillary movement of water in plants, more transpiration, and the salinization of both water and soils. Rice, one of Cameroon's main food imports, grown in the North in both traditional and modern farming systems, will particularly be affected, but also other food crops such as millet, sorghum, and maize.

Figure 1: Cameroon: Incidence of Poverty by Agroecological Zone

[1] Republic of Cameroon: Priorities for Ending Poverty and Boosting Shared Prosperity, June 20, 2016.



Sectoral and Institutional Context

7. **Agriculture remains the backbone of Cameroon's economy, employing 70 percent of its workforce, while providing 42 percent of its GDP and 30 percent of its export revenue.** Food crops contribute 64 percent to agricultural GDP, followed by livestock (13 percent), forestry (9 percent), industrial and export crops (8 percent), and fisheries (6 percent). About 54 percent of all households have at least one member who owns a crop field of about 2.4 hectares (ha) as documented in the DSCE. **Yet, a series of constraints have led Cameroon's agriculture sector to be characterized by low productivity and low-production subsistence farming, especially in the North and Extreme North.** Declining soil fertility, limited use of fertilizer, low adoption of high-yielding varieties, and improved farming techniques are among the core reasons for constrained yields. Techniques and approaches to address these constraints exist, and Cameroon has a number of high-quality agricultural research institutions. Nevertheless, the adoption of improved practices remains limited; no functional extension system is in place as evidenced by the size of the yield gaps.

8. **The Benue** hydro-**system plays an important role in the resilience of vulnerable communities, livelihoods and ecosystems, including their capacity to better cope with and adapt to the impact of climate shocks and stressors**. Building resilience in the basin is key to foster shifts in social or economic

activities and behaviors needed to respond effectively to climate pressures.[2]

9. **Despite the many challenges it faces, the GoC is committed to increase investment in the agriculture sector for poverty reduction and economic growth.** A growth strategy that focuses on products cultivated by the poorest has a greater likelihood of successful poverty reduction. As the majority of the poor can be found in the rural areas of northern Cameroon, a poverty reducing growth strategy would focus on the value chain development of coarse grains (rice, maize, millet, and sorghum) but also livestock, as well as beans and cotton, which are the main cash crops grown in the Northern regions. In this context, the GoC's agriculture strategy is expressed in three key national strategy and planning documents: (i) «Vision 2035» envisages agricultural growth beyond 5 percent by 2029; the DSCE foresees significant productivity increases in agriculture and livestock farming; (ii) the 2009 Rural Development Strategy and its 2013 update ("*Document de Stratégie de Développement du Secteur Rural*," *DSDSR)* commit to a modernization of rural infrastructure, agricultural production, and sustainable management of natural resources; and (iii) Cameroon has engaged in the African Union's Comprehensive Africa Agriculture Development Program (CAADP), and with CAADP support, Cameroon is currently finalizing its 2014-2020 National Agriculture Investment Program *("Plan National d'Investissement Agricole," PNIA).*

10. **At national level, a new irrigation strategy/policy is being prepared by the Government along four main axes:** (i) irrigation development and rehabilitation with a progressive transfer of the operation and maintenance of irrigation schemes to the irrigation water users associations (WUAs); (ii) transfer of the land preparation services to the private sector; (iii) promotion of the private sector in the commercialization of agricultural value chains (e.g. rice); and (iv) review of the role of the Government, particularly parastatal agencies, such as MEADEN.

11. **Irrigation is fundamental to ensuring regional food security in the North.** The Sudano-Sahelian agroecological zone is the most environmentally fragile and vulnerable to climate shocks of the five zones in Cameroon. The North region has an average annual precipitation (P) of 800 mm, mostly from May to September, and the potential evapotranspiration (EPT) is 2,500 mm per year (P/ETP<0.3). This permanent EPT deficit translates into water stress and reduced photosynthesis and therefore lower yields. This high level of evapotranspiration implies higher climate risks. In this region, poverty increased from 56 percent in 2001 to 68 percent in 2014, indicating both the severity and a worsening trend of poverty. The region is highly populated and environmentally degraded and is subject to ongoing immigration pressure due to the socio-political destabilization in the border areas with North East Nigeria, Chad, and Niger. Most households rely on rainfed farming for food provisioning but are particularly vulnerable to climate change in the Sahelian context. More than half of households spend above 40 percent of their income on food purchases, and more than 15 percent are vulnerable to food insecurity. In this zone, improved irrigation is critical to increasing food availability, diversity, and affordability for poor households.

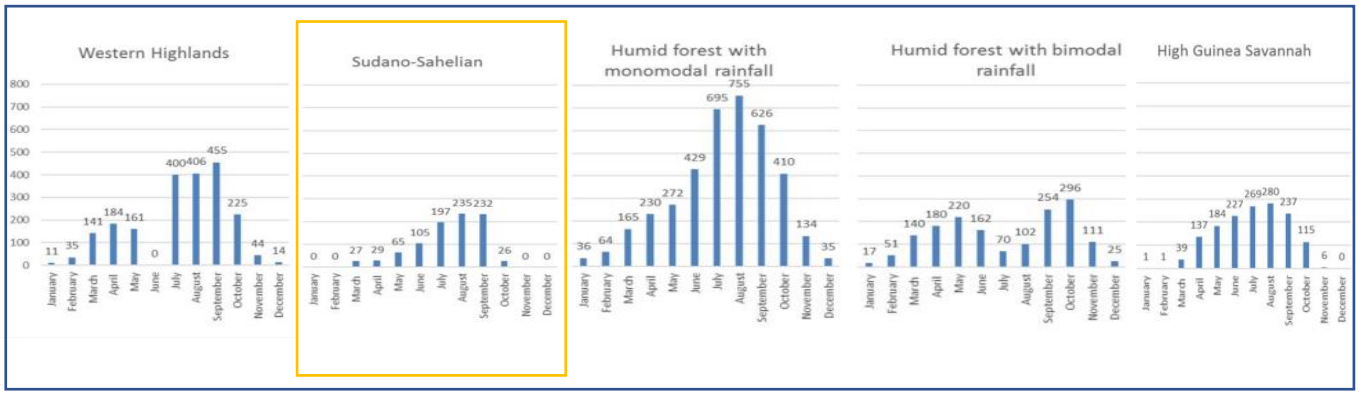
12. **The *Mission d'Études pour l'Aménagement et le Développement de la Province du Nord (MEADEN)* is a parastatal organization responsible for the Benue river valley.** When MEADEN was established in 1972 in Garoua, the operation and maintenance of the hydraulic infrastructure of the Lagdo reservoir was its core mandate. During the 1990s, the mandate to operate and maintain the large infrastructure of the Lagdo reservoir was transferred to the Government, under the *Ministère de*

[2] World Bank 2017. "Climate Resilience in Africa: The role of cooperation around transboundary waters" World Bank, Washington, DC.

l'Economie, de la Planification et de l'Aménagement du Territoire (Ministry of Economy, Planning, and Regional Development, MINEPAT). MEADEN has since then focused only on the operation of the irrigation services, along with agricultural support and land-preparation services. MEADEN has a modest staff contingent of 40 personnel, machinery workshops and stores, machinery, and a fleet of trucks. Its budget for 2018 was approximately US$0.5 million. A severe lack of mechanization in the area, and a near-complete absence of explicit rules for land-access and control and irrigation water management, are key issues to be addressed. The present multiple roles originate from historical evolutions that have entrenched a highly centralized bureaucratic character of the organization, which requires transformation.

13. **Within this framework, the GoC asked support from the World Bank to improve irrigation services and sustain climate-resilient agricultural and water productivity in the Benue River Valley.** One of the poorest regions in the country, highly populated, and with a history of immigration pressure from the Extreme North, the North region is within the Sudano-Sahelian Savanah agroecological zone. Of the five agroecological zones of Cameroon, the Sudano-Sahelian (North and Extreme North) is the one with the shortest rain-fed season (March to September, Figure 2 below).

Figure 2: Rainfall Patterns in Different Agroecological Zones. The Sudano-Sahelian Zone (in the yellow frame) is the one with the Shortest Season, and with the least Amount of Precipitation



Source: http://www.cameroon.climatemps.com

14. In this zone, improved water storage, water harvesting, and irrigation are critical to improving farm production. Improved water management also enhances the ability to withstand climatic shocks and is in line with a strategy whereby the production of staples is promoted in rainfed systems and production of high-value cereals (e.g. rice), horticultural crops, and industrial crops in irrigated systems. With an enormous untapped potential for irrigation (a 5,900 million m^3 Lagdo reservoir), the development of the Benue Valley, if correctly planned and implemented, will have a significant impact on improving the life of hundreds of thousands of people through economic growth, poverty reduction, social inclusion, and reduced vulnerability.

15. **Different groups of poor can be expected to benefit from increases in agricultural and water productivity in the Benue Valley.** Poor farmers will benefit from higher incomes brought about by productivity gains, while non-farmers in rural areas benefit from spill-over gains. Women farmers will benefit from the focus on specific challenges they face and increased access to land, credit, and support services. When increased agricultural productivity leads to increases in food production, lower food prices will benefit the urban poor and net food buyers in rural areas, often the poorest. An important transmission mechanism from agricultural productivity to aggregate growth is through the

price of food, as it allows sustaining lower labor costs in the rest of the economy.

16. **Women are particularly affected by poverty and climate changes as gender disparities in Cameroon are stark, with women experiencing inequality in** access **to health, education as well as command over economic resources resulting in a Gender Development Index (GDI)[3] value of 0.853, that places Cameroon among countries with lowest rates of equality in Human Development Index (HDI) achievements between women and men**. Among the rural population in Cameroon, 73 percent of women work in agriculture (principally in the informal sector) but only 22 percent of them have rights to land (19 percent in the North) despite existence of laws favorable to women ownership. The unequal distribution of land between men and women is rooted in patriarchy. On one hand, women are (i) less educated than men (32 percent of women in Cameroon have secondary education (40 percent for men), but only 18 percent of girls in the North are enrolled into secondary education compared with 36 percent of boys; the primary school enrollment rates are similar for both sexes -- 71 percent for girls and 78 for boys), so they do not always have the information needed to acquire land, and (ii) they are economically weak and cannot always have resources to register land. The inequality of relations of power between men and women weighs heavily on the ability of women to access resources. There exists: (i) unequal succession, where land belongs to the family and girls are not seen an integral part of successors in the family; (ii) precarious rights of use; so at any time, the owners of the land can interrupt the contract concluded with the women and thus take control over their production effort; and (iii) access to land of lower quantity and quality. Even though women play a key role in the rural economy and in food security, the statistics consider them as inactive and rarely take them into consideration. Without data disaggregated by gender, women's contribution is ignored or at best underestimated. Despite limited data, FAO estimates that rural women produce a large proportion of the food needed for the subsistence of the population. They are also working in export crops. Climate changes add burden on women who have to spend more time collecting wood or water, often walking far from home and risking physical and sexual violence. The prevalence of Gender-Based Violence (GBV) in Cameroon is much higher than the regional average -- 55 percent country-wide and 60 percent in the North.

C. Proposed Development Objective(s)

Development Objective(s) (From PAD)

17. **The Project Development Objective (PDO) is to provide sustainable irrigation and drainage services and to improve agricultural production in** the **irrigated areas of the Benue valley.**

[3] GDI= Gender Development Index. For more information see http://hdr.undp.org/sites/all/themes/hdr_theme/country-notes/CMR.pdf

Key Results

18. This would be achieved through: (i) support to water security and governance of the water resources, including water infrastructure safety and operations, construction and rehabilitation of irrigation and drainage infrastructure, and support to water users institutions; (ii) promotion of agricultural production and agribusiness, including precision land leveling, land preparation, mechanized paddy cultivation operations, access to inputs and technical assistance (TA), and support to small and medium enterprises (SMEs); and (iii) capacity building of MEADEN and strengthening of public services. including research and innovation.

19. The project would also include flood-preparedness and transboundary cooperation in the Benue Valley that is part of the **regionally** significant Niger basin. The project has been designed to build resilience against several of the aforementioned climate risks facing the North, especially drought, extreme precipitation, and flooding.

20. The proposed project will consider the key characteristics or 'attributes' for resilient systems as part of its approach to building resilience of vulnerable farmers in the Benue River Valley. This approach will consider robustness, diversity, flexibility, connectedness, and inclusion,[4] help improve the capacity of poor people to prepare, cope with, and adapt to climate change impacts. For example, access to water resources monitoring and information systems can improve local decision-making, contributing to robustness and to the capacity of vulnerable communities to prepare for the impacts of floods.

21. **The proposed project may qualify for adaptation and mitigation co-benefits in the form of adoption of climate-smart practices, promotion of zero-emission gravity-based irrigation systems, and agricultural management activities that improve carbon pools.** Project activities proposed under components 1 and 2 are included on the "List of activities eligible for classification as climate mitigation finance" in the 2016 Joint Report on Multilateral Development Banks' Climate Finance under category 4, sub-categories 4.1 and 4.2. A Greenhouse Gas (GHG) assessment, using conservative boundary values, has been performed for this project using the FAO's Ex-Ante Carbon Balance Tool (EX-ACT). The results show that the project creates a total net carbon sequestration of -301,549 tCO_2-eq across the project's economic lifetime, with average annual net emissions of 15,078 tCO2-eq and economic lifetime gross emissions of 400,309 tCO2-eq. Improved water resources management and SRI activities to reduce methane emissions from rice agriculture lead to net emissions for Phase I of -95,073 tCO2-eq, representing a decrease in net emissions. The net emissions for Phase II are estimated at -245,544 tCO2-eq. Improved water resources management and the promotion of perennial crops lead to net emission reductions. The net emissions of Phase III are estimated at 39,068 tCO2-eq, though the improved water resources management and promotion of perennial crops under this phase do see net emission reductions of -513,421 tCO2-eq. Under all three phases, the use of gravity-fed irrigation systems meant that there were no emissions from energy use from pumping. Greater access to irrigation under all three phases helps to promote perennial cultivation, which acts as a carbon sink, while also increasing the carbon sequestration potential of soils and annual crops. In addition, the promotion of SRI, land leveling, and land preparation activities under subcomponent 2.1 are expected to limit methane emissions compared to flooded rice practices that are used locally. In addition, the activities under Component 1 to improve the operation of the Lagdo Dam and investments in downstream irrigation infrastructure will simultaneously improve beneficiaries' resilience to climate change-exacerbated droughts. The activities under Component 2 will give farmers the incentives and ability to use water resources more efficiently during climate change-induced droughts, while also limiting the amount of flooding required to cultivate rice, thus limiting methane emissions. The activities under Component 3 will increase the technical capacity of the client to plan for the effects of climate change-related shocks to water availability in the project area.

PDO-Level Indicators

22. The Key **Project** Indicators (KPI) are:

(a) Direct beneficiaries;
(b) Total area irrigated (hectares);
(c) Area transferred to Water Users Associations (hectares);
(d) Area prepared by private enterprises (hectares); and
(e) Agricultural production in rehabilitated and improved irrigation areas (tons).

D. Project Description

23. **Introduction/Background**: The project area covers part of the Benue river valley located in the North Cameroon Administrative Region, one of the poorest areas in the North. The Lagdo multipurpose dam was constructed on the Benue River over the years 1978-1982. At completion, the storage volume in the reservoir impounded behind the dam was about 7,700 million cubic meters (m^3), with an allocation of 400 million m^3 for irrigation. A hydropower plant was established with 72 MW installed capacity, and plans were made for the development of irrigation downstream (Master Plan of Irrigation in the Benue river valley for 17,000 ha, of which 11,000 ha can be irrigated from the dam). The hydropower station has been operating since 1982, but the irrigation development did not take place as originally envisaged: only 200 ha were developed in 1987-89 and 800 ha during 1992-1993 on the right bank. The project would develop irrigated agriculture on both banks of the river immediately downstream from the dam, and the improvement of agriculture practices in the valley, including land tenure right management in the public irrigation scheme. In accordance with World Bank OP 4.37, project financing would include aspects related to the safe operation and sound maintenance of the dam and appurtenance structures to ensure their long-term integrity and safety in accordance with Good International Industry Practice (GIIP). The project will be financed by an IDA credit in the amount of US$200 million for a duration of seven years. The project will have the following three components.

Component 1: Improvements of Infrastructures and Water Management (US$ 153 million from IDA)

24. The primary goal of this component is to ensure sustainable and equitable water resources management and irrigation in the Benue valley. This will be achieved by combining infrastructural, institutional, and informational aspects. In order to do this, the component is organized into three subcomponents: (a) upstream water resources monitoring and coordination by operationalizing the Water Management Committee of Lagdo dam *(Comité de Gestion de l'Eau du Barrage de Lagdo)* as well as operation and safety of the Lagdo dam (managed by the ENEO power company); (b) on the right bank (RB): irrigation rehabilitation of 1,090 ha and development of 4,230 ha, both for small farmers; on the left bank: 3,628 for agro-industrial development and 1,496 ha for small farmers in existing villages within the perimeter; and (c) irrigation management transfer to the Water Users Associations (WUAs) on the left and the right bank. First, the Water Management Committee of Lagdo needs to become operational and ENEO must improve its water release management when there is a surplus of water. Second, the irrigation schemes of the right bank (RBIS-Lagdo) and those on the left bank (LBIS-Lagdo) need to be developed and transferred to their respective WUAs. The current irrigated area has barely 600 ha of functional irrigation and is fundamentally operated by MEADEN (full

[4] ACBP (2018), Africa Climate Business Plan (ACBP) Third Progress Report, World Bank, Washington, D.C.

canal operation, land preparation for more than 90 percent of the land) without maintenance nor irrigation fee recovery, and the system is in poor condition. Creation and extensive training of the WUAs need to be undertaken, and performance agreements between MEADEN and the WUAs need to be put in place. A WUA oversight unit also needs to be established within MEADEN. This component may qualify for both climate change adaptation and mitigation co-benefits. This component will finance studies, consulting services, works, equipment, and training.

25. A social assessment has been undertaken during preparation to cover the following aspects: land occupation status in the areas to be developed, land access in the project area, land status for women, land allocation method in the developed areas, types of conflicts with prevention and management mechanisms, migratory flows, gender-based violence, organization of producers, typology of potential farmers, and conditions of parcels allocation. This study provides analyses and recommendations to improve irrigation scheme land tenure rights as well for both female and male irrigators in consistency with the current legal framework and lessons learnt from similar contexts. In addition, the concept of WUAs is new to Cameroon, and extensive training will be undertaken for ensuring the long-term sustainability of the investments. Funds will be provided to train the WUAs as well as to support the development of appropriate legislation for the creation of the WUAs (this is already on-going with the PULCI project).

26. **Subcomponent 1.1: Security and Operation of Main Hydraulic Infrastructure** (US$ 9 million from IDA). The Lagdo Reservoir impounded behind the Lagdo Dam provides water for power generation and irrigation of lands located immediately below the dam on both banks of the river, and it is designed to provide flood modulation as well. The lake is also a resource for fisheries. A Water Management Committee of Lagdo dam *(Comité de Gestion de l'Eau du Barrage de Lagdo)* was created in 2015 but has never been operationalized. This is particularly important for managing the multi-purpose nature of the asset. This Committee has allocation capabilities for every large user (RBIS-Lagdo, LBIS-Lagdo, ENEO, water supply, release of excess water, and others) for the dry season based on the water level at the end of every rainy season. In addition, there is a Coordination Committee between Cameroon and Nigeria for integrated water resources management. The improvement of information in the basin will improve the decision-making process of this Coordination Committee.

27. Six main activities are envisaged under this subcomponent: (i) establishing a Water Resources Monitoring Network and Information System in order to improve the hydro-meteorology in the entire basin, including the sub-basins of the Kebbi and Faro rivers; (ii) ensuring long-term dam operation and safety of the Lagdo dam; (iii) putting in place an expert panel; (iv) establishment of a joint flood forecasting model in the Benue and Mayo Krebbi river sub-basins and improving the management of the dam and its water releases (limit releases to less than 1,800 m^3 per second to protect planned investments and people downstream; and (v) Putting in place an alert system from Lagdo down to the border with Nigeria; and (vi) regional coordination with the Niger Basin Authority (NBA).

28. **Subcomponent 1.2: Irrigation and Drainage Infrastructure** (US$ 135.2 million from IDA). Provision was made in the original design of the Lagdo Dam Complex to provide irrigation water (400 million m^3) to irrigate lands situated on both banks of the river immediately downstream. Original designs allowed for gravity irrigation of about 6,000 ha on the right bank and about 5,000 ha on the left bank. However, only limited irrigation infrastructure was built along the right bank, covering about 1,000 ha of which only 600 ha can presently be irrigated. No infrastructure, including release offtake, was built on the left bank. Studies to update the feasibility, design, and bidding documents are currently on-going for the roughly 10,000 ha with an annual water demand of 205 million m^3 per year

(51% below the original amount attributed and only about 5% of the current reservoir capacity). The entire irrigation scheme is expected to use zero-emissions gravity-based systems. The irrigation scheme will improve farmers' resilience to droughts exacerbated by climate change, while also promoting efficient water usage. The prefeasibility report is very promising with the following main characteristics:

29. Left Bank Irrigation Scheme (LBIS): There is potential to develop a pressurized gravity irrigation scheme of about 5,000 ha directly from the reservoir, under the premise that this will not be used for rice cultivation during the dry season. About 3,625 ha would be for agro-industrial farms and about 1,500 ha for small farmers (about 3,000 households). The minimum water level will ensure a pressure of 1.7 bar at every outlet. Annual water demand would be 55 million m^3. Preliminary designs provide for a buried pipe network that could be developed on a modular basis to allow flexible private sector development. Preliminary estimates based on 30 ha blocks, each with its own metered connection, indicate a cost of around US$51 million (US$ 10,000 per ha), with the on-farm development of individual blocks being left to the private sector. These have been estimated at US$3,800 /ha with a full cover of sprinklers and mini sprinklers.

30. Right Bank Irrigation Scheme (RBIS): There is an opportunity to rehabilitate and expand the existing operational 600 ha into an irrigation scheme of about 5,320 ha for about 5,300 existing households and for another 5,300 additional households. The on-going studies have developed cropping patterns on the basis of soil suitability, climate factors, and adaptability. Approximately 60 percent of the area is suitable for rice (that is being promoted by the Government) and 40 percent of the area for a mix of maize and horticultural crops. Annual water demand is 150 million m^3. Preliminary designs show two options: (i) a simple rehabilitation and expansion of the existing irrigation, and (ii) an improved rehabilitation, changing from upstream water control to downstream water control in order to facilitate also the transition into WUAs. Costs are in the order of US$55 million for these right bank investments (US$5 million rehabilitation and US$50 million new development).

31. **Subcomponent 1.3: Irrigation and Drainage Management** (US$ 8.8 million from IDA). This Subcomponent will address the daunting challenge of ensuring the long-term viability of the irrigation and drainage services delivered on the irrigation schemes. The approach will be implanted with a TA to ensure the land allocation and the WUA structuring process, while MEADEN would remain with an oversight role. The TA will include a detailed technical and management training for the transfer to the WUAs, equipment and facilities for the WUAs, block grants on a decreasing basis for the water fee to the WUAs, and support to get an oversight unit of MEADEN in Lagdo for its relation with the WUAs.

32. This sub-component also concerns the process of allocating plots and includes specific activities for smallholders and for largeholders. The subcomponent will be implemented using a technical assistant, and the proposed approach is as follows: (1) Awareness and communication; (2) Definition of criteria for the allocation of plots; (3) Allocation of plots; (4) Constitution of water user associations (based on secondary canals); (5) Development of the allocation contract including the specifications with contract for the land (between MEADEN and the WUAs) and delegation contract for water management (MEADEN-AUE) and conditions of water use in the perimeters; (6) Updating the database of beneficiaries and developing the GIS (cartography); (7) Allocation of plots; (8) Training and support for WUAs for 2 years; (9) Management of the subsidy mechanism for the revival of agricultural production by purchase vouchers.

33. The activities associated with the management of the scheme, and the environmental and social management plan (ESMP) plan of the project, such as their reforestation of the river banks, will be financed as services by the project.

34. For the right bank irrigation scheme, the approach will be first piloted in the rehabilitation area (1,090 ha), which is the 'first mover' ahead of the second phase development of 4,230 ha. The investments under this Subcomponent will support the development of a detailed training program within the Technical Innovation Center (TIC) that will develop two experimental farms, following a Farmer Field School approach. WUAs will be established following the completion of construction, the settlement of farmers, based on the land allocation criteria, and the provision of training, on a sequential basis. In the longer term it is envisaged that a WUA federation will be established to take over responsibility from MEADEN for the management, operation, and maintenance of the main canals. An extensive training program will be implemented for practical irrigation management, irrigation scheduling on-farm, and the entire organizational process around irrigation management. The existing water fee will be split into: (i) a water fee to be managed by the WUAs, and (ii) a land preparation fee that will be managed independently. A WUA oversight unit will be established at MEADEN. The TA will also include establishing and supervising performance contracts, subsidizing on a regressive basis the first years of the water fee, as well as minor equipment support for the WUAs.

35. For the left bank irrigation scheme, the sequence of development and management of the 3,625 ha for agro-industrial development would be:

(a) the main network will be planned for the whole scheme developed by the Government in five stages;

(b) the land will be allotted to private farmers or entities through an expression of interest based on criteria developed by the project;

(c) the on-farm development will be carried out by the farmers or entities, including with project support (matching grants of component 2); and

(d) once sufficient land is developed, the WUA of the left bank will be formed for taking over the overall management of the left bank system.

36. The land allotment criteria will include social inclusion, capabilities to carry out the farm's operations, and cost-sharing arrangements (the details will be developed by the project in consultation with the WB and in agreement with sustainable practices in irrigation and drainage and agriculture practices). A roadshow with the clear land allotment criteria will be elaborated to seek private sector participation in parallel to the development of the main scheme for ensuring wider participation from private farmers and entities. The main system consisting of 3,625 ha will be developed in blocks of about 1,000 ha each. Each block will be allotted to the private farmers and entities in a sequential manner. The pressurized gravity system allows this modular approach and reduces the main risks generally associated with irrigation (e.g. stealing of water, excessive losses, disparity between tail and head, etc.), thus maintaining equity in distribution. This system will also ensure water for irrigation purposes is used efficiently, thus building resilience against climate change-induced droughts.

Component 2: Support Services for Agricultural Production (US$ 17 million from IDA)

37. The fundamental need for Cameroon to increase production and enhance productivity in the North (especially with irrigation and particularly of smallholders), reduce vulnerability, boost rural employment, and provide environmental services are addressed in a context of vulnerability to

multiple factors. Agriculture production in the Sudano-Sahelian zone is challenged by historically extreme weather fluctuations, made worse by emerging climate change trends. Market risks are exacerbated by socio-political instability on the border with Nigeria and Chad, weak market linkages, particularly for smallholders, and poor road infrastructure. Rice is the main irrigated crop and key to sub-regional food security with a significant national market with potential for large import substitution. In this context, and considering the redefined role of MEADEN in the Benue Valley as a public sector agent (see component 3 below), this component will focus on encouraging a prominent private sector role to improve production, markets, and agricultural support services with an emphasis on improving efficiency along the value chain of rice and other irrigated crops. It will do so by supporting: (i) technological innovation and vocational training; (ii) the demand side for precision land leveling (PLL), land preparation services, agricultural inputs and advisory services, and mechanized paddy cultivation operations; (iii) the supply side of goods and services; and (iv) the development of a network of management support centers through the subcomponents described below.

38. **Subcomponent 2.1: E-vouchers for Launching Production in The New Perimeters** (US$ 8.0 million from IDA). This subcomponent will support the capacity of farmers to access land preparation services, purchase agricultural inputs, and access advisory services. This Subcomponent may qualify for climate change adaptation co-benefits. It will include: (i) PLL and land preparation (provide e-vouchers to farmers for purchasing land leveling and preparation services offered by private operators using these technologies); (ii) Access to agricultural inputs, for the purchase of technological packages within arrangements with local providers or second tier farmers organizations; (iii) Water fee; and (iv) Agricultural advisory services. Private professional support services (e.g. the Regional Center for Agropastoral Support/*Centre regional d'appui a la professionalisation agropastorale [CRPA]*, independent technical advisers, NGOs, etc.) will be purchased through e-vouchers to assist producers in their technical and organizational development activities in the new perimeters. An e-voucher mechanism will be established, through which electronic purchase orders will be based on the recently completed Ministry of Agriculture and Rural Development (MINADER) Manual of Agricultural Input Subsidy Procedures adopted by Prime Ministerial Decree on August 28, 2019, and specified in the project's Agricultural Input and Services Grant Manual. Given the number of farmers/vouchers, TA will be provided to implement this activity.

39. **Subcomponent 2.2: Matching Grants for Production and Agribusiness** (US$ 9.5 million from IDA). Poor land levelling and preparation is identified as the single most limiting factor in the Benue and other Cameroon irrigation schemes, resulting annually in 30 percent or more losses in the efficiency of water use, leakage of nitrogen, soil compaction, and ultimately poor production. MEADEN in the North, like SEMRY in the Extreme North, traditionally provide land levelling and preparation services using heavy equipment which compact the soil, require high operational and maintenance costs, and have been provided inefficiently. As a result, land preparation services are often suboptimal, extending to only a portion of the available irrigated perimeters. Proper precision levelling interventions as part of the land preparation routine would further improve water use efficiency. A different approach to PLL and land preparation more aligned to good practices in rice producing countries would allow to efficiently regulate soil moisture, which in turn would allow lighter and more efficient machinery, using alternative conservative tillage approaches, especially for incorporating organic matter into the soil. Since smaller and more technologically advanced machines are also more affordable to buy and operate, they would also provide an interesting business opportunity for prospective private service providers who see the potential offered by the rehabilitation of the irrigated areas under the project. This Subcomponent would therefore pilot PLL and innovative

mechanization approaches, test new technologies and machines, and promote their dissemination among potential operators through fairs, seminars, and workshops. PLL and land preparation also allow for more efficient use of water and other resources in rice cultivation, thus reducing the amount of flooding required to grow rice, and thus limiting methane emissions from rice fields. More efficient water use also helps to build resilience to climate change-induced droughts.

40. Grants will be provided to producer organizations, associations, cooperatives, entrepreneurial farmers, and established agribusinesses or startups through grant windows tailored to achieve specific outcomes in terms of improving production, value addition, commercialization, and service provision. The grant facility will finance subprojects to improve (i) production, (ii) value addition, (iii) commercialization, and (iv) service provision and startups to innovate with low-cost technologies. With regard to agricultural production, the project will support small-scale irrigation outside the perimeter. A small-scale irrigation model for individual farmers is developing spontaneously in the Benue valley. It is oriented towards the production of counter-season vegetable crops (October to April), and complementary irrigation in the rainy season (May to September) of rice and maize. Farmers irrigate small plots, most often less than 0.5 hectares, with motor pumps from the Benue river or from the catchment with manual drilling of shallow groundwater (less than 3 m deep). The potential for expanding irrigable areas with the adoption of this irrigation model is very high. The matching grant mechanism will support the financing of micro-projects involving affordable equipment for the collection of water with manual drilling, motorized pumping, and efficient distribution of water by pipeline. The project will have three main windows: one for larger grants based on detailed business plans, and one for medium-size investments, and one for small investments that may only require filling in a form. Details will be provided in the Grants Manual. The subcomponent will provide grants, studies, and consultant services. These activities will help promote crop diversification, including promoting perennial crops that act as carbon sinks, while also promoting efficient water use in the face of water shortages exacerbated by climate change.

41. **Subcomponent 2.3: Establishment of Organizational Management Support Centers** (CGERs; US$ 1.5 million from IDA). The project will finance TA to promote a network of Organizational Management Support Centers *(Centres de Gestion Economique Rural, CGERs).* An enterprise-based delivery of support services, CGERs will be a one-stop-shop that provide smallholder farmers, producers organizations, WUAs, cooperatives, and enterprises with quality assistance services that are affordable and tailored to the financial capacities of recipients. These services will typically include accounting, financial management, procurement, management, and in general all functions that support organizational and governance functions for organized producers and enterprises. The CGERs will adapt those services to take into account the different situations and needs of male and female farmers and organizations composed by and/or led by women. The model is based on the successful experience promoted by the *Société Nationale d'Aménagement et d'Exploitation des Terres (SAED)* in Senegal. Two CGERs will be established in Lagdo and Garoua during the first year of implementation, with the assistance of an operator. To ensure a proper sequencing of the implementation of project activities, the contract of the operator will have to be in place prior to the effectiveness of the project.

Component 3: Capacity Building and Implementation (US$ 20 million from IDA)

42. This component will finance institutional strengthening of selected public sector agencies especially MEADEN's role as a public institution responsible for the development of the whole of the North province, and the project implementation through a Project Management Unit (PMU).

43. **Subcomponent 3.1: Institutional Strengthening** (US$ 6 million from IDA). MEADEN is the primary institution responsible for a strategic vision for the development of the North and water resource development, reporting to MINEPAT. For the purpose of modernizing MEADEN, a detailed institutional transformation plan will be prepared for MEADEN at the beginning of project implementation. This subcomponent will focus on the reorganization of MEADEN and training of its staff. The reorganization will include the transfer of aspects of MEADEN's present operations such as water management within the rice fields to the WUAs, and land preparation, rice milling and rice marketing to the private sector, while strengthening MEADEN's important residual roles of providing support to the WUAs, managing the irrigation infrastructure, and overseeing hydrology, research, water management within the catchment area and providing an early warning system and rapid response to flooding and other emergencies. Specialized intensive training will be provided to the staff of new specialized units like a Water Resource Unit (for supporting the Water Management Committee of Lagdo dam/*Comité de Gestion de l'Eau du Barrage de Lagdo*) and a WUAs Oversight Unit.

44. GoC authorities undertook a study visit in January 2018 to the SAED operations in the Senegal river's delta, where WUAs are operating efficiently. Following the same model, funds would be provided to continue the South-South partnership with SAED, and to develop arrangements between MEADEN and the WUAs similar to the ones operating in Senegal.

45. **Subcomponent 3.2: Agricultural Innovation and Training** (US$ 8 million from IDA). The project will promote Memoranda of Understanding (MoUs) with other public institutions (University of Maroua, *Ecole Technique d'Agriculture de Garoua, Lycée technique du Centre professional Agricole à Lagdo*, etc.) involved in irrigated agriculture in the Benue valley. A training program in irrigation (from civil works to irrigation scheduling) will be supported in order to develop capacities in the North and Far-North of Cameroon. Collaboration with other institutions will be explored in order to develop a scholarship and training program for reinforcing the capacities in the North of Cameroon. Several scholarships will be provided to encourage women and youth from the Lagdo area to study in Garoua/Maroua.

46. Innovation will be supported by project financing of a newly created Center for Technological Innovation (CTI)/*Centre d'Innovation Technologique (CIT).* Established at the heart of the Lagdo perimeter, the CTI will be set up as an association with a board of directors, including key stakeholders of the Benue Valley (WUAs, Cooperatives, Common Interest Groups (CIGs), CRPA, CNPC-C, Institute of Agricultural Research for Development (IRAD), the Cotton Development Society for Cameroon/*Société de développement du coton du Cameroun (SODECOTON)*, MINADER, and MEADEN). The CTI will be producing pre-basic seeds and monitor basic and certified seed production. The CTI will be led by an agronomist specializing in technological innovation, in partnership with IRAD and Africa Rice within an MoU for provision of technical assistance.

47. Agricultural vocational training will be promoted to transfer of the innovations tested by the CTI to the relevant stakeholders of the Benue Valley and to the various agricultural training institutions in the region. The CTI will periodically organize demonstrations and training sessions in the Benue Valley for rice producers, extension agents, teachers, students, and other relevant categories with an emphasis on small-scale production, mechanization, and small-scale irrigation.

48. **Subcomponent 3.3: Project Implementation and M&E Support** (US$ 16 million from IDA). This subcomponent will set up a PMU for the day-to-day implementation of the project. The proposed structure of the PMU (see staff list in paragraph 61) and key job descriptions/profiles have been

developed and agreed with MINEPAT/MEADEN, and the core team is expected to be in place by appraisal. Core functions and structure are detailed in the section on implementation arrangements below. Funds would be provided to meet salaries and allowances of PMU staff and to cover operational expenses. In addition, baseline information will be collected before the start of production activities to allow for an impact evaluation at the end of the project. In consideration of the difficulty of attracting qualified and motivated staff to the Lagdo region, the project will finance under this component works to provide housing and other facilities for the PMU staff, and it will finance utility costs. This subcomponent will finance salaries, vehicles, operational costs, and consulting costs.

E. Implementation

Institutional and Implementation Arrangements

49. Based on the evaluation of MINEPAT and MEADEN, the following implementation arrangements have been agreed for the proposed project. These are based to the extent possible, on existing institutional structures. The overall oversight of the project is with MINEPAT, with the responsibility for project implementation delegated to MEADEN, which is therefore the Project Implementation Entity (PIE). The project implementation mechanisms will comprise of a Project Steering Committee (PSC), a Regional Technical Monitoring Team (RTMT) and a Project Coordination Unit (PCU) hosted by MEADEN.

50. The *Mission d'Etudes pour l'Aménagement et le Développement de la Province du Nord* (MEADEN; Agency for the Development of the North Province) ensures the sustainability of the infrastructure in the Lagdo Valley. Born of the late *Mission d'Etudes et* d'Aménagement *Régional de la Vallée Supérieure de la Bénoué* (MEAVSB; Agency for Studies and Regional Planning of the Upper Benue Valley), MEADEN was entrusted with a new mandate and a strategic plan on February 4, 2002. This State structure working under the technical supervision of the Ministry of Economic Affairs, Programming and Regional Planning (MINEPAT), the Mission of MEADEN is the development of the territory of the Benue valley. The stated mission of MEADEN includes: (i) the establishment of periodic regional development plans and sectoral components; (ii) identification, definition, and preparation of development projects in the North Province; (iii) planning, monitoring, and evaluation of projects; (iv) promotion and development of available land in accordance with the regional development plan; and (v) the management of a Geographic Information System (GIS). MEADEN has about forty staff, including eight University graduates, currently being expanded to 12 under the MINEPAT budget, to cover engineering and administrative functions. The annual budget is about US$ 0.5 million per year for operations and US$ 0.1 million per year for investment.

51. The main strength of MEADEN are: (i) the long-established local presence and local development experience; (ii) qualified technical personnel; (iii) the well-organized data base, GIS, and library; (iv) the ownership of several high-quality development studies, many carried out by top notch consulting engineering firms; and (v) consolidated procurement experience (although not with World Bank projects). On the other hand, MEADEN is understaffed at many levels, and is not geared toward project implementation. Therefore, to implement the proposed project, it will create a dedicated Project Management Unit (PMU) based in Lagdo, with the technical, fiduciary, and safeguard skills necessary for the satisfactory implementation of the project.

52. The PMU will include: a Coordinator, an Administration/Financial Specialist, an FM Specialist, a Senior and a Junior Procurement Specialist, two Accountants (one for general work and one for the vouchers), an Internal Auditor, a Monitoring and Evaluation Specialist, an Environmental Specialist, a Social Specialist, a Gender Specialist, a Lawyer, a Communications Specialist, an IT Specialist, a Hydrologist, an Engineer, a Works Control Specialist, an Agronomist, an Agri-business Specialist, an Agri-research Specialist, an On-farm Water Management and Farm Mechanization Specialist, and a Communications Specialist. Additional offices will need to be constructed in Lagdo.

53. The project staff will be recruited competitively and will have the status of consultants. They will be financed with the resources of the project. Additional specialists will be hired as deemed necessary during implementation. The hiring process will target experienced staff with proven credentials in their areas of competence and who are familiar with World Bank and/or other donors' procedures. The performance of the entire PMU team will be evaluated annually. The Coordinator will sign a performance contract with the

supervising ministry (MINEPAT), while contracts of the other members of the PMU will be signed with the National Coordinator on behalf of the MINEPAT.

54. Under component 3, MEADEN will be strengthened and modernized. On the one hand it will gradually terminate operations that it has been recognized are better operated through a functioning private sector, while on the other hand it will take on strategic and regulatory functions that are within the responsibility of a modern public sector agency in charge of the development of the whole North of Cameroon.

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F. Project location and Salient physical characteristics relevant to the safeguard analysis (if known)

The project is located in the Sudano-sahelian zone of Cameroon, it is presumably the driest zone of the country. Rainfall in this zone is highly variable with its onset very erratic and last for about 5 months (May-September). This zone is mostly affected by land degradation. Land disputes and agropastoral conflicts are of a major concern because there are no defined routes for cattle migration, and thus animals. Land degradation is due to pressures such as deforestation due to expanding agriculture, fuel wood harvesting, bush fires, semi-intensive and extensive cattle rearing and farming. National Park belongs to this zone and it is home to elephants, black rhinos, cheetahs, hyenas, population of hippos and other wildlife. Porous borders and poor park protection make Faro extremely vulnerable to poachers, livestock, and habitat destruction.

G. Environmental and Social Safeguards Specialists on the Team

FNU Owono Owono, Social Specialist
Cyrille Valence Ngouana Kengne, Environmental Specialist

SAFEGUARD POLICIES THAT MIGHT APPLY

Safeguard Policies	Triggered?	Explanation (Optional)
Environmental Assessment OP/BP 4.01	Yes	It is confirmed that the policy on Environmental Assessment (OP 4.01) is triggered, as there may be potential significant, permanent, transboundary and irreversible environmental and social impacts resulting from project-financed activities. Conversion of modified habitats into irrigated lands cannot be avoided due to the nature of the project. Habitat fragmentation and sedimentation of water bodies from land clearance within the project area have definitely occurred and has had a severe, long term impact.

	The following key potential environmental and social issues have emerged from the ESMF and Environmental and Social Impact Assessment (version February 2020) reports: health impacts to employees and communities/increase in vector-related diseases; changes to soil characteristics from the use of inorganic chemicals; invasion of alien species; loss and fragmentation of drainage line; employment opportunities and economic development; risk of human-animal and agro-pastoral conflicts; risk of conflict (equitable access to irrigated lands and equitable shared benefits from production); risk of pollution of ground- and surface water resources; waste management, and air quality; dam safety and operation, management of seven (07) large ponds / lakes, which represent buffer zones for floods management; soil erosion and siltation; waterlogging; rice pests and disease control; adjustment of the physical environment during the bulk earthworks for land preparation; etc. The tree vegetation remains an issue as a source of firewood and non-timber forest products, on the left bank. Impact of climate change is another major issue. The current version (February 2020) of the ESIA/ESMP report does not cover quarry, borrow pit and worker's accommodation sites. Contractors will prepare contractor's ESMP once they are in place and and some specific activities and information about the construction are known (location of the camp, borrow-pits, etc.). Due to the large scope and magnitude of the above listed anticipated risks and impacts, the project is confirmed as safeguards Category A. The following factors were taken into consideration: (i) the scale of works (11,000 hectares) to be undertaken; (ii) new innovative technologies facilities (there will be a different approach in irrigation systems for the right and left bank, as well as a number of measures being introduced in component 2 – like e-vouchers, grants, and CGER, Water Users Associations (WUA) while well tested elsewhere, will relatively new in Cameroon); (iii) some potential environmental issues associated with construction and operation of irrigation lands and the expansion of the primary

	canal and the construction of the secondary and tertiary canals are cumulative and irreversible. Design and the exaction location of sub-projects to be implemented under component 1 (construction of meeting rooms), component 2 (production and support to agriculture services including the matching grants) and 3 (creation of the Center for Technological Innovation (Centre d'Innovation Technologique – CI), are not known and an ESMF was prepared, consulted upon, and disclosed on December 5, 2019 in Cameroon and on December 12, 2019 at the World Bank's external website . It describes standard methods and procedures, along with appropriate institutional arrangements for screening project activities, reviewing, implementing, and monitoring specific ESIAs to prevent adverse risks and impacts, as well as cumulative impacts. ToRs for a full ESIA for the known irrigation scheme (11,000 ha) were prepared and consulted upon on December 17-19, 2018. As agreed with the Borrower, a first version (February 2020) of the ESIA/ESMP report was prepared, consulted upon and disclosed in Cameroon and at the World Bank's external website on February 24, 2020. Approximately 14 information and consultation meetings were held, where more than 2,470 people attended. This first version gives insights into risks including gender-based violence issues and possible costs. However, as agreed with the client, impacts, risks and opportunities need to be further assessed. The final ESIA/ESMP for 11,000 ha that is grounded on detailed designs, including the cumulative impacts and public hearing findings will be reviewed and cleared by the Bank as disbursement condition. ToRs for the following activities will include workplace safety/labor conditions, environmental, social and GBV requirements: development of the Benue Sub-basin strategic plan; development of a specific manual for matching grants and development of the simplified manual for WUAs. The specific manual for matching grants to be developed as disbursement condition will also include road safety requirements for collection and transport of harvested crops.

Performance Standards for Private Sector Activities OP/BP 4.03	No	N/A
Natural Habitats OP/BP 4.04	Yes	It is confirmed that this policy is triggered due to the presence of three cynegetic zones (Campement des éléphants, 97 920 ha; ZIC 8 : Mayo Boulel, 35 040 ha ; ZIC 8 bis: Louga, 8 320 ha) in the project area of influence. ESIA/ESMP (version February 2020) findings indicate that these habitats might be threatened by workers and labor influx, and wildlife migration corridor might be affected. As part of the ESIA/ESMP process, the Borrower has identified who the project's establishment and operation will negatively impact on biodiversity, ecosystems, & conservation values. There were no species of major conservation concern appear on the IUCN (2013) list. Three species (Khaya senegalensis ; Trionyx triunguis and hippopotamus) are considered as "vulnerable" and will therefore be conserved where feasible. The risk of Human-Animal conflicts (baboons in Gounougou and Ouro Doukoudjé, hippopotamuses all along the banks of the Benue) was identified. The first-cut ESMP included in the current version of the ESIA has dealt with these issues by an array of related impacts identified and mitigation measures proposed. ESIA/ESMP (version February 2020) has identified the establishment of alien invasive species and assessed their impact on the project. An alien invasive monitoring and action plan has therefore been recommended as part of the Environmental and Social Management Plan (ESMP) for this project. 07 ponds/lakes used by pastoralists are located downstream and to ensure ecological continuity, continued long-term commitment is required for the collection of ecological and hydrological (flow/water level) data at key locations downstream of the reservoir.
Forests OP/BP 4.36	Yes	The project does not support commercial forest exploitation. However, this policy is triggered because the Massif Forest of Ouro-Doukoudje may be affected due to the presence in the project area of influence. Local stakeholders target this Massif for fire wood, charcoal, Non-Timber Forest Products and game research. The dominant vegetation type in the project area is comprised of a mosaic of natural

		grasslands with few trees scattered and grasslands created by anthropogenic influences such as clearing, overgrazing, slash and burn. It is estimated that a total of 132,350 trees risk of being cut down. Since final design has not been completed yet, design options should include consideration of mitigation hierarchy for tree cutting and document these considerations clearly. Offset will be considered only as the last option after exhausting all the avoidance, minimization, and mitigation options, and not a preferred option. The necessary mitigation measures considering mitigation hierarchy and limiting the offset are being considered and will be finalized as part of the ESIA/ESMP.
Pest Management OP 4.09	Yes	It is confirmed that this policy is triggered because major interventions are planned to enhance agricultural productivity and this may lead to an increased use of pesticides and other agrochemicals. Use pesticides is already widespread in the project (42% use herbicides, 41% use insecticides, 16% use fungicides and 1% use molluscides). Management of empty packaging and hazardous waste; quality of seed; management of canals; the availability of the technical services on the use and management of pesticides; etc are key issues to be addressed. A Pest Management Plan was prepared, consulted upon and disclosed in Cameroon on February 14, 2020 and at the World Bank's external website on February 18, 2020.
Physical Cultural Resources OP/BP 4.11	Yes	Previous studies in the Region revealed local significant heritage places such as graveyards. Mitigation measures will be incorporated into the disclosed ESMP including provisions for a detailed Cultural Heritage Management Plan. A comprehensive chance find procedure will be prepared as part of the ESIA report, embedded in the overall ESMP, to that end.
Indigenous Peoples OP/BP 4.10	No	There are no Indigenous Peoples in the project areas, as defined by OP/BP 4.10.
Involuntary Resettlement OP/BP 4.12	Yes	The implementation of the activities of Component 1 related to infrastructure development and water management and some activities of Component 2

		related to the improvement of agricultural production and services triggers OP/BP 4.12 (Involuntary resettlement of populations). A Resettlement Policy Framework (RPF) will be elaborated. The RPF will set compensation and resettlement principles to be applied for all land acquisition operations. Specific Resettlement Action Plans will be prepared and disclosed under this project: a RAP for 1000 ha (right bank of the Lagdo River), a RAP for the 5000 ha (left bank of the Lagdo River) and a RAP for 5000 ha (right bank of the Lagdo River). Additional RAPs may also be prepared if processing units construction generates land taking. In addition, a GRM document for the project will be prepared and disclosed before project effectiveness.
Safety of Dams OP/BP 4.37	Yes	The project does not finance construction of dams. However, VIVA Benue would depend on water from an existing reservoir impounded behind the Lagdo Dam. The policy is triggered because the proper performance of this dam directly impacts the functioning of the Bank-financed investments. In addition, this project will ensure long-term dam operation and safety. As required by OP4.37, the client hired an independent dam safety specialist to (i) inspect and evaluate the safety status of the existing dams, their appurtenances, and their performance history; (ii) review and evaluate the owner's operation and maintenance procedures (e.g. Operation and Maintenance [O&M], Instrumentation Plan and Emergency Preparedness Plan); and (iii) provide written reports of findings and recommendations for any remedial work or safety-related measures necessary to upgrade the existing dam to an acceptable safety standard. The independent dam safety specialist prepared a dam safety review inception report and a dam safety assessment report and submitted them to the Bank. The inception report presents the approach and methodology for the dam safety assessment and a summary of the site visit program. The dam safety assessment report confirms the general good conditions and behavior of the 40 years old dam. The latter is well operated and maintained but also monitored satisfactorily with the installed

instrument. The recommendations of the dam specialist to ensure acceptable dam safety condition according to Good International Industry Practice, include i) review and update of the hydrology and increase of the discharge capacity of the dam through the installation of fuse gates on the west saddle dam, if needed ii) rehabilitation of the spillway gates hoisting system, iii) rehabilitation and upgrade of the dam monitoring equipment, incl. capacity building and training of the staff in charge of the O&M of the dam, iv) inspection and repair, if justified for operation or safety reasons, of both penstocks and bottom outlet tunnel, v) other minor maintenance works to ensure the long term integrity and safe operation of the dam and its appurtenant structures and vi) review and update of the dam safety plans (O&M Plan, Instrumentation Plan and EPP). This also includes capacity building and training of the staff in charge of the O&M activities.
The dam is owned by MEADEN but operated by ENEO. This investment will affect the agreement between both in terms of disbursement for the operation and maintenance of the infrastructure. This should be discussed and addressed before negotiations.
Currently, the dam is being inspected periodically by a national expert panel from ENEO (dam operator). The existing dam safety plans will be reviewed and updated in the context of the project as disbursement condition. EPP is part of the dam safety plans and will be reviewed and updated but also fully implemented in the context of the project.
ENEO established in 2010 a structured CSR, including a Hygiene, Safety and Environment Central Unit. It also has an environmental and social policy (ESP #42 Rev 2 09/14) and has developed Safety and Environmental and social performances for its operations. However, the PESIA process has assessed the technical capacity of ENEO at Lagdo Dam and Regional levels to identify, flag, and manage any safety, environmental, and social related concerns to the Lagdo dam operation – power generation, irrigation releases, flood releases, and safety of the dam. The final ESIA, together with the Emergency Response Preparedness plans (ERP), will propose mitigation measures. Funds would be

		provided to set up an independent dam safety panel, to assist the client in the implementation of the related dam safety measures, with specific Terms of Reference in accordance with Dam Safety Guidelines of the World Bank (OP4.37). This panel will consist of a hydrology and hydraulics specialist, dam monitoring specialist and hydromechanical equipment specialist. The draft TORs for the ERP and the independent dam safety panel should be available before negotiations.
Projects on International Waterways OP/BP 7.50	Yes	This policy is triggered because the Benue river flows over the Nigeria–Cameroon border, and there is a memorandum of understanding (MoU) on the need to maintain water in the Benue Basin was signed between Cameroon and Nigeria on May 3, 2016. This project will help improve the release of water and contribute to implement this MoU. For e.g., response to flooding, secutity of water flow downstream, construction of dikes, etc will be carried in the context of this project. Per the MoU requirements, key data should also be shared with Nigeria. The Government of Cameroon (GoC) notified on January 9, 2020 the Niger Basin Authority (NBA), which is explicitly mandated to act on behalf of member countries. The preliminary ESIA findings were used to inform the notification process. The response from ABN is scheduled not later than March 30, 2020 and the Government of Cameron is planning to visit ABN in Niamey the week of March 9-13, 2020. The RVP Memo summarizing the outcome of the notification process will be approved the very latest before authorization to negotiate.
Projects in Disputed Areas OP/BP 7.60	No	There are no disputed areas in the project areas.

KEY SAFEGUARD POLICY ISSUES AND THEIR MANAGEMENT

A. Summary of Key Safeguard Issues

1. Describe any safeguard issues and impacts associated with the proposed project. Identify and describe any potential large scale, significant and/or irreversible impacts:

Environmental Assessment (OP4.01): the project mainly focuses on the establishment, rehabilitation, installation, operation and maintenance of irrigation infrastructures in Lagdo. It includes rice production, assist farmers with

technical expertise and equipment, etc. The physical investment under the project will be in rural settings. Some potential negative impacts are large scale, irreversible and significant: modified habitats fragmentation within the project area; increase in vector-related diseases and workplace safety issues; changes to soil characteristics from the use of inorganic chemicals and pesticides; loss and fragmentation of drainage line; risk of dispersal of invasion of alien species; risk of conflict associated with access to irrigated lands and equitable shared benefits from production; etc. The project is a potentially user of water (201 million m3/an) and impacts on water quality (including impact on aquatic biodiversity), communities, other users, and the environment might occur. Workforce for construction works, it is estimated around 200 workers and other company staff on the left bank and say 300 on the right bank.
An ESIA/ESMP (version February 2020) was prepared for 11,000 ha and the final ESIA/ESMP report grounded on detailed designs, including the cumulative impacts and public hearing findings is under preparation. It will include alternatives, thorough cumulative impact assessment, ESMP-Budget; alien invasive monitoring and action plan; infrastructure Management Plan; rice farming Operation Environmental and Social Management Plan; Surface and Groundwater Quality Monitoring and Management Plan; Emergency Preparedness and Response Plan; Cultural Heritage Resource and Preservation Management Plan; etc. This final ESIA/ESMP report will be reviewed and cleared by the Bank as disbursement.
The ESIA/ESMP (version February 2020) does not cover quarry, borrow pit and worker's accommodation sites. Contractors will prepare Contractor's ESMP once they are in place and some specific activities and information about the construction are known (location of the camp, borrow-pits, etc.).
Involuntary Resettlement of populations (OP/BP 4.12):
The implementation of the activities of Component 1 related to infrastructure development and water management and some activities of Component 2 based on improving agricultural production and services triggers OP/BP 4.12 (Involuntary resettlement of populations). This is justified by three scenarios: (i) The rehabilitation and development of perimeters envisaged in component 2 will lead to land acquisition, economic and physical displacements, and loss of livelihoods; (ii) The need to borrow and/or to get deposit sites for the rehabilitation/development of perimeters will result in temporary acquisitions of land belonging to either individuals or communities; (iii) The establishment of certain processing units envisaged under component 3 may require definitive land acquisitions. All sites targeted are exploited for agricultural production and grazing, with potential loss of livelihood and economic displacements of populations.
Additionally, project's activities will generate population (labor) influx during constructions and this could affect local social cohesion and would exacerbate Gender Based Violence risks in the area.

2. Describe any potential indirect and/or long term impacts due to anticipated future activities in the project area:
Irrigation infrastructure may create a source of malaria infection as vectors may survive throughout the year and also lead to an increase of other vector-related diseases.

3. Describe any project alternatives (if relevant) considered to help avoid or minimize adverse impacts.
Alternative analysis is underway as finalized technical designs are not available. The current ESIA/ESMP report (version February 2020) does not include alternative analysis. However, we do expect the final ESIA/ESMP to address alternatives at least: location; type of activity to be undertaken; design or layout of the activity; technology to be used in the activity; and operational aspects of the activity. Alternatives with focus on other totally different initiatives from the proposed project and that usually involve a different type of development on the proposed site, or a different location for the proposed development. Growing alternative crops; rice varieties; harvesting, etc. will also be considered.

4. Describe measures taken by the borrower to address safeguard policy issues. Provide an assessment of borrower capacity to plan and implement the measures described.

During project preparation, the Borrower has hired two seasoned environmental and social safeguards specialists to support the preparation of safeguards document. It has also engaged experienced environmental and social consultants to prepare safeguards document. A Pest Management Plan was prepared. It identifies main pests; diseases and pests of rice and proposes preventive and treatment methods. In addition, an ESMF was prepared and it sets out the guidelines and procedures to screen, assess and address environmental and social impacts of the proposed activities, as well as guidance on their management and mitigations. A first-cut ESMP has been developed for the project covering each in accordance with Cameroonian environmental policy frameworks as well as the Bank safeguard policies. Mitigation measures consist of (i) environmental good practices to address general construction related impacts; for example, civil work contractors are requested to develop Contractor's ESMP as part of the Bidding process. All contractors will be required to appoint seasoned safeguards staff for the implementation of their ESMPs; (ii) specific mitigation will be defined and included in the final ESIA reports once technical designs are finalized. MEADEN does not have in place a functional environmental and social management unit, and it will rely on the PMU E&S staff to plan and manage environmental, social risks and impacts associated with this project. These safeguards experts will support all Bank-funded subprojects. MINEPDED reviews and approves ESIAs as well as monitors project implementation in accordance with national environmental laws and the respective regulations. It has a weak capacity and lack resources to undertake proper compliance monitoring. Its technical capacity will be reinforced, and the costs associated with the operation of Divisional committees in charge of monitoring ESMPs will be borne by the project under component 4. Although MINEPDED has no social scientists and occupational safety expert, Divisional committees will include social experts, the labor department, and officials from the social affairs department and the women and family department. Supervision engineers will retain one Environmental and Safety Engineer, one EHS inspector to monitor contractors' EHS performance, and one Social Specialist to monitor Social, including GRM and gender performance.

A social assessment and the Resettlement Policy Framework (RPF) will be elaborated. The social assessment aims at analyzing the local social context in terms of social organization, land tenure organizational features, and gender aspects and it will propose key actions to be undertaken in the framework of the project. The RPF will set compensation and resettlement principles to be applied for all land acquisition operations. Five other social instruments will be prepared and disclosed under this project: a Resettlement Action Plan (RAP) for 1000 ha (right bank of the Lagdo River), a RAP for the 5000 ha (left bank of the Lagdo River); and a RAP for 5000 ha (right bank of the Lagdo River), a Labor Influx Management Plan and a Stakeholders Engagement Plan. Additional RAPs may also be prepared if processing units construction generates land taking. Additional key measures will be proposed in the ESIA and ESMPs to mitigate economic displacement during plots rehabilitation.

The project was rated as having a substantial risk of Gender Based Violence (GBV) and Sexual Exploitation and Abuse (SEA); therefore, it is following the recommendations of the Good Practice Note on Addressing GBV in Investment Project Financing involving Major Civil Works. It will develop a GBV action plan with accountability and response framework that will be reflected in the Grievance Redress Mechanism (GRM) for the project.

5. Identify the key stakeholders and describe the mechanisms for consultation and disclosure on safeguard policies, with an emphasis on potentially affected people.

Project proponent (MAEDEN); Rice farmers, WUAs and other beneficiaries; Ministry of Environment, including devolved units; Contractors; dam operator/ENEO; NBA; Supervision engineer; etc.

Public Consultations and Information Disclosure: In accordance with OP4.01, ToRs for a full ESIA for the known irrigation scheme (11,000 ha) were prepared and consulted upon on December 17-19, 2018. A preliminary ESIA has been conducted and disclosed in Cameroon and at the World Bank's external website on February 24, 2020.

Approximately 14 information and consultation meetings were held, where more than 2,470 people attended. The consultation was undertaken mainly in September 2019. The ESMP was locally disclosed at the governmental website on December 5, 2019 and disclosed at the World Bank's external website on December 18, 2019. The PMP was locally disclosed at the governmental website on February 14, 2020 and at the World Bank's external website on February 18, 2020.

B. Disclosure Requirements

Environmental Assessment/Audit/Management Plan/Other

Date of receipt by the Bank	Date of submission for disclosure	For category A projects, date of distributing the Executive Summary of the EA to the Executive Directors
20-Jan-2020	24-Feb-2020	

"In country" Disclosure

Cameroon
05-Dec-2019

Comments

The ESMF was disclosed on December 5, 2019.

Resettlement Action Plan/Framework/Policy Process

Date of receipt by the Bank	Date of submission for disclosure
27-Nov-2019	11-Feb-2020

"In country" Disclosure

Pest Management Plan

Was the document disclosed prior to appraisal?	Date of receipt by the Bank	Date of submission for disclosure
Yes	23-Jan-2020	18-Feb-2020

"In country" Disclosure

Cameroon
14-Feb-2020

Comments

If the project triggers the Pest Management and/or Physical Cultural Resources policies, the respective issues are to be addressed and disclosed as part of the Environmental Assessment/Audit/or EMP.

If in-country disclosure of any of the above documents is not expected, please explain why:

N/A

C. Compliance Monitoring Indicators at the Corporate Level (to be filled in when the ISDS is finalized by the project decision meeting)

OP/BP/GP 4.01 - Environment Assessment

Does the project require a stand-alone EA (including EMP) report?
Yes
If yes, then did the Regional Environment Unit or Practice Manager (PM) review and approve the EA report?
Yes
Are the cost and the accountabilities for the EMP incorporated in the credit/loan?
Yes

OP/BP 4.04 - Natural Habitats

Would the project result in any significant conversion or degradation of critical natural habitats?
No
If the project would result in significant conversion or degradation of other (non-critical) natural habitats, does the project include mitigation measures acceptable to the Bank?
NA

OP 4.09 - Pest Management

Does the EA adequately address the pest management issues?
Yes
Is a separate PMP required?
Yes
If yes, has the PMP been reviewed and approved by a safeguards specialist or PM? Are PMP requirements included in project design? If yes, does the project team include a Pest Management Specialist?
Yes

OP/BP 4.11 - Physical Cultural Resources

Does the EA include adequate measures related to cultural property?
Yes

Does the credit/loan incorporate mechanisms to mitigate the potential adverse impacts on cultural property?
Yes

OP/BP 4.12 - Involuntary Resettlement

Has a resettlement plan/abbreviated plan/policy framework/process framework (as appropriate) been prepared?
No

If yes, then did the Regional unit responsible for safeguards or Practice Manager review the plan?
No

OP/BP 4.36 - Forests

Has the sector-wide analysis of policy and institutional issues and constraints been carried out?
Yes

Does the project design include satisfactory measures to overcome these constraints?
Yes

Does the project finance commercial harvesting, and if so, does it include provisions for certification system?
NA

OP/BP 4.37 - Safety of Dams

Have dam safety plans been prepared?
Yes

Have the TORs as well as composition for the independent Panel of Experts (POE) been reviewed and approved by the Bank?
NA

Has an Emergency Preparedness Plan (EPP) been prepared and arrangements been made for public awareness and training?
Yes

OP 7.50 - Projects on International Waterways

Have the other riparians been notified of the project?
Yes

If the project falls under one of the exceptions to the notification requirement, has this been cleared with the Legal Department, and the memo to the RVP prepared and sent?
NA

Has the RVP approved such an exception?
NA

The World Bank Policy on Disclosure of Information

Have relevant safeguard policies documents been sent to the World Bank for disclosure?
Yes
Have relevant documents been disclosed in-country in a public place in a form and language that are understandable and accessible to project-affected groups and local NGOs?
Yes

All Safeguard Policies

Have satisfactory calendar, budget and clear institutional responsibilities been prepared for the implementation of measures related to safeguard policies?
Yes
Have costs related to safeguard policy measures been included in the project cost?
Yes
Does the Monitoring and Evaluation system of the project include the monitoring of safeguard impacts and measures related to safeguard policies?
Yes
Have satisfactory implementation arrangements been agreed with the borrower and the same been adequately reflected in the project legal documents?
Yes

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APPROVAL

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