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Report No: PAD4721

INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT

PROJECT APPRAISAL DOCUMENT
ON A
PROPOSED LOAN

IN THE AMOUNT OF EUR 267.9 MILLION
(US$300 MILLION EQUIVALENT)

TO THE

REPUBLIC OF ANGOLA

FOR A

CLIMATE RESILIENCE AND WATER SECURITY IN ANGOLA – RECLIMA PROJECT

March 9, 2022

Water Global Practice
Eastern and Southern Africa Region

CURRENCY EQUIVALENTS

(Exchange Rate Effective February 28, 2022)

Currency Unit =	Angolan Kwanza (Kz)
US$1 =	Kz 497.77

FISCAL YEAR
January 1 – December 31

Regional Vice President:	Hafez M. H. Ghanem
Country Director:	Jean-Christophe Carret
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ABBREVIATIONS AND ACRONYMS

AFD	*Agence Française de Développement* (French Development Agency)
AOA	Angolan Kwanza
BP	Bank Policy
CBA	Cost Benefit Anlysis
CCDR	Country Climate and Development Report
CERC	Contingent Emergency Response Component
COVID-19	Coronavirus Disease 2019
CPF	Country Partnership Framework
DNA	*Direcção Nacional de Águas* (National Water Directorate)
EIRR	Economic Internal Rate of Return
EPAL	*Empresa Pública de Águas de Luanda* (Luanda's Public Water Company)
EPAS	*Empresa Provincial de Agua e Saneamento (Provincial Water and Sanitation Utility)*
ENPV	Economic Net Present Value
ESMF	Environment and Social Management Framework
ESMP	Environment and Social Management Plan
FCMU	*Unidade de Coordenação de Projetos* (Financial and Contract Management Unit)
FM	Financial Management
FY	Fiscal Year
GABHIC	*Gabinete para Administração das Bacias Hidrográficas do Cunene, Cubango e Cuvelai* (River Basin Administration for the Cunene, Cubango and Cuvelai Basins)
GAS	WSS Community Group (GAS)
GDP	Gross Domestic Product
GHG	Greenhouse Gas
GoA	Government of Angola
GRS	Grievance Redress Service
HBAO	Hydrographic Basin Administration Offices
IAASB	International Auditing and Assurance Standards Board
IBNET	International Benchmarking Network
IBRD	International Bank for Reconstruction and Development
IFR	Interim Financial Report
IGEO	*Instituto Geológico de Angola*
INRH	*Instituto Nacional de Recursos Hidricos* (National Institute for Water Resources)
IPF	Investment Project Financing
IRSEA	*Instituto Regulador dos Serviços de Electricidade e Água e Saneamento de Aguas Residuais* (Regulatory Institute for Energy and WSSServices)
JMP	Joint Monitoring Programme
LIC	Low-Income Country
MIC	Middle-Income Country
MINAGRIP	Ministry of Agriculture and Fisheries
MINEA	*Ministério da Energia e Águas* (Ministry of Energy and Water)
MINFIN	*Ministério da Finanças* (Ministry of Finance)
MOGECA	Community Water Management Model
MOSAP	Angola Smallholder Agricultural Transformation Project
NRW	Non-Revenue Water
NDP	National Development Plan
O&M	Operation and Maintenance
PDO	Project Development Objective

PIM	Project Implementation Manual
SDG	Sustainable Development Goal
SSA	Sub-Saharan Africa
STEP	Systematic Tracking of Exchanges in Procurement
TA	Technical Assistance
tCO_2eq	Tons of Carbon Dioxide equivalent
UNDP	United Nations Development Programme
WRM	Water Resources Management
PDISA	Water Sector Institutional Development Project
PDISA2	Second Water Sector Institutional Development Project
WASH	Water Supply, Sanitation and Hygiene
WOP	Without-project
WP	With project
WSS	Water Supply and Sanitation
WSSIS	Water Supply and Sanitation Information System-WSSIS (*Sistema de Informação de Água e Saneamento-SISAS*)
YPP	Young Professional Program
YPTP	Young Professional and Technician Program

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DATASHEET

BASIC INFORMATION

Country(ies)	Project Name	
Angola	Climate Resilience and Water Security in Angola-RECLIMA	
Project ID	**Financing Instrument**	**Environmental and Social Risk Classification**
P177004	Investment Project Financing	Substantial

Financing & Implementation Modalities

[ ] Multiphase Programmatic Approach (MPA)	[ ] Contingent Emergency Response Component (CERC)
[ ] Series of Projects (SOP)	[ ] Fragile State(s)
[ ] Performance-Based Conditions (PBCs)	[ ] Small State(s)
[ ] Financial Intermediaries (FI)	[ ] Fragile within a non-fragile Country
[ ] Project-Based Guarantee	[ ] Conflict
[ ] Deferred Drawdown	[ ] Responding to Natural or Man-made Disaster
[ ] Alternate Procurement Arrangements (APA)	[ ] Hands-on Enhanced Implementation Support (HEIS)

Expected Approval Date	Expected Closing Date
31-Mar-2022	31-Dec-2028

Bank/IFC Collaboration

No

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 in the Angolan territory

Components

Component Name	Cost (US$, millions)
Strengthening Water Services for Water Security in Urban and Rural Areas	229.00

Strengthening Water Resources Management for Climate Resilience	198.00
Project Management	23.00
Contingent Emergency Response Component (CERC)	0.00

Organizations

Borrower:	Republic of Angola
Implementing Agency:	Ministry of Energy and Water

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

Non-World Bank Group Financing

Other Sources	150.00
FRANCE: French Agency for Development	150.00

Expected Disbursements (in US$, Millions)

WB Fiscal Year	2022	2023	2024	2025	2026	2027	2028	2029
Annual	0.00	54.00	72.00	91.00	51.00	21.00	8.00	3.00
Cumulative	0.00	54.00	126.00	217.00	268.00	289.00	297.00	300.00

INSTITUTIONAL DATA

Practice Area (Lead)

Water

Contributing Practice Areas

Agriculture and Food

Climate Change and Disaster Screening

This operation has been screened for short and long-term climate change and disaster risks

SYSTEMATIC OPERATIONS RISK-RATING TOOL (SORT)

Risk Category	Rating
1. Political and Governance	Substantial
2. Macroeconomic	Substantial
3. Sector Strategies and Policies	Substantial
4. Technical Design of Project or Program	Substantial
5. Institutional Capacity for Implementation and Sustainability	Substantial
6. Fiduciary	Substantial
7. Environment and Social	Substantial
8. Stakeholders	Substantial
9. Other	Substantial
10. Overall	Substantial

COMPLIANCE

Policy

Does the project depart from the CPF in content or in other significant respects?

[ ] Yes [✓] No

Does the project require any waivers of Bank policies?

[ ] Yes [✓] No

Environmental and Social Standards Relevance Given its Context at the Time of Appraisal

E & S Standards	Relevance
Assessment and Management of Environmental and Social Risks and Impacts	Relevant
Stakeholder Engagement and Information Disclosure	Relevant
Labor and Working Conditions	Relevant
Resource Efficiency and Pollution Prevention and Management	Relevant
Community Health and Safety	Relevant
Land Acquisition, Restrictions on Land Use and Involuntary Resettlement	Relevant
Biodiversity Conservation and Sustainable Management of Living Natural Resources	Relevant
Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities	Relevant
Cultural Heritage	Relevant
Financial Intermediaries	Not Currently Relevant

NOTE: For further information regarding the World Bank's due diligence assessment of the Project's potential environmental and social risks and impacts, please refer to the Project's Appraisal Environmental and Social Review Summary (ESRS).

Legal Covenants

Sections and Description

1) Section I C 1 of Schedule 2 to the Loan Agreement: The Borrower shall maintain throughout Project implementation, the FCMU-WB/AFD in charge of the overall implementation, coordination and management of the Project, with adequate resources, responsibilities, and key staff under terms of reference acceptable to the Bank, such staff to include: (i) a technical sub-coordinator; (ii) a senior procurement specialist; (iii) a senior financial management specialist; (v) a hydrologist/hydrogeologist; (vi) a rural water supply specialist; (vii) an environment specialist; (viii) a social development specialist;(ix) a communications specialist; and (x) technical and administrative personnel, as further detailed in the PIM, said key staff to be hired not later than sixty (60) days after the Effective Date.

Sections and Description

2) Section IV of Schedule 2 to the Loan Agreement: Not later than thirty (30) months after the Effective Date, or any other such date agreed by the Bank, the Borrower shall prepare, consult upon, adopt and disclose the DSP in form

and substance satisfactory to the Bank.

Conditions

Type	Financing source	Description
Effectiveness	IBRD/IDA	Article 4.01 of the Loan Agreement: (a) The Co-financing Agreement has been executed and delivered and all conditions precedent to its effectiveness or to the right of the Borrower to make withdrawals under it (other than the effectiveness of this agreement) havebeen fulfilled.
Type	Financing source	Description
Effectiveness	IBRD/IDA	Article 4.01 of the Loan Agreement: (b) The Borrower has adopted the Project Implementation Manual in form and substance satisfactory to the Bank.
Type	Financing source	Description
Effectiveness	IBRD/IDA	Article 4.01 of the Loan Agreement: (c) The FCMU-WB/AFD is operational under terms and conditions acceptable to the Bank, including adequate resources, staffing and mandate.
Type	Financing source	Description
Effectiveness	IBRD/IDA	Article 4.01 of the Loan Agreement: (d) The Borrower has prepared, consulted upon, adopted and disclosed the SEA/SH Action Plan in form and substance satisfactory to the Bank.
Type	Financing source	Description
Effectiveness	IBRD/IDA	Article 4.01 of the Loan Agreement: (e) The Borrower has consulted upon, updated, adopted and disclosed the SEP in form and substance satisfactory to the Bank.
Type	Financing source	Description
Disbursement	IBRD/IDA	Section III B1(b) of Schedule 2 to the Loan Agreement: No withdrawal shall be made (b) for Emergency Expenditures under Category (2), unless and until the Bank is satisfied, and notified the Borrower of its satisfaction, that all of the following conditions have been met in respect of said expenditures: (i) the Borrower has determined that an Eligible Crisis or Emergency has occurred, has furnished to the Bank a request to include the proposed activities in the Emergency Response Part in order to respond to said crisis or emergency, and the Bank has agreed with such determination, accepted said request and notified the Borrower thereof; (ii) the Borrower has ensured that all environmental and social (framework) instruments required for said

		activities have been prepared and disclosed, and the Borrower has ensured that any actions which are required to be taken under said instruments have been implemented, all in accordance with the provisions of Section I.E.3(b) of this Schedule; (iii) the entities in charge of coordinating and implementing the Emergency Response Part have adequate staff and resources, in accordance with the provisions of Section I.F of this Schedule, for the purposes of said activities; and (iv) the Borrower has adopted the CER Manual, in form and substance acceptable to the Bank, and the provisions of the CER Manual remain in accordance with the provisions of Section I.E.1(a) of this Schedule so as to be appropriate for the inclusion and implementation of said activities under the Emergency Response Part.

I. STRATEGIC CONTEXT

A. 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. 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 today 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 young, with 45 percent of the population under 15 years of age[1].

2. **Following a five-year recession, primarily due to the significant fall in oil prices, the Angolan economy is projected to have turned positive in 2021.** During a period of high oil prices (2005–14), Angola 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. Angola fell into a recession, with a cumulative decline of 3.8 percent in real gross domestic product (GDP) from 2015 to 2019. The sharp drop in oil prices in early 2020 brought on by COVID-19, coupled with measures put in place to contain the pandemic, further exacerbated the economic downturn. As such, GDP declined by 5.4 percent in 2020. With higher oil prices and the lifting of mobility restrictions in 2021, growth is expected to have turned modestly positive, at 0.4 percent. The recent increases in the oil sector and a strong post-COVID regaining of the non-oil sector, are driving the recovery.[2]

3. **Despite Middle-Income Country (MIC) status, poverty in Angola is high, and the country ranks low on the Human Capital Index[3].** Poverty, defined as the proportion of the population living below the poverty line (less than US$1.90 a day[4]), was estimated at 52.9 percent in 2020. Angola also performs below income comparators and the SSA's average at all levels of human capital development, largely due to persistent under-investment in social sectors. Angola's Human Capital Index score is 0.36, meaning that a child born in Angola today can be expected to be only 36 percent as productive when she/he enters the labor market as she/he could have been had she/he received full health and education. This is below the regional average of 0.40 for SSA and well below the expected level given Angola's GDP per capita. Furthermore, Angola is outperformed on several elements of the index by low-income countries (LICs), including the percentage of children not stunted (62 percent in Angola versus 66 percent in LICs) and learning outcomes (harmonized score of 326 versus 356 in LICs).

4. **Widespread gender inequality is a significant impediment to economic growth and for reaping benefits from a demographic dividend**. There are significant gender gaps in access to resources, such as agricultural production factors, as well as in education and employment opportunities, which have profound and long-term impacts on family incomes and structural transformation. For example, about half of women (51 percent) over the age of 15 years are literate, compared to more than 80 percent of men; about 34 percent of adolescent girls are out of school, more than double the average for lower MIC (17 percent)[5]; and Angola's adolescent pregnancy rate, at 163 births per 1,000 women, is the third highest worldwide. As for employment, only 27 percent of women are likely to be salaried workers compared to 40 percent of men. Moreover, among those employed, 81 percent of women possess

[1] National Statistics Institute (*Instituto Nacional de Estatística*, INE), 2014.
[2] Source: Angola Ministry of Finance
[3] Manifested in a Human Capital Index of 0.36.
[4] Less than US$1.90 a day in Purchasing Power Parity (PPP).
[5] World Bank. 2020. *Angola: Investing in Women's Empowerment for Human Capital Improvements. Human Capital ASA (P174976)*.

vulnerable employment compared to 54 percent of men[6].Women head 51.8 percent of households; poverty is greater in these female-headed households.[7] Existing social norms negatively affect women's participation in all productive activities and also constrain their voice in water-related decision-making even though women are the primary managers of household water.[8]

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.[9]** COVID-19 transmission continues to decrease. As of February 8, 2022, a total of 98,423 confirmed COVID-19 cases, including 1,894 deaths, had been recorded. 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), this viral outbreak has posed a great threat to the health and welfare of the Angolan population. Epidemics of vector-borne and water-associated diseases in Angola are likely to become worse due to climate change impacts that will increase drought and flood occurrences and expand the geographic range and seasonality of events and associated vectors (mosquitoes) and conditions (flood waters, unsanitary conditions).

6. **The Government of Angola (GoA) is committed to adopting a more sustainable and inclusive growth model and to fighting the impacts from climate change.** The 2018-22 National Development Plan (NDP) sets out the medium-term development objectives for Angola, prioritizing, among others, infrastructure development, including WSS. More specific to climate risk, the NDP highlights the need to address impacts from 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 (2018–30) to fight climate change, and remain committed to the Paris Accords, Sustainable Development Goals (SDGs), and the African Agenda 2063.

B. Sectoral and Institutional Context

7. **Substantial progress has been made in strengthening the country's WSS sector since the implementation of the first and second Water Sector Institutional Development Project (PDISA and ongoing PDISA2); however, the country still requires significant investments to achieve the Sustainable Development Goal (SDG) 6 "clean water and sanitation for all".** As of 2020, access to at least basic level of services had grown to 57 percent (71 percent in urban areas). Access to piped water service averaged 42 percent nationally (59 percent urban, 8 percent rural), and access to sanitation – septic tanks - averaged 57 percent (74 percent urban and 25 percent rural). Inadequate investment levels, fast-changing demographic trends, and climate hazards (prolonged droughts and floods), are some of the main causes for the lack of progress. Consequently, 49 percent of the urban population currently lives in overcrowded, unplanned, and unserved or underserved 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. Overall, the water sector investment needs over the period 2018–22 were estimated at US$22 billion, while current levels of expenditure cover less than 25 percent of the investment needed to achieve SDG6 by 2030[10].

[6] The Little Data Book on Gender 2019 | Data" n.d.
[7] European Union 2016. Angola Gender Country Profile. https://op.europa.eu/en/publication-detail/-/publication/ef895bee-7273-11e5-9317-01aa75ed71a1.
[8] 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*
[9] According to Joint Monitoring Programme (JMP) 2020, coverage in terms of hygiene stands at 57.8 percent, measured through number the presence of a handwashing facility with soap and water on-premises.
[10] Joint Monitoring Programme (JMP) - 2020

8. **The southern rural regions have been particularly excluded from WSS 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, 54 percent of the population continues to practice open defecation and only 20 percent of households have access to an unimproved water source[11]. 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, in the past, failed to ensure effective citizen participation in WSS service delivery in rural and peri-urban areas**. The main lesson learned is that beneficiary communities need to be actively involved through their WSS Community Group (GAS), in the evaluation of needs, as well as early in the process, during the discussion around the design of their water system, technology, and management model. To this end, the Ministry of Energy and Water (MINEA), in 2014, designed and implemented the Community Water Management Model (MOGECA) as part of Angola's water reform, aiming at ensuring affordability to 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. The Project will consider these lessons during the final design and implementation of the activities surrounding rural water points, to ensure the involvement of the corresponding GAS, and the enabling conditions and support at municipal and provincial levels.

10. **The World Bank has been actively involved in water sector reform.** With the support from the PDISA1 (P096360) and PDISA2 (P151224), nine utilities were established and 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 WSS sector and is developing additional regulatory instruments for the Provincial WSS Utilities (EPASs). The main challenges for IRSEA are building capacity to monitor EPASs, 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 PDISA2 in four additional provinces: Benguela, Kwanza Sul, Zaire 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 particularly vulnerable to drought, the risk of which is projected to increase because 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 affecting the country between November 2020 and January 2021 was recorded as the worst drought in the last 40 years[12]. This is not the first time that Angola has

[11] JMP data 2020
[12] "Angola Brief | World Food Programme." n.d. Accessed July 8, 2021. *https://www.wfp.org/countries/angola*.

dealt with extreme drought conditions[13]. 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[14].

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 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, under preparation).[15] 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.[16]

14. **The average annual direct economic losses of recurring droughts in Angola are estimated at US$134 million and may increase sevenfold under future climate scenarios[17].** 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, the United Nations Development Programme (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 country's drought vulnerability.** Other important causes are the lack of drought preparedness, inadequate water resources management (WRM) capacity, a poor knowledge base on groundwater resources, and insufficient investments at the community level.[18] 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 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, Zaire 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, WRM, and climate preparedness capacity at the local level.

16. **Angolan women, particularly in the rural south, bear the brunt of climate change impacts**. Single mothers,

[13] 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.

[14] Cunene, Namibe, Huíla, and significant parts of Benguela, Cuanza Sul, and Cuando Cubango.

[15] Angola Country Climate Development Report (2022)

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

[17] UNDRR Disaster Risk Profile; CIMA, UNDRR (2019)

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

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.[19] Although there has been improvement in some areas, as reflected in the latest collected data on seven utilities under the PDISA2 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 PDISA2.

17. **The effects of drought during infancy often negatively affect women's opportunities throughout their lives and even those of their children.** 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) [20].

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 smallholders[21] producing cereals at low productivity[22] levels and livestock play a central role. Agricultural production primarily depends on rainfall and is highly vulnerable to drought periods.[23] 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 of 25 percent in the cost of basic commodities, such as maize and maize flour, beans, and sugar and a loss of 35 percent of livestock assets, severely affecting rural households' livelihoods.[24]

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

19. **As the NDP aims at economic diversification, the foundations for this transition are weak, including WRM 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. **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

[19] Despite the responsibility that women have to fetch water, it was observed in visited communities that most water points are managed by men and women have limited decision making.
[20] Uncharted Waters (2020).
[21] Average small-scale subsistence-oriented family farms are on average 2.3 ha.
[22] The average yields obtained by smallholders for cereals is 0.9 t/ha and average yields for vegetables is 3.6 t/ha. Production remains far below that of neighboring countries Namibia, South Africa and Zambia.
[23] Serrat-Capdevila, Limones, Marzo, Wijnen & Petrucci (2020) Water Security and Drought Resilience in the South of Angola (World Bank Report).
[24] Amnesty International – Press Release June 2021. Available at: https://www.amnesty.org/en/latest/press-release/2021/07/angola-millions-facing-hunger-as-thousands-flee-their-homes-as-drought-ravages-the-south-of-angola/

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)[25]. 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 WRM 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 WRM within the basin level.[26] 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 the government-funded "*Projecto Estructurante de Combate a Seca*", aimed at increasing 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.** The *Projecto Estructurante de Combate a Seca* began its implementation 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 completed, there will be 344 kilometers of pipes and canals, a pumping station, and 89 *chimpacas* (excavated ponds). Calucuve will have a storage capacity of 100 million m^3 of water and Ndué of 145 million m^3. Additional infrastructure is planned to transfer water resources to other regions on the right banks of the Cunene River. This proposed project targets beneficiaries that are beyond the reach of the above-mentioned government-funded project.

23. **This 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 Angola Smallholder Agricultural Transformation Project (MOSAP3, P177305) to be approved in CY 2022, which will finance investments in irrigation in the same provinces where storage investments take place, with technical assistance (TA) 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 (O&M) of hydraulic

[25] Regulation for the General Use of Water Resources, Angola.

[26] 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

infrastructure, as well as support coordination efforts between MINEA and the Ministry of Agriculture and Forestry (MINAGRIP) from the national to municipal levels.

C. Relevance to Higher-Level Objectives

24. **The proposed project is aligned with the FY14–FY16 Country Partnership Strategy[27] (CPS), the 2018 Systematic Country Diagnostic (SCD), and the proposed strategic directions of the forthcoming WBG Country Partnership Framework (CPF) for Angola.** The project contributes to the third focus area of the CPS FY14–16, which aims at improving access to safe WSS services not only by increasing production and distribution networks but also by creating a better institutional framework for water management, which is crucial in building resilience to extreme weather events and climate change. In addition, the project will contribute to the forthcoming CPF (2020-2025) under Human Capital strategy, through its emphasis on more inclusive development, encompassing peri-urban and low-income rural communities with a focus on women's empowerment. The proposed project is also aligned with SCD conclusions, which focus on the need to build human capital for productive capacity, promote economic diversification, and prioritize the expansion of WSS infrastructure and services through: (i) a stronger and more integrated WRM approach to allocating water for different sectors' needs, (ii) operationalization of basin plans, (iii) development of new water resources, (iv) investments in water supply systems, and (v) establishment of an independent regulatory framework.

25. **The proposed activities are aligned with Angola's Nationally Determined Contributions** updated in May 2021, toward reducing Green House Emissions (GHG) in terms of increases in energy efficiency through the reduction of nonrevenue water, as well as the reduction of tanker truck water supply in favor of network water supply and household connections, among other measures. The proposed activities contribute to all the water related nationally determined contribution mitigation and adaptation targets of Angola[28].

26. **The project meets the objectives of the World Bank Group COVID-19 Crisis Response Strategy**, contributing directly to pillars 2, 3, and 4 of the World Bank response, Protecting Poor and Vulnerable People (pillar 2) and Strengthening Policies, Institutions and Investments for Rebuilding Better (pillar 4). The support to DNA, INRH, IRSEA, and the selected EPASs will ensure long-term service improvements are aligned with building back better. The expansion of water resource interventions will also support poverty reduction efforts and increase the resilience of local communities in the South. The use of labor-intensive works will also promote local job creation at a time when it is most needed (pillar 3).

27. **The project is aligned with the goals of Angola's Country Climate and Development Report (CCDR) and the WB's Climate Change Action Plan.** The CCDR aims at designing and pursuing climate compatible investment programs to achieve the country's development goals in the context of climate variability. The preparation of this project and the first Angola CCDR overlap in terms of time and task team, and efforts are aligned. All project activities are no-regrets climate investments[29] and will contribute toward cross-sectoral resilience to increased climate variability across the broad range of climate change scenarios, from the household level (with linkages to health, education, livelihoods) to the municipal, provincial, and basin levels (enabling productive sectors like agriculture, energy, commerce, industry, and the environment). In addition, the project is aligned with the Green, Resilient, and

[27] Report No. 100984-AO

[28] Mitigation actions include the decarbonization of water sector through substitution of tanker truck deliveries by piped water supply, and improved energy efficiency in production and distribution networks, and reduction of non-revenue water. Adaptation actions include increased water availability through boreholes and NBS, promote Integrated WRM, Hydrologic Knowledge, Monitor Groundwater, and extend WSS services. Angola (Intended) Nationally Determined Contribution (2016) Climate Policy Team, (WB) *http://spappssecext.worldbank.org/sites/indc/PDF_Library/AO.pdf*

[29] No-regrets climate investments reduce vulnerability to climate hazards across the broad range of climate change scenarios.

Inclusive Development framework which promotes economic growth that goes hand in hand with environmental goals and inclusion.

II. PROJECT DESCRIPTION

A. Project Development Objective

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

PDO Level Indicators

- Number of people in urban and peri-urban areas provided with access to improved water services under the project, disaggregated by male and female (core indicator).
- Number of community-level WSS 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.

B. Project Components

29. **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-financed[30] by the French Development Agency (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 several specific investments, TA, and capacity enhancement measures.

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

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
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**

30. **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, WRM, and drought preparedness and contingency planning at several spatial scales, with coordinated actors, is the foundation of water security and coping with climate extremes. It will be addressed through the following components:

[30] 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.

31. **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 WSS 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 TA to ensure investment sustainability in both urban and rural contexts. Furthermore, activities under this component will link WSS in the urban and rural contexts with WRM 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) Subcomponent 1a: Water Supply and Sanitation Institutional Strengthening, Capacity Building, and Development (US$39 million, of which US$26 million IBRD). To ensure sustainable operation and management of water supply infrastructure and climate resilience for water utilities, this component will aim at strengthening the institutional framework, monitoring capacity of the WSS sector, and building capacity of the Borrower's WSS agencies at both the national and provincial levels, through: (i) TA to the *EPASs* of Benguela, Cuando Cubango, Zaire and Cuanza Sul for institutional strengthening and sustainability in the O&M of WSS infrastructure; (ii) TA to Luanda's Public Water Company (EPAL) on development of a non-revenue water strategy and District Management Zones and pilot implementation as well as a study on energy efficiency improvements; (iii) support for the establishment of IRSEA's regional offices in the south of Angola, as per the Action Plan developed and approved under PDISA2, as well as TA activities including a Beneficiary Assessment study of the willingness and ability of water users to pay tariffs; (iv) 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; (v) 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 WSS, small- and intermediate-scale irrigation, and other water-related subjects; (vi) strengthened performance monitoring, data management, and managerial practices within the EPAS and EPAL to improve decision making by incorporating international best practices[31], as well as consolidate the operational use of the existing WSS Sector Information System (*Sistema de Informação do Sector de Abastecimento de Água e Saneamento* – WSSIS); and (vii) support for the development of drought preparedness and contingency plans integrating utility operations with WRM for EPAS and EPAL, which will include efficient operations and management of water resources[32], 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) Subcomponent 1b: Rehabilitation and expansion of water supply services in urban and peri-urban areas (US$150 million, of which US$100 million IBRD). This subcomponent will support selected EPASs in the development of priority infrastructure to expand and increase piped water supply service and household connections in provincial cities. It will include investments in the production and distribution infrastructure systems 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 facilities[33] through, among other things: (i) the carrying out of civil and electro-mechanical works to improve water production; (ii) the expansion and refurbishment of well fields and intake facilities; (iii) the enhancement of water treatment facilities, including

[31] World Bank initiatives such as the International Benchmarking of WSS Utilities (IBNET) or the Utilities of the Future (UoF) will be considered

[32] *Building the Resilience of WSS Utilities to Climate Change and Other Threats: A Road Map* and *The Decision Tree Framework* are recommended approaches to account for climate change risks in planning and management.

[33] 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

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; (vii) the installation of district meters and pressure control valves within existing pipelines; (viii) the construction of new household connections; and (ix) the financing of investments prioritizing unserved and underserved schools and health centers in targeted areas,[34] ensuring their connection to the network.[35]

c) Subcomponent 1c: Strengthening of rural water services to build drought resilience in the South of Angola (US$40 million, of which US$26 million IBRD). This subcomponent will provide support for central, provincial and/or municipal administrations to (i) monitor, maintain, and repair rural water points and small systems, considering infrastructure design to facilitate access to persons with disabilities, and including TA and a program of maintenance and repairs in selected provinces, linking the monitoring and the management of information to be included in the WSSIS with actions of maintenance and repairs; (ii) organize and support WSS 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, including community training for WASH in schools and support for community-led total sanitation; (iii) train and build capacity for women to increase their representation in decision-making positions in the rural WSS community groups; and (iv) develop Municipal Water plans in a participatory manner, and their implementation, including 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) target and prioritize water resources investments planned under component 2(a) by integrating technical knowledge with beneficiary needs, in coordination with municipal water plans; (vi) carry out a strategic assessment of the status of the rural WSS subsector to plan for future investments; and (vii) involve the university teams for technical support in the elaboration of Municipal Water Plans as well as in their future implementation.

32. **Component 2: Strengthening WRM 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 WRM through the provision of support for:

a) Subcomponent 2a: Community-level infrastructure investments to increase reliable access to water resources (US$149 million, of which US$99 million IBRD). Provision of support for: (i) the rehabilitation and new construction of infrastructure such as sand dams, cisterns, small reservoirs, piped water supply, boreholes and protected wells[36], 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, including watershed storage and rehabilitation, infiltration and groundwater recharge; (ii) detailed site characterization, designs, infrastructure construction and equipment, O&M financial plans for water access to meet domestic, livestock and agricultural water demand; and (iii) construction of rural WSS solutions for unserved and underserved schools and health centers in

[34] 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.

[35] 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.

[36] To the extent possible, use of renewable energy will be considered for pumping water from boreholes and protected wells

targeted areas[37]. 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.[38] 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 subcomponent 1c.

b) Subcomponent 2b: Institutional support for WRM (US$24 million, of which US$16 million IBRD).

(i) This subcomponent aims to strengthen WRM in the south of Angola through the provision of support for the operational establishment of GABHIC in Lubango and its departments in Menongue and Ondjiva as well as associated departments; and provide direct advisory and training services for the implementation of WRM instruments and the fulfillment of its mandate, including: (a) institutional organization, strategic planning and project management; (b) capacity building to monitor, gather and manage relevant climate, hydrology, hydrogeology and water-related information; and to implement WRM instruments, basin plans and the financial and economic regime on the use of water resources; (c) the creation of basin councils as instruments for stakeholder participation; (d) the development of flood and drought preparedness and contingency plans and strengthening of information-to-action mechanisms for planning and management, in coordination with provincial and municipal administrations; and (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 subcomponent 1a). This subcomponent will support institutions with improved water resources monitoring and data availability. Better data will enable better management and planning regarding climate and water variability and are essential for mitigating climate change risks.

(ii) This subcomponent will also support the development of studies, instruments and pilots for: (a) 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 and strategic water resources development studies, informing investments in subcomponent 2a, and including the digitalization of historical data archives in coordination with the National Geological Institute (IGEO); (b) water resources monitoring activities including a groundwater monitoring pilot, rehabilitation and upgrades to the hydrometric network, and a water resources information platform; (c) the preparation of a basin-specific cadaster of resources and users related to Municipal Water Plans in subcomponent 1c and the consolidation of procedures and instruments for water use permits, as well as the implementation of a financial and economic regime for the use of water resources in the basins administered by GABHIC; (d) the design and implementation of an information management system for GABHIC; (e) a strategic analysis of storage investments planning in the South, including the integrated use of watershed storage, aquifers, and dams; (f) the preparation of the Cunene integrated river basin master plan by GABHIC, and the Namibe coastal basins integrated master plan by INRH; and (g) the design and implementation of a pilot program for climate-resilient livelihoods, economic

[37] RECLIMA PIU will coordinate closely with the Girls Empowerment and Learning for All Project (P168699) as explained in previous footnotes. In rural areas, community WSS Groups benefiting from training under (1c) may play a role supporting the maintenance of the schools' WSS investments, in coordination with municipal and school authorities.
[38] The report "Drought Resilience and Water Security in the South of Angola" presents a detailed methodology, which will be described in the operations manual.

development, and conservation in the upper Okavango basin[39].

(iii) This subcomponent will also support the establishment of a water and agriculture coordination platform to be led by MINEA and MINAGRIP to ensure synergies with the MOSAP 3 Project; 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) Subcomponent 2c: Dam reconstruction, operations, and safety (US$25 million, of which US$16 million IBRD): This subcomponent will provide support for: (i) the reconstruction of Sendi Dam in Quipungo municipality, including support for studies and design integrating climate change risks[40], implementation of environmental and social standards, construction and the elaboration of an instrumentation and surveillance plan, O&M plan, and emergency preparedness plan; (ii) the carrying out of an assessment by a panel of experts in compliance with environmental and social standards related to dam safety; and (iii) the carrying out of scoping studies for potential new dams.[41]

33. **Component 3. Project Management (US$23 million, of which US$17 million IBRD)**. This component will support the Project's Financial and Contract Management Unit (FCMU-World Bank/AFD) to implement and coordinate the Project, by: (i) carrying out the Project's activity design, monitoring and evaluation, enhancing the information system for monitoring the Project's progress and results indicators, and carrying out procurement and financial management (FM) activities; (ii) complying with Environmental and Social Standards (ESS), including indigenous peoples; (iii) adopting citizen engagement measures and grievance redress mechanisms for the Project activities as a whole; (iv) carrying out annual audits; and (v) strengthening of the Young Professionals and Technicians Program (YPTP) to enhance human capacity in the Borrower's water sector as well as female representation in water sector institutions.

34. **Component 4. Contingent Emergency Response Component- CERC- (US$0 million IBRD).** This component will provide immediate response to *situations of urgent need of assistance and capacity constraints* allowing for a rapid reallocation of the loan's uncommitted funds in the event of an eligible emergency as defined in OP 8.00. An Annex to the Project Operations Manual (POM) will be prepared to guide the activation[42] and implementation as well as a CERC's Environmental and Social Management Framework (ESMF).

C. Project Beneficiaries

35. **Direct beneficiaries**. Out of the population living in the targeted areas, it is expected that about 955,000 people will benefit from this project. The project's main beneficiaries will be people affected by recurrent droughts in targeted provinces, as it will build sector resilience to climate change impacts by: (i) improving water supply services in urban and peri-urban areas with household connections for approximately 550,000 people (subcomponent 1b); (ii) improving access to reliable sources of drinking water through the maintenance and repair of rural water points for 78,000 people (subcomponent 1c), and through new or rehabilitated rural water points for 310,000 people living

[39] 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).

[40] *Confronting Climate Uncertainty in Water Resources Planning and Project Design: The Decision Tree Framework*

[41] 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.

[42] For the CERC to be activated, and financing to be provided, the Government will need (i) to submit a request letter for CERC activation, and the evidence required to determine eligibility of the emergency, as defined in the CERC Annex; and (ii) an Emergency Action Plan, including the emergency expenditures to be financed; and (iii) to meet the environmental and social requirements as agreed in the Emergency Action Plan and ESCP.

in rural areas (subcomponent 2a); (iii) providing access to reliable water for drinking, fishing, agriculture, and livestock to 19,250 poor people through the reconstruction of Sendi Dam in Huila Province (subcomponent 2c). The project will also provide local employment opportunities during the construction of the physical interventions. Lastly, the project will increase women's participation and representation in decision-making roles, as well as support their active involvement in project activities, thereby contributing to equal employment opportunities for males and females.

36. **Indirect beneficiaries**. The proposed project will further provide indirect benefits to a broad range of stakeholders, namely: (i) EPAL consumers will benefit from improved services provided by the utility, such as better customer service, reduction in interruption of water supply, etc.; (ii) additional consumers from other EPAS will benefit as climate resilience contingency plans are being prepared and implemented; (iii) institutional strengthening interventions to the water sector key agencies are also sought to improve their capacity to manage systems and water resources, and prepare and respond to droughts, in particular for the targeted basins.

D. Results Chain[43]

37. **Project Inputs/Activities.** To achieve the PDO, the project will i) fund implementation of TA activities in selected water supply utilities and invest in rehabilitation and expansion of existing infrastructure; ii) repair and build new rural water supply infrastructure which will be for various uses, and capacity building TA in the rural sub-sector; iii) support water resources investments such as sand dams, small reservoirs and one large dam, boreholes, water recharge schemes, and nature based solutions such as soil and water conservation measures; iv) support the participatory development of municipal water plans as the local planning and management instrument to build climate preparedness and self-reliance, ; and v) strengthen client's capacity to operate and maintain infrastructure including dams, as well as supervise and monitor the implementation of water projects.

38. **Project's Outputs & Outcomes**. Activities will result in outputs such as agencies with strengthened capacity to deliver and regulate water supply services, improved and functional water supply infrastructure in urban and rural areas, and institutions with improved capacity to plan, prepare and respond to droughts and floods, a community-level infrastructure program and increased sector capacity to ensure adequate O&M and sustainability of investments. The outcomes of increased water access in urban and rural areas, functional rural maintenance and repairs programs, climate preparedness of service providers, empowered communities to access and manage water services will all lead to improved water supply services. The outcomes of increased basin-level water availability, hydrologic monitoring, preparedness and response, integrated storage planning at the basin scale, and local self-reliance and preparedness plans will lead to strengthened water resources management for climate resilience in selected areas. The integration of WSS and WRM activities at the Basin scale (including EPAS) and at the municipal level through the Municipal Water Plans, with overall strengthened human capacity, will lead to increased climate resilience in Angola's water sector.

[43] Critical Assumptions: a) Entities willing to share crucial information to better monitor drought and other climate vulnerability; b) Lessons from studies conducted will be adopted by key stakeholders for systematic monitoring of climate resilience and inform infrastructure solutions; c) Communities will engage in building & maintaining resilience against climate risks and other shocks and stresses and d) Government designs and provides the right incentives to retain local technicians once available to the labor market.

Table 1. Theory of Change

Key Project Activities	Outputs	Short-Term Outcomes	Mid-Term Outcomes	Long-Term Outcomes
Component 1 →		**a.** Increased water access in urban and peri urban areas through new and rehabilitated infrastructure, climate preparedness of water services for droughts and floods, and improved sanitation plans **b.** Functional rural maintenance and repairs programs, empowered communities to access and manage water services and increase resilience to drought **c.** Increased water availability, hydrologic monitoring, preparedness and response. Efficient storage planning at the basin scale to prepare for drought. **d.** Country's HR capacities to manage drought/flood and operate, regulate and manage water services increased	Climate Resilience in selected areas of Angola's territory from a) Improved water supply services and b) Strengthened water resources management	Improved Human Capital and reduced economic impacts of climate variability and change
1-TA to EPAS for institutional strengthening and capacity building in O&M and sanitation planning, design and regulatory capacity: a) Development of Sanitation Master Plans; b) Capacity Building to operate a Water Training Center and c) Development of drought preparedness and contingency plans 2-Key Development WSS Infrastructure for the rehabilitation /expansion of water supply production and distribution, control water loss and energy efficiency. 3-Maintenance/repair rural WSS through TA, equipment and capacity building to water organizations	Sector agencies, strengthen capacities to deliver and regulate urban WSS services. EPASs strengthen sanitation services under a Citywide Inclusive Sanitation approach Rural water point management at the local, regional and national level strengthened. EPAs/others have robust monitoring systems. Stakeholders with improved capacity to plan, prepare and respond to climate extremes.			
Component 2 →				
1-Small rural water Infrastructure for rehabilitation and new infrastructure 2-Planning and Management of WRM in Targeted Basins to support GABHIC with training and equipment for WRM planning (including flood and drought preparedness and contingency plans), monitoring and regulation, support the creation of basin councils, and dam safety, among others. Institutional Coordination and university grants program on applied climate research. 3- Rehabilitation of Dam and Dam Safety. The reconstruction of Sendi Dam in Huila, including a panel of experts; and pre-feasibility studies for selected new dams.	A community-level infrastructure program to improve reliable access to water for people and livelihoods. Groundwater studies to inform new investments and increase resilience to drought in urban, peri urban and rural areas. Improved capacity of GABHIC, in coordination with INRH to prepare and respond to floods and droughts. Rehabilitation of large hydraulic infrastructures. One interinstitutional platform between MINEA and MINAGRIP to support water services for irrigation; and strengthened university support for climate resilience.			
Component 3 →				
1-Strengthen MINEAs capacity to supervise and monitor 2-Enhance the YPTP to provide on the job training to local professionals	YPTP enhanced for junior professionals (50% female representation) to develop experience through on the job trainings building knowledge to improve resilience to water related hazards, with a strong approach to train and mentor female labor force.			

E. Rationale for Bank Involvement and Role of Partners

39. **The World Bank is well placed to provide value-added support to the GoA through its global experience in improving operational and financial efficiency of water utilities serving urban populations, and in rural water supply and drought/floods management projects**. In all cases, the World Bank will bring its experience in applying and adapting evidence-based technical knowledge at scale, supporting infrastructure projects, supporting water sector institutional reforms, and promoting development and climate adaptation and mitigation. Also, the World Bank has extensive experience with integrated WRM, climate resilience projects, and infrastructure projects to support the implementation of the project with robust fiduciary and E&S oversight.

40. **This project builds on the World Bank's past and existing water sector portfolio and its successes in Angola, and expands its support to the rural water sector tackling WRM and rural water supply challenges at scale spanning national, provincial, municipal, and community levels, which the World Bank is well positioned to support.** This project also consolidates AFD as co-financier in World Bank/AFD joint lending operations in the water sector of Angola, building on the experience of PDISA2. The project ensures strong complementarity in geographic coverage, scope of activities and alignment in approaches, with the World Bank portfolio as well as with partners like African Development Bank and United Nations International Children's Emergency Fund (UNICEF) regarding WSS. This is also the case for the adoption of MINEA's DNA MOGECA Model developed and piloted with partners such as Development Workshop, UNICEF, and others.

41. **The design of this project also ensures complementarity of efforts with the government's infrastructure-focused "structuring project to combat drought".** Past collaborations with UNDP, the GoA, and partners in the field, in the context of the last Drought's Post Disaster Needs Assessment (2016), the framework for drought recovery, and especially the recent Drought Resilience and Water Security report (World Bank, 2021), all inform the design of this project regarding climate resilience and water security.

F. Lessons Learned and Reflected in the Project Design

42. **Drought risk management must integrate information, infrastructure, and best practices and drought risk evaluation must inform the prioritization of investments across the region.** The project integrates essential drought risk management best practices in component 2, building on the World Bank Drought Community of Practice experience and best practices to integrate monitoring, WRM and drought planning, and targeted infrastructure. A solid methodology to evaluate drought risk, hazard, vulnerability, and exposure, has been developed to guide prioritizations and targeting of community-level investments.

43. **The choice of investments in water resources at the community level should be based on hydrologic and geologic studies, O&M needs, and community involvement.** This project builds on the experience of Somalia's Water for Agropastoral Livelihoods Pilot Project (P152024) on wadi water resources assessments and modelling, to support site identification for sand dams (low-maintenance needs), as well as on a systematic approach to field verification and community engagement. The site identification methodology has been further enhanced in analytical activities in Angola leading to this project.

44. **Plans for water storage must consider NBS, as they are no-regret investments in climate resilience.** The range of NBS included in the project maximizes their potential services for climate adaptation and disaster risk management, such as reduced floods/droughts shocks, carbon sequestration, and increased biodiversity. In addition to dams and reservoirs, integrating watershed and groundwater storage is essential for mitigating floods and droughts. Soil and water conservation measures, sand dams, and groundwater recharge, infiltrate, retain, and store water from wet seasons that can be accessed during dry periods.

45. **Drought resilience depends on institutional arrangements and local ownership and participation in adaptation and coping solutions**. The project builds on the experience of northeast Brazil in dealing with droughts, through a collaboration with the State of Ceara. Their success in the implementation of drought monitoring efforts and Municipal Water Plans, supported by the World Bank through a longstanding program of technical cooperation on drought preparedness and climate resilience, provides a good foundation for this project. In addition, a Groundwater Management Gap Analysis elaborated within the Sustainable Groundwater Management in the Southern African Development Community Member States Project (P127086) has informed the design of institutional strengthening activities for WRM and rural water supply.

46. **Infrastructure investments need to be accompanied by institutional capacity building to lay the foundation for efficient and sustainable water services going forward**. The dual focus of the PDISA I and II projects on: (i) strengthening the technical and managerial capacities of service providers (for both short-term priority investment planning and medium-term business strategies), while also; (ii) supporting priority investments, was crucial for supporting early gains and improving the service delivery of the existing EPAS. The proposed Project will follow the same dual approach. Emphasis will be given to strengthening the institutional capacities of participating EPAS, including strategic TA aimed at improving performance and enhancing the operational and financial efficiency of participating providers.

47. **Capacity building is conditional on the availability of permanent employees**. Central agencies supported by PDISA2 have not fully benefitted from the capacity building activities due to the lack of staff at the receiving institutions. Thus, in this project TA will be tailored to match existing staff capacity. Additionally, the successful PDISA2's young professionals' program will be expanded to continue supporting the development of a cadre of committed professionals in the sector, incentivizing female representation in technical and managerial positions. To ensure transparency, an HR firm will lead the hiring process and the TORs will be developed to incentivize women participation. Furthermore, the HR firm will pre-select three top candidates for each position, of which two are women. Similarly, for university grants the project will involve provincial universities to support with provincial efforts, thus creating geographic inclusiveness.

48. **Rural water infrastructure planning and management needs to consider involvement of their WSS Community Groups (GAS) at early stages, as well as the identification of water demand services for livestock and irrigation, all to be reflected into the Municipal Water Plans**. The Municipal Water Plans under this project will integrate the lessons learned from the GoA's past experiences in rural interventions including strengthening of the GAS's and the application of the MOGECA approach, as well as water demands from agriculture and pastoralism. The Project will link with the MOSAP3-funded farmer-led irrigation development diagnostic to prioritize key barriers preventing farmers' individual or collective action in irrigation, informing MOSAP3 agriculture and irrigation support activities.

III. IMPLEMENTATION ARRANGEMENTS

A. Institutional and Implementation Arrangements

49. **The project will be implemented by the Financial Coordination and Management Unit (FCMU) under the 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 World Bank environmental and social (E&S) standards; 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 2. Furthermore, the FCMU has two dedicated full-time E&S specialists who will also support this project and have already undergone a series of trainings on E&S standards

required to adequately manage E&S performance by the contractors, service providers, and beneficiaries.

50. **The FCMU will coordinate at the central level with relevant sector institutions, namely: DNA, IRSEA, INRH, MINAGRIP, 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 a composition acceptable to the World Bank to ensure smooth project implementation.

51. **The FCMU will designate the project's technical sub-coordinator, with fiduciary responsibilities on FM and Procurement**. The sub-coordinator will have responsibility for the day-to-day management of the project and will report directly to the senior executive coordinator. Additionally, the FCMU will comprise the following key staff dedicated to the project: (i) a senior procurement specialist; and (ii) a senior FM 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 World Bank as needed, including: (i) a hydrologist/hydrogeologist; (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 PIM. MINEA, through the FCMU, will also be responsible for selecting communities to benefit from interventions in rural areas.

52. **The project will include a Young Professionals and Technicians Program (YPTP)**. To ensure continuous capacity building among Angolan nationals, the FCMU will scale up the experience of PDISA 2's Young Professional Program to include also young technicians for the O&M of hydraulic infrastructure and electromechanics equipment. The YPTP will work closely with the specialists at the FCMU as well as at DNA, INRH, GABHIC, EPAS (EPAS), and Provincial and Municipal Administrations, as well as with the TA staff. The YPTP duties may cover all areas related to water sector institutions, WSS, and WRM (including social dimensions), as well as the O&M of hydraulic infrastructure and associated equipment.

53. **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 (i) consultation with beneficiaries, (ii) selection of project site activities and technologies to be adopted, (iii) support to communities for maintenance and management of water points, (iv) active participation in supervision of works (along with the supervisor under the project), and (v) support on coordination of the various activities, and others, including the coordination with activities under MOSAP3 and the Department of Agriculture.

B. Results Monitoring and Evaluation Arrangements

54. **The FCMU will be responsible for overall M&E of the project.** To this end**,** the FCMU's management information system (MIS[44]) will be enhanced through Component 3, strengthening the monitoring procedures of both PDISA2 and RECLIMA, in combination with other project management tools and best practices[45]. Implementing agencies will work closely with FCMU in reporting the results. As such, the indicators from subcomponents 1a and 1b, will be reported by the EPAS and IRSEA, while results from subcomponent 2a will be reported by FCMU in coordination with the

[44] The MIS will include: (a) a financial management module able to provide financial information by component, disbursement category, and source of financing; (b) a beneficiary monitoring module with geo-referencing; and (c) a control panel for monitoring the results framework indicators as well as the implementation of project operational plans. The MIS will also report on (a) semi-annual and annual progress, (b) lessons learned, (c) baseline and target data (including surveys), (d) midterm review, and (e) final evaluation. The semi-annual reports will include implementation progress against the performance indicators listed in the results framework and the Project Implementation Manual (PIM).

[45] E.g. Project360, GEMS, among others.

Municipal Administrations; subcomponent 2b will be reported by GABHIC and the INRH; and subcomponent 2c will be reported by the FCMU. In addition, the project will continue to support Angola's WSSIS (SISAS), monitoring urban and rural water supply services, under IRSEA and DNA. The SISAS in combination with other available tools[46] may also be used by to feed into the FCMU's MIS. Forward looking, with continuous strengthening of the sector institutions, the SISAS will be used beyond the project implementation to assess the sustainability and support decision making to optimize investments and improve service delivery.

C. Sustainability

55. **Sustainability is addressed through investments in institutional strengthening, TA, and capacity development across all components.** Significant infrastructure investments in the production, treatment, and distribution systems of the EPASs are accompanied by TA geared to ensure the long-term sustainability of these utilities. Currently, the EPASs are at early stages of development and professionalization (except for Cuando Cubango, where an EPAS has not yet been created), having operated in recent years as provincial departments, with limited information on assets and operating costs and weak incentives to monitor operations or to accurately measure or bill for water services. The legal establishment of corporatized utilities, the EPASs and the hiring of consultants under performance-based contracts to assist in their initial management are key to ensuring both improvements in water services and the longer-term sustainability of existing and proposed assets. The project supports managerial strengthening within the EPASs through implementation of TA contracts and development of EPAS's business plans with short-, medium- and long-term objectives. EPAS management and staff will work side by side with experienced international operators to build skills, and progressively improve the performance of the utility and cost-recovery. While it is not expected that all the EPASs will be able to achieve full operational cost recovery over the course of the project, the following measures will contribute to improved cost recovery: improvements in operational efficiency (by reducing water losses and improving energy efficiency, among others), the establishment of a regulatory framework, support EPAS's and IRSEA in setting up realistic tariffs, and expansion of the customer base. Furthermore, to ensure performance monitoring, information management, sustainability, and decision making, the project will support utilities to consolidate the operational use of the existing WSSIS complemented by other World Bank initiatives and international best practices such as the new International Benchmarking Network of WSS Utilities (IBnet) and the utility of the future (UoF).

56. **In the rural water subsector, the project tackles the lack of capacity to monitor, maintain, and repair rural water points**. This key issue has hampered past investments and led to the non-functionality of water points over time, and the project will address it in four ways: (i) the mobilization of dedicated TA that will work across provincial, municipal, and community administrations, implementing a comprehensive maintenance and repairs learning-by-doing program with local staff; (ii) providing operational support and strengthening of the existing regional training center for water technicians, managed by the Huila Provincial Utility but serving the region through a regional training program for staff from provincial, municipal, and community levels, as well as GABHIC for hydraulic and electromechanics equipment; (iii) providing support to communities to strengthen local water point management and ownership through their GAS's, consolidating the MOGECA model and ensuring the linkages and response mechanisms between the community, the municipality, and the province through the previous actions; and (iv) ensuring monitoring and sustainability of the water systems by providing support to strengthen information processes from the community to the WSSIS, introducing international best practices and lessons learned from the

[46] E.g. supported by the World Bank: International Benchmarking Network of WSS Utilities (IBNET), Equa Aqua, Utilities of the Future, Rural WSS System (SIASAR), among others.

Rural WSS Information System (SIASAR).[47] The system will be used at the provincial level and managed by the EPAS. SISAS will also integrate all the rural water point information from municipalities. A strategic study will also contribute to long-term sustainability, aiming to guide future investments (types of pumps, equipment, networks of spare parts stock, etc.) including sector budgeting needs and financial models, and potential arrangements for local service providers.

57. **The participatory development of Municipal Water Plans will integrate rural water supply and WRM and planning at the local and basin level**, promoting self-reliance through local monitoring, management, and planning of water resources and infrastructure assets. This is expected to contribute strongly to local ownership and capacity to plan, prepare, and respond to droughts. In addition, the YPTP will strengthen the gender balance and human capacity in the sector, and the university applied research grants program will incentivize exchanges and collaboration between the government and academic centers.

IV. PROJECT APPRAISAL SUMMARY

A. Technical, Economic, and Financial Analysis

Economic and Financial Analysis

58. **Technical analysis.** Project interventions include strategic physical investments in urban and rural areas as well as institutional development activities to increase water security and resilience to climatic variability. Institutional strengthening activities include WRM, rural and urban water supply, and regulatory capacity. In urban and peri-urban areas, infrastructure investments will focus on expanding water service coverage, predominately in under-served, low-income, peri-urban areas, by increasing production and distribution capacity of systems, as well as increasing efficiency of supply systems (reduction of nonrevenue water, energy efficiency, and elimination of tanker truck deliveries). In rural areas, an extensive community-level infrastructure program is aimed at increasing access to rural water supply through the rehabilitation and construction of new boreholes, sand dams, cisterns, small reservoirs, piped water supply, soil and water conservation measures, groundwater recharge schemes, and others. The reconstruction of Sendi dam will provide water year-round for drinking, agriculture, livestock, and other livelihoods in Quipungo (Huila). The project will strengthen the capacity to manage rural water points, hydraulic infrastructure including dams and their safety, as well as the capacity of sector institutions to prepare for and manage climate extremes, from the national and basin levels to the municipal level. The approach to integrated storage development in watersheds, aquifers, and surface reservoirs is a no-regrets climate resilience strategy to mitigate flood and drought risks and minimize their economic and human costs.

59. **Economic analysis**. The economic costs and benefits have been assessed based on the following development impacts: (i) increased access to urban water supply services and improved quality of such services; (ii) improved operational efficiency and sustainability of water utilities participating in the project, which will increase production capacity, rehabilitate/expand distribution networks, and improve cost recovery; (iii) increased access to rural water supply services, including water provision for productive activities; and (iv) increased water storage capacity in multipurpose small and medium-size reservoirs to enhance populations' resilience to climate change. The economic and financial analysis follows the World Bank guidelines for economic analysis of investment project financing, and the guidelines on carbon accounting and the social value of carbon in project appraisal.

[47] SIASAR is an information system about rural WSS services in a country, which started in Latin America expanded to other regions. The strategic purpose of this initiative is to have a basic, updated and comparable information tool on the rural WSS services in place in a given country and it is currently being used in 14 countries, worldwide.

60. **Key parametric assumptions for the cost-benefit analysis (CBA).** The rate of discount used for the CBA is 6 percent, which represents the opportunity cost of capital for investment projects with activities dealing with the mitigation/adaptation to the effects of climate change. The rate of exchange used is 600 Angolan Kwanzas (AOA) per US$1, the time horizon for the CBA is 30 years, while the life of investment infrastructure is assumed to be 30 years, too. The economic analysis uses 2021 constant prices for both cost and benefits.

61. **The project as a whole and each of its interventions are found to be economically viable.** The economic internal rate of return (EIRR) and economic net present value (ENPV) were estimated using the incremental CBA method; results are shown in the table below. The EIRR of the project for the base case scenario is 11.10 percent and the corresponding ENPV is US$177 million. These results presented in Table 2 indicate that the project considered generates 5.1 percent more economic returns than alternative projects assumed to generate 6 percent return per year, and such excess return results in a surplus ENPV equal US$177 million. When shadow prices of carbon (SPC, lower and upper limits) are considered to assess economic viability of the project, the EIRR rises from 11.10 percent to between 11.57 and 12.03 percent, which indicates that the project is not only economically viable, but it also contributes to the global public good (see Green House Gas -GHG- emission impacts below).

Table 2. Project's CBA Indicators

CBA indicatos	Project	Water Supply		Climate resilience
		Utility reforms	Rural	
EIRR	11.10%	11.06%	12.21%	10.96%
Lower limit SPC	11.57%	11.43%	12.21%	11.67%
Upper limit SPC	12.03%	11.80%	12.21%	12.36%
ENPV,@ 6 % discount rate, US$ million	177.00	101.41	14.28	61.31
B/C ratio	1.29	1.25	1.62	1.31
Funding subject to CBA, US$ millions	374.00	200.00	29.00	145.00

62. **Each of the project intervention areas are found to be economically viable**. Support to utility reform in the participating provincial capitals attains an 11.06 percent EIRR and a 1.25 B/C ratio, which translates in water supply services to an additional 1.12 million. Support to rural water supply systems attains a 12.21 percent EIRR and 1.62 B/C ratio, which translates into 133,333 additional people in rural areas receiving water services. Support for deployment of climate resilience infrastructure attains a 10.96 percent EIRR and a 1.31 B/C ratio, which translates into water security for about 27,265 people working in agricultural activities. And when GHG emission reductions are considered, the major contributor to GHG emission reduction is the climate resilience component, whose EIRR goes from 10.96 up to a range between 11.67 and 12.36 percent. In the case of water utility reforms component (emission reduction because of improvements in energy efficiency and reduction in truck water service delivery) its EIRR goes from 11.06 percent up to a range between 11.43 and 11.80 percent; hence, both components are not only economically viable, but they also contribute to the global public good.

63. **A sensitivity analysis was carried out for the base case scenario to assess the impact on the project's economic viability to changes in key parameters.** Taking all components together, a 10 percent investment cost overrun results in the EIRR falling from 11.1 to 9.74 percent; a 20 percent cost overrun results in the EIRR further falling to 8.58 percent. By areas of intervention, for the 20 percent cost overrun, the EIRR of the investments supporting utility reforms falls from 11.06 percent to 9.03 percent; EIRR of rural water supply interventions falls from 12.2 to 9.57 percent; and EIRR of climate resilience interventions falls from 10.96 to 7.53 percent. In the extreme, a 40 percent cost overrun make the EIRR of the whole project fall 6.73 percent, which is close to becoming economically nonviable. Hence the project is resilient to cost overruns, but high cost-overrun could make the project economically nonviable. A one-year delay in the start-up of implementation results in the EIRR falling from 11.1 to 9.9 percent; a two-year delay results in the EIRR falling further to 8.7 percent. Hence, the project is less resilient to time overruns. Also, failure

of the proposed project to achieve reduction in water losses in distribution networks can impact project economic viability, i.e., failure to reduce system losses in one percent decreases Utility reforms' EIRR from 11.06 to 9.93 percent and a failure to reduce system losses in two percent decreases its EIRR further to 8.75 percent.

64. **Assessment of impacts of project activities on greenhouse gas (GHG) emissions.** Based on the assessment of project activities' impacts on GHG emissions, the project contributes to GHG net emission reductions of 967,719 tons of Carbon Dioxide equivalent (tCO_2eq) during the economic lifetime of the project, or an average minus 32,257 tCO_2eq per year. As shown in Table 3, gross emissions during the life of the project are estimated at 996,291 tCO_2eq. Activities in the climate resilience subcomponent contribute to net emission reduction the most (-426,220 tCO_2eq), followed by the improvement in energy efficiency in pipe water systems (-270,968 tCO_2eq) and the reduction of water supply by truck (-270,530 tCO_2eq).

Table 3. Project's GHG indicators

	Water supply component		Climante resilience component	Total
	Pipe water	Truck water		
Gross emissions, tCO2 eq	1,201,292	221,220	-426,220	996,291
Net emissions, tCO2eq	-270,968	-270,530	-426,220	-967,719
Net emissions average, tCO2eq/year	-9,032	-9,018	-14,207	-32,257

65. **Energy savings.** Phasing out, partially, truck water supply services in main urban areas of participating water utilities and improving their operational efficiency (reducing water losses and better management of pressure) results in a 24 percent energy saving in the delivery of water supply services (complete EFA assessment can be found in the project file).

66. **Financial analysis.** Financial statement of four out of six participating water utilities and approved tariff were reviewed to assess financial sustainability of infrastructure investment in their service areas. Tariffs were set up on June 2018 by the Ministry of Finance (MINFIN) to cover O&M expenses plus depreciation of assets while phasing out recurrent transfers from central government to water utilities. After such tariff adjustment, revenues of three out of four assessed water utilities worsen more proportionally than inflation during the period 2018 - 2020. As revenues worsened, the buildup of liabilities by the assessed water utilities rose proportionally more than their current asset value. In the case of EPAL, by 2020 current liabilities represented almost ten times current asset putting EPAL in a very difficult financial position; in the case of Huila, by 2020 the provincial water utility had current liabilities almost three times its current assets.

67. **From a financial perspective, the infrastructure built by the project for urban water utilities will be financially sustainable provided the objectives of the GoA Utility Reform Program are achieved.** To this end, during implementation, the project will promote (i) the use of well-defined performance based management contracts, whereby the milestones for the financial and operational performance improvements are written in the contract with the private sector expected to be hired with funding of the proposed project; and (ii) tariff increase to cover O&M cost plus depreciation, taking into account the achievement of the performance targets; (iii) technical capacity to undertake their functions are strengthened in both, IRSEA and the management of the water utilities.

68. **Fiscal impact.** During project implementation, proceedings from the proposed loan will be used for financing all project investment activities, with a zero fiscal impact as the central government has phased out recurrent transfers to water utilities and as the GoA does not co-finance the proposed project. After project completion, the fiscal impact per year will be equal to the repayments of the loan to IBRD.

69. **Rationale for public sector financing.** Public sector financing is justified by the public good that characterizes climate resilience infrastructure. Public financing for expanding access to water supply services is justified by the public health benefits accruing to society at large; also, it will take time for WSS services tariffs to be implemented

across the urban to rural sub-sectors nation-wide to a level that would generate the funds to repay finance on commercial terms.

70. **World Bank value added.** The World Bank is well placed to provide value-added support to the GoA through its global experience with infrastructure projects and WRM, and its experience in applying and adapting evidence-based technical knowledge at scale, in support of utility reforms and to promote climate adaptation and mitigation. The proposed Project, based on a multifocal approach, will require close collaboration across various sectors, units, and cross-cutting areas, including water, agriculture, the environment and natural resources, the blue economy, and climate change.

B. Fiduciary

(i) Financial Management

71. **FM was assessed to be adequate with substantial residual risk (Annex 3).** An FM assessment was conducted to evaluate whether the project meets the World Bank's minimum FM requirements in Directives and Policy for Investment Project Financing (IPF). The assessment was done on the FCMU within the Ministry of Energy and Water's premises established to work with World Bank-funded projects. The FCMU has experience in implementing World Bank-financed projects, including the PDISA2 Project, and it will have overall fiduciary responsibility for the implementation of the proposed project.

(ii) Procurement

72. **Applicable procedures.** Procurement of input-based (procurable) items under the project will be carried out in accordance with the World Bank's "Procurement Regulations for IPF Borrowers" (Procurement Regulations) dated November 2020; the "Guidelines on Preventing and Combating Fraud and Corruption in Projects Financed by IBRD Loans and the International Development Association (IDA) Credits and Grants," dated July 1, 2016; and other provisions stipulated in the Financing Agreement.

73. **While procurement procedures and oversight will follow the World Bank Procurement Regulations, bidding documents and/or proposals, documents, and procurement notices will be amended to reflect the role of AFD as co-financier**. Furthermore, AFD will not finance its respective part of a contract to a bidder or a consultant who is on any of the UN, EU, and French financial and commercial sanctions lists; appropriate language will be included in relevant procurement notices.

74. **Procurement arrangements and institutional capacity.** The procurement activities for the project will be managed by the FCMU-World Bank/AFD. The FCMU, the larger implementing unit under DNA and of which the FCMU-World Bank/AFD will be a part, has extensive experience with World Bank procurement rules and is currently managing PDISA2, in addition to operations financed by other development partners. The capacity of the FCMU was reviewed during preparation and found to be adequate for managing the procurement activities, as the FCMU is staffed with qualified and experienced personnel composed of two international senior procurement specialists supported by two local procurement officers. The FCMU therefore has adequate capacity and experience to implement the procurement activities of the project. Nevertheless, an additional local procurement assistant should be recruited. The current procurement staff from the PDISA 2 will transit to the RECLIMA project, if the overall performance is considered satisfactory.

75. **Procurement risks.** Major risks associated with the implementation of the project procurement activities are related to the capacity of the FCMU-World Bank/AFD to recruit qualified and experienced procurement staff and other specialists, delays in the *Tribunal de Contas*, in securing visas and work permits for international consultants, and delay in the evaluation process and the constraints imposed by the COVID-19 pandemic.

76. **The procurement risk associated with the project, as described above, is rated Substantial**. This risk should be closely monitored as it can adversely impact project implementation. The risk assessment will continue to be carried out during project implementation and adapted accordingly.

C. Legal Operational Policies

	Triggered?
Projects on International Waterways OP 7.50	Yes
Projects in Disputed Areas OP 7.60	No

77. **The Project triggers OP/Bank Policy (BP) P 7.50 because some of the proposed investments under components 1 and 2 will take place on the international waterways of the Cunene, Cuvelai, and Okavango**. The two riparian countries (Namibia and Botswana) were notified on January 17, 2022. The World Bank assessed that the proposed project would cause no harm to the Republics of Namibia and Botswana, or any other riparian area and those activities would have no adverse effects on the water quantity or quality of any of the international waterway's possible water use. The requirements of the OP/BP 7.50 of notifying the riparian states and the exception to the Congo River Basin were met. A response from the Government of Botswana was received on February 25, 2022, enquiring on the notification procedure to which the World Bank issued a response on March 9, 2022.

D. Environmental and Social

78. **The project's 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 and the rehabilitation of Sendi dam all of which will mostly occur within sensitive riparian ecosystems added with the challenges that the borrower will face due to the novelty of the ESF implementation in the sector. The scale of the project is national, although the exact geographic locations and their sensitivities or the magnitude of interventions needed are not yet known, except for a proposed project activity to finance the reconstruction of the Sendi Dam, whose location and some potential risks and impacts are already known.

79. **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 to 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.

80. **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, no areas of Important Bird and Biodiversity Areas or Alliance for Zero Extinction Sites will be affected. Moreover, recent World Bank assessment also indicated that no encroachment of any kind has 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 access.

81. **To manage environmental and social risks associated with the project, the borrower has developed** an 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) all of which were disclosed at the World Bank website on February 26, 2022 and at MINEA[48] website on March 3, 2022[49].

82. **A Grievance Redress Mechanism (GRM) was established for the project and contains provisions to address grievances relating to sexual exploitation and abuse and sexual harassment (SEA/SH). The GRM** will be further adapted for the specific needs of the proposed project as appropriate during implementation. The FCMU-World Bank/AFD will publicize, maintain, and operate an accessible grievance mechanism, to receive and facilitate resolution of all concerns and grievances of Project-affected people.

83. **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 be prepared in a manner consistent with ESS4 and reviewed, cleared by the World Bank prior to commencement of subproject activities and associated works. The ESMP will include a detailed dam safety plan, 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 World Bank. Likewise, the ESCP contains provisions to ensure that FCMU engages experienced and competent professionals for the supervision of the design

[48] http://minea.gv.ao/index.php/projectos/category/235-reclima

[49] The ESMF will provide 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 will further provide mitigation and monitoring measures and a screening tool for assessing and classifying impacts at sub-project level and will provide guidance for the preparation of a sub-project level environmental and social impact assessments considering both national legislation and World Bank (WB) requirements, preparation of sub-project specific Environmental and Social Management Plans (ESMPs), sub-level project specific Occupational Health and Safety (OHS) plans, Community Health and Safety (CHSP) plans, etc.. An Environmental and Social Commitments Plan (ESCP) setting out the environmental and social commitments for the project will also be developed by the borrower. The ESCP will include aspects such as the need for an environmental and social assessment and a site specific ESMP and OHS Plan for each sub-project, which will be developed in consultation with stakeholders, and approved PDO and disclosed by the Bank.

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. The borrower will also appoint a Panel of Experts with the roles and responsibilities clearly defined in ESS4 of the Good Practice Note.[50]

84. **Throughout the years, the FCMU has acquired considerable technical capacity and expertise in environmental and social (E&S) oversight, having recently strengthened its workforce by hiring two seasoned staff (one environmental and one social development specialist) to handle all E&S issues, specifically to improve monitoring and reporting of compliance on E&S**. FCMU technical staff has been trained and certified in a series of E&S/ Environmental and Social Framework (ESF) trainings that were fundamental to ensure adequate management of E&S risks. At the provincial level, environment and community development technicians are designated as environment and social officers through the apprentice scheme supported by PDISA2 to closely follow and oversee proper implementation of the environmental and social standards. While the FCMU E&S staff are 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 ESF.

85. **Gender**. Women continue to be underrepresented in the water utility workforce, particularly in technical and managerial positions. Gender norms, lack of role models, biases during recruitment process/inadequate HR policies, unwelcoming work environment and absence of female-friendly capacity building programs, have been shown to contribute to the low representation of women in water utilities. However, there has been improvement in many areas, as reflected in the latest collected data on seven utilities under the PDISA2 project in 2021 compared to data collected in 2019.[51] For example, the share of employees in utilities that are women increased from 15.1 to 17.9 percent. Moreover, the share of managers in utilities that are women increased from 14.5 to 27.5 percent. Meanwhile, the share of engineers in utilities who are women increased only slightly from 15.5 percent in 2019 to 15.6 percent in 2021.[52] Recruitment and retention saw considerable improvement in 2021. For example, on average, women comprised 27.1 percent of new recruits in the year compared to 10 percent in 2019. Additionally, the exit rate for women decreased from 9.1 percent in 2019 to 6.2 percent in 2021. Nonetheless, men saw a larger decrease in exit rate from 5.8 percent in 2019 to 2.7 percent in 2021. Finally, promotion rates have decreased for both men and women, but men have been more negatively affected: 12.8 percent of women were promoted in 2021 compared to 12.9 percent, as shown in 2019 data, while 9.2 percent of men were promoted compared to 14.7percent in 2019. Regarding flexible work arrangements, training opportunities for female employees, HR policies, and toilet facilities, there have been mixed results.

86. **The project will contribute to reducing the gender employment gap (current gap is 36 percent) by supporting the development and implementation of a gender policy that will increase women's employment in decision-making and technical positions at the agencies and project levels, including through the YPTP.**[53] The project will incentivize the application of gender-sensitive policies: incorporating gender equality in the workplace, equal pay for equal work, gender awareness training for managers and staff to help overcome traditional cultural biases that constrain women's advancement, technical training opportunities for women, women-friendly toilet facilities, and gender-based violence prevention. These steps will include running a widespread advertisement and recruitment campaign targeting women; staff training on gender equality aspects; and the design and launch of a career mentoring program for young professionals and technicians aiming at 50 percent female representation. The rural

[50] Good Practice Note on Dam Safety (World Bank, 2020); *https://openknowledge.worldbank.org/handle/10986/35484*.
[51] Data was generated by conducting the WB Utility Survey and generating gender diversity and inclusion scorecards for all seven utilities: Malanje, Cuanza Norte, Moxico, Huambo, Huila, Uige, and Bie.
[52] Women in Water Utilities: Breaking Barriers, WB 2019. *https://www.worldbank.org/en/news/feature/2019/08/27/breaking-barriers*; WB 2020. Angola Equal Scorecard based on a survey conducted with utilities in Angola.

water interventions will ensure it addresses gendered preferences in technology and provides equal access to women and men for different water uses. Moreover, the project will promote participation of women, including female household heads, in community-level decision-making structures, targeting 30 percent representation in leadership positions.

87. **Citizen engagement**. Stakeholder engagement will continue throughout implementation to mitigate the risk of misperceptions about project impacts and benefits. During preparation, several meetings took place with targeted utilities and communities. Consultations informed the development of a Stakeholder Engagement Plan, which identified affected and other interested parties and vulnerable groups. The plan includes a schedule of engagement actions, including sharing of project information and stakeholder participation, and description of a project-level GRM which will be adapted from PDISA 2 (implemented under PDISA 2 and well suited to be adapted in this project, containing provisions to address grievances, including relating to sexual exploitation and abuse and sexual harassment). Moreover, periodic customer service surveys will be conducted, following corporate requirements, and disaggregated by sex, whenever possible. Progress on citizen engagement will be monitored through operational Municipal Water Plans, that include climate risk identification and contingency measures, developed through participatory processes and clear guidelines on citizen engagement, informing rural investments. The elaboration of climate preparedness and contingency plans at the provincial and basin level are also participatory processes. In addition to the GRM, a beneficiary feedback mechanism will be included to gather beneficiary feedback from project activities at municipal level, to ensure that all groups voices are taken into consideration.

88. **Climate change Co-Benefits.** The project underwent a Climate and Disaster Risk Screening using the World Bank assessment tools. With large adaptation and mitigation co-benefits, the project is designed to increase resilience to climate variability and change, by improving WRM and expanding water supply service provision in rural and urban settings. The combination of infrastructure investments with institutional strengthening and drought preparedness and contingency planning across actors and spatial scales aims at maximizing resilience across the sector. While physical investments are aimed at increasing and diversifying access to reliable water sources and increasing storage to buffer climate variability, considering resilience-based design principles[54], the municipal, provincial, and basin planning focus on the integration of water supply within the broader context of WRM. NBS, the essence of the community-level infrastructure program, are no-regrets investments for climate resilience, promoting soil retention and water storage, local aquifer recharge, vegetation cover and watershed restoration. The project will also have large carbon mitigation benefits due to the elimination of tanker truck water deliveries to beneficiaries in favor of piped supply.[55] Investments will be made in distribution network improvements and system efficiencies, reduction of water losses, improve energy efficiency, and improved O&M, all contributing to the decarbonization of the water sector in beneficiary provinces.

89. **The proposed project seeks to operationalize a Mobilizing Finance for Development (MFD) approach.** Activities associated with TA and investments will help increase the utilities' financial sustainability by increasing their cash generation capacity (through efficiency gains, reduced water losses, and increased tariff revenues), all of which are in line with this approach enabling conditions in the medium term to attract private sector partners. The GoA has requested the World Bank's support to develop a Water PPP Program.[56] The project will complement this effort

[54] The *Resilient Water Infrastructure Design Brief* (*https://openknowledge.worldbank.org/bitstream/handle/10986/34448/Resilient-Water-Infrastructure-Design-Brief.pdf?sequence=5&isAllowed=y*) and *Decision Tree or the Roadmap for Water Utilities* provide guidance on the principles that will be used in design of storage infrastructures.

[55] Only in the municipality of Porto Amboim (Cuanza Sul province) more than 65,000 people which now depend on tanker truck deliveries will benefit from household connections by the project, eliminating the need for 325 to 541 tanker truck trips per day (depending on truck cistern sizes of 6m3 or 10m3, and assuming a demand of 50 liters/person/day).

[56]The scope agreed for the PPP Program: i) identify and develop projects in the sector that might be attractive for PPP development, ii) establish a program

through knowledge sharing and TA efforts, besides strengthening MINEAS capacities during the design and implementation of the PPP Program.

V. GRIEVANCE REDRESS SERVICES

90. **Communities and individuals who believe that they are adversely affected by a WB supported project may submit complaints to existing project-level grievance redress mechanisms or the WB's Grievance Redress Service (GRS).** The GRS ensures that complaints received are promptly reviewed in order to address project-related concerns. Project-affected communities and individuals may submit their complaint to the Bank's independent Inspection Panel, which determines whether harm occurred, or could occur, as a result of World Bank non-compliance with its policies and procedures. Complaints may be submitted at any time after concerns have been brought directly to the WB's attention, and Bank management has been given an opportunity to respond. For information on how to submit complaints to the WB's GRS, please visit http://www.worldbank.org/en/projects-operations/products-and-services/grievance-redress-service. For information on how to submit complaints to the WB Inspection Panel, please visit www.inspectionpanel.org.

VI. KEY RISKS

91. **The overall risk to achieving the PDO is assessed as Substantial.** Although the GoA is committed to undertaking concrete actions toward climate resilience, there is still limited understanding of concepts of resilience and practical ways to integrate those into water services. In general, governments usually prioritize infrastructure-based initiatives to solve short-term problems, but climate change action will require them to think in the long term. This can be challenging as many of the needed actions are around capacity building and policy reform. Moreover, given the urgency of the COVID-19 pandemic, the GoA may only prioritize project components that will help in the response and recovery from the pandemic. These risks will be mitigated by leveraging the management contract schemes from the PDISA 2 project which include capacity building around resilience-building and management of climate risks.

92. **Political and governance risks are Substantial.** Although improvements have been observed, concerns remain around governance. However, vested interests are strong and may derail reform efforts, with the pandemic causing further uncertainty. The continued curbing of social spending to ensure surpluses needed to service high debt levels, also represents significant risk, in terms of a possible worsening of social indicators as well as possible social discontent. Moreover, there is concern that political interference at the provincial level may prevent EPASs from establishing cost-recovery tariffs, including in the new provinces. To mitigate this risk, the project will build on PDISA2's ongoing effort to support IRSEA in developing a standardized and transparent model for setting tariffs.

93. **Macroeconomic risk is substantial.** This is due to the fragile global economic environment, vulnerability to external shocks, elevated public debt, decreasing oil production and slow growth. High debt levels and large financing needs in the short and medium term, combined with dependence on volatile oil revenues, make Angola vulnerable. The fragile global economic environment, with an uncertain future trajectory of the COVID-19 pandemic with risks of new virus variants, adds to this risk. Declines in the global oil price remains a risk, despite recent increase. Within the water sector, much of the impact is linked to the sector's revenues being collected in local currency, whereas the investment costs and some operating costs, are tied to foreign currencies. In addition, low economic activity may lead to lower revenue collection due to the closure of businesses. Short-term risks are partially mitigated by the demonstrated willingness of some creditors to reprofile bilateral debt, the Government's commitment and longer track record of fiscal adjustments and push for reforms even in difficult circumstances, including significant debt-to-

that supports the realization of the sector PPP pipeline and iii) strengthen the capacity of sector and PPP institutions in the country to successfully identify, prepare, procure, and manage water PPP projects. The PPP program will be supported by PPIAF.

GDP reduction in 2021. In the medium term, Angola's macroeconomic vulnerabilities are expected to be reduced by a successful transition to an economy less dependent on oil and oil-financed public sector activities, with more diversified and private sector driven production pattern.

94. **Sector Strategies and Policies risk is Substantial**, despite MINEA's recent policy and regulatory initiatives, Angola's water sector governance and institutions are still developing, with uneven accountability for results or efficiency in areas of infrastructure development and service improvement. In the water supply subsector, this is particularly prominent in provinces where in the urban settings water utilities have not been formed or where support is limited and in rural areas where there is limited clarity on where the responsibilities for oversight for water supply responsibilities lie. In addition, the responsibility for policies and regulation of storage infrastructures lies with the National Institute for Water Resources (INRH), which is being supported through the PDISA2 project. The Hydrographic Basin Management Office for in the South, GABHIC, has also limited capacity. To mitigate this risk, the project is providing TA to GABHIC as well as support for the Cunene basin plan. In addition, TA is also planned for provincial and municipal administrations to support rural water points management and infrastructure operation and maintenance.

95. **The institutional capacity for implementation and sustainability risk is Substantial,** as the EPASs and relevant national sector agencies (DNA, IRSEA, GABHIC, INRH and MINAGRIP) have limited but growing capacity for project implementation. The water sector has gone through a period of reform and institutional development over the last decade, with significant investments towards the professionalization of utilities and strengthening of the DNA, INRH and IRSEA, towards consolidating water supply, WRM, and regulatory frameworks. While the capacity of the EPASs is limited as evidenced through different audit findings as part of PDISA2, and many of them are struggling to come up with actions to improve FM, clarify the propriety of assets, among others, the outcomes from PDISA and PDISA2 have also demonstrated that supported EPASs have improved and sustained their operation management over time. In addition, IRSEA has approved new regulatory framework for the WSS sector and is developing additional regulatory instruments, which will further strengthen its ability to regulate the services provided by the EPASs. The rural water subsector is weak and faces significant challenges to the maintenance and repair of rural water points, as well as for small infrastructure, dams, and hydraulic infrastructure. The project will mitigate some of the risk due to weak capacity through continued TA and capacity building for national, basin, provincial, and municipal institutions, including hydraulic infrastructure and dam safety O&M plans, and support for strengthening rural service provision across actors.

96. **Fiduciary risk is Substantial,** because of delays in: (i) the *Tribunal de Contas*, on average approximately six months, to clear the negotiated contracts procured under the FCMU; (ii) the delays of Migration Office (SME) in issuing visas work permits for international consultants; and (iii) the potential challenges encountered by the market and supply chain to meet the demand and restrictions imposed by the COVID-19 pandemic. To mitigate these risks, the FCMU will work closely with the *Tribunal de Contas* and the Ministry of Finance (MINFIN) to accelerate the clearance process for contracts, as well as work with the Migration Office (SME) to anticipate the process for the issuance of working visas. Additionally, the FCMU will use the flexibilities provided for in the procurement regulations and flexibilities granted by SIP to mitigate the impact of the COVID-19 pandemic.

97. **The environmental and social risk is Substantial,** given the nature of the anticipated civil works (construction/expansion and rehabilitation activities); the number of construction activities that are likely to be undertaken in sensitive riparian ecosystems or in different locations that are not yet known, and the Borrower's lack of experience in implementing projects prepared under the new Environmental and Social Framework (ESF). Based on the assessment of activities associated with the reconstruction of Sendi Dam and its location, the risk rating does not increase. Although E&S specialists of the FCMU are experienced staff, the additional work to be developed under

this new financed project will require additional staff to be hired to support the existing FCMU team. At this stage the full type of investments that will be undertaken and their specific locations are not yet known. Investments will occur in at least eight provinces: Benguela, Kwanza Sul, Huila, Namibe, Cunene, Zaire, Cuando-Cubango, and Luanda. Anticipated environmental impacts and risks typically associated with small to medium-scale civil works[57] are expected to be moderate to substantial and occur mainly during the construction/expansion and rehabilitation phase. Expected environmental and social risks and impacts will mostly be temporary in nature; predictable and reversible. There are also direct, indirect and cumulative impacts from the reconstruction of the Sendi Dam, however they are not expected to be of regional scale or unprecedented. These activities may bring about substantial environmental and social risks to be mitigated through the prepared ESF instruments.

98. **Stakeholder risk is Substantial**, given the risk that households may not connect to the water systems and may not be able to afford the connection costs due to the current economic constraints in the country. These risks are significantly mitigated given the project's design and focus on community engagement prior to the beginning of works. Similarly, the risk of nonpayment by households will be mitigated through the project's use of community engagement activities and the range of technical and financing options being explored for sanitation services.

99. **Other substantial risks:** (i) in light of COVID-19, there are risks linked to implementation challenges, constraints on community engagement and household participation activities, and the ongoing risk of further outbreaks; and (ii) the frequency and intensity of hydrometeorological disasters is expected to increase, a scenario that could be exacerbated due to the lack of climate data as most weather stations were destroyed during the civil war. These risks will be mitigated as the project will address the effects of COVID-19 and improve the hydrometeorological network in targeted areas. In addition, the project is a no-regrets investment in the face of any climate scenario, where studies and designs are accounting for climate resilience**.**

[57] Component 1 includes rehabilitation and expansion of WASH services and Component 2 will support minor investments to use of surface and groundwater resources for resilience of floods and droughts' & 'development of small water storage investments, such as sand dams, cisterns, small weirs, family level rainwater harvesting and small investment for ground water recharge and storage.

VII. RESULTS FRAMEWORK AND MONITORING

Results Framework
COUNTRY: Angola
Climate Resilience and Water Security in Angola-RECLIMA

Project Development Objectives(s)

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

Project Development Objective Indicators

Indicator Name	PBC	Baseline	End Target
Improve water supply and sanitation services in targeted areas			
Number of people in urban and peri-urban areas provided with access to improved water services under the project, disaggregated by male and female. (core indicator) (Number)		0.00	550,000.00
Number of community-level water and sanitation groups supported, including training (Number)		0.00	60.00
Strengthen water resources management capacity for climate resilience			
Number of people in rural areas provided with access to a reliable and safe water source, disaggregated by male and female (Number)		0.00	310,000.00
Number of Municipalities with operational Municipal Water Plans, developed through participatory processes (citizen engagement), that include climate risk identification and		0.00	10.00

Indicator Name	PBC	Baseline	End Target
contingency measures. (Number)			

Intermediate Results Indicators by Components

Indicator Name	PBC	Baseline	End Target
Component 1: Strengthening Water Services for Water Security in Urban and Rural Areas			
Number of Provincial and Municipal technicians capacitated in the training center (Number)		0.00	125.00
At least 1 Regional IRSEA office operationalized (pilot) assiting the utilities in the implementation of the regulatory instruments (Yes/No)		No	Yes
New piped household water connections resulting from the project (Number)		0.00	110,000.00
Increased water treatment capacity (production) (Cubic Meter(m3))		0.00	30,000.00
Percentage of maintained or repaired rural water systems supported by the project that are functional (Percentage)		0.00	80.00
Percentage of female members in community-based decision-making structures or positions in water users associations (Percentage)		14.00	30.00
Utilities have adopted data culture to improve decision making and management practices (using IBNET services) and complying with IRSEA's reporting requirements (Yes/No)		No	Yes
Mechanism to gather beneficiary feedback for project activities at municipal level, used by beneficiaries and stakeholders (Yes/No)		No	Yes
Component 2: Strengthening Water Resources Management for Climate Resilience			

Indicator Name	PBC	Baseline	End Target
Additional volume per year of groundwater resources mobilized by the project, including rehabilitation, and new investments (Cubic Meter(m3))		0.00	12,388,000.00
Additional storage created by new or rehabilitated infrastructure for multi-purpose water use. (Cubic Meter(m3))		0.00	10,000,000.00
GABHIC established in the South, operational in the 3 basins (Cunene, Cuvelai, Cubango), and strengthened to fulfill its mandate. (Yes/No)		No	Yes
Number of surface and groundwater monitoring points providing data for GABHIC's information system. (Number)		0.00	15.00
Information Management System for water resources management established and operational in GABHIC. (Yes/No)		No	Yes
Number of Integrated River Basin Management Plans including a climate-informed water management strategy; and other regional studies performed. (Number)		0.00	7.00
Number of agency or administrations staff (from GABHIC, provinces, municipalities, and others) trained for the operation and management of hydraulic infrastructure including dams. (Number)		0.00	50.00
Number of people benefitting from water supply services provided by Sendi Dam (Huila) (Number)		0.00	19,250.00
Support the operationalization of one Interinstitutional unit between MINEA and MINAGRIP to oversee water services for irrigation and livestock (in coordination with MOSAP 3) (Yes/No)		No	Yes
Component 3: Project Implementation			
Percentage of women Young Professional and Technicians (YPTs) recruited and deployed by the project (Percentage)		14.00	50.00

Monitoring & Evaluation Plan: PDO Indicators					
Indicator Name	**Definition/Description**	**Frequency**	**Datasource**	**Methodology for Data Collection**	**Responsibility for Data Collection**
Number of people in urban and peri-urban areas provided with access to improved water services under the project, disaggregated by male and female. (core indicator)	This indicator measures the cumulative number of people in urban and peri-urban areas who benefited from improved water supply services, through household connections that have been constructed by the project, disaggregated by gender. The data on the number of people provided with access can be estimated by the task team by multiplying the actual number of piped household connections with an estimate of the number of people per household, as defined in the Project Operations Manual.	Annual	Project Reports	Project Implementation and supervision.	Implementing Unit
Number of community-level water and sanitation groups supported, including training	This indicator measures the number of community-level water and sanitation groups supported for community engagement in the operation and maintenance of water points, systems	Annual	Project Reports	Reporting by Provincial and Municipal administrations and technical assistance.	Implementing Unit

	and community infrastructure. Support includes organizational support and training on community management of water points (technical, financial, institutional, gender).				
Number of people in rural areas provided with access to a reliable and safe water source, disaggregated by male and female	This indicator measures the number of people in rural areas provided with water infrastructure constructed or rehabilitated under the project providing reliable and safe access to a water source in rural areas. This climate indicator aims to reflect a reduction in climate vulnerability in people's access to water sources, thus an increase in climate resilience, by having more and improved options to access water in times of drought. *Water points with 'reliable resource' involve the following criteria: resource potential and dynamics assessed, resource is safe and reliable through the years of the project (even	Annual	Project Reports	Project reports	Implementing Unit

	when there are changes in climate - droughts or floods), monitoring and management practices established. *Adequate maintenance involves the engagement of community groups in the maintenance to ensure sustainability, including local staff trained in O&M issues, availability of spare parts and local capacity to conduct repairs. *Community groups refer to community water management committees, Water Users Associations, set up and in operation. End target is 5% of the population in the 5 selected provinces, containing 130 "comunas". Commensurate with the number of community-level infrastructure and the number of beneficiaries per investment.				
Number of Municipalities with operational Municipal Water Plans, developed through participatory processes (citizen engagement), that	This indicator measures the number of Municipal Water Plans elaborated with public participation (citizen	Annual	Project Reports	Project Reports	Implementing Unit

include climate risk identification and contingency measures.	engagement), endorsed and operationalized by the Municipal Administration, which include mapping of water resources and uses, identification of climate risks, definition of management needs and rural water investments, drought preparedness and mitigation plans/strategies; and integral view of water balance and allocation across human consumption, agriculture and livelihoods.				

Monitoring & Evaluation Plan: Intermediate Results Indicators					
Indicator Name	**Definition/Description**	**Frequency**	**Datasource**	**Methodology for Data Collection**	**Responsibility for Data Collection**
Number of Provincial and Municipal technicians capacitated in the training center	This indicator measures the number of technicians/staff from provincial and municipal administrations, communities and GABHIC, that have been trained in the water center on specific tasks relevant to their professional responsibilities.	Annual	Project Reports	Project Reports	EPAS Huila and FCMU
At least 1 Regional IRSEA office operationalized (pilot) assiting the utilities	Creation of at least one regional delegation to assist	Progress will me	IRSEAs Report,	For the indicator to be met, the success of the	IRSEA

in the implementation of the regulatory instruments	targeted utilities in the southern part of Angola. IRSEA will be strengthened to monitor compliance in the application of the regulatory instruments. Other regional offices may be considered to be supported through the project based on the performance of the pilot. The Project can revisit the installation of additional regional delegations in other areas of the country near targeted utilities, depending on the results of the pilot.	assessed at least once a year	SISAS, FCMU	pilot will be measured by the implementation of the following actions: 1. IRSEA has implemented the SISAS's module to collect technical, economic, and operational information from the Provincial Water and Sanitation Utilities (EPAS) in the South of Angola. The implementation includes the full administration of the system, the audit of the information provided by the EPAS, the report of models, and the review of indicators. 2. As part of the implementation and inspection of the regulatory information cycle, IRSEA has defined a data collection strategy that takes into consideration the asymmetry of information between	

				the IRSEA and the South EPAS. 3. IRSEA has conducted technical training for the staff of the EPAS on the topic of the use of SISAS, particularly those in the pilot for South of Angola. 4. IRSEA has reached out/conducted campaigns (in principle in the southern provinces) to explain the role of the IRSEA and the advantage of having a regulatory framework in place. 5. IRSEA has carried out an analysis of the capacity of EPAS to bear the “Regulatory Function Cost (RFC)” cost (an additional indicator created to monitor this) 6. IRSEA has executed an analysis of the EPAS's current situation in terms of collection and payment and has	

				drawn conclusions regarding their financial sufficiency. 7. IRSEA has collected information on the tariffs that are being charged by the EPAS in the South. 8. IRSEA carried out an analysis of the optimal structure of regional delegations, their functions, needed equipment, and furniture. 9. IRSEA has executed the selection process for the staff that will be part of the regional delegation. 10. IRSEA has carried out the public consultation for key regulatory instruments, which will be determined depending on the time horizon to be designed for the implementation of the instruments. 11. A strategy has been conducted	

				and implemented to improve relations between IRSEA and the customers	
New piped household water connections resulting from the project	Consists in domestic connection comprised of at least a single tap in the household. This activity will follow the best practices of PDISA II (P151224) project.	Every 6 months upon the initiation of works, the FCMU will measure progress	FCMU, data from supervisors	Reports from Supervisors and site visits, external verification entities if needed.	FCMU
Increased water treatment capacity (production)					
Percentage of maintained or repaired rural water systems supported by the project that are functional	This indicator captures the extent to which the rural water points and systems maintained or repaired by the project are in working condition and supplying water, and whether the prerequisites for maintained functionality are in place. This indicator measures progress towards the strengthening of the provincial, municipal and communities' capacity to maintain and repair rural water points.	Annual.	Project reports	Reported by provincial and municipal administrations.	Implementing Unit.

Percentage of female members in community-based decision-making structures or positions in water users associations	Percentage of women members in project-supported community level decision-making structures (with decision-making power), or water users associations that support the management and conservation of rural water resources and supply. Baseline taken from Angola Equal Scorecard based on a survey conducted with utilities in Angola.	Annually	Project reports.	Through provincial and municipal administrations and project implementation and supervision activities.	Implementing Unit.
Utilities have adopted data culture to improve decision making and management practices (using IBNET services) and complying with IRSEA's reporting requirements	Utilities are collecting and preparing their management, planning and budgeting system based on core performance indicators (at the minimum utilities in the South of Angola). The utilities may adopt the new International Benchmarking Network (IBNET) as their platform to gradually improve consistency and quality of data that reflects the core performance indicators and also shed light on the utilities	At least once a year or as required by the Regulator.	The International Benchmarking Network upon data shared by the utilities / regulator.	According to the data requirements in place by the Regulator.	Utilities with support from FCMU and Regulator.

	management practices. The participating utilities will have access to the new IBNET and its resources. Among the services new IBNET offers include: hosting and management of data, preparation of reports to comply with IRESA's requirements, quality control, among others. Utilities will have access to all of these resources at no cost.				
Mechanism to gather beneficiary feedback for project activities at municipal level, used by beneficiaries and stakeholders	This indicator will assess the establishment and use of a mechanism to gather beneficiary feedback for project activities at municipal level, used by beneficiaries and stakeholders to convey complaints, comments and suggestions during the project implementation. The system should have ability to record and register the feedback received.	Annual	FCMU and Municipalities	Registry of the number of comments submitted through the developed system.	FCMU and Municipalities
Additional volume per year of groundwater resources mobilized by the	Water volume that is yielded by new or	Annually	Project reports	Records of boreholes and wells built or	Project Implementing

project, including rehabilitation, and new investments	rehabilitated boreholes per year, or collected and recharged in Managed Aquifer Recharge (MAR) and water harvesting structures. It is only counted if the newly built or rehabilitated infrastructure can provide water throughout the entire year in an average year.			rehabilitated and their development and pumping essays. For managed aquifer recharge structures, hydrology expert estimations.	Unit
Additional storage created by new or rehabilitated infrastructure for multi-purpose water use.	This indicator measures the storage volume created by new or rehabilitated infrastructure such as sand dams, water reservoirs, cisterns and chimpacas (traditional surface water ponds).	Annually	Project reports	Estimation of newly created or rehabilitated storage volume, based on project implementation activities.	Project Implementing Unit
GABHIC established in the South, operational in the 3 basins (Cunene, Cuvelai, Cubango), and strengthened to fulfill its mandate.	This indicator measures whether GABHIC is established in the South and operational in the 3 basins (Cunene, Cuvelai, Cubango), and strengthened to fulfill its mandate of monitoring, gathering and managing relevant water-related information to implement WRM instruments and their Licensing and Fiscalization mandate.	Annually	Project Reports	Reporting by GABHIC and Implementing Unit.	GABHIC and Implementing Unit.

	It will be achieved when the following list is fulfilled: 1 - GABHIC receives periodic data from water resources monitoring network. 2 - GABHIC has implemented a cadaster of users, for which it registers users and manages licenses. 3 - GABHIC has started to implement the financial and economic regime for the bulk use of water resources. 4 - GABHIC owns a drought preparedness and a drought contingency plan for at least two of the three basins, with specific water availability triggers and actions. 5 - GABHICs staff has been trained in dam operation and safety, and operation and maintenance of hydraulic infrastructure and equipment. 6 - GABHIC promotes actively the communication with basins stakeholders and runs periodic basin users coordination meetings.				

Number of surface and groundwater monitoring points providing data for GABHIC's information system.	Number of water resources monitoring points (measuring quantity or quality variables) providing data for GABHIC's information system	Annually	Reports	GABHIC reporting and supervision missions.	GABHIC and Implementing Unit
Information Management System for water resources management established and operational in GABHIC.	This indicator will measure the establishment and operationalization of GABHIC's Information Management System.	Annually	GABHIC reporting.	GABHIC and Implementing Unit.	GABHIC and Implementing Unit.
Number of Integrated River Basin Management Plans including a climate-informed water management strategy; and other regional studies performed.	This indicator reflects the: (1) Development of the Cunene River Basin Plan and the Namibe Coastal Basins Plan, with a climate-informed water management strategy; and (2) Development of Hydrogeological studies contracted to characterize groundwater resources; Surface hydrology studies; and Strategic integrated storage planning studies at the basin level (integrating watershed storage, groundwater, and dams).	Annually	Reports	Reports	Implementing Unit
Number of agency or administrations staff (from GABHIC, provinces, municipalities,					

and others) trained for the operation and management of hydraulic infrastructure including dams.					
Number of people benefitting from water supply services provided by Sendi Dam (Huila)					
Support the operationalization of one Interinstitutional unit between MINEA and MINAGRIP to oversee water services for irrigation and livestock (in coordination with MOSAP 3)	This indicator measures progress towards coordination between MINEA and MINAGRIP. RECLIMA will support with the preparation of a roadmap to establish and operationalize this unit. For the starting phase of the unit, MOSAP 3 will finance the operationalization (consultants, training, equipment). . The Project will not finance salaries or operating expenses of such unit.	Measure progress every 6 months	Reports from MINEA and MINAGRIP	Semestral Reports prepared jointly by the 2 PIUs RECLIMA and MOSAP 3.	FCMU
Percentage of women Young Professional and Technicians (YPTs) recruited and deployed by the project	Percentage of women Young Professional and Technicians (YPTs) recruited and deployed by the project to work within government agencies and utilities. While the government has a hiring freeze and line ministries have hiring constraints, the deployment of young	Annual	Implementing Unit Reports	Implementing Unit Reports	Implementing Unit

	professionals and technicians in utilities and government agencies aims at training and mentoring 50% female labor force, trained and ready, in order to close the gender gap.				

ANNEX 1: Implementation Arrangements and Support Plan

Institutional and implementation arrangements

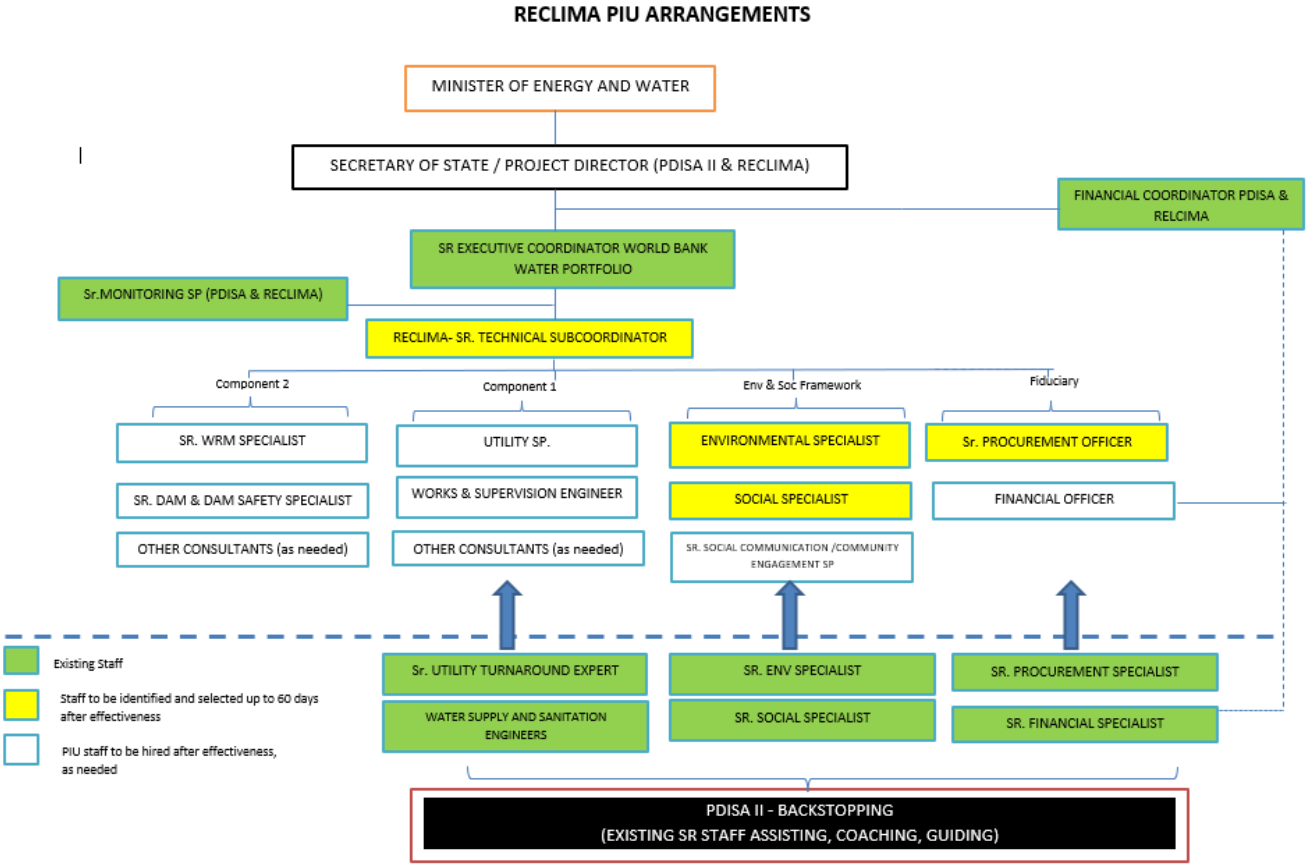
1. **The Project will be implemented by the Financial Coordination and Management Unit (FCMU-WB/AFD) under the Ministry of Energy and Water (MINEA).** The FCMU-WB/AFD was created by the Ministry of Energy and Water for the implementation of WB/AFD financed projects PDISA (P124511) and PDISA2 (P151224) and is a strong implementing entity. The PIU will be headed by the existing Project Coordinator, who will oversee both RECLIMA and PDISA2 during their initial overlap, including technical, administrative and fiduciary aspects. The PIU will hire a Technical Subordinator responsible for day-to-day management of the RECLIMA Project. The Project Sub coordinator, with support from the Coordinator, will ensure compliance with the World Bank's environmental and social standards, as well as with fiduciary and M&E arrangements.

2. **The FCMU will coordinate at the central level with relevant sector institutions, namely: DNA, IRSEA and INRH 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 World Bank to ensure smooth Project implementation. MINEA, through the FCMU will also be responsible for the targeting of communities to be benefited by interventions in rural areas.

3. **The FCMU will be required to submit semi-annual progress reports and quarterly environmental and social reports, as to be detailed in the PIM to be adopted by project effectiveness**. The PIU will be responsible for: (a) preparing and obtaining approval of financial management arrangement for the Project; (b) coordinating and supervising project implementation; (c) submitting disbursement requests and documentation of expenditures to the World Bank; (d) preparing and submitting unaudited interim financial reports (IFRs) to the World Bank; (e) preparing and providing all financial documentation and project reports requested by external auditors and Bank staff; (f) preparing, updating and ensuring that all project executors follow the PIM; and (g) ensuring proper coordination with MINFIN and other project stakeholders.

4. **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 WRM expert; (ii) a rural water supply specialist; (iii) a utility turnaround expert; (iv) an environmental specialist; (v) a social development specialist; (vi) a communications specialist with experience in behavior change, including sanitation and hygiene practices; and (vii) technical, administrative and support personnel, all financed under Component 3, to be described in the PIM. Other technical staff may comprise: (a) a dam and dam safety specialist, (b) and infrastructure specialist, among others. Current PDISA2/FCMU experienced staff will provide guidance, coaching and assistance to the newly hired staff in key areas such as: procurement, financial management, environmental, social and utility management. Initially, RECLIMA will support the hiring of staff needed to complement the capacity of existing FCMU team under PDISA2 to implement both projects during their overlap. Once PDISA2 ends, key FCMU staff will transition under RECLIMA as needed.

Figure 1.1 RECLIMA's FCMU-WB/AFD Organizational Structure



Financial Management

5. **The overall financial management was assessed to be adequate with substantial residual risk**. Financial management (FM) assessment was conducted to evaluate whether the project meets the World Bank's minimum FM requirements in Directives and Policy for Investment Project Financing (IPF). In so doing, the assessment was carried out in accordance with the Directives and Policy for Investment Project Financing (IPF), and the World Bank Guidance on FM in World Bank IPF Operations issued on February 28, 2017. A FCMU was established under the Ministry of Energy and Water to provide FM support on the fiduciary matters to the Ministry for the implementation of the ongoing PDISA2 project (P151224), and it will also be responsible for the implementation of the proposed project. FCMU has gained experience in implementing World Bank-financed operations. The recent review of FCMUs' FM arrangements concluded that these continue to maintain acceptable FM arrangements for the implementation of the ongoing project as substantiated by the recent reviews that rated the FM performance as Moderately Satisfactory. Hence, the said arrangements will apply to the implementation of the proposed project with some adjustments pertaining to the recruitment of two accountants.

6. The assessment revealed that there are acceptable financial management arrangements for the FCMU, established over time for implementation of World Bank-financed operations. However the following FM actions should be implemented to ensure adequate project FM arrangement: (i) update the automated accounting package; (ii) develop and adopt Project Implementation Manual including the section of the FM procedures and (iii) recruit one accountant and one assistant accountant; (iv) hire an external auditor. The FM section of the PIM of the ongoing

project will be used as a basis for preparation for the proposed project.

7. The recent review of the FM arrangements of the ongoing projects implemented by this unit concluded that they continue to have acceptable FM arrangements, the performance risk rating is Moderately Satisfactory.

Project FM Risk Assessment and Mitigation Measures

Risk	Risk Rating	Risk Mitigating Measures Incorporated into Project Design	Conditions for Effectiveness (Yes/No)	Residual Risk
Inherent risk	**H**	**—**	**—**	**S**
Country level. PFM system: Weaknesses in the budget execution, internal controls, capacity development, and general oversight.	H	The Bank is supporting PFM reform initiatives through various ASAs and other International donors are also supporting the various country's reforms. There is a PFM project in pipeline P178040.	No	H
Entity level. Decentralized nature of the project covering some provinces may pose a serious fiduciary challenges to the project given the overall limited capacity in the country.	H	The FCMU will recruit two qualified and experienced project Accountants to strengthen the current FM team composed of 4 staff to ensure the appropriate management of the project funds . The Financial Management Manual will be adopted for this project . The FM team at FCMU will provide training to accountants at provincial level and regular financial reports shall be submitted by the accountants to the FCMU.	No	S
Project level. FCMU may fail to ensure an acceptable project FM environment, especially at the provincial level due to lack of FM capacity and the decentralized nature of the projects.	H	Two more accountants will be recruited to handle project FM matters. Simplified guidelines will be used by the accountants at provincial level. Accountants in the provinces have experience but will be retrained on the FM procedures.	No	S
Control Risk	H			S
Budgeting. Weak budgetary execution monitoring may lead to budgetary under/overruns or inappropriate use of project funds. The project may fail to prepare a realistic annual budget.	H	The FM will spell out the budgetary control arrangements to ensure appropriate budgetary oversight. The IFR will include analysis/explanation on the budget execution. The Bank will review the draft budget as well as the quarterly IFR and provide comments.	No	S
Accounting. The current accounting software used by the FCMU might be not able to accommodate the project's funds and expenses. Project expenditures and resources might not be properly accounted for, due to decentralized nature of the project, and timely and accurate consolidation of data and dissemination of information might be a challenge.	H	FCMU will update its automated accounting package to account for project funds, expenditures and resources. Though FCMU has experienced financial staff onboard, FM's capacity will be strengthened through the recruitment of two accountants. The existing staff at provincial level will be provided assistance regularly and these will provide the necessary information of the decentralized funds through monthly reports.	No	S
Internal control. Noncompliance with internal control activities at	S	Financial and administrative procedures are documented in the Financial Management Manual.	No	M

FCMU such as project expenditures authorization and proper supporting documentation.		Simplified guidelines will be used by the Province Directorates.		
Funds flow. The failure by commercial banks to make payments in foreign currency may impact negatively the implementation of project activities, mainly payment to service providers/consultants abroad.	H	Disbursements of project funds will be handled by FCMU as finance staff are familiar with Bank's disbursement procedures. A Designated account in Euro will be opened to make payments to suppliers abroad. To facilitate payments the project will make use of Direct payment.	No	S
Financial reporting. Delay may be noted in the submission on time of project IFRs produced by FCMU due to delays in submission of financial reports by the Provincial Directorates.	S	FCMU will update the existing automated accounting package to accommodate this project and it will enable timely generation of financial information. Finance staff will undertake frequent visits to the provinces to oversee the project and provide support as needed.	No	S
Auditing. Quality of the audit; delay in submission of audit reports or in implementing the auditors' recommendations.	H	Additional accountants will be recruited to prepare PFS on time. An independent and qualified external audit firm will be hired carry out the annual audit.	No	S
Governance and accountability. Possibility of corrupt practices, including bribes, mis procurement and misuse of funds, and so on, are a critical issue.	H	Project FM arrangements designed to mitigate the fiduciary risks in addition to the FCMU's overall internal control systems. A complaint mechanism to be gradually put in place. FCMU has procurement specialist in place and recruitment of two accountants will mitigate these risks.	—	S
OVERALL FM RISK	**H**	**—**	**—**	**S**

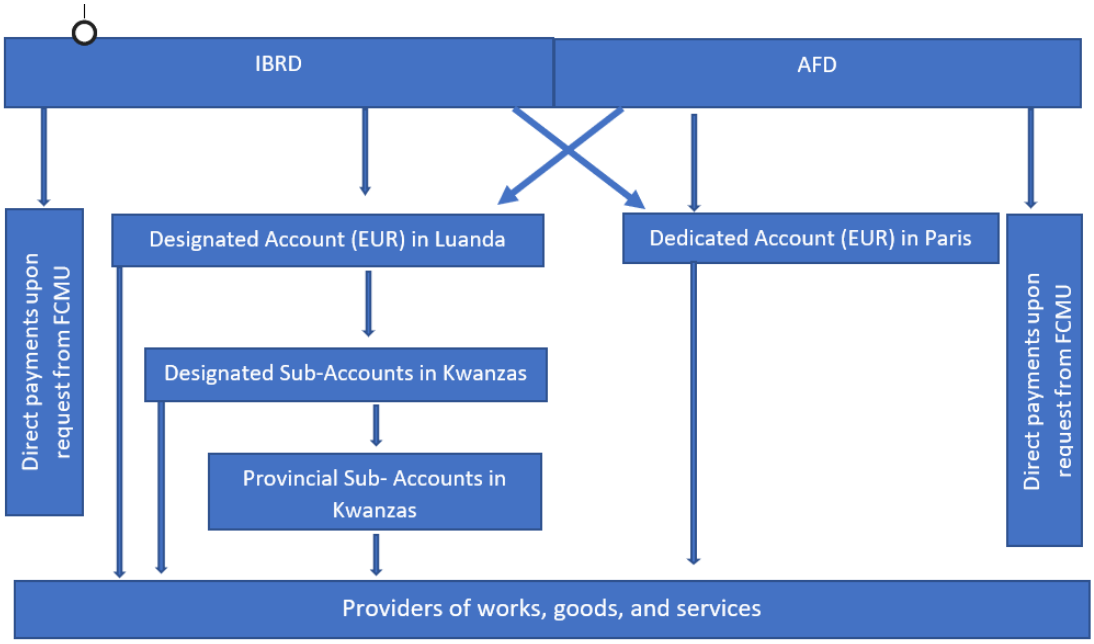
Note: H = High; M = Moderate; S = Substantial.

Flow of Funds and Disbursement Arrangements

8. **The proposed project will make use of reimbursement, advances, and direct payment disbursement methods for International Bank for Reconstruction and Development (IBRD) and AFD proceeds**. To facilitate the implementation of the project activities, the FCMU-World Bank/AFD will establish and maintain: (a) a segregated Designated Account (DA) for deposit of IBRD funds in U.S. dollars and (b) a Dedicated Account for deposit of AFD funds in EUR. The FCMU-World Bank/AFD will prepare quarterly single interim unaudited financial reports (IFRs) covering all project funds and expenditures and provide such reports to the World Bank within 45 days of the end of each calendar quarter. The project financial statements will be audited annually, and the audit report (covering all project funds and expenditures) will be submitted to the WB no later than six months after the end of each financial year.

9. **Funds in the DA will be used to finance eligible project expenditures in accordance with the Loan Agreement and Disbursement Letter.** From the DA, FCMU will: (i) make payments for foreign consultants and suppliers of goods and services; (ii) transfer funds to the DA sub-account in local currency to facilitate payments of local eligible project expenditures and transfer funds to separate provincial bank accounts (to facilitate payments of eligible project expenditures to be incurred at provincial and local levels). Figure 2.1 below depicts the funds flow mechanism for the project activities to be financed under the traditional disbursement methods.

Figure 2.1 - Funds Flow Mechanism



10. **Disbursement of IBRD will be done on a transaction basis (statement of expenditures [SOEs]).** The proposed project will make use of the following disbursement methods: advance, direct payment, reimbursement, and special commitment. The World Bank will offer the flexibility of lowering the threshold for direct payment to facilitate payments to foreign providers of goods and services due to some challenges for commercial banks based in the country to make payments to foreign providers of goods and services and contractors. The implementing agency will prepare quarterly unaudited interim financial reports (IFRs) and provide such reports to the World Bank within 45 days of the end of each quarter. The project financial statements will be audited by the independent external auditor of the ongoing project in accordance with International Standards on Auditing (ISA) as issued by the International Auditing and Assurance Standards Board (IAASB) within the International Federation of Accountants (IFAC). The overall FM arrangements were assessed to be adequate to ensure that the project activities are handled and financed with due consideration to efficiency and economy. The overall FM risk is Substantial due in part to country risk, capacity issues in the country, and involvement of various beneficiaries.

11. **The overall conclusion of the fiduciary review is that, despite some weaknesses that have been identified, the country public financial management (PFM) systems are adequate** to provide reasonable assurance that the budget lines for the eligible expenditures are currently appropriately managed. The budget preparation and execution monitoring, accounting, and financial reporting are considered adequate but there is room for improvement. Detailed procedures for the verification protocol, accounting, reporting, and documentation of eligible expenditures will be outlined in the Project Implementation Manual.

12. **The proposed project will make use of reimbursement, advances, and direct payment disbursement methods for International Bank for Reconstruction and Development (IBRD) and AFD proceeds.** To facilitate the implementation of the project activities, the FCMU will establish and maintain: (a) a segregated Designated Account (DA) for deposit of IBRD funds in U.S. dollars and (b) a Dedicated Account for deposit of AFD funds in EUR. The FCMU will prepare quarterly interim unaudited financial reports (IFRs) covering all project funds and expenditures and provide such reports to the World Bank within 45 days of the end of each calendar quarter. The project financial

statements will be audited annually, and the audit report (covering all project funds and expenditures) will be submitted to the WB no later than six months after the end of each financial year.

13. **Budgeting**. The FCMU will prepare annual budgets based on the annual work plans and the approved procurement plan. Activities for the various components have been discussed and it is expected that the FCMU will prepare annual budgets that cover activities proposed to be carried out in each fiscal year. The project will also be responsible for producing variance analysis reports comparing planned with actual expenditures on a quarterly basis. Quarterly variance analysis reports will be part of the IFRs that will be submitted to the World Bank on a quarterly basis. The budget preparation and monitoring of budget execution will be described in the Financial Management Manual.

14. **Staffing.** The FCMU will be responsible for fiduciary aspects of the project. The overall responsibility of project FM matters rest with the project FMS reporting to the coordinator and supported by finance staff. The FCMU finance staff arrangements seem to be adequate as they have been able to perform their duties and obligations so far. In addition, the project will recruit two experienced accountants to be part of the FM team.

15. **Accounting.** The implementing agency will account for all project funds, expenditures, and resources using a computerized accounting software and the basis of accounting will be financial reporting under cash basis. The computerized accounting package will be updated and installed within two months after the effectiveness date. Throughout project implementation the implementing agency should maintain a sound computerized accounting software that enables key controls, records project transactions correctly, and can produce timely and reliable financial information.

16. **Internal audit and control.** The Inspectorate General of Finance (*Inspecção Geral das Finanças*), based at the Ministry of Finance, is responsible for the internal audit functions across the entire government. However, the inspectorate general of finance has limited capacity (in terms of number and skills of its staff), and therefore, the project may not benefit from its review of this operation. The FCMU has an internal auditor who will review the internal control systems in place and provide quarterly reports. In addition to the regular supervisions through desk review and field visits (that include expenditures and asset reviews) to be carried out by the World Bank. The finance and administrative procedures to be employed by the implementing agency will be documented in the PIM to be finalized and adopted by effectiveness.

17. **Disbursement arrangements.** Disbursement of IBRD funds will be report-based (quarterly interim unaudited financial reports). These reports will include a statement of sources and uses of funds, an updated six-month forecast, Designated Account Activity statement and statements of eligible expenditure under contracts subject to and not subject to prior review. An initial advance will be made into the Designated Account upon the effectiveness of the Loan Agreement and at the request of Ministry of Energy and Water. After every subsequent quarter, FCMU will submit the IFRs.

18. **Provincial Bank accounts will be used to receive funds from the DA** to implement some activities at provincial levels, and these will provide monthly reports to FCMU.

19. **The option of disbursing the funds through direct payments from IBRD on contracts above a pre-determined threshold will also be available**. The reimbursement and special commitments disbursement methods will be also available. The Bank will issue the Disbursement Letter that will specify additional instructions for withdrawal of the proceeds of the Loan.

20. **Auditing.** The project will be audited annually by a private qualified audit firm on a basis of ToR acceptable to the World Bank. The report should be submitted to the Bank within six months following the end of the fiscal year. The audit will be conducted in accordance with International Standards on Auditing (ISA) as issued by IAASB.

21. **Dated covenants.** Within three months after the project effective date, Ministry of Energy and Water should; (i) update the computerized accounting software; (ii) appoint two qualified Accountants; (iii) update/adopt the project Financial management Manual including guidelines for the provinces and (iv) no later than six months recruit the external auditor.

22. **Supervision plan**. The project will be supervised by the World Bank FM Specialist on a risk-based approach. The FM supervision missions will also include but not limited to a review of quarterly progress reports and audit reports and follow up on material accountability issues by engaging with the task team leader (TTL), client, and/or auditors. Based on the assessment, the FM current risk is Substantial and field visit supervision will take place twice during the fiscal year and adjust when the need arises.

23. **Governance.** Ministry of Energy and Water's Board Committee meets annually to discuss the strategy of the Institution.

24. **FM action plan.** To establish an acceptable control environment and to mitigate FM risks, the following measures should be taken by the due dates indicated in the FM action plan below.

FM Action Plan

No.	Action	Responsibility	Completion date
1	Recruit two qualified and experienced project Accountants	FCMU	No later than three months after effectiveness
2	Update and adopt the Project Implementation Manual including FM procedures	FCMU	Within three months after effectiveness
3	Update the existing computerized accounting software for the project	FCMU	Within three months after effectiveness
4	Recruit the external audit firm	FCMU	No later than six months after effectiveness

Procurement

25. **Applicable procedures.** Procurement of input-based (procurable) items under the project will be carried out in accordance with the World Bank's 'Procurement Regulations for IPF Borrowers' (Procurement Regulations) dated November 2020, and as amended over time. Moreover, the 'Guidelines on Preventing and Combating Fraud and Corruption in Projects Financed by IBRD Loans and IDA Credits and Grants', dated July 1, 2016; and other provisions stipulated in the Financing Agreement.

26. While procurement procedures and oversight will follow WB Procurement Regulations, bidding documents and/or proposals, documents and procurement notices will be amended to reflect the role of AFD as co-financier. Furthermore, AFD will not finance its respective part of a contract to a bidder or a consultant who is on any of the UN, EU, and French financial and commercial sanctions lists; appropriate language will be included in relevant procurement notices.

27. **Project Procurement Strategy for Development (PPSD).** The PPSD sets out market approaches and selection

methods to be followed during project implementation of the project. The PPSD identifies optimum procurement strategies on how fit-for-purpose procurement of activities will support project operations for the achievement of project development objectives and deliver Value for Money (VfM). Based on the PPSD findings, the Procurement Plan (PP) for the first 18 months was prepared, setting the selection methods to be used by the Borrower in the procurement of goods, works, non-consulting services, and consulting services under the project. The Procurement Plan will be updated at least every 12 months, or as required, to reflect the actual project implementation needs. Each update shall require WB approval and will be publicly disclosed in accordance with the World Bank disclosure policy.

28. The PPSD is living document that shall be regularly updated during project implementation to provide necessary justifications for procurement arrangements, procurement plans, and their updates. Summaries of PPSDs described below:

29. **Procedures for procurement of works, goods and non-consulting services.** The market approach would be open international market approach, post-qualification and RFB selection method is recommended. The World Bank Standard Procurement Documents will be used for all the procurements. **Procedures for selection of consultants.** Competitive selection methods through request for EoI followed by RFP are recommended. Supervision work for construction are basically time based contracts and the selection will follow Quality and Cost Based Selection (QCBS) method and Least Cost Selection (LCS) for the audit contract through open international market approach using request for EoI. The World Bank Standard Procurement Documents will be used for all the procurements.

30. **Procurement arrangements and Institutional Capacity.** The procurement activities for the project will be managed by the FCMU-WB/AFD. The FCMU WB/AFD has an extensive experience with World Bank procurement rules and is currently managing PDISA2, in addition to operations financed by other development partners. The capacity of the FCMU was reviewed during preparation and found to be adequate for managing the procurement activities, as the FCMU is staffed with qualified and experienced personnel composed by two international senior procurement specialists supported by two local procurement officers. The FCMU has therefore adequate capacity and experience to implement the procurement activities of the Project. Nevertheless, an additional local procurement assistant should be recruited. The current procurement staff from the PDISA2 will transit to the RECLIMA project, if the overall performance is considered satisfactory. **Procurement Risks**. Major risks associated with the implementation of the Project procurement activities are related to the capacity of the FCMU-WB/AFD to recruit qualified and experienced procurement staff and other specialists, the delays in *Tribunal de Contas* to provide the Visa to the contracts, obtaining work permits for the international consultants, and the constrains imposed by the pandemic COVID-19.

31. **The procurement plan for the activities will be managed through the World Bank's tracking system, Systematic Tracking of Exchanges in Procurement (STEP).** During project implementation, the Procurement Plan will be updated as required, but, at a minimum, on an annual basis, to reflect actual program implementation needs and improvements in institutional capacity.

32. **Review by the World Bank of procurement decisions.** Table below indicates the initial values for prior review by the WB for activities in the Procurement Plan (input-based window). Activities estimated to cost below these amounts shall be treated as post review and will be reviewed by the World Bank during the implementation support mission under a post-procurement review exercise. Direct Contracting/Single Source will be subject to prior review only above the amounts given in table 4.1. The WB may, from time to time, review the amounts based on the

performance of the implementing agency.

Table 4.1 Prior Review Thresholds

Procurement type	Prior review (US$)
Works	10,000,000
Goods and non-consulting services	2,000,000
Consultants (firms)	1,000,000
Individual consultants	300,000

33. **Approach to market.** Based on the size of the contracts under this project and granted the procurement risk profiles, open international bidding will be followed. However, generally, the thresholds shown in Table 4.2 below will be used for open national/international market approach and Request for Bids/Quotations procurement methods under this project.

Table 4.2 Thresholds for Procurement Approaches and Method (US$, millions)

Category	Works			Goods, IT, and Non-Consulting Services			Shortlist of National Consultants	
Market Approach and Methods	Open International ≥	Open National <	Request for Quotation ≤	Open International ≥	Open National <	Request for Quotation ≤	Consulting Services ≤	Engineering and Construction Supervision ≤
Angola	10	10	0.2	1	1	0.1	0.1	0.3

34. **Frequency of procurement reviews and supervision.** The World Bank's prior and post reviews will be carried out based on thresholds indicated in the table above. The World Bank will carry out implementation support missions every six months and annual post-procurement reviews; the standard post-procurement reviews by World Bank staff should cover at least 20 percent of contracts subject to post review. Post reviews consist of reviewing technical, financial, and procurement reports on project procurement actions by World Bank staff or consultants selected and hired by the World Bank according to procedures acceptable to the World Bank. Project implementation support missions shall include a World Bank procurement specialist or a specialized consultant. The World Bank may also conduct an independent procurement review at any time until two years after the closing date of the project.

35. **Training, workshops, and conferences.** Training (including training material and support), workshops, and conference attendance will be carried out based on an approved annual training and workshop/conference plan. A detailed plan providing the nature of training/workshop, number of trainees/participants, duration, staff months, timing, and estimated cost will be submitted to the World Bank for review and approval before initiating the process. The appropriate methods of selection will be derived from the detailed schedule. After the training, beneficiaries will

be requested to submit a brief report indicating what skills have been acquired and how these skills will contribute to enhance his/her performance and contribute to the attainment of the project objective.

36. **Operational costs.** Operating costs financed by the project are incremental expenses, including office supplies, vehicles operation and maintenance, maintenance of equipment, communication costs, and supervision costs (that is, transport, accommodation and per diem). They will be procured using the procurement procedures specified in the Procedures Manual (administration, finance, and accounting).

37. **Procurement Manual.** Procurement arrangements, roles and responsibilities, methods and requirements for carrying out procurement under the proposed project shall be elaborated in detail in the Procurement Manual, which will be a section of the PIM. The PIM shall be prepared by the Borrower and agreed with the World Bank before project effectiveness.

38. **Assessment of national procedures.** The Angola Procurement Law no. 9/16 of June 16, has been assessed as required under the World Bank's Procurement Framework, based on the nine requirements for national open competitive procurement (clause 5.4 of the Procurement Regulations). Despite recent improvements, the World Bank has decided that the Angola Procurement Law will not apply for procurement under this project. Therefore, World Bank's 'Procurement Regulations for IPF Borrowers' (Procurement Regulations) dated November 2020 will apply for all procurement under this Project.

39. **Procurement information and documentation - filing and database.** Procurement information will be recorded and reported as follows:

(a) Complete procurement documentation for each contract, including bidding documents, advertisements, bids received, bid evaluations, letters of acceptance, contract agreements, securities, related correspondence, and so on, will be maintained at the level of respective ministries, in an orderly manner, and will be made readily available for audit.
(b) Contract award information will be promptly recorded and contract rosters, as agreed, will be maintained.
(c) Comprehensive quarterly reports will indicate
    (i) Revised cost estimates, where applicable, for each contract;
    (ii) Status of ongoing procurement, including a comparison of originally planned and actual dates of the procurement actions, preparation of bidding documents, advertising, bidding, evaluation, contract award, and completion time for each contract; and
    (iii) Updated Procurement Plans, including revised dates for all actions.

40. All this information shall be made available in the physical archive and filed and/or uploaded in the STEP for audit and/or post-procurement review carried out by the WB.

41. **Advertising procedures will include the following:**

- General Procurement Notice, Specific Procurement Notices, Requests for Expression of Interest, and results of the evaluation and award of contracts should be published in accordance with the advertising provisions in the Procurement Regulations.

- Requests for Bids and Request for Proposals that involve international consultants, and contract awards, shall be published in United Nations Development Business in line with the provisions of the Procurement Regulations.

42. **For goods and works, information to be published shall specify** (a) the name of each bidder who submitted a bid; (b) bid prices as read out at bid opening; (c) the name and evaluated prices of each bid that was evaluated; (d) the name of bidders whose bids were rejected and the reasons for their rejection; and (e) the name of the winning bidder, and the price it offered, as well as the duration and summary scope of the contract awarded.

43. **For consultants, the following information must be published:** (a) the names of all consultants who submitted proposals; (b) technical points assigned to each consultant; (c) the evaluated prices of each consultant; (d) the final point ranking of consultants; and (e) the name of the winning consultant and the price, duration, and summary scope of the contract. The same information will be sent to all consultants who submitted proposals. For other contracts, the information should be published in the national gazette periodically (at least quarterly) and in the format of a summarized table covering the previous period with the following information: (a) name of the consultant to whom the contract was awarded, (b) price, (c) duration, and (d) scope of the contract.

44. **Procurement Risks.** Major risks associated with the implementation of the Project procurement activities are related to the capacity of the FCMU-WB/AFD to recruit qualified and experienced procurement staff and other specialists, the delays in *Tribunal de Contas* to provide the Visa to the contracts, obtaining work permits for the international consultants, and the constrains imposed by the pandemic COVID-19. Overall, the procurement risks may be summarized as below:

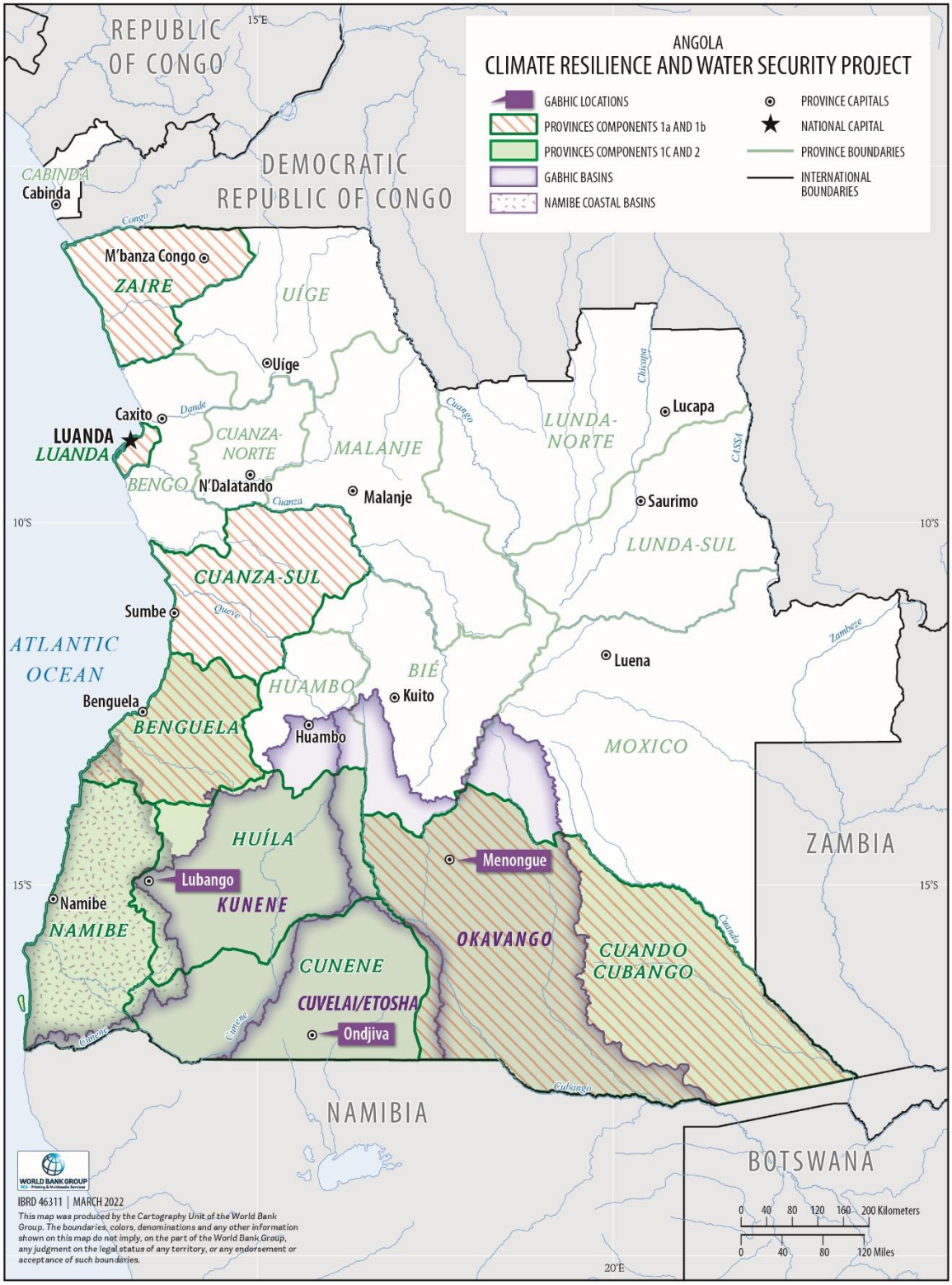
Table 4.3: Procurement risk assessment and mitigation action plan

No.	Risk	Risk Type	Mitigation Measure	Time Frame	Responsible Agency
1	Difficulty recruiting qualified staff	Substantial	Ensure that qualified staff are retained to ensure long-term sustainability of the institution.	During project implementation	FCMU
2	Delays of Tribunal de Contas in issuing the visa to the contracts	High	Ensure close dialog with TC to better understand TC procedures and WB procurement Regulations	During project implementation	FCMU
3	Delays in obtaining work permits for international consultants	High	Request the support from MINFIN and establish close dialog with the Immigration Services and other related entities.	During project implementation.	FCMU
4	Delays during the evaluation of bids and proposals.	High	Ensure the evaluation panel members nominated are available and have the required technical and language expertise to perform the work required.	During project implementation	FCMU
5	Adequate use of the STEP. Activities flagged as delayed or pending implementation.	Substantial	Ensure that STEP is properly handled, uploading the required documentation once the stages of the processes are completed.	During project implementation	FCMU
6	Capacity of the market and supply chain to meet the demand, due to the global nature of COVID-19 pandemic.	High	FCMU will apply COVID-19 flexibilities in the bidding process in accordance with emergency operations norms to mitigate the impact of the COVID 19 pandemic including the use	During project implementation	FCMU

No.	Risk	Risk Type	Mitigation Measure	Time Frame	Responsible Agency
			of direct contracting where appropriate.		
7	Challenges of bids submission due to COVID-19 movement restrictions imposed by many countries worldwide.	High	FCMU project implementation teams will closely monitor country restrictions, and promptly propose more efficient procurement approaches and methods based on flexibilities provided for in the Procurement Regulations and flexibilities granted by SIP to mitigate the impact of the COVID 19 pandemic.	During project implementation	FCMU

45. **The procurement risk associated with the project, as described above, is rated Substantial.** The risk assessment will continue to be caried out during project implementation and adapted accordingly. However, these risks should be closely monitored as they can adversely impact project implementation. The procurement plan will include key contracts that will be procured in the first 18 months of project implementation. The Procurement Plan will be updated at least annually (or as required) to reflect project implementation needs.

ANNEX 2: Map


ANGOLA
CLIMATE RESILIENCE AND WATER SECURITY PROJECT
GABHIC LOCATIONS
PROVINCES COMPONENTS 1a AND 1b
PROVINCES COMPONENTS 1C AND 2
GABHIC BASINS
NAMIBE COASTAL BASINS
PROVINCE CAPITALS
NATIONAL CAPITAL
PROVINCE BOUNDARIES
INTERNATIONAL BOUNDARIES
REPUBLIC OF CONGO
DEMOCRATIC REPUBLIC OF CONGO
CABINDA
Cabinda
M'banza Congo
ZAIRE
UÍGE
Uíge
Caxito
LUANDA
LUANDA
CUANZA-NORTE
MALANJE
BENGO
N'Dalatando
Malanje
LUNDA-NORTE
Lucapa
Saurimo
LUNDA-SUL
CUANZA-SUL
Sumbe
ATLANTIC OCEAN
Benguela
BENGUELA
HUAMBO
BIÉ
Kuito
Huambo
Luena
MOXICO
ZAMBIA
HUÍLA
Lubango
KUNENE
Namibe
NAMIBE
Menongue
OKAVANGO
CUANDO CUBANGO
CUNENE
CUVELAI/ETOSHA
Ondjiva
NAMIBIA
BOTSWANA
10°S
15°S
15°E
20°E
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0 40 80 120 Miles