Comparison of small-scale providers’ and utility performance in urban water supply: the case of Maputo, Mozambique

Appendix: Formulas used in the analysis

Kilometers of pipe per 100 connections: (network length in kilometers)/(number of household connections/100)

Number of employees per 1000 connections: (total number of full time employees)/(number of connections/1000)

Average annual growth in household connections:

SSPs: \((\text{current connections} - \text{original connections})/(\text{original connections})/(\text{years in operation})\)

Utilities: \((\text{connections in Jan 2006} - \text{connections in Jan 2002})/(\text{connections in Jan 2002})/(\text{years in operation})\)

Staff as percentage of total costs: \((\text{staff costs in year/12})/(\text{total operating costs in year/12})\)

Electricity as percentage of total costs: \((\text{electricity costs in year/12})/(\text{total operating costs in year/12})\)

Water as percentage of total costs: \((\text{water costs in year/12})/(\text{total operating costs in year/12})\)

Services as percentage of total costs: \((\text{service costs in year/12})/(\text{total operating costs in year/12})\)

Spare parts as percentage of total costs: \((\text{spare parts costs in year/12})/(\text{total operating costs in year/12})\)

Debt service as percentage of total costs: \((\text{debt service costs in year/12})/(\text{total operating costs in year/12})\)

Fuel costs as percentage of total costs: \((\text{fuel costs in year/12})/(\text{total operating costs in year/12})\)

Equipment as percentage of total costs: \((\text{equipment costs in year/12})/(\text{total operating costs in year/12})\)

Service fee per m³ for connected households: 1st block, 1–10 m³: For utilities: fixed fee for first 10 m³/10

Total production cost per m³ of water sold: production cost per m³ = (monthly recurrent operating costs)/(total monthly sales volume)

Revenue per m³ of water sold: revenue per m³ water sold = (average monthly revenue)/(average monthly volume of water sold)

Profit margin (%): (revenue per m³ of water sold – cost per m³ of water sold)/(revenue per m³ of water sold)

Working ratio: (cost per m³ of water sold)/(revenue per m³ of water sold)

Typical monthly water usage by customer with household connection: (total volume of residential household water sold in a month)/(number of household connections)
Volume of water sold per household connection per day in liters: (total volume of household water sold in a day)/(number of household connections)
Volume of water sold per capita per connection per day in liters: (total volume of household water sold in a day to a connection)/(household size)
Volume of water sold per standpipe per day in liters: (total volume of standpipe water sold in a day)/(number of standpipes)