



The city of Quelimane is the capital of Zambezia Province and is located about 20 kilometres from the estuary of the Bons Sinais River. The city's population has grown very quickly, leading to significant difficulties in land management and activities to improve sanitation conditions. According to the 1997 population census (National Statistics Department), the city of Quelimane had a population of 150,116 inhabitants and a population density of approximately 1,057 inh/km². The population censuses of 2007 and 2017 indicate a growth of the city's population from 193,343 to 349,842 over that ten-year period, with a corresponding change in the population density from about 1,362 inh/km² to 2,464 inh/km², respectively. The current population growth rate is approximately 4% per year. The Municipal Sanitation Company (EMUSA) is responsible for municipal solid waste management in the city and the preparation of Municipal Solid Waste Management Plans. There is an open dump in the city, a composting plant is being installed and some small scale recycling and reuse activity take place.

Information

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| Population* | 349,842 (preliminary data from the 2018 census) |
| Population growth (annual %)* | 4 |
| Area (km ²)* | 142 |
| Climate** | Tropical savanna climate |
| Main industries* | Farming, industry, tourism, fishing, and commerce |
| Currency*** | USD 1: MZN 62.09 (Mozambican metical) (February 2019) |
| Other | <p>Quelimane city and its surroundings are situated in a region of predominately savannahs and meadows. The native flora outside of the meadows is gradually being replaced by exotic fruit trees such as coconut, papaya, mango, and banana trees, along with fields cultivating rice, beans, and sweet potatoes.</p> <p>Quelimane is served by a hydrographic network totally influenced by the sea formed by the rivers Cuacua (Bons Sinais) in the south, Motiva, Chipaca, and Baza in the east, and the main river Lagoa Segunda in the north. Lagoa Segunda has a constant (permanent) regime all year round.</p> |

Sources: * INE and Volume 1 of Diagnostico do Plano de Estrutura Urbana

** Wikipedia, Quelimane, accessed 11 April 2019, <<https://en.wikipedia.org/wiki/Quelimane>>

*** Oanda.com

Current SWM Situation

| Item | Outline |
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Institutional System

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| Legal system | <ul style="list-style-type: none"> ● There are three major laws and regulations related to municipal solid waste management in the city: <ul style="list-style-type: none"> » The Comprehensive Municipal Solid Waste Management Plan (PGIRSU) 2013-2018. » The Regulation on Municipal Solid Waste Management (MICOA/MITADER) (Decree 13/2006, 15th of June). » The Regulation on Environmental Quality Standards and Emission of Flue Gases (Decree 18/2004, 2nd of June). |
| Policy/Plan | <ul style="list-style-type: none"> ● The Comprehensive Municipal Solid Waste Management Plan of Quelimane city is the only plan that serves as a road map for solid waste management in the city. |
| Implementation system | <ul style="list-style-type: none"> ● The Municipal Sanitation Company (EMUSA): responsible for municipal solid waste management in the city (street sweeping, solid waste collection, disposal of solid waste in the landfill, management of the solid waste final disposal facility, and environmental education to communities on good hygiene and sanitation) and the preparation of Municipal Solid Waste Management Plans. EMUSA has 22 staff in administration and 131 staff in operation. ● Ministry of the Environment - National Directorate of the Environment: responsible for environmental legislation and supervision. ● Ministry of Health: responsible for biomedical waste. ● Private sector provides collection services and transports municipal waste from the source to the final disposal facility. ● There is some recycling and reuse activity, though it is still emergent and very small in scale. |

Technical System

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| Waste generation amount & characteristics | <ul style="list-style-type: none"> ● Amount of waste generated: 190 tons/day (MCA document / Hydroconseil Social Development Consulting report – July 2013 for MCA). ● Waste collection: 130 tons/day (according to studies by MCA in 2012 based on estimates from the weights of loaded municipal solid waste trucks weighed on scales). ● Waste composition: organic 68.9%, glass 4.94%, plastic 2.40%, metallic materials 4.80%, batteries 5.05%, other 13.91% (according to a study conducted by 4th-year students in the Environment Management and Community Development course at Universidade Pedagógica (UP) in 2016). |
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| Item | Outline |
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| Storage and discharge/ Collection and transportation/ Road sweeping | <ul style="list-style-type: none"> ● The Municipal Sanitation Company (EMUSA) provides street sweeping service in the city centre, residential urban areas, all of the markets, and the main squares and public parks. ● Municipal solid waste is collected every weekday. The collection services cover mainly the urban area of the city, along with every market. ● Collection coverage rate: solid waste collection services cover about 30% of the city area (estimated based on daily activity). ● Number of collection vehicles: four container trucks, one micro tractor with a front shovel and one small tractor for garbage cans. |
| Intermediate treatment/ Recycling | <ul style="list-style-type: none"> ● The city is installing a composting plant that currently processes about 300 kg of organic solid waste per day. When ready and fully operating, the plant will process about two tons of solid waste per day. ● There are individual collection initiatives for plastic, metallic materials, glass, etc. No quantitative data on these initiatives are available. |
| Final disposal | <ul style="list-style-type: none"> ● There is an open dump in the city (Tecane 1 dump) owned by the Municipal Council of Quelimane. |
| Financial system | <ul style="list-style-type: none"> ● Total revenue for waste management services: 1,420,000.00 MZN/month. ● Total expenditure for waste management services: 1,980,575.00 MZN/month. ● The Municipal Council of Quelimane charges a fee of MZN 30 for waste collection per electric metre, billed together with the electricity. This fee is uniform for all installations, whether it is industrial, domestic, or commercial. The FIPAG, Fundo de Investimento e Património do Abastecimento de Água, charges MZN 36.00 in the monthly water bill for all consumers. |
| Environmental and social considerations | <ul style="list-style-type: none"> ● There is an unspecified group of individual waste pickers and recyclers besides an association that is dedicated to composting with guidance from the Clean Quelimane project. ● Eight groups of farmers, organised in an equal number of associations, have been taught to produce organic compost using organic waste. ● Collaboration with environmental clubs in schools that promote good practices of environmental sustainability. ● There are also two theatre groups (the Relampagos and Retratistas) that disseminate information on good environmental practices through theatre and public exhibitions. ● City cleaning campaigns with community participation. |
| Donor support | <ul style="list-style-type: none"> ● European Union (EU) through the Clean Quelimane project that ends in May 2019. |
| Areas for improvement (in order of priority) | <ul style="list-style-type: none"> ● Establishment of a landfill. ● Definition of routes. ● Domestic solid waste management methods (packaging, reuse, and recycling). ● Primary deposit of commercial and industrial waste. ● Capacity management. ● Rising income mechanisms. ● Financial matters: financial resources for the maintenance of municipal solid waste management equipment and the improvement of institutional functionality. |

Waste Amount at Each Stage of Waste Flow*

| Waste flow | Amount** (ton/day) | Remarks |
|----------------------------|--------------------|--|
| ① Waste generation | 140 | Waste generated at houses, offices, shops, restaurants, etc. |
| ② Discharge to collection | 130 | Waste discharged for collection services. |
| ③ Self disposal | N/A | Disposal at generation sources, such as burning and burying. |
| ④ Recycling at source | N/A | Reuse of materials, composting, sold to recyclers. |
| ⑤ Collection and transport | 140 | Waste amount collected and transported. |
| ⑥ Clandestine dumping | N/A | Waste illegally disposed of in unknown location. |
| ⑦ Treatment | N/A | Material recycling, composting, incineration, etc. |
| ⑧ Recycling/Reduction | N/A | Recycled and/or reduced waste amount by material recycling, composting, incineration, etc. |
| ⑨ Residue | N/A | Residue from treatment facilities. |
| ⑩ Final disposal site | N/A | Waste amount brought into disposal sites. |
| ⑪ Recycling | N/A | Recycled at disposal sites. |
| ⑫ Final disposal | N/A | Waste amount finally disposed of at disposal sites. |

* Based on the waste flow chart on page.

** Figures include estimated value.