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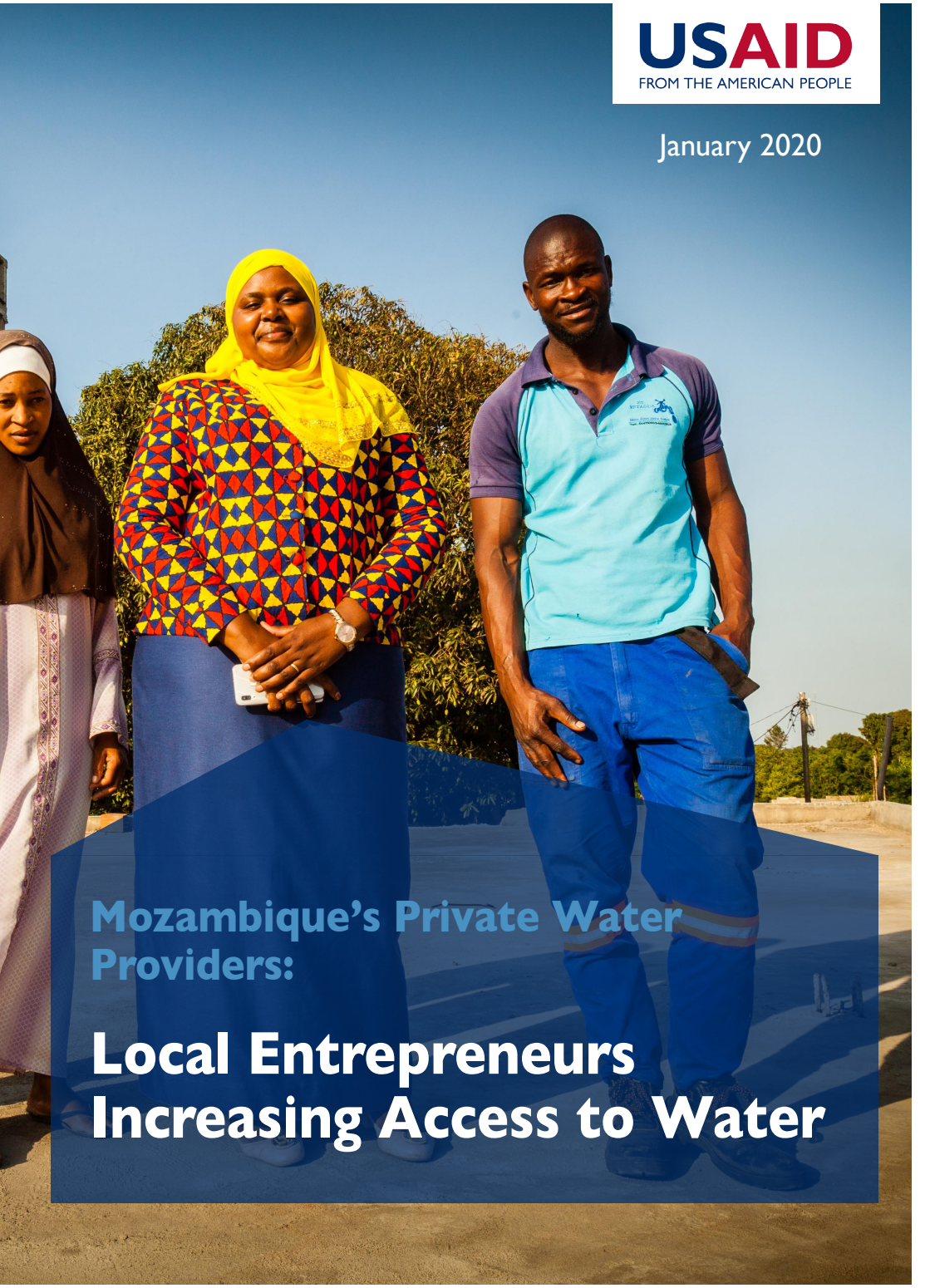


## Mozambique's Private Water Providers:

# Local Entrepreneurs Increasing Access to Water

# Two Million Customers and Growing

Source: Customer of PWP system in Manhiça Village

## RAPID GROWTH OF PRIVATE WATER PROVIDERS (PWPS)

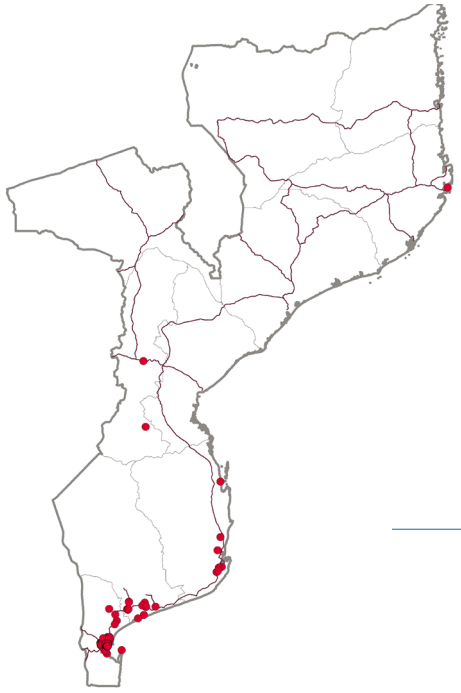
The dynamic private water provider industry has been expanding rapidly in Mozambique since the early 2000's, especially in the peri-urban areas around Maputo and Matola. Meeting demand from the rapidly urbanizing population for potable water located in or near their homes, private water supply systems have grown from 179 in the year 2000 to nearly 2,000 today, serving 2 million customers nationwide.

The number of PWPs has increased by

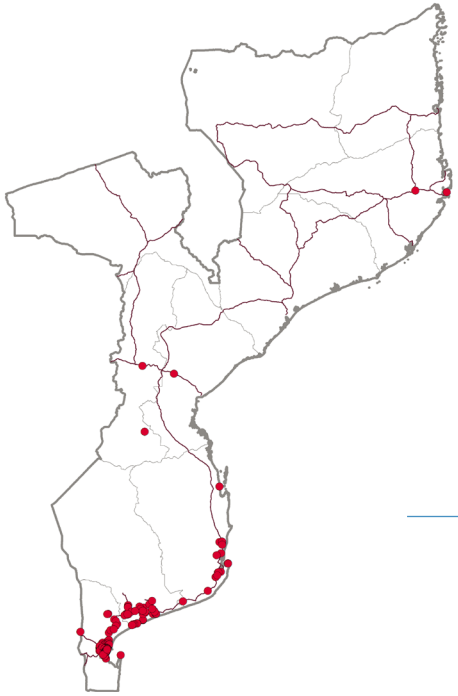
**10x**

since the year 2000

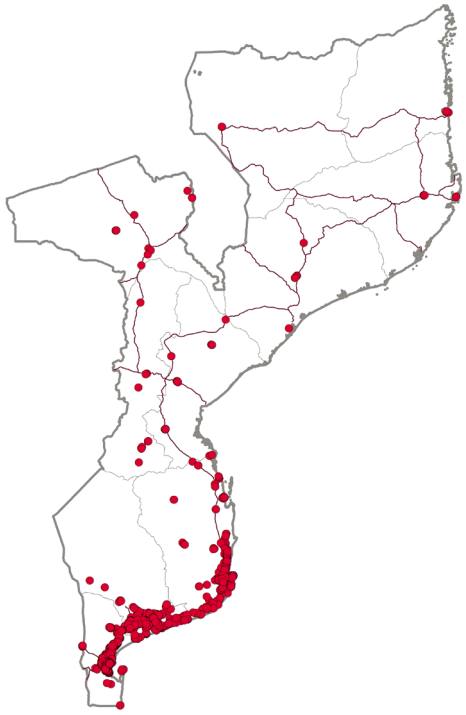
**Time Series Expansion of PWPs,**
BEFORE 2000 to 2018



Before 2000



2005-2010

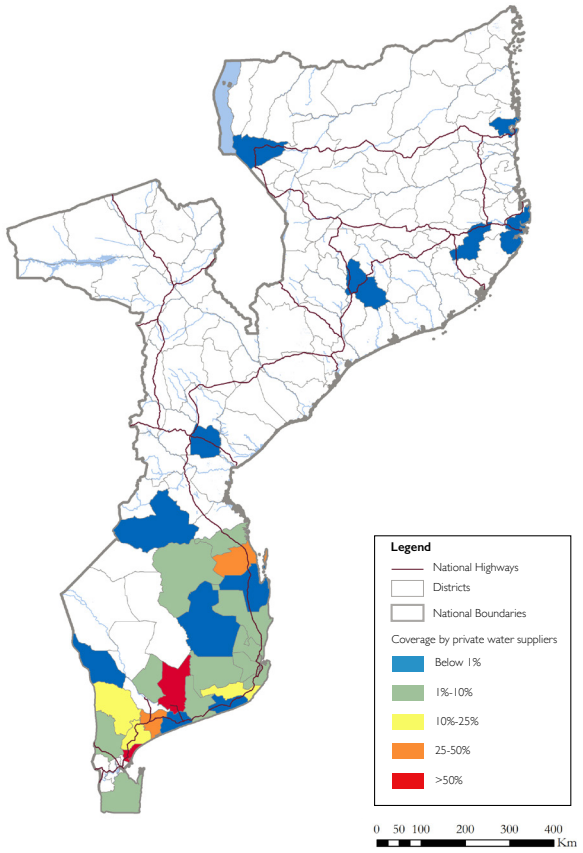


2011-2018

**Legend**

- Private Water Providers
- National Highways
- Provinces
- National Boundaries

## Coverage of PWPs,
BY DISTRICT



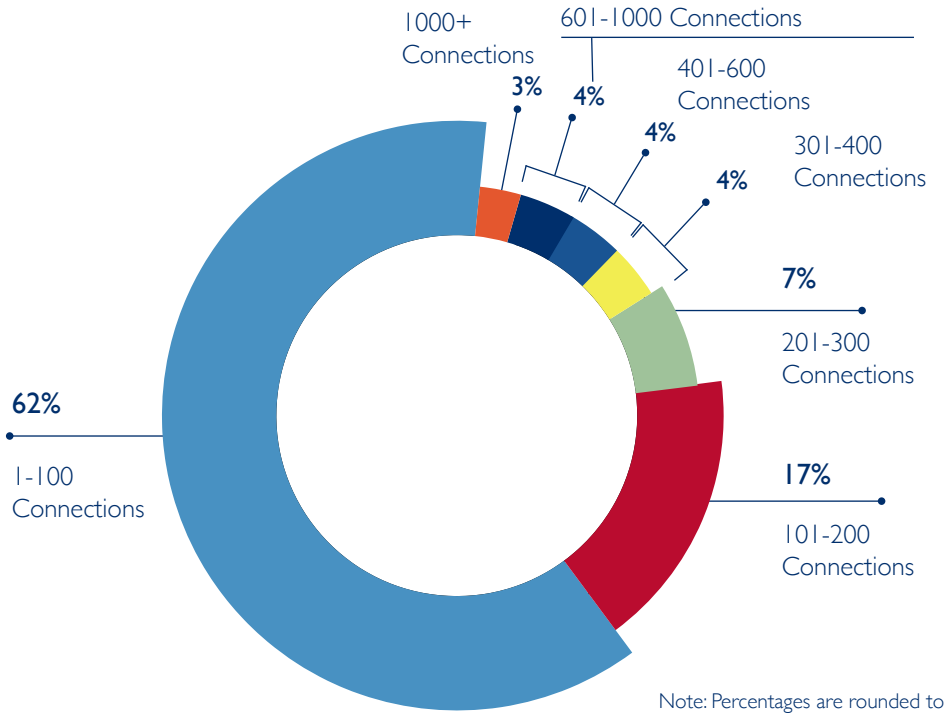

## PWPS FILL THE GAPS IN PUBLIC WATER SYSTEMS

In Mozambique, public water utilities provide clean water for 78% of the urban population, but just 43% of rural households. Private water supply systems complement public systems, reacting quickly to extend distribution networks to meet growing demand in under-served and hard-to-reach communities in both urban and rural districts.

In the greater Maputo area, for example, public utilities serve 60% of the residents while 40% contract with private providers. Public utilities have resources to upgrade water sources, provide treated water, develop infrastructure such as Corumana Dam and provide the main distribution network, while PWPs can build out small neighborhood distribution systems.



## Number of PWP Systems by Size,
CONNECTION RANGE




Note: Percentages are rounded to the nearest whole number

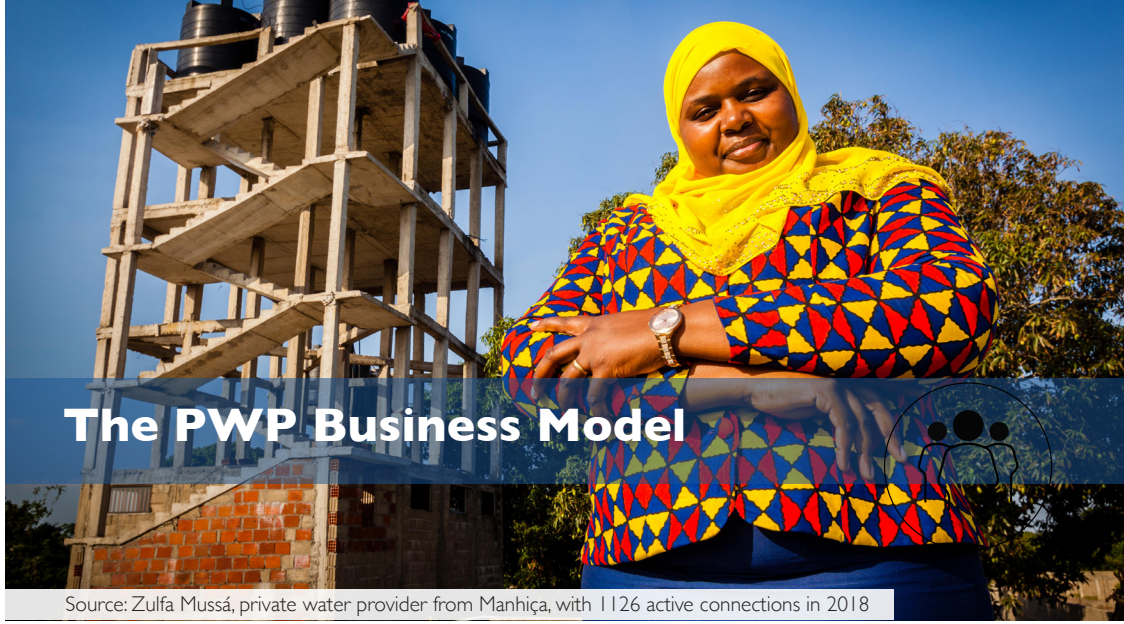
Public water utilities provide clean water for:

**78%**
Of the **URBAN** population

**43%**
Of the **RURAL** population

## NEW LICENSING OPPORTUNITIES FACILITATE BUSINESS GROWTH

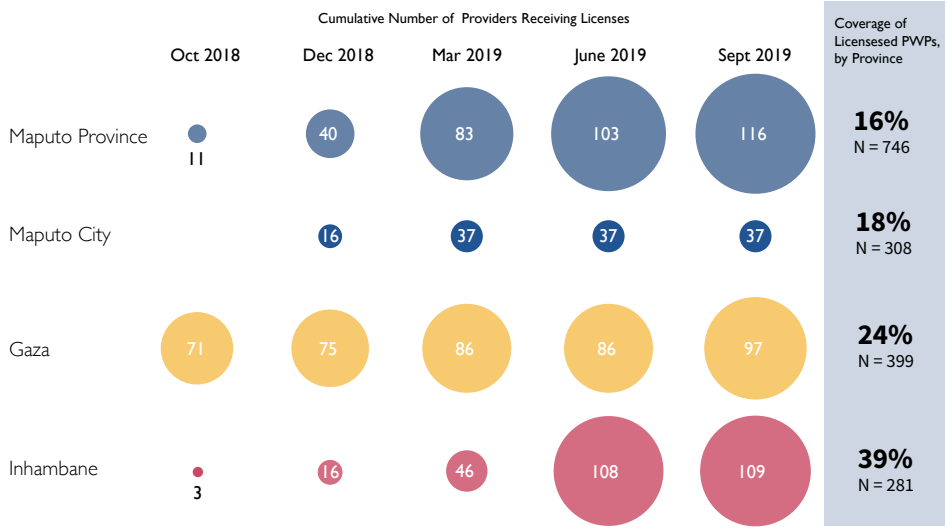
In order to take advantage of private sector initiative, while also ensuring that health and safety standards are met, in 2015 the government approved the Regulation for Licensing of Private Water Providers in the Supply of Potable Water (Decree 51/2015). In 2016, USAID's SPEED+ project began training local licensing authorities and PWPs on the new regulation, which in practice reduces business risk and incentivizes expansion by formalizing existing water systems. Soon, pending approval by the water authority, consumers will purchase water from PWPs that meets quality standards set by the government at a standardized tariff rate that provides PWPs a sound return on investment.



# The PWP Business Model

Source: Zulfa Mussá, private water provider from Manhiça, with 1126 active connections in 2018

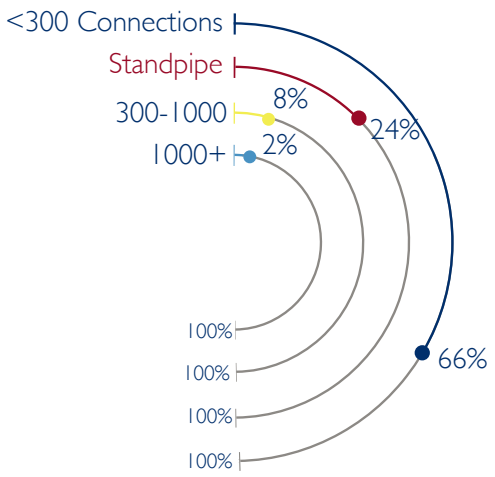
### Number of PWP Licenses Awarded in the First Year,
LICENSED IN GAZA, MAPUTO & INHAMBANE




## WHO ARE THE PWP ENTREPRENEURS?

The private water supply industry was born in the backyards of peri-urban neighborhoods around Maputo, when one resident had resources to dig a bore hole to access clean water. Neighbors asked to pay to share the tap or offered to connect pipes to their own yards from the borehole and pay for water usage. Slowly these systems expanded and were replicated as the business opportunity was proven. Today, this neighborhood service model continues but has also been scaled-up by more commercial investors who bring clean water to unserved neighborhoods as a pure business opportunity.

The number of household connections among the 1830 PWPs identified in 2018



The model has also expanded beyond the urbanized Southern Region, with 100 PWPs now operating in the Central and Northern regions. Among the 1830 private systems identified in 2018, 66% had fewer than 300 connections, 8% had from 300-1000 connections, and 2% had large systems connected to more than 1,000 households. 24% of the systems are standpipes only, with no direct household connections.

The largest system, in ka Mubukwana District of Maputo City, has 7850 active customers. 508 private water provider businesses operate more than one supply system, and serve 46% of all PWP customer households.

## Profiles of PWP Entrepreneurs

### Classic PWP

Most PWPs run small systems serving up to 300 connections. These businesses often started with a household borehole supplying neighbors, then grew slowly adding more storage capacity, metering systems, and pumping power needed to serve larger networks.

### Business Plus

Some PWPs add private water supply services to their existing businesses, such as lojas or gas stations. These businesses are centrally located in areas of higher population density even in remote regions, and their existing infrastructure and business experience helps them to successfully seize this new opportunity. They may have only a tap or may also make household connections nearby.

### Large Integrated Water Supply Systems

Some large companies such as property developers and construction companies become private water providers as an integral part of their existing business, supplying the consumers that purchase their homes. These entrepreneurs leverage their relationships, access to bulk materials and drilling services, and investment capital to quickly build out large systems in growing urban and peri-urban areas.



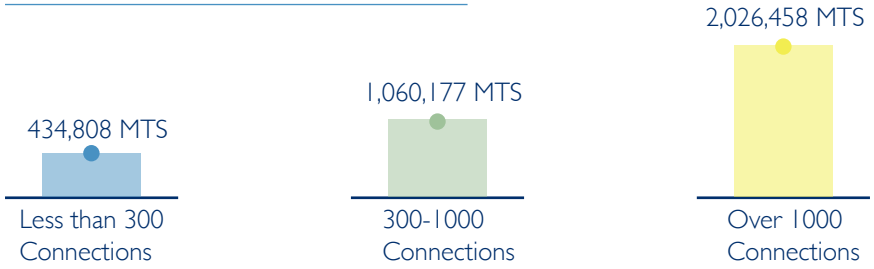
## THE BUSINESS CASE FOR INVESTMENT IN PRIVATE WATER SUPPLY

Since the private water supply industry has been in the informal sector, reliable values for investment, costs and revenues are not easily available. However, in 2018 the USAID/SPEED+ project carried out in-depth research with 68 PWPs, which revealed their largest operating costs are energy and wages, followed by maintenance. Capital investments vary by size of system and are usually made over time as systems are built step by step, rather than all at once. A large survey in 2018 showed that 90% of PWPs used their own funds for investment and estimated that total investment nationwide was approximately $35 million USD.

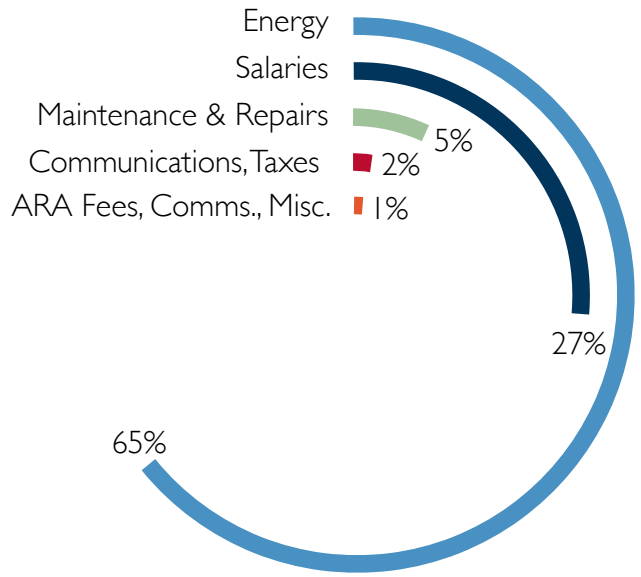
The standard tariff model (pending approval by the water authority) is informed by the 2018 USAID study and ensures that PWPs can recover their costs while also earning a reasonable operating profit. The research indicates that PWP investments can have a positive rate of return over 5 years and deliver reliable revenue streams. Water systems have proven a sound investment for Mozambicans who have accumulated capital from work in the mining sector, for example.

### National Average Annual Operating Costs

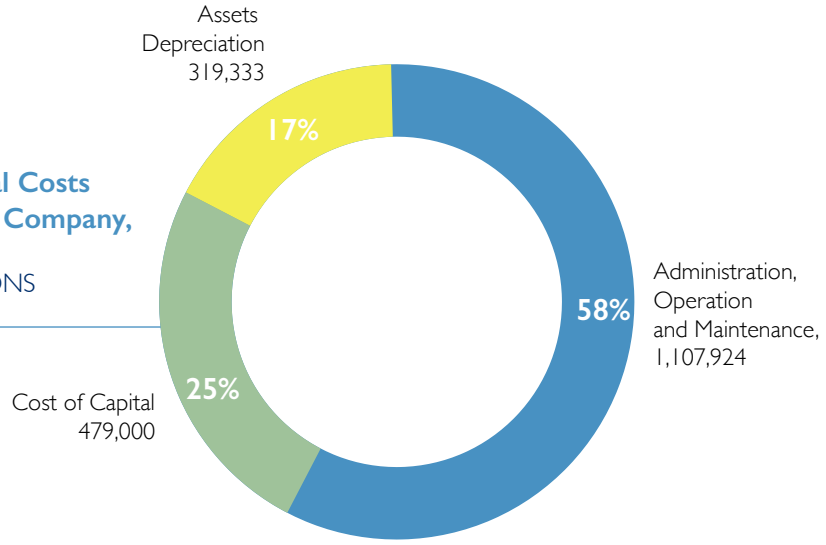
BY SIZE OF SYSTEM



## Average Operating Costs by Category,
% OF TOTAL COSTS




## Annual Total Costs for a Model Company,
WITH 500 CONNECTIONS




Source: Private Water Supply System using solar energy to pump groundwater in Bairro Mali, Marracuene District

## RENEWABLE ENERGY CAN DRIVE DOWN COSTS, INCREASE PROFITS AND EXPAND ACCESS

SPEED+ research has shown that electricity for water pumps accounts for between 40%-70% of operating expenses for the 98% of PWPs using grid energy or diesel generators. Lowering these costs can make access to clean water more affordable, generate higher returns for investors, expand access for the Mozambican population, and improve the competitiveness of the private water supply industry.

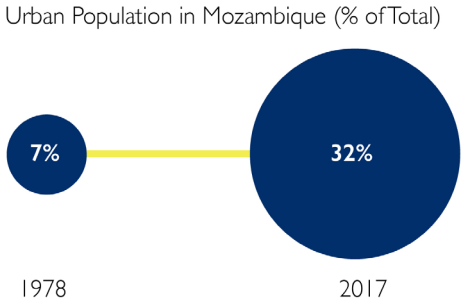
A cost/benefit analysis of switching to solar power revealed that total operating costs would drop by 50% for PWPs using grid power, and by 66% for those using diesel generators. The payback period for the investment to transition to a solar powered system with batteries would be about 4 years for a PWP using their own capital. Recently, BCI Bank introduced a renewable energy facility at a fixed rate of 15% which would allow repayment over 6.8 years. Going off-grid also vastly expands the accessible market opportunity for PWPs beyond the grid, where 72% of the Mozambican population lives and where clean water remains out of reach.

# Consumer Demand and Market Potential

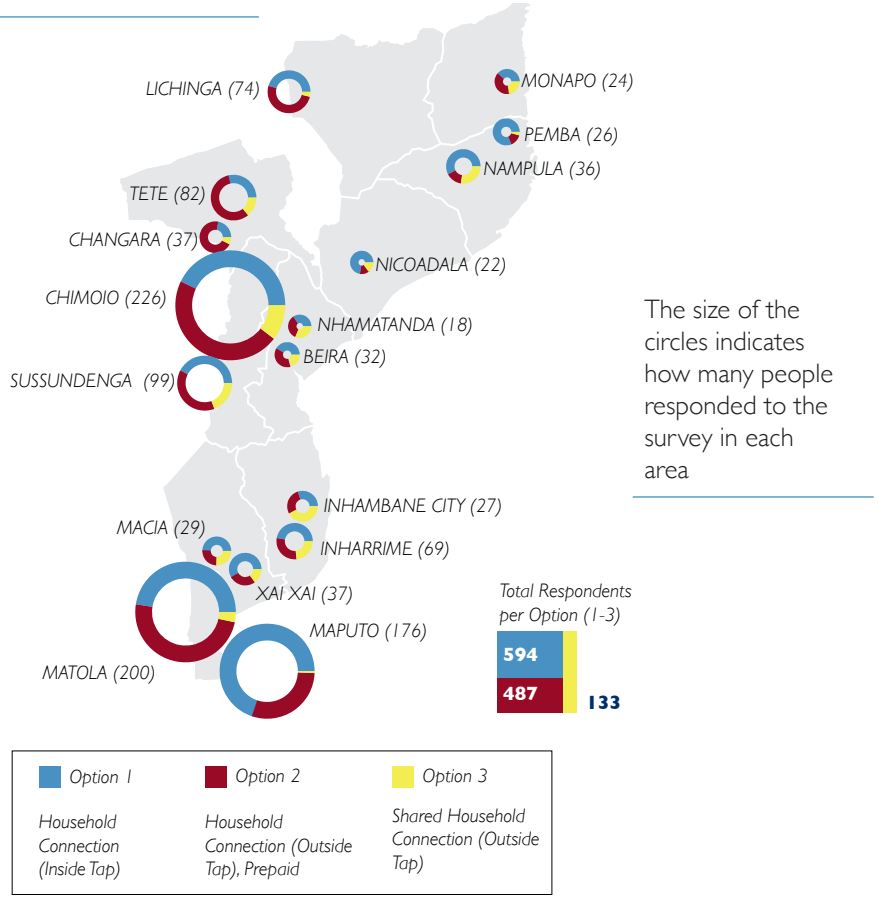
## URBANIZATION, INCREASING INCOMES AND SHIFTING CULTURAL NORMS ARE DRIVING DEMAND

Mozambique's urban population has grown to 32% as of 2017, with a trajectory set to reach 50% by 2042. Densely populated urban and peri-urban areas, where the public water utility cannot keep pace with growth, present an ideal market for PWPs. Although the impacts of the expected gas revenues are unknown, it can certainly be expected to increase available income for basic needs such as clean water.

### Urbanization of Mozambique
FROM 1978 to 2017




### Household Preferences for Water Connections,
BY URBAN CENTER



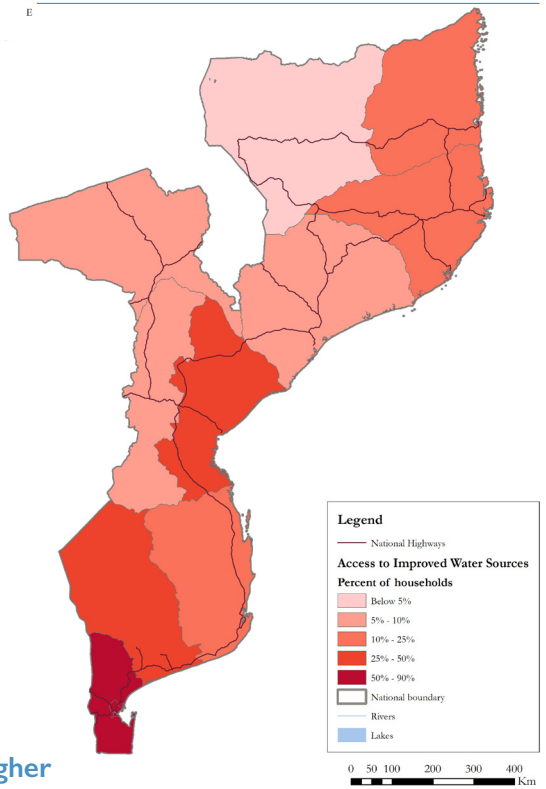

The size of the circles indicates how many people responded to the survey in each area

Even in rural areas as traditional gender norms shift, bringing more economic opportunity for women and a higher priority to girls' education, carrying water long distances is becoming a less acceptable use of time. A large customer survey that explored how much households would pay for clean water showed that 49% of respondents nationwide preferred and were willing to pay for a water tap inside their home, while 40% were willing to pay for a water tap in their yard, and only 11% selected a shared water tap. No respondents chose the least expensive option, a shared water pump within 5 minutes of their home.

## OPPORTUNITIES IN THE NORTH AND CENTRAL REGIONS

The Northern and Central regions have large unserved populations in both rural and urban areas. Despite lower income levels, these areas present a huge opportunity for PWPs. Even the poorest have a preference for a household connection and are ready to pay an average of 70Mts per cubic meter, which is is equal to the tariff adopted between AFORAMO members in 2019 (based on calculations made using the new Tariff Model). This is less than what households using stand pumps are paying now, where they bear the additional burden of the time, labor and opportunity cost of fetching water.

### Percentage of Households with Access to an Improved Water Source,
BY PROVINCE, PUBLIC & PRIVATE




### The Poor Currently Pay Rates Higher than PWP Tariffs for Water

The cost of one 20L jerry can of water in Mozambique averages 3MT. At this rate, one cubic meter of water ($1m^3$) costs 150MT, plus the time and labor for transport. (50 jerry cans = $1m^3$)

The SPEED+ 2018 Willingness to Pay survey clearly showed a high preference for household connections, with a readiness to pay 70 MTS per cubic meter.

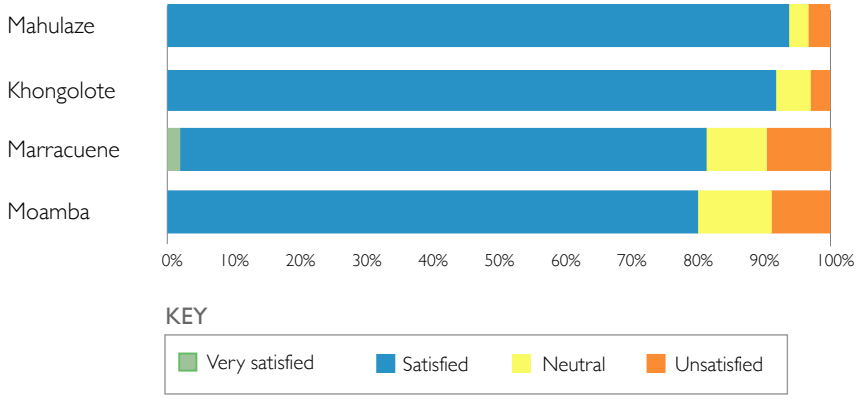
**The proposed PWP tariff rate of 70 MTS per cubic meter is already within reach for most Mozambican households.**



## PWPS DELIVER ON CUSTOMER SATISFACTION AND WATER QUALITY

Licensed PWPs are required to test and report on water quality every quarter, increasing consumer confidence. Customer satisfaction with PWP water service is very high, particularly since families enjoy an average of 19-24 hours of service per day. It is important to note that the client base of PWP operators are largely their friends, family, and neighbors -- customer relationship management is thus a high priority.

### Consumer Satisfaction with PWPs
FROM ANNUAL REPORT (CRA), 2017




Source: Water Regulatory Council, Annual Performance Report, 2016-2017

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