



Priority Project Summary Mocuba Water Supply Program

Building operational and social resilience

August 2021





Table of Contents

01 The Need for the Project

02 Project purpose and actions

03 Project details

04 Outputs and Outcomes

05 Main tasks and timeframe

06 Risks and mitigations

07 Project summary

Annex 1: Mozambique – overviewAnnex 2: The water sector

01 Need for the Project Quick economic and demographic outlook



Mocuba City is an important regional centre for the transit of goods and agricultural production of tea, cotton and timber from the inland areas to the sea port of Quelimane. Mocuba is located on the bank of the Licungo and Lugela rivers and on the main North-South national road in Mozambique with a branch heading to Malawi (EN 104 and EN229).

A fast-growing city of 107,417 thousand inhabitants in 2020, it is forecast to reach 155.571 thousand by 2035 and 188.953 in 2040 (according to the official data

Current water supply situation (2020)

- Over 5.000 active domestic connections & 8 stand-posts serving approx. 15.576 people
- More than 91,000 inhabitants without access to potable water
- 35% coverage (@78l/cap/day) (94% by Individual connections and 4% by Stand posts)
- The existing water supply system in Mocuba dates back to the pre-independence period. As a result of the 2015 floods, part of the existing raw water transmission main at the outlet of the intake tower was destroyed and was subject to Emergency Works, namely; water intake rehabilitation and water supply network rehabilitation / leakage reduction interventions
- Current water abstraction, treatment and distribution systems have a daily capacity of 5.760 m3/d



02 Project purpose & actions

Rationale

· Improve water supply resilience and increase water availability to an important

city for the central region;

- Provide safe and healthy water and continuous supply to all customers;
- Promote equitable and sustainable supply to all residents and social groups
- · Manage the impact of climate change on water supply
- · Induce and accelerate sound social wellbeing and economic development
- Increase coverage from 14% to 80% by 2035
- · Improve water utility economic sustainability

Actions

- Increase water production through alternative sustainable source from the Licungo River.
- Construct water treatment plant, raw water transmission main, new water distribution centers and new treated water transmission mains.
- · Expansion of the water supply network to the whole Mocuba city





02 Project purpose & actions



Solution outline and strategic sustainability

Present constraints	Mocuba's water supply system gets it's raw water from Lugela river. From this source water is abstracted for treatment and supply to the city. The water supply infrastructure, apart from the Water Treatment Plant, is in a considerably bad condition. Under current conditions, interruptions are recurrent and exacerbated by climate change (droughts and floods).
Technical solution Social and economic sustainability	Studies indicate that the groundwater resources around Mocuba are limited thus cannot be considered for the development of the city water supply.
	The proposed reinforcement of Mocuba Water Supply System is based on the Licungo River located nearby Mocuba City as the secure superficial source. This will increase water supply capacity and add operational resilience.
	The environmental impact of the proposed project is low given that, according to the data made available by ARA Norte, the minimum registered flow at the Licungo river was 30,89 m3/s. The water to be abstracted by the new intake infrastructure will be approx. 0,23 m3/s. Therefore, the river's minimum flow of 0.8% to meet environmental requirement is safeguarded.
	With the automatic tariff adjustment mechanism approved by the Government in 2021, the tariff revenues are expected to cover all operational, maintenance and debt service costs by the year 2024. Mocuba is located on the main North-South national road in Mozambique that consists of a section that leads to Malawi (EN 104 and EN229). Due to its location, most goods and agriculture products are transported through the city making it an important location on the corridor including for the Quelmane port.
	The water utility in Mocuba has approx. 3000 domestic, industries and commercial consumers who can afford the tariff to cover costs and thus contributing to the sustainability of the services

Upon completion, the Licungo water project will also supply potable water to the peri-urban area (± 50.000inhabitants)

03 Project details

- New water intake at the Licungo River (19,200 m3/d abstraction capacity)
- New raw water transmission main, DN500, 1.2km, from new intake
- New 19,200 m3/d Water Treatment Plant (WTP) capacity
- New water distribution centre at the new WTP, including a 5.000m3 reservoir, a treated water pumping station and a 33m-high water tower;
- New treated water transmission main, DN400, 5.6km
- Refurbishment of the existing distribution centre "CD1", including a 5.000m3 reservoir, a treated water pumping station and a 250m3 33m-high water tower;
- New treated water transmission main, HDPE Ø280, 4.2km;
- New distribution centre "CD2" including a 5.000m3 reservoir and a 250m3 33m-high water tower;
- Expansion of the water supply network to the whole Mocuba city, approx. 192km of piping with diameters ranging from Ø90 to Ø400.

Estimated costs (2021)	US\$m
New Intake at Licungo River	1,5
New Treatment Plant	12,0
Transmission mains	3,5
New Distribution Centers and refurbishment of the existing DCs	9,0
Network Expansion and Rehabilitation	8,0
Connections (existing and news)	14,0
Standposts (existing & News)	0.5
Renovation	1.0
Total	49.5



04 Outputs & Outcomes



This **Climate Resilient Water Supply Program** is a priority project for a region where the effects of climate change are putting high pressure on water supply. This water stressed situation is structural, and its magnitude increases rapidly due recurrent droughts and floods. The main outcome of the project will be improved water supply resilience, efficient operational performance and financial management.

utputs	Outcomes - Technical	Outcomes – Social, Development & Environment
Additional 19,200 m ³ /day water produced with	Technical	Social, Development & Environment
ability to expand	 Increased efficiency, sustainability and effectiveness of the water supply services 	Improved access to water for approx. 80.000 inhabitants in peri-
Service coverage increased to 64%		 urban areas through network extensions and new stand-posts Approx. 135,000 more inhabitants receiving clean and affordable water in Mocuba urban area
Increased hours of supply and system pressures	 Improved platform for local and external private sector involvement in water supply 	
Increased annual revenues (US\$10.0m)		Customers moving to household connections will improve
	 Reduced costs/m³ for water production and supply 	availability and further reduce diseases
		 Improved health and well-being for residents
	Improved operational processes	 Reduction in water scarcity as a barrier to economic developmer and poverty reduction
	· · ·	 Increased asset and social resilience to weather events

Main benefits

- 133,000 Innabilarits receiving clean and anordable water
- 47,000 new household connections in Mocuba urban areas and 320 standposts in periurban areas
 - 19,200 m³/day additional water and supply expanded to peri-urban areas
 - Significant improvement in water service resilience even during extreme events
 - US\$10.0m p.a. additional revenues for water company

05 Main tasks and timeframe



The current plan for implementation of the Mocuba Water Project will start in early 2022 and system operation is expected in 2025.

The pressure on the Mocuba water supply is linked to rapid urban growth and the intensity of extreme meteorological events, so the project will be implemented on a phased approach.



06 Risks & Mitigations



As part of developing Mocuba Water Project, FIPAG have analysed the potential risks and identified possible mitigation measures.

A risk management committee will be set up in the ROC and one of its responsibilities will be to monitor the risk framework and alert the project management team to identify and implement the necessary mitigation actions.

Issue	Risk & Likelihood	Mitigation
Technical		
Lack of capacity within FIPAG/ROCs to undertaketechnical tasksIdentify operational issues & constraints	Delay to project development High likelihood	 Identify constraints Provide support as needed Streamline procurement to remove risks
Contractor failure	Commissioning delayed Low likelihood	Select appropriate procurement route and suitable contractor
Financial		
Failure to identify and secure funds forProject development phaseProject procurement phaseProject delivery	Delay to project development and delivery High likelihood	 Identify scale needed Secure adequate resources Streamline procurement to remove or transfer constraints
Operational		
Resource or water delivery below requirements	Delay to customer benefits Low likelihood	 Secure operational input to fully- integrated project
Failure to deliver expected operational and customer outcomes	Major impact on service levels and financial outcomes Medium likelihood	Strong technical reviewFully-integrated projectAppropriate contracts

7. Project Summary



NEED FOR THE PROJECT

- A fast-growing city of 107,417 thousand inhabitants in 2020, it is forecast to reach 155.571 thousand by 2035 and 188.953 in 2040 (2,5%)
- Mocuba City & region city is an important regional centre for the transit of goods and agricultural production of tea, cotton and timber from the inland areas to the sea port of Quelimane
- Presently, there is a structural imbalance between water demand and water supply, due not only to the population growth but also to the severe impacts of climate change. Intense droughts are becoming more frequent with a strong impact on the provision of safe water to the population and economic sectors.

OUTCOMES

- Overall outcome: A safe and continuous climate resilient water supply system for 135.000 inhabitants.
- Approx. 135,000 more inhabitants receiving clean and affordable water in Mocuba urban area
- Improved access to water for approx. 80.000 inhabitantes in peri-urban areas
- Reduction in water scarcity as a barrier to economic development and poverty reduction
- Increased asset and social resilience to weather events
- A more financially and economically viable utility

PURPOSE

- Improve water supply resilience and increase water availability to this important city in the central region
- Provide safe and healthy water and continuous supply to all customers
- Promote equitable and sustainable supply to all residents and social groups
- Manage the impact of climate change on water supply
- Induce and accelerate sound social wellbeing and economic development
- Increase coverage from 50% to 100% by 2035
- Improve water utility economic sustainability

TIMEFRAME

- The overall duration of the Project will be 4,5 years, from feasibility studies till the operational commissioning.
- Emergency measures: boreholes to quick increase the production capacity on peri-urban areas (finalized by the Q3 2022)
- Licungo Water Project to be completed and fully operational by Q1 2026.

DETAILS

- Overall investment: US\$ 49.5M (2021 values)
- Increase water production by using new water intake at the Licungo River (19,200 m3/d abstraction capacity)
- New Water Treatment Plant (WTP)
- New water distribution centre at the new WTP Licungo
- New treated water transmission main
- Existing distribution centre "CD1" refurbishment,
- Water transmission mains
- New distribution centre "CD2"
- Expansion of the water supply network to the whole Mocuba city, approx. 250km of piping

MANAGEMENT & ECONOMICS

- Asset owner: FIPAG (responsible for investment)
- System operator: Central Water Utility (Operator)
- Operator's revenue covers O&M with limited capital contribution
- Possible funding options: Long-term concessional finance or PPP proposal
- Progressive cost-recovery water tariff with social instruments to assure the access to the most vulnerable



Demographics

In 2014, 32% of Mozambique's 22m people lived in urban areas. By 2025 with urban population growth of 3.4%, this is forecast to be 12.5m (52%).

On current trends, population growth will become more concentrated into the 12 urban areas over 250,000, the largest of which are Maputo (2.5m), Beira (1.0m), Nampula (750,000) and Quelimane (600,000).

Economy

Despite consistent growth for almost 2 decades Mozambique is a Low-Income Country (LIC) with a GNI/head of US\$460. Mozambique's economy has expanded rapidly over the last decade with annual GDP growth between 5% and 7%. This has slowed of late, with the impact of 2 major cyclones (2019) and COVID-19 (2020-1).

Growth and improvements in living standards have not been evenly spread across the country,, being mainly in urban areas and in the southern part of the country. The Government still faces the challenge of reducing poverty and inequality across regions and provinces

Water resources

As a coastal country, Mozambique relies heavily on international water resources , with many of the larger rivers rising outside the country.

Water resources are also unevenly distributed across the country, with greatest limitations in the most developed southern part of the country.

The country is vulnerable to climate change and its related effects on water resources: recurrent droughts, which fail to replenish reservoirs and aquifers, and floods. Groundwater sources for the coastal cities are also affected by saline intrusion.

Current performance

Supply coverage varies across the country even within existing urban districts. There are extensive under-served peri-urban areas . In 2020, the national water utility (FIPAG) provided water to 64% of the population in its service areas.

In the Central Region, most received water via a household connection. Outside these areas around 24% of people receiving water from FIPAG did so via stand-posts.

Hours of service increased significantly from 2010, doubling in many cases and reaching 24 hours in some areas. Water quality also improved although recent cyclone damage to water infrastructure has set-back progress in this area.

Annex 2: the water sector



Delivery Organisations

In Mozambique's urban areas water is supplied by FIPAG, a wholly-owned autonomous public entity. FIPAG was founded in 1998 and functions as an asset-holder, fund raiser and operating utility.

At the operating level, the sector policy framework is for delegated management where services can be provided on a commercial basis by private companies. Specific arrangements can vary from area to area.

At the operational level, FIPAG has four regional companies; for Maputo Metropolitan area, South, Central and North. These cover all 29 major urban areas, and in 2019, served around 4m of the 7m population through 530,000 connections.

In 2009 AIAS was established to provide rural and small town water supply and sanitation services.

Governance and Regulation

FIPAG's Director-General is appointed by the Prime Minister, with other Directors appointed by the Minister of Ministry of Public Works, Housing & Water Resources (MoPHRH) on the recommendation of the D-G. Financial affairs are also supervised through representative of the Finance Ministry.

FIPAG's performance is set and monitored on a 3-yearly cycle through agreements with the MoPHRH.

The sector is regulated by the AURA (Water Regulatory Authority) who cover service quality economic and financial performance.



Policy Framework & Objectives

The Government of Mozambique has set out the wider sector policy framework and objectives through the Five Year Programme and National Urban Water Supply & Sanitation Strategy (2011- 2025).

Within this Strategy the Government of Mozambique has set a goal of universal urban population coverage with potable water supply and the achievement of the SDG targets by 2030.