



The World Bank

Climate Resilience and Water Security in Angola-RECLIMA (P177004)

Project Information Document (PID)

Appraisal Stage | Date Prepared/Updated: 28-Feb-2022 | Report No: PIDA32774

**BASIC INFORMATION****A. Basic Project Data**

Country Angola	Project ID P177004	Project Name Climate Resilience and Water Security in Angola-RECLIMA	Parent Project ID (if any)
Region AFRICA EAST	Estimated Appraisal Date 02-Mar-2022	Estimated Board Date 31-Mar-2022	Practice Area (Lead) Water
Financing Instrument Investment Project Financing	Borrower(s) Ministry of Finance	Implementing Agency Ministry of Energy and Water	

Proposed Development Objective(s)

The Project Development Objective is to improve water supply services and strengthen water resources management for climate resilience in selected areas.

Components

Strengthening Water Services for Water Security in Urban and Rural Areas

Strengthening Water Resources Management for Climate Resilience

Project Management

Contingent Emergency Response Component (CERC)

PROJECT FINANCING DATA (US\$, Millions)**SUMMARY**

Total Project Cost	450.00
Total Financing	450.00
of which IBRD/IDA	300.00
Financing Gap	0.00

DETAILS**World Bank Group Financing**

International Bank for Reconstruction and Development (IBRD)	300.00
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**Non-World Bank Group Financing**

Other Sources	150.00
FRANCE: French Agency for Development	150.00

Environmental and Social Risk Classification

Substantial

Decision

The review did authorize the team to appraise and negotiate

Other Decision (as needed)

B. Introduction and Context

Country Context

1. **Angola is a resource-rich, fast-urbanizing country of about 32 million people.** The country is the third largest economy in Sub-Saharan Africa (SSA) and the second largest oil producer in SSA. During a period of high oil prices (2005–14), it achieved rapid economic growth. However, growing oil wealth resulted in an overvalued currency, which fostered import dependency and stymied production in the non-oil tradable sectors. Currently, its population is growing at an annual rate of 3.3 percent. Following the end of the war in 2002, the rural population, including many of the poorest, migrated to the cities in search of greater economic opportunities. As a result, the urban population now represents about 65 percent of the total population, and still grows at 4.5 percent per year, one of the fastest urbanization rates of the continent. About a quarter of Angola's population lives in the capital, Luanda. The country is very young, with a share of population under 15 years of age as high as 45 percent.

2. **The Angolan economy is estimated to have ended a five-year-long recession in 2021.** The 2014–16 oil price crisis pushed the country into a long recessionary dynamic, which was exacerbated by the COVID-19 pandemic. Real GDP declined by 5.4 percent in 2020, driven by a decline of 6.8 percent in the oil sector, and 4.8 percent in the non-oil sector. As a result, real gross domestic product (GDP) recorded a cumulative decline of 10.7 percent from 2016, while the country's per capita gross national income (GNI) in nominal US\$ in 2020 had fallen to less than half its 2015 peak. Poverty, defined as the proportion of the population living below the poverty line (less than \$1.90 a day¹), was estimated at 52.9 percent in 2020. The size of the public debt, much of it in foreign currency, was further boosted by currency depreciation and reached 135 percent of GDP in 2020. In 2021, real GDP was estimated to have grown 0.4 percent, marking the end of the long recessionary cycle. Despite a continued decline in the oil sector, a strong post-COVID recovery of the non-oil sector drove the recovery.

3. **The country ranks low on the Human Capital Index (HCI)², largely due to persistent under-investment**

¹ Less than \$1.90 a day in Purchasing Power Parity (PPP).

² Manifested in a Human Capital Index (HCI) of 0.36.



in social sectors. It performs below income comparators and the SSA's average at all levels. There is also ongoing work needed to reduce the gender gap in Angola in a variety of sectors. For example, 27 percent of women are less likely to be salaried workers compared to 40 percent of men. Moreover, of those employed, 81 percent of women possess vulnerable employment compared to 54 percent of men.³ Investment in human capital, effective institutions, and a favorable business environment are critical for economic diversification and job creation.

4. Widespread gender inequality is a significant impediment to economic growth. Gender gaps in access to resources (such as agricultural production factors) and education and employment opportunities have profound and long-term impacts on family incomes and structural transformation. Women head 51.8 percent of households (51.4% in urban areas; 52.2% in rural areas); poverty is greater in these female-headed households.⁴ Existing social norms negatively affect women's participation in all productive activities and constrain their voice in water-related decision-making even though women are the primary managers of household water.⁵

5. The COVID-19 pandemic has made acutely apparent the importance of ensuring access to safely managed water supply and sanitation (WSS), which are particularly important given Angola's limited service coverage.⁶ In March 2020, Angola joined the ranks of countries with confirmed increasing cases of COVID-19. This viral outbreak poses an even greater threat to the health and welfare of the Angolan population, due to the lack of water supply, sanitation, and hygiene (WASH) services and ongoing difficulties in addressing recurrent infectious diseases (e.g., malaria, cholera, typhoid). Epidemics of vector-borne and water-associated diseases in Angola are likely to become worse under climate change, due to both increased drought and flood occurrences, expanding the geographic range and the seasonality of events and associated vectors (mosquitoes) and conditions (flood waters, unsanitary conditions).

6. The Government of Angola (GoA) is committed to establishing a more sustainable and inclusive growth model and fighting the impact of climate change. The National Development Plan (NDP) sets out the medium-term development objectives for Angola between 2018 and 2025, prioritizing, among others, infrastructure development, including water supply and sanitation. More specific to climate risk, the NDP explicitly mentions the need to prioritize addressing the impact of climate change through adaptation and mitigation efforts under the objective of environmental sustainability. It recognizes that the country has been significantly affected by extreme events, particularly drought and flooding. The GoA has developed a National Strategy for Climate Change (ENAC 2018–30) to fight climate change, and remain committed to the Paris Accords, Sustainable Development Goals (SDGs), and the African Agenda 2063.

Sectoral and Institutional Context

7. Angola's access to safe water and sanitation is exceptionally low. Angola did not meet its Millennium Development Goal (MDG) targets for water and sanitation. As of 2015, access to improved drinking water sources had grown to 54 percent (63 percent in urban areas), a very low rate for an upper-middle-income

³ The Little Data Book on Gender 2019 | Data" n.d.

⁴ European Union 2016. Angola Gender Country Profile. <https://op.europa.eu/en/publication-detail/-/publication/ef895bee-7273-11e5-9317-01aa75ed71a1>.

⁵ World Bank 2018. Angola Systematic Country Diagnostic: Creating Assets for the Poor.

<http://documents1.worldbank.org/curated/en/337691552357946557/pdf/angola-scd-03072019-636877656084587895.pdf>

⁶ According to JMP 2020, coverage for water supply and sanitation services stood at 57 and 51 percent, respectively. In addition, the report reveals a 57.8% of coverage in terms of hygiene, measure through number the presence of a handwashing facility with soap and water on-premises.



country. Access to piped water service averaged only 29 percent nationally (55 percent urban, 9 percent rural), and access to sanitation averaged 35 percent (57 percent urban and 17 percent rural). Inadequate investment levels, the loss of technical, operation, and maintenance capacities, and fast-changing demographic trends, are the main causes for the lack of progress. Overall, the water sector investment needs over 2017–22 are estimated at US\$22 billion. Population movement toward urban areas during the war and postwar years has made major cities grow rapidly and with limited planning. Consequently, 60 percent of the urban population currently lives in overcrowded, unplanned, and unserved or underserved settlements and peri-urban areas. These types of informal settlements are often disproportionately affected by floods resulting from lack of drainage and poor land use planning, and the effects of climate change will exacerbate their vulnerability.

8. The southern rural regions have been particularly excluded from water supply and sanitation services, due to isolation and low connectivity. Moreover, even the limited access to WASH services is vulnerable to unexpected drought events making water increasingly scarce. Sanitation service provision in general has been comparatively neglected – though access to improved latrines/toilets has shown modest gains over the past decades. At present, in rural areas, 55 percent of the population continues to practice open defecation and only 37 percent of households have access to an improved water source. The targeting of interventions will benefit from increased citizen engagement following participatory approaches to prioritize vulnerable areas and communities.

9. According to the National Water Directorate (DNA), numerous programs have failed in the past to ensure effective citizen participation in water and sanitation service delivery in rural and peri-urban areas. The reason is that beneficiary communities were barely involved in the evaluation of needs and their desire for a water system, technology, and management model. To this end, the MINEA, in 2014, designed and implemented the Community Water Management Model (MOGECA) as part of Angola's water reform, aiming at ensuring affordability of water for consumers, while providing for the maintenance of water infrastructure. The model has since been implemented in peri-urban and rural water points and revised and streamlined to ensure its sustainability.

10. The World Bank has been actively involved in the water sector reform. With the support from the first and second Water Sector Institutional Development Project (PDISA-P096360 and PDISA II-P151224), nine utilities continue to be supported through a utility turnaround approach, an independent water regulation authority has been created in the form of the Energy and Water Services Regulatory Agency (IRSEA), and a water resources mandate has been set up through the National Water Resource Institute (INRH). The utilities, IRSEA and INRH are still maturing and face capacity challenges – not unlike what is observed in many other countries undergoing decentralization. IRSEA recently issued a new regulatory framework for the water and sanitation sector and is developing additional regulatory instruments for the PWSUs. The main challenges for IRSEA are building capacity to monitor PWSUs, ensure the adequate provision of water supply and sewerage services, and enforce compliance with regulations.

11. Based on successful outcomes achieved by the utilities supported by PDISA I and II, there is a need to extend this support to other provinces, particularly those located in areas exposed to high climate variability. This project will replicate interventions currently supported by the PDISA 2 in three additional provinces: Benguela, Kwanza Sul, and Cuando Cubango. These provinces have been prioritized by the GoA given their current WSS quality and access levels. Moreover, the additional provinces supported by the project are in areas of the country that are vulnerable to drought, the risk of which is projected to increase as a result of climate change. For example, Benguela and Cuando Cubango are among the provinces most affected by the severe drought that started in 2012, and Kwanza Sul in the *orla costeira* is known for periodic



water scarcity.

Climate change threatens water security and livelihoods in Angola

12. Angola's high degree of exposure to extreme climate events further threatens its economic stability and the safety and well-being of its population. The most recent drought that affected the country between November 2020 and January 2021 was recorded as the worst drought in the last 40 years.⁷ This is not the first time that Angola has dealt with extreme drought conditions.⁸ The south of Angola suffered a severe drought from the time of the weak rainy season in 2012/2013 until the arrival of the 2019 rainy season, particularly affecting the provinces in the southern region of the country.⁹

13. Effects of climate change may increase both the frequency and the magnitude of droughts and floods in the future, particularly in the southern part of Angola. Rainfall in Angola has been dominated by year-to-year and decadal variability. Parts of Angola were unusually dry in the 1980s and 1990s and unusually wet in the 2000s and 2010s while other parts of Angola experienced the opposite pattern. From 2013 to 2016, between 76 percent and 94 percent of the populations of the provinces of Namibe, Cunene, and Cuando Cubango were affected by drought. Going forward, climate projections indicate that the rainy season in most of Angola will become shorter, but with more intense rainfall during summer. Water availability is projected to decrease in the future in southern regions of the country, associated with longer dry seasons and increases in temperature (Angola CCDR, in preparation).¹⁰ Dry spells are also expected to increase, and the annual probability of severe drought in the south of Angola will increase, as will the number of people living in drought-prone areas across Angola.¹¹

14. The average annual direct economic losses of recurring droughts in Angola are estimated at US\$134 million and may increase sevenfold under a future climate¹². Apart from the directly monetizable losses, particularly high in agriculture and water for human consumption, another impact is an increase in the number of people vulnerable to food insecurity, from 2.3 to 7.4 million. In addition, UNDP reports that about 80 percent of existing boreholes were nonfunctional in 2016 due to water scarcity and disrepair (approximately 2,400 boreholes were damaged) in Cunene, Namibe, and Huila, disrupting livelihoods in these areas.

15. The lack of functional systems to monitor, maintain, and repair rural water points, as well as the lack of water storage options, is at the core of the region's drought vulnerability. Other important causes are the lack of drought preparedness, inadequate water resources management capacity, a poor knowledge base on groundwater resources, and insufficient investments at the community level.¹³ The activities proposed under this project will increase drought resilience in the south of Angola by strengthening both the urban and rural water supply subsectors; increasing the groundwater knowledge base through

⁷ "Angola Brief | World Food Programme." n.d. Accessed July 8, 2021. <https://www.wfp.org/countries/angola>.

⁸ Between 1970 and 2006, temperature increased by 1.5°C in coastal areas and the north, and by 1.0°–2.0°C in the east and center regions of the country. In addition, average annual rainfall decreased by about 2.4 percent per month every decade during the same period. Temperature will likely continue to rise, and the country will experience more erratic rainfall patterns. Projected climate changes include an increase in temperature of 4.9°C by 2100 in the eastside of Angola and slightly less in its coastal and northern regions, as well as below average and more volatile rainfall, particularly in the southern region.

⁹ Cunene, Namibe, Huíla, and significant parts of Benguela, Cuanza Sul, and Cuando Cubango.

¹⁰ Angola Country Climate Development Report (2022) Under preparation

¹¹ World Bank Climate Change Knowledge Portal; and CIMA, UNDRR (2019): Angola Disaster Risk Profile. Nairobi: UNDRR and CIMA Research Foundation.

¹² UNDRR Disaster Risk Profile; CIMA, UNDRR (2019)

¹³ Serrat-Capdevila, Limones, Marzo, Wijnen & Petrucci (2020) Water Security and Drought Resilience in the South of Angola (World Bank Report).



hydrological studies; strengthening water management planning from the basin to the municipal scale to mitigate droughts and floods; and following a storage development approach integrating watershed rehabilitation, groundwater storage, and surface storage (small weirs and Sendi dam reconstruction). Project investments in provincial water utilities in Cuanza Sul, Cuando Cubango and Benguela are key for drought resilience in these provinces, expanding access to basic WASH services in the COVID context. Participatory planning in Municipal Water Plans will integrate water supply, water resources management, and climate preparedness capacity at the local level.

16. Angolan women in the rural south bear the brunt of climate change impacts. Single mothers, widows, women of poor health, and elders are particularly exposed to extreme poverty. Women and girls are responsible for fetching water and with walking distances to the nearest water source generally varying between 5 and 40 minutes, women frequently characterize this task as extremely time-consuming and exhausting. At the professional level, women continue to be under-represented in the water utility workforce, particularly in technical and managerial positions as well as in decision-making positions in rural water groups.¹⁴ Although there has been improvement in some areas, as reflected in the latest collected data on seven utilities under the PDISA II project in 2021, including the increase in number of women that hold management positions (about 27.5 percent), only 15.6 percent of the engineers are women in utilities supported by PDISA II.

17. The effects of drought during infancy often negatively affect women's opportunities throughout their lives and even those of their children.¹⁵ The greater burden of fetching water and herding cattle over longer distances forces some children to drop out of school. Economic stress on families has also led to increased abandonment of families or repudiation of children by both men and women. Furthermore, women reported that males have left for the city to look for work and end up building new families, abandoning those that they left behind. The impacts of drought on men's rural exodus and the increased burden placed on women are also corroborated by data from the last census, showing the lowest masculinity index values (number of men divided by the number of women) over the most drought-affected areas of the south of Angola (between 0.79 to 0.85).

18. Drought events have far-reaching impacts on agriculture and livestock, which constitute important sources of food security and livelihoods for most people in southern provinces. Agriculture is characterized by agro-pastoral systems where 80 percent of farmers are subsistence smallholders¹⁶ producing cereals at low productivity¹⁷ levels and livestock play a central role. Agricultural production primarily depends on rainfall and is highly vulnerable to drought periods.¹⁸ The most recent drought, which was the most severe in the last 40 years, led to 6 million people not having enough food and 15 million people using crisis or emergency livelihood-base coping strategies, such as spending savings or reducing non-food expenses. The climate shocks led to an increase in the cost of basic commodities – such as maize and maize flour, beans, and sugar – of 25 percent and a loss of 35 percent of livestock assets, severely affecting rural households' livelihoods.¹⁹

¹⁴ Despite the responsibility that women have to fetch water, in visited communities it was observed that most water points are managed by men and women have limited decision making.

¹⁵ Uncharted Waters (2020).

¹⁶ Average small-scale subsistence-oriented family farms are on average 2.3 ha.

¹⁷ The average yields obtained by smallholders for cereals is 0.9 t/ha and vegetables is 3.6 t/ha. Production remains far below neighboring countries Namibia, South Africa and Zambia.

¹⁸ Serrat-Capdevila, Limones, Marzo, Wijnen & Petrucci (2020) Water Security and Drought Resilience in the South of Angola (World Bank Report).

¹⁹ Amnesty International – Press Release June 2021. Available at: <https://www.amnesty.org/en/latest/press-releases/2021/06/angola-water-supply-and-drought-resilience/>



Limited capacity to manage WRM in Angola continues to foster ever-increasing water insecurity

19. As the NDP aims at economic diversification, the foundations for this transition are very weak, including the management of water resources at the basin scale. The lack of accountable frameworks for the management of water, land, and other natural resources needs to be addressed to achieve sustainable and climate-resilient economic growth. In addition, economic diversification across productive sectors is likely to be vulnerable to climate variability due to the lack of climate-resilient water storage investments in the river basins (watershed storage, dams, groundwater storage).

20. **Water resources management (WRM) frameworks are being developed as part of the ongoing water sector reform; however, institutional capacity remains weak across the subsector.** This includes lack of preparedness for droughts and floods as well as weak capacity to implement decisions and operationalize plans from the national level to provincial, municipal, and basin administrations. PDISA2 is providing support to INRH to establish basic systems such as a cadaster of water resources uses, a national water resource information system, a dam safety program, increased hydrologic monitoring capacity, and a pilot for a financial and economic regime for the use of water resources. The current project will build on these efforts by supporting the implementation of WRM instruments in the Southern basins and supporting water resources monitoring, planning, and preparedness at the basin, provincial and municipal levels. INRH is responsible for ensuring the planning and management of water resources at the level of the hydrographic basins until the effective creation and installation of the Hydrographic Basin Administration Offices (HBAO)²⁰. In 2015, the National Water Council approved legislation to create the HBAOs, for a closer and more operational management of the country's water resources.

21. **In 2019, the GoA approved the status of the Office for the River Basin Management of Cunene, Cubango and Cuvelai (GABHIC), with the mandate to ensure the integrated water resources management of these three southern river basins (with administrative, financial, and patrimonial autonomy).** GABHIC's capacity to fulfill its mandate remains low, due to limited human and technical capacity, to monitor water resources, implement WRM frameworks, and including climate preparedness. GABHIC is the first and only HBAO to be approved so far, reflecting the existing gaps in the governance structure necessary to oversee water resources management within the basin level.²¹ The project will support GABHIC in basin level planning and WRM, and at the local level will support the establishment of participatory planning processes through the Municipal Water Plans, integrating all water users needs and promoting climate preparedness through citizen engagement.

22. **The proposed project is complementary to ongoing GoA efforts to increase water security through the construction of dams and water transfers in the Cunene, Cuvelai and Cubango basins, as well as dams in the Namibe coastal basins (Projecto Estructurante de Combate a Seca).** A government-funded project started in October 2021 with the construction of a water transfer system from the Cunene River in Cafu to Cuamato and Namacunde in the Cuvelai basin, Cunene Province, with over 168 km of conduits and canals. That project also entails the construction of dams in Calucuve and Ndúe in the Cunene Province. When the three projects are completed, there will be 344 kilometers of pipes and canals, a pumping station, and 89 chimpacas. Calucuve will have a storage capacity of 100 million m³ of water and Ndúe of 145 million m³. Additional infrastructure is planned to transfer water resources to other regions on the right banks of the

[release/2021/07/angola-millions-facing-hunger-as-thousands-flee-their-homes-as-drought-ravages-the-south-of-angola/](https://www.reuters.com/article/us-angola-millions-facing-hunger-as-thousands-flee-their-homes-as-drought-ravages-the-south-of-angola/)

²⁰ Regulation for the General Use of Water Resources, Angola.

²¹ From the 22 Hydrographic Planning Units defined in the National Water Plan, grouped in 11 Hydrographic Regions, the INRH/MINEA has prepared a document suggesting the creation of the following GABHS to cover the remainder of Angola's Territory: Cabinda; Cuango and Cassai; M'Bridge, Dande and Bengo; Cuanza, Longa and Queve; Catumbela, Coporolo and Cavaco; Giraúl, Bero and Curoca; and Zambeze



Cunene River. This proposed project will target beneficiaries that are beyond the reach of the above-mentioned government-funded project above.

23. The project will address water storage deficits with investments in community-level and watershed storage, groundwater storage, and surface water storage, building resilience for climate variability. The project will coordinate storage investments with community organization and municipal level planning for water security, integrating water use for drinking, agriculture, and livelihoods. This will be done in close collaboration with the Third Angola Agricultural Transformation Project (MOSAP3) under preparation, which will finance investments in irrigation in the same provinces where storage investments take place, with technical assistance and farmer field schools. The reconstruction of Sendi Dam in Quipungo Municipality (Huila), to provide water supply to the municipality as well as for smallholder irrigation and other uses downstream with 20,000 direct beneficiaries, supported by this proposed project, will be a good example of coordinated efforts between the two projects. The project will also support the construction and rehabilitation of many small reservoirs and will provide advisory services and training to provincial and municipal staff for the operation and maintenance of hydraulic infrastructure, as well as support coordination efforts between MINEA and MINAGRIF from the national to municipal levels.

C. Proposed Development Objective(s)

Development Objective(s) (From PAD)

24. The Project Development Objective is to improve water supply services and strengthen water resources management for climate resilience in select areas .

Key Results

- Number of people in urban and peri-urban areas provided with access to improved water service under the project, disaggregated by male and female (core indicator).
- Number of community-level water and sanitation groups supported, including training.
- Number of people in rural areas provided with access to a reliable and safe water source, disaggregated by male and female.
- Number of municipalities with operational Municipal Water Plans developed through participatory processes (citizen engagement), that include climate risk identification and contingency measures.

D. Project Description

25. The proposed lending instrument is an investment project financing (IPF) comprising an IBRD loan of US\$300 million, to be implemented over six years. The project will be co-financed²² by the AFD through a euro-denominated loan of US\$150 million equivalent. Selection of the IPF was based on its flexibility and suitability to incorporate financing for a broad range of activities, including a number of specific investments, technical assistance, and capacity enhancement measures.

Project Components	Project Cost	IBRD Financing	AFD Financing
Component 1: Strengthening Water Services for Water Security in Urban and Rural Areas	\$229.00	\$152.00	\$77.00

²² Project-supported activities will be financed in parallel by the two sources according to their share on the overall financing; IBRD: 66 percent; AFD: 34 percent.



Component 2: Strengthening Water Resources Management for Climate Resilience	\$198.00	\$131.00	\$67.00
Component 3: Project Management and Inter-institutional Coordination	\$23.00	\$17.00	\$6.00
Component 4: Contingent Emergency Response Component	\$0.00	\$0.00	\$0.00
Total	\$450.00	\$300.00	\$150.0

Table 1. Project Costs and Financing (US\$ Millions)

26. The project will finance physical investments in urban and rural areas as well as institutional development activities to increase water security and help manage climate extremes, from the national and basin levels to the municipal level. The linkage between water supply, water resources management, and drought preparedness and contingency planning at several spatial scales, with coordinated actors, is the foundation of water security and coping with climate extremes, addressed through the following components:

27. **Component 1: Strengthening Water Services for Water Security in Urban and Rural Areas (US\$229 million, of which US\$152 million IBRD).** This component will focus on strengthening water supply and sanitation service provision in urban and rural areas of selected provinces, including rehabilitation and expansion of water supply services in urban and peri-urban areas, maintenance and repairs of rural water supply systems (new rural investments are in Component 2), and technical assistance to ensure investment sustainability in both urban and rural contexts. Furthermore, activities under this component will link water supply and sanitation in the urban and rural contexts with water resources management at the basin and municipal scales, including drought preparedness and contingency plans at the provincial and the municipal levels. This component includes support for:

- a) **Water Supply and Sanitation Institutional Strengthening, Capacity Building, and Development.** To ensure sustainable operation and management of water supply infrastructure and climate resiliency for water utilities, this component will aim at strengthening the institutional framework, monitoring capacity of the water and sanitation sector, and building capacity of the Borrower's water and sanitation agencies at both the national and provincial levels, through: (i) technical assistance (TA) to the Provincial Water and Sanitation Utilities (PWSUs) of Benguela, Cuando Cubango, Cuanza Sul, and Luanda, for institutional strengthening and sustainability in the operation and maintenance of water supply and sanitation infrastructure; (ii) support for the establishment of IRSEA's regional office in the south of Angola, as per the Action Plan developed and approved under PDISA II, as well as TA activities including a Beneficiary Assessment study of the willingness and ability of water users to pay tariffs; (iii) the Development of Sanitation Master Plans using the Citywide Inclusive Sanitation Planning approach, which will support the provincial agencies in planning for the necessary institutional, policy, and regulatory changes that will be required to carry out their mandates for sanitation; (iv) operational and capacity building support for a Water Training Center in Huila Province by providing support to EPAS to develop a curriculum on urban and rural water supply and sanitation, small- and intermediate-scale irrigation, and other water-related subjects; (v) strengthened performance monitoring, data management, and managerial practices within the EPAS and EPAL to improve decision making by incorporating international best practices and participation in the New-IBNET and UoF initiatives, as well as consolidate the operational use of the existing Water Supply and Sanitation Sector Information System (Sistema de Informação do Sector de Abastecimento de Água e Saneamento – SISAS); and (v) support for the development of drought preparedness and contingency plans integrating utility operations with WRM for EPAS and EPAL, which will include efficient use and management



of water resources, and a water demand management strategy. These activities will strengthen the water sector frameworks, and improve the operational efficiency and sustainability, thus enhancing the resilience of water service provision, including during climate shocks.

b) **Rehabilitation and expansion of water supply services in urban and peri-urban areas.** This subcomponent will support selected PWSUs in the development of priority infrastructure to expand and increase piped water supply service and household connections, with investments in the production and distribution infrastructure systems in provincial cities, designed and built to increase resilience to climate variability, supply reliability, and energy efficiency. The subcomponent will be implemented to rehabilitate and expand both water supply production and distribution facilities²³ through, among other things: (i) the carrying out of civil and electro-mechanical works to improve water production; (ii) expansion and refurbishment of well fields and intake facilities; (iii) enhancement of water treatment facilities, including water testing units; (iv) construction of clear-water storage tanks; (v) the rehabilitation of pump stations, telemetry/SCADA, and associated fittings; (vi) water supply network rehabilitation (reduction of nonrevenue water) and expansion including new pipelines; the (vii) installation of district meters and pressure control valves within existing pipelines; and (viii) the construction of new household connections. This subcomponent may also finance investments prioritizing unserved and underserved schools in targeted areas,²⁴ ensuring their connection to the network.²⁵

c) **Strengthening of rural water services to build drought resilience in the South of Angola.** This subcomponent will provide support for (i) municipal and provincial administrations to monitor, maintain, and repair rural water points and small systems, considering infrastructure design to facilitate access to persons with disabilities, and including technical assistance and a program of maintenance and repairs in all selected provinces, linking the monitoring and the management of information (from the community to the SISAS) with maintenance and repairs responses; (ii) municipal (and provincial) administrations to organize and support water and sanitation groups in rural communities to ensure the sustainability of rural water investments and the continued functionality of water points for multi-purpose use (in selected locations this may include community training for WASH in schools and support for community-led total sanitation); (iii) training and capacity building for women to increase their representation in decision-making positions in the rural water and sanitation community groups; and (iv) municipal (and provincial) administrations in the participatory development of Municipal Water Plans and their implementation. Municipal water plans will include participatory mapping of water resources and uses, definition of management needs and investments, drought preparedness and mitigation plans/strategies; and link water use with agriculture and livelihoods (integrating water security with food security and human development); (v) provincial (and municipal) administrations in the targeting of water resources investments planned under component 2(a) by integrating technical knowledge with beneficiary needs, in coordination with the elaboration of municipal water plans; (vi) a strategic assessment of the status of the rural water supply and sanitation subsector to

²³ The increase in water production capacity and distribution will ensure that communities are resilient to water shortages by increasing the total amount of volume made available

²⁴ RECLIMA PIU will coordinate closely with the Girls Empowerment and Learning for All Project (P168699) counterparts to define the targeted schools. The GIS-enabled mapping exercise conducted with the support of the Geo-Enabling initiative for Monitoring and Supervision (GEMS) under the Girls Empowerment and Learning for All Project will contribute to the identification of the targeted schools. The mapping is underway and is expected to be completed during the first semester 2022.

²⁵ WASH activities inside schools are under the responsibility of the Department of Infrastructure of the benefited Municipalities in coordination with the school authorities, under the jurisdiction of the Ministry of Education.



plan for future investments. This subcomponent will also support the involvement of university teams for technical support in the elaboration of Municipal Water Plans as well as in their future implementation.

28. Component 2: Strengthening Water Resources Management for Climate Resilience (US\$198 million, of which US\$131 million IBRD). This component will build resilience to climate variability and will support selected provinces and their municipalities with water resources development investments to increase reliable access to water resources, and support selected agencies with the strengthening of the institutional and operational framework for water resource management through the provision of support for:

a) **Community-level infrastructure investments to increase reliable access to water resources.** Provision of support for the rehabilitation and new construction of infrastructure such as: sand dams, *chimpacas* and cisterns, small reservoirs, piped water supply, boreholes and protected wells, soil and water conservation measures in selected watersheds, small groundwater recharge schemes, and other infrastructure, maximizing the use of nature-based solutions to prevent soil erosion, promote watershed storage and rehabilitation, infiltration and groundwater recharge. This subcomponent will include support for detailed site characterization, designs, infrastructure construction and equipment, O&M financial plans for water access to meet domestic, livestock and agricultural water demand. The prioritization and selection of beneficiary communities will be done throughout the project following a three-step approach including: water access vulnerability ranking, field assessments, community involvement and confirmation of needs.²⁶ To guide the choice of infrastructure investments to be built in each community, a Decision Tree Framework for Rural Water Supply and Harvesting infrastructure has been elaborated, with a guiding principle to provide the most reliable and safe water supply source, or combination of sources, to cope with climate variability in the South of Angola. Activities will be coordinated with municipal water plans in (1c) and may also include support for the construction of rural water and sanitation solutions for unserved and underserved schools in targeted areas.²⁷

b) **Institutional support for water resources management.** This subcomponent aims to strengthen the management of water resources in the South of Angola through the provision of support for: (i) the operational establishment of GABHIC in Lubango (Huila) and its departments in Menongue (Cuando Cubango) and Ondjiva (Cunene) as well as associated departments; and (ii) direct advisory and training services for the implementation of water resources management instruments and the fulfillment of its mandate, including: (a) institutional organization, strategic planning and project management; (b) to improve the capacity to monitor/gather/manage relevant climate, hydrology, hydrogeology and water-related information; and to implement water resources management instruments, basin plans and the financial and economic regime on the use of water resources; (c) support the creation of basin councils as instruments for stakeholder participation; (d) the development of flood and drought preparedness and contingency plans and strengthen information-to-action mechanisms for planning and management, in coordination with provincial and municipal administrations; (e) advisory and training services for the operation of hydraulic infrastructure including a special focus on dam operations and safety best practices, extending support to national, provincial and municipal operators (some of these activities may be coordinated through the training center in (1a)). This subcomponent will support institutions with improved water resources monitoring and data availability. Better data will enable better management and planning in regard to

²⁶ The report "Drought Resilience and Water Security in the South of Angola" presents a detailed methodology, which will be described in the operations manual.

²⁷ RECLIMA PIU will coordinate closely with the Girls Empowerment and Learning for All Project (P168699) as explained in previous footnotes. In rural areas, community Water and Sanitation Groups benefiting from training under (1c) may play a role supporting the maintenance of the schools' water and sanitation investments, in coordination with municipal and school authorities.



climate and water variability, and is essential for mitigating climate change risks. This subcomponent will also support: (iii) the preparation of groundwater studies for strategic aquifers in the South of Angola for GABHIC (and for INRH outside GABHIC's basins) as well as surface water studies, informing investments in 2a, including the digitalization of historical data archives in coordination with the IGEO; (iv) water resources monitoring activities including a groundwater monitoring pilot, rehabilitation and upgrades to the hydrometric network, and a water resources information platform; (v) the preparation of basin-specific cadaster of resources and users (link to Municipal Water Plan in (1c)), the consolidation of procedures and instruments for water use permits, and the implementation of the financial and economic regime for the use of water resources in the basins administered by GABHIC; (vi) the design and implementation of an information management system for GABHIC; (vii) a strategic analysis for storage investments planning in the South, including the integrated use of watershed storage, aquifers, and dams; (viii) the preparation of the Cunene River Basin plan by GABHIC, and the Namibe Coastal Basins Plan by INRH; and (ix) the design and implementation of a pilot program for climate-resilient livelihoods, economic development and conservation in the Upper Okavango Basin²⁸. Furthermore, this subcomponent will support the establishment of a water and agriculture coordination platform to be led by MINEA and MINAGRIF to ensure synergies with the MOSAP Project²⁹, and a university applied-research grants program to build analytical capacity on climate vulnerability dynamics, and planning and design for climate risks in Angola.

c) **Dam reconstruction, Operations and Safety:** Support for (i) the reconstruction of Sendi Dam in Quipungo Municipality (Huila), including support for studies and design integrating climate change risks³⁰, implementation of environmental and social safeguards, construction and the elaboration of an instrumentation and surveillance plan, operation and maintenance plan, and emergency preparedness plan; (ii) an assessment by a panel of experts in compliance with ESS4-Annex 1 on dam safety; and (iii) scoping studies for potential new dams.³¹

29. **Component 3. Project Management and Inter-institutional Coordination (US\$23 million, of which US\$17 million IBRD).** This component will support an existing Project Implementing Unit (PIU), to implement, including: (i) project's activity design, monitoring and evaluation activities (including enhancing the existing information system³² for monitoring the project's progress and results indicators), procurement and FM activities; (ii) environmental and social standards, including indigenous peoples; (ii) citizen engagement measures and grievance redress mechanisms for the Project activities as a whole; and (iv) annual audits. This component will support a young professionals and technicians program to strengthen human capacity in Angola's water sector as well as female representation in water sector institutions.

30. **Component 4. Contingent Emergency Response Component-CERC- (US\$0 million IBRD).** This component will provide immediate response to eligible emergencies. As such, in the event of such an eligible emergency, as defined in the Contingency Emergency Response (CER) operational manual prepared and adopted by the GoA, this component would finance emergency activities and expenditures through the reallocation of funds from the Project.

²⁸ The Upper Okavango in the Angola Water Tower, is a source of climate resilience for the basin, storing water from the rainy season and releasing it during the dry season, acting as a sponge. As it is also the poorest part of the basin, this pilot program is a joint priority action identified by Angola and OKACOM member states in the recent Multi-Sector Investment Opportunities Analysis (MSIOA).

²⁹ WB financed investment project: Angola Agricultural Transformation Project - MOSAP3 - P177305.

³⁰ [Confronting Climate Uncertainty in Water Resources Planning and Project Design: The Decision Tree Framework](#)

³¹ Potential new dams to be explored for pre-feasibility studies include inter alia: Jamba ya Mina, Jamba ya Oma, Dam in Rio Catumbela, Cova do Leao, and others.

³² The Project will set aside resources to strengthen the FCMU overall monitoring capacities through the provision of tools and trainings to ensure timely supervision, adequate systematization of information, good quality reporting (including georeferencing) and knowledge sharing. The use, adaptation or combination of WB tools such as Project360, MS Project, among others will be explored.



Legal Operational Policies

Triggered?

Yes

No

Summary of Assessment of Environmental and Social Risks and Impacts

31. **The project E&S risk rating is Substantial at this stage.** This is based on the project's anticipated E&S risks and impacts associated with planned construction works along with the challenges that the borrower will face, bearing in mind that new staff will be appointed, in which the experience and background of the E&S specialists is still unknown. The scale of the project is national, although the exact geographic locations and its sensitivities or the magnitude of interventions needed are not yet known, with the exception proposed project activity to finance the reconstruction of the Sendi dam, whose location and some of the potential risks and impacts are already known.

32. **Anticipated environmental and social impacts and risks typically associated with small to medium scale civil works (Components 1 and 2) are expected to be moderate to substantial and occur during the construction phase** (rehabilitation and expansion of water and sanitation infrastructures). Such risk and impacts may lead to loss of vegetation, disturbance of sensitive habitats, soil erosion and degradation, soil and surface water pollution, dust and noise emissions, impact on water usage, generation and disposal of construction waste, occupational health, and safety concerns for contracted workers as well as community health and safety risks caused by public nuisances and increased road traffic risks. In addition, there are substantial social risks relating to the temporary or permanent impacts of civil works on communities, including issues relating to labor and working conditions (e.g., risk of child labor), labor influx, and sexual exploitation and abuse and sexual harassment (SEA/SH); potential temporary or permanent physical or economic displacement impacts; distribution of project benefits and social inclusion; and interventions in pastoralist and/or Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local (IP/SSAHUTL) communities in southern Angola, which will necessitate culturally-appropriate engagement and consultation activities and measures to ensure appropriate inclusion of such communities as project beneficiaries. In rural communities affected by drought in southern Angola, there is limited access to social services such as health clinics and high incidence of poverty and food insecurity. Risks are also related to the transmission of communicable diseases (e.g., COVID-19) that could arise from people gathering for capacity building workshops and training, as well as implementation of works financed under the project. While the impacts related to the rehabilitation and expansion works are mostly temporary, predictable, site-specific, and readily manageable, the reconstruction of Sendi Dam is likely to generate direct, indirect, and cumulative risk and impacts including sedimentation, erosion, habitat degradation downstream and upstream, water quantity reduction through multiple supply abstractions, labour influx and possible water user conflicts.

33. **The project will finance the reconstruction of Sendi Dam.** The proposed dam is classified as "Large Dam, as per ESS4. Given that the reconstruction of the dam is expected to restore its original technical characteristics, mainly the storage capacity and flooded area, anticipated environmental risks and impacts on sensitive biodiversity are not expected to be significant, unprecedented or affect areas of Important Bird and Biodiversity Areas (IBA) or Alliance for Zero Extinction Sites (AZEs). Moreover, recent Bank assessment also indicated that no



encroachment of any kind as occurred since the Sendi dam collapse in 2019; hence, its reconstruction is not expected to lead to the acquisition of land and/or private properties or restriction to livelihoods access³³.

34. **To manage environmental and social risks associated with the project, the borrower has developed** an Environmental and Social Management Framework (ESMF); a Resettlement Policy Framework (RPF); an Environmental and Social Commitments Plan (ESCP); a Stakeholder Engagement Plan (SEP); an Indigenous Peoples' Planning Framework (IPPF); a Labor Management Procedures (LMP); as well as a grievance redress mechanism (GRM), during the project preparation phase which were subsequently disclosed in-country (25/02/2022) and at the Bank's website (26/02/2022).[1] The GRM contains provisions to address grievances relating to sexual exploitation and abuse and sexual harassment (SEA/SH) and this will be further adapted for the specific needs of the proposed project as appropriate while the ESMF provides an overview of the project and its components, the applicable legislative and regulatory frameworks and policies, an overview of the baseline conditions, and a summary of key anticipated environmental and social impacts. It also provides mitigation and monitoring measures and a screening tool for assessing and classifying impacts at the subproject level. Specifically, a subproject level ESIA/ESMP for the Sendi Dam will build upon measures set out in the ESMF and ESCP which also require that Contractor's C-ESMP to be prepared in a manner consistent with ESS4 and reviewed, cleared by the Bank prior to commencement of subproject activities and associated works. The ESMP will include a detailed dam safety plan (DSP), comprising: (i) a plan for construction supervision and quality assurance; (ii) an instrumentation plan; (iii) an operation and maintenance plan; and (iv) an emergency preparedness plan, all of which should be consulted upon, publicly disclosed, reviewed, and approved by qualified engineers in accordance with GIIP and in manner acceptable to the Bank. Likewise, the ESCP contains provisions to ensure that FCMU engages experienced and competent professionals for the supervision of the design and construction of Sendi dam, as well as to adopt and implement dam safety measures during the design, bid tendering, construction, operation, and maintenance of the Sendi dam and its ancillary facilities.

35. **Throughout the years, the FCMU has acquired considerable technical and human safeguards capacity, having recently strengthened its workforce by hiring two (2) seasoned staff (one Environmental and one Social Development specialist) to handle all safeguard issues, specifically to improve monitoring and reporting of safeguards compliance.** FCMU technical staff has been trained and certified on a series of Safeguards/ESF trainings that were fundamental to ensure adequate manage E&S risks. At provincial level, Environment and Community Development technicians are designated as environment & social safeguard officers through the apprentice scheme supported by PDISA II to closely follow and oversee proper implementation of the Environmental and Social Safeguards. While the FCMU E&S staff is well versed in the implementation of the Operational Policies, they will require additional training to be able to monitor and manage the environmental and social risks of this new project that will be governed by the Environmental and Social Framework (ESF).

E. Implementation

Institutional and Implementation Arrangements

36. **The Project will be implemented by the Financial Coordination and Management Unit (FCMU) under the Ministry of Energy and Water (MINEA).** The FCMU, is a strong implementing entity with the necessary capacity (resources and expertise) to implement the proposed Project. The FCMU will oversee all technical, administrative, and fiduciary aspects of the proposed Project; ensure compliance with Bank environmental and social (E&S) policies; and be responsible for monitoring and evaluation (M&E) of the Project. The institutional arrangements build on the successful experience of FCMU's implementation of the PDISA II (P151225).

³³ Good Practice Note on Dam Safety (World Bank, 2020); <https://openknowledge.worldbank.org/handle/10986/35484>



Furthermore, the FCMU has two dedicated full-time E&S specialists who will also support this Project and have already undergone a series of E&S Safeguards trainings required to adequately manage E&S performance by the contractors, service providers and beneficiaries.

37. **The FCMU will coordinate at the central level with relevant sector institutions, namely: DNA, IRSEA, INRH, MINAGRIF, and at the regional and local levels with GABHIC, Provincial Offices and the EPAS.** To implement the proposed Project, MINEA will operate and maintain the FCMU with functions, responsibilities, resources, and composition acceptable to the Bank to ensure smooth Project implementation.

38. **FCMU will designate a Project's Technical Sub Coordinator.** The technical Sub Coordinator will have responsibility for the day-to-day management of the Project and will report directly to the Coordinator. In addition to the Sub-Coordinator, the FCMU will comprise the following key staff dedicated to the Project: (i) a procurement specialist; and (ii) a Senior financial management specialist, all of which will need to be established within 60 days after effectiveness. The FCMU will also include professional staff with qualifications and experience acceptable to the Bank as needed, including: (i) a hydrologist; (ii) a rural water supply specialist; (iii) an environmental specialist; (iv) a social development specialist; (v) a communications specialist with experience in behavior change, including sanitation and hygiene practices; and (vi) technical, administrative and support personnel, all financed under Component 3, to be described in the POM. MINEA, through the FCMU will also be responsible for selecting communities to be benefited by interventions in rural areas.

39. **The project will include a Young Professionals and Technicians (YPT) Program.** To ensure continuous capacity building of Angolan nationals, the FCMU will scale-up the experience of WSIDP-II' Young Professionals program to include also young technicians for the operation and maintenance of hydraulic infrastructure and electromechanics equipment. The YPTs will work closely with the specialists at the FCMU as well as at DNA, INRH, GABHIC, Provincial Water Utilities (EPAS) and Provincial and Municipal Administrations, as well as with the technical assistance staff. YTPs duties may cover all areas related to water sector institutions, water supply and sanitation, and water resources management (including social dimensions), as well as the operation and maintenance of hydraulic infrastructure and associated equipment.

40. **Provinces and municipalities through their Departments of Infrastructure and Technical Services, and Directorates of Energy and Water have an important role to play in the implementation of the project activities in rural areas.** As such, these provincial and municipal administrations will liaise with the FCMU and the TA teams in activities such as a) consultation with beneficiaries, b) selection of project site activities and technologies to be adopted, c) support to communities for maintenance and management of water points, d) active participation in supervision of works (along with the supervisor under the project), e) support on coordination of the various activities, and others, including the coordination with activities under MOSAP3 and the Department of Agriculture.

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