



REPÚBLICA DE MOÇAMBIQUE
Ministério das Obras Públicas,
Habitação e Recursos Hídricos
Gabinete do Ministro

Priority Project Summary

Maputo Water Supply Program Greater Maputo Water Supply Project II

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 – overview

Annex 2: The water sector

01 Need for the Project

Quick economic and demographic outlook

Maputo is the capital of Mozambique and lies on the far southern end of Mozambique and consists of two major cities (Maputo and Matola). The Maputo Metropolitan Area consists of the cities of Maputo and Matola, and includes other urban areas and districts namely; Marracuene and Boane on where the geographical growth continues to rise which in turn drives water demand.

The 2017 census estimated the total population of the Greater Maputo area (GMA) at 3.92 million inhabitants (including Marracuene and Boane and Moamba districts). the urbanisation process is forecast to continue in the next 10 years. By 2030, the urban population of Mozambique is expected to exceed 50%, from its current 33%. Inevitably the GMA will continue to expand in both population and geographical terms as a result.

Current water supply situation (2021)

- Umbeluzi is the main source of water, with the treatment capacity of 240,000m³/day and the water is conveyed throughout 3,330 Km of distribution network;
- Recently (June 2021) the Corumana source was inaugurated and currently treating additional 60,000m³/day and downstream 360km of network was installed;
- The third source of water for the GMA are the small autonomous systems supplied with local groundwater resources (Kongolote, Intaka, Mali and Katembe), with a production of 9,400m³/day;
- The current served population is around 1,810,500 inhabitants;
- 65% coverage (@90l/cap/day) and 15 hrs/day of water supply;
- High risk of water supply collapse due to more frequent and intense droughts



02 Project purpose & actions

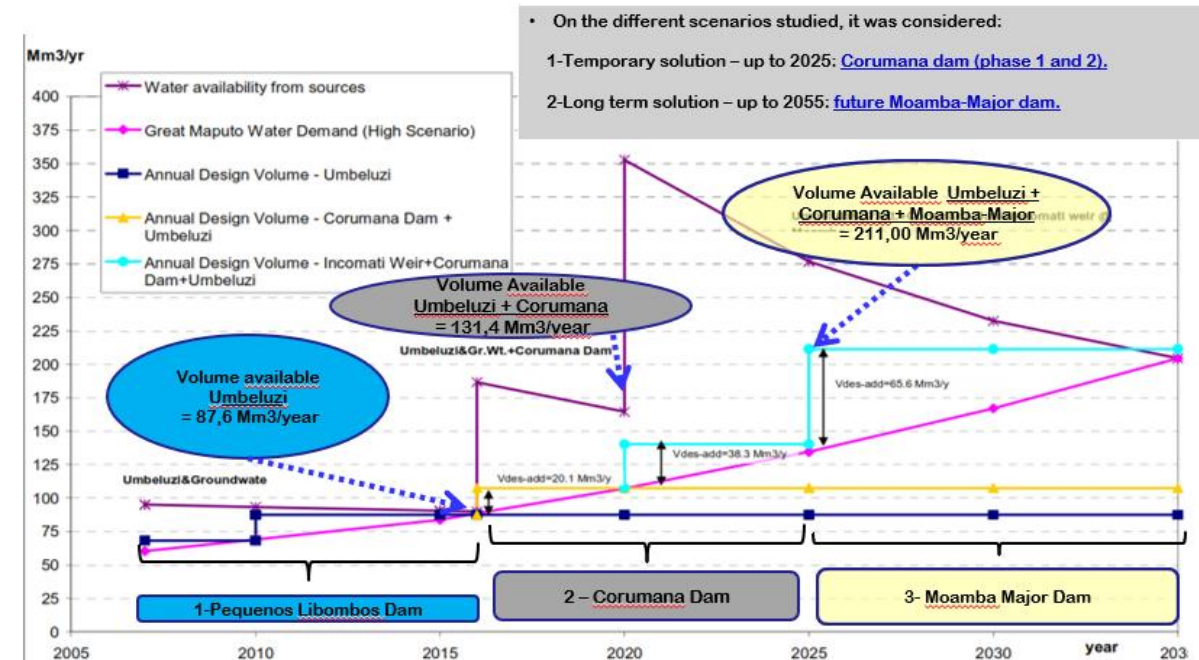
Rationale

- Increasing resilience of the raw water sources to withstand climate change vulnerabilities
- New raw water sources to supply increasing demand
- Need for expansion of Corumana WTP to increase production.
- Expanding the water transmission and distribution networks to keep pace with population and industrial growth.
- Improve the power supply efficiency.
- Increase coverage from 65% to 100% by 2030
- Improve water utility economic sustainability
- Improve the energy efficiency of the system.

Actions

- Increase water production by doubling the actual production capacity of the Sábiè Water Treatment Plant (WTP) with additional 60,000m³/day;
- Construction of additional 80 km of Transmission Main 1000 to 600 mmm of diameter to the northern, west areas of Greater Maputo, including Katembe, Mulotana;
- Construction of new distribution centers and 500km of total of 2,340 km of distribution network to be installed in Greater Maputo;
- Rehabilitation of the system and increase the volume of storage.

THE MASTER PLAN: Water Demand Assessment



02 Project purpose & actions

Solution outline and strategic sustainability

Present constraints

The current source for the Greater Maputo Water supply is the **Pequenos Libombo and Corumana dam** located about 25 and 100 km respectively, from Maputo, making the total current production volume of **300,000 m³/day**. The **Maputo Master Plan** on its Water Demand Assessment shows that the Umbeluzi source would serve the demand up to year of 2017 and from there the Corumana source (60,000 m³/day Phase I - implemented) should have come to keep pace with the growing demand. It also shows that the volume available from **Umbeluzi and Corumana** will cover the demand until 2020, from where the **Corumana Phase II** has to come in place to withstand the demand up to 2026. Further, the Master Plan foresees the **Moamba Major dam** as a source to cover the demand up to 2055. Therefore it is clear that Maputo system shall be expanded to new areas with exponential growth.

Technical solution

This second Phase investment aims to increase portable water availability by 60,000 m³ per day and thus doubling the Sábiè Water Treatment and install the required distribution infrastructure to distribute this water to an additional 378.000 people. There is a need to rehabilitate the existing system components to reach an acceptable system resiliency level

Social and economic sustainability

With the automatic tariff adjustment mechanism approved by the Government in 2021, the tariff is expected to cover all operational, maintenance and debt service costs in the mid-term. Furthermore, the Greater Maputo Area, by its strategical location and important infrastructure such as the Maputo harbour has registered an exponential growth to the northern and west areas where many private funded infrastructures and business have been established and can afford the tariff to cover costs and thus contributing to the sustainability of the services.

03 Project details

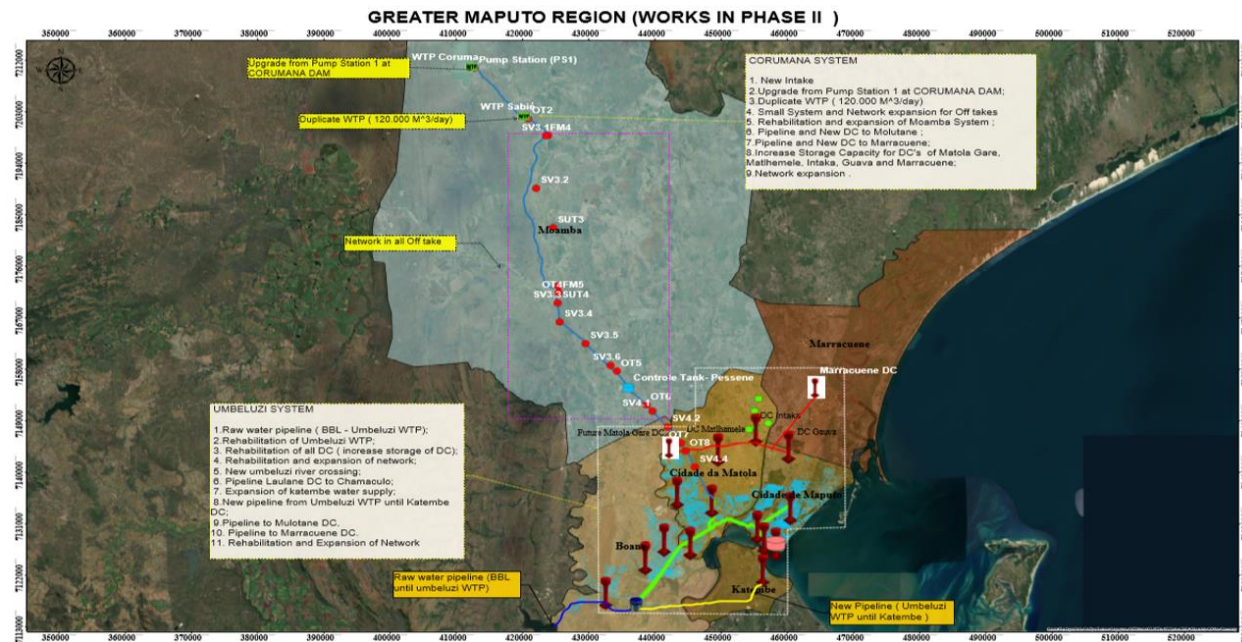
Greater Maputo Phase II Project Components

- Improvement of the WTP intake at Corumana dam;
- Phase II of the Sabiè water treatment plant (WTP) for an additional 60,000 m3/day;
- Construction of Marracuene pipeline and Distribution Centre (DC);
- Construction of Mulotane pipeline and Distribution Centre (DC);
- Complimentary work at DCs at Matola Gare, Intaka, Mathlemele and Guava;
- Additional storage capacity at Matola Rio, Boane, Belo-Horizonte and Tsalala DCs

Estimated costs (2024)	USD (million)
Water intake and WTP	50.0
Transmission pipe	30.4
Storage volume	42.3
Distribution network	32.0
Rehabilitation	95.0
Technical studies, design, supervision, environment etc	51.1
Total	300.8

Other Project Components

- Construction of KaNyaka system (boreholes);
- Rehabilitation and upgrade works for existing DCs (Matola Rio, Boane Belo Horizonte, Tsalala, Machava, Maxaquene, Chamanculo, Alto- Maé and Matola);
- Rehabilitation of Distribution Network including supply of fittings, flow and water meters and valves;
- Implementation of the Energy efficiency program.



04 Outputs & Outcomes

The **Maputo Climate Resilient Water Supply Program** is a priority project for a region where the effects of climate change and exponential growth are putting pressure on the available water system. Water services is an integral part of the goals of ending extreme poverty and promoting shared prosperity. More generally, there is a direct link between access to improved water services and the incidence of water-borne diseases and public health. The main outcome of the project will be more people having access to potable water, the improvement of the water supply resilience, improvement on operational level and on economic and financial management.

Outputs

- 165,000m³/day additional water produced with ability to expand
- Coverage increased to 100% @100l/cap/day
- Increased hours of supply and system pressures

Outcomes - Technical

Technical

- Increased efficiency, sustainability and effectiveness in water supply services
- Improved platform for local and external private sector involvement in water supply
- Reduced costs/m³ for water production and supply
- Improved operational processes

Outcomes – Social, Development & Environment

Social, Development & Environment

- Improved access to water for approx. 2.0m in peri-urban area
- Approx. 75,000 more customers receiving clean and affordable water
- Customers moving to household connections will improve availability and further reduce diseases
- Improved health and well-being for residents
- Reduction in water scarcity as a barrier to economic development and poverty reduction
- Increased asset and social resilience to weather events

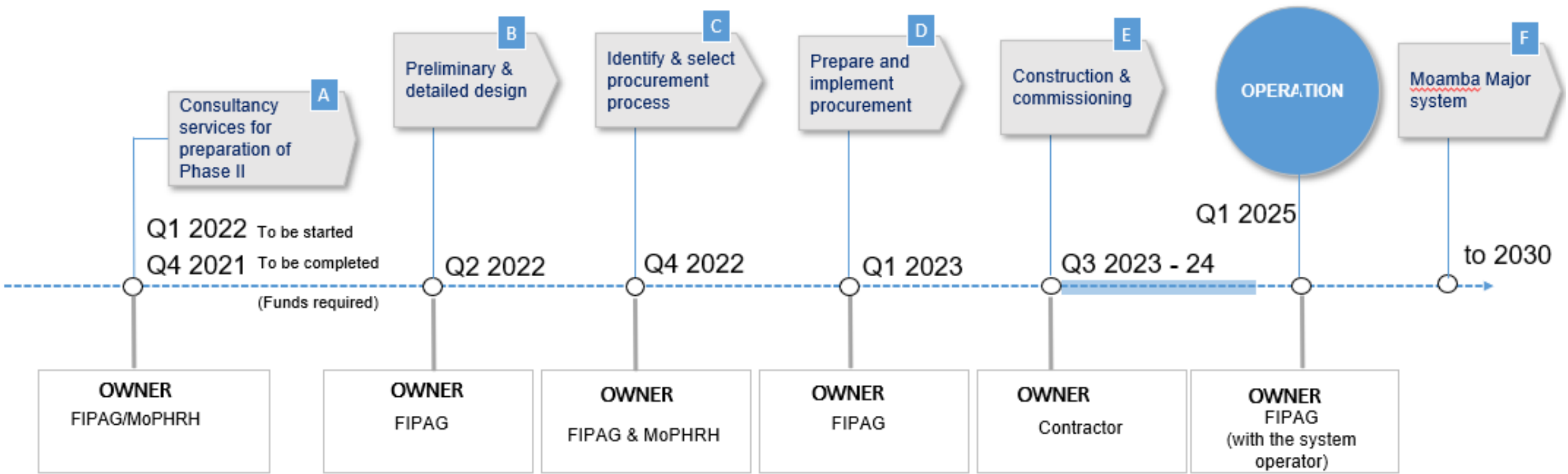
Main benefits

- 1,750,100 inhabitants benefits from receiving clean and affordable water by 2030;
- Promote the economical growth in the GMA and generation of employment during the implementation;
- 75,000 new household connections Maputo urban areas;
- Improvement of water service continuity levels even during extreme events;
- 165,000 m³/day additional water produced with ability to expand for peri-urban areas.

05 Main tasks and timeframe

The overall duration of the phase II Project will be 5.0 years, from the Consultancy service for preparation of phase II till the start-up of the operation. The phase II of Sábiè WTP for additional 60,000m3/day will take 3.5 years as the parts of the civil components were already built under the phase I.

The master plan envisage Moamba Major source to be in place from 2025, which from where 2030 will be reached during the implementation of the system expansion to the new areas (Marracuene, KaNyaka, etc.).



06 Risks & Mitigations

As part of developing the **Maputo 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 undertake <ul style="list-style-type: none"> technical tasks Identify operational issues & constraints 	Poor management of the project Low likelihood	<ul style="list-style-type: none"> Lessons Learned Provide appropriate training to staff Enhance the PMO to pre-sight the project
Contractor failure	Commissioning delayed Low likelihood	<ul style="list-style-type: none"> Select appropriate procurement route and suitable contractor; Select a very competent Supervision team
Financial		
Failure to identify and secure funds for <ul style="list-style-type: none"> Project development phase Project procurement phase Project delivery 	Delay to project development and delivery Low likelihood	<ul style="list-style-type: none"> Be precise on the project estimative Secure adequate resources Streamline procurement to remove or transfer constraints
Operational/External		
Resource or water delivery below requirements	Delay to customer benefits Low likelihood	<ul style="list-style-type: none"> Secure operational input to fully-integrated project
The impact of the climate changes to the water sector	Major impact on service levels Medium likelihood	<ul style="list-style-type: none"> Build up resilient infrastructures Sustainable water management program

7. Project Summary

NEED FOR THE PROJECT

- The 2017 census estimated the total population of the Greater Maputo area (GMA) at 3.92 million inhabitants (including Marracuene and Boane and Moamba districts). the urbanisation process is forecast to continue in the next 10 years. By 2030, the urban population of Mozambique is expected to exceed 50%, from its current 33%. Inevitably the GMA will continue to expand in both population and geographical terms as a result.
- Further, the Greater Maputo Area, by its strategical location and important infrastructure such as the Maputo harbour has registered an exponential growth to the northern and west areas where many private funded infrastructures and business have been established has also played a role and will continue to drive up the demand for portable water.

PURPOSE

- Increasing resilience of the raw water sources to withstand climate change vulnerabilities
- New raw water sources to supply increasing demand
- Need for expansion of Corumana WTP to increase production.
- Expanding the water transmission and distribution networks to keep pace with population and industrial growth.
- Improve the power supply efficiency.
- Increase coverage from 65% to 100% by 2030
- Improve water utility economic sustainability
- Improve the energy efficiency of the system.

DETAILS

- Improvement of the WTP intake at Corumana dam;
- Phase II of the Sábiè water treatment plant (WTP) for an additional 60,000 m3/day;
- Construction of Marracuene pipeline and Distribution Centre (DC);
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- Complimentary work at DCs at Matola Gare, Intaka, Mathlemele and Guava;
- Additional storage capacity at Matola Rio, Boane, Belo-Horizonte and Tsalala DCs;
- Construction of KaNyaka system (boreholes);
- Rehabilitation of Distribution Centers, Network including supply of fittings, flow and water meters and valves;
- Implementation of the Non Revenue Water program.

STATUS OF THE STUDIES

- The Corumana Dam Spillway has the Detailed Design financed by the World Bank;
- The Consultancy Services for Preparation of the Greater Maputo Phase II is under procurement and the Detailed Design is expected by the end of 2022.

OUTCOMES

- **Overall outcome:** The main outcome of the project will be more people having access to clean and potable water, the improvement of the water supply resilience, improvement on operational level and on economic and financial management. Ensure financially viable and climate resilient city utility to provide safe and continuous water supply through resilient infrastructure systems.
- 1,750,100 inhabitants benefits from receiving clean and affordable water by 2030;
- 75,000 new household connections Maputo urban areas;
- 165,000 m3/day additional water produced with ability to expand for peri-urban areas.

TIMEFRAME

- The overall duration of the phase II Project will be 5.0 years, from the Consultancy service for preparation of phase II till the start-up of the operation.
- The phase II of Sábiè WTP for additional 60,000m3/day will take 3.5 years as the parts of the civil components were already built under the phase II;
- The master plan envisage Moamba Major source to be in place from 2025, which from where 2030 will be reached during the implementation of the system expansion to the new areas (Marracuene, Katembe, KaNyaka, etc.).

MANAGEMENT & ECONOMICS

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

Annex 1: Mozambique - overview

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 Maputo and the Central Region, most received water via a household connection. Outside these areas around 50% 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, Sul (FRS), Centro (FRC) and Norte (FRN). These cover all 29 major urban areas, and in 2020, served around 4m of the 7m population through 530,000 connections.

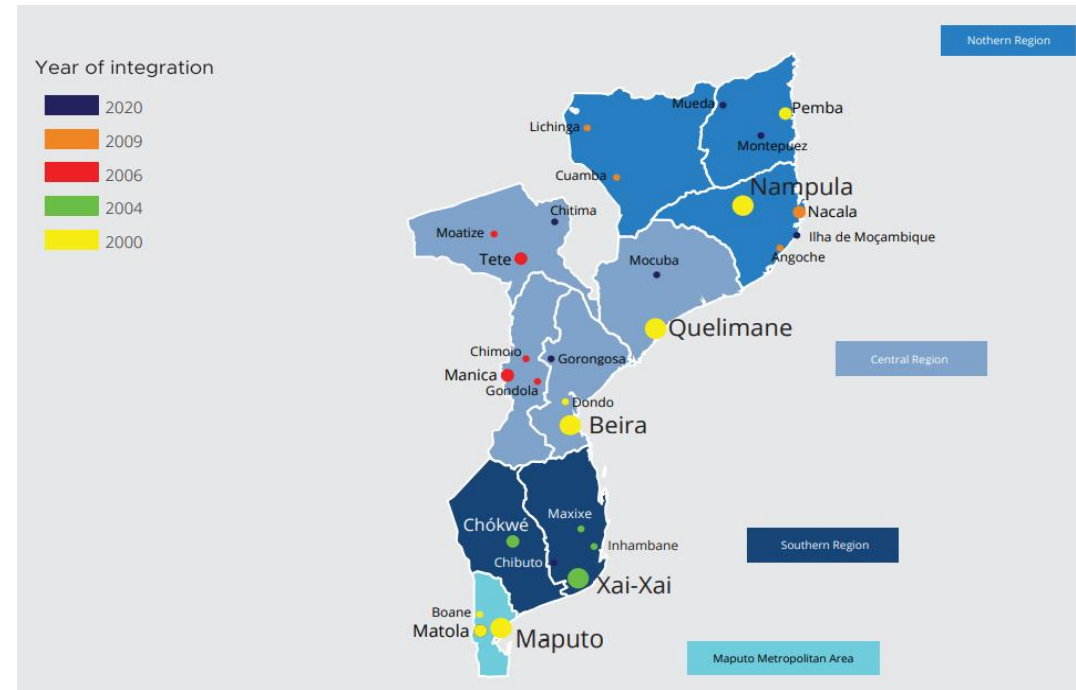
In 2009 AIAS was established to provide rural and small town water supply and sanitation services.

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 G D. 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.**