

QUELIMANE, MOZAMBIQUE: IMPROVING FOOD ACCESS BY SUPPORTING URBAN AGRICULTURE AND SUPPLY CHAINS

#urbanagriculture #supplychains #programme #infrastructure #citytocity #africa #foodwaste

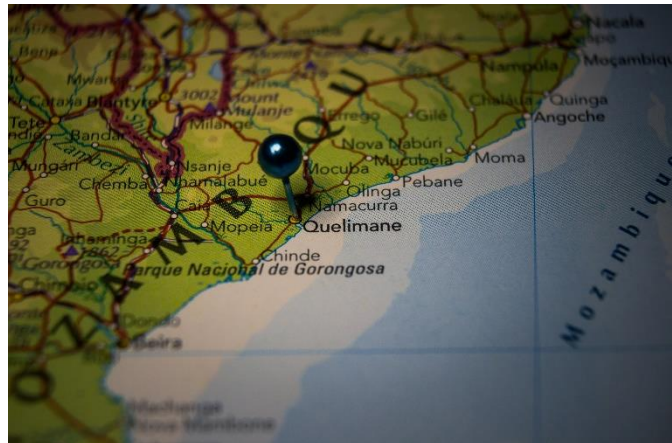
SHORT SUMMARY

Two programmes in the city of Quelimane aim to improve access to fruits and vegetables: Quelimane Limpa promotes the use of compost to improve the quality and quantity of urban agriculture harvests; Quelimane Agricola contributes to sustainable rural development by strengthening the local agricultural markets and supply chains. The programmes have been jointly designed and developed by the municipality of Quelimane and the city of Milan. The implementation of these programmes also facilitated Quelimane's signature of the Milan Urban Food Policy Pact in 2017 and strengthened the partnership with the Municipality of Milan, Italian NGOs and international institutions (EU, UN agencies, Italian cooperation agency) to access knowledge, apply for funding and proceed in implementing the activities planned in the programmes. The positive experience of cooperating with the city of Milan for Quelimane Limpa led to an extension of the collaboration between the two municipalities. The result was a second programme, Quelimane Agricola, which brought an expansion of the number of actors involved and diversified the source of funding.

CONTEXT AND PROBLEM

The port city of Quelimane on Mozambique's eastern seaboard, near the mouth of the Rio dos Bons Sinais ('River of Good Signs'), has been a trading post since the 16th century. It is the capital of Zambezia, one of the country's ten provinces, where the land is rich and fertile but the people – mainly farming families – are poor; 70% of the rural population lives below the poverty line and chronic malnutrition affects 41% of children. The main local agricultural products are coconut, maize, cassava, cashew, sugarcane, soybeans, coconuts, citrus, cotton, and tea. Fishing is also an important economic activity.

Following Mozambique's independence from Portugal in 1975 and the subsequent 16-year civil war, Quelimane entered a long, slow period of decline. Decades of neglect and no investment in infrastructure have meant many roads are unpaved, transport connections to outlying villages are non-existent, and the drainage system is unable to cope with the regular flooding during the rainy season that runs from December to March. The coastal location of Quelimane makes it very vulnerable to climate events. Most recently, in March 2019 Zambezia (as well as Beira, Manica and Inhambane) was hit by the devastating tropical Cyclone Idai. Flood-waters cut off entire communities, families took refuge on the roofs of houses, and a major relief effort raced to provide food and shelter to survivors and prevent outbreaks of waterborne diseases such as cholera.



Quelimane (Mozambique), Shutterstock/ Zarko Prusac

Today, Quelimane has a population of around 350,000 (2017 census), a dramatic increase from 193,300 in 2007 due to an influx of migrants from the rural hinterland. Many residents live in informal settlements on low-lying flood plains, meaning their homes are vulnerable to flooding and unsanitary conditions that accompany it. Poverty has led to an upsurge in crime, and prostitution and HIV/AIDS are rife. The population explosion has put major pressure on food security. The need to increase agricultural production has led to destruction of mangroves that protect the fragile shoreline from the effects of severe weather and flooding, and filter the water.

As well as requiring food, more people also generate more waste than the overstretched Quelimane Municipal Sanitation Company (EMUSA) can deal with. Rotting rubbish piles up on street corners; for residents and businesses the stench, insects and rodents are a daily struggle, and there are regular outbreaks of diarrheal disease. The environmental damage is severe. One implication is that flooding reaches landfill sites and informal solid waste dumps. The contaminated water is reabsorbed into the ground, where it contaminates the aquifer (which, in Quelimane, is very close to ground level).

The result is that agricultural food products growing on land that has been flooded, or near to it, is less safe for human consumption. Similarly, the contaminated aquifer can reach urban food markets, making market conditions less sanitary.

The current Mayor of Quelimane, Manuel de Araújo (first elected in 2011) has made it his priority to rebuild the local economy and improve public services and infrastructure, and to ensure sustainability and urban resilience. To date 28km of rainwater drainage canals have been installed; five roads have been paved and ten asphalted; major renovations have been carried out on bridges to improve access neighbourhoods; twenty public health facilities have been constructed, as well as a market and a cemetery. Since 2017 de Araújo has held elected executive positions with the international network ICLEI - Local Governments for Sustainability. De Araújo has also committed to fostering more citizen participation, with a focus on youth and women, and is committed to ensuring good governance of the municipality.

Municipal, district and provincial governments

Manuel de Araújo, a member of the RENAMO party¹, was elected for the latest five-year term in October 2018. His cabinet is made of eight councillors whose portfolios cover:

- Municipal Planning and Development Management;
- Infrastructure and Habitation;
- Education, Health, Gender and Social Work;
- Economic Activities;
- Environmental, Climate changes, Sanitation, Parks and Cemeteries;
- Culture, Youth, and Sports; and
- Police, Transportation and Inspection

Amongst others, the local government has a Department of Agriculture, Livestock and Food Security. The remit of this department is not only to improve the nutrition status of citizens, but also to facilitate the formation of groups of small farmers who are stakeholders in programmes to build food security and a resilient food system. The Municipal Council of Quelimane – of which the Mayor is president – is supervised by the Municipal Assembly, the deliberative organ of local government. As the capital of Zambezia, Quelimane also hosts the provincial level of government, led by a Governor who is appointed by the President (since 2015 Abdul Razak Noormahomed), and a local assembly. The provincial level has general executive and administrative functions, as well as functional responsibilities in several climate-related fields, environmental preservation, water supply, energy resources, and natural resource management. In addition, as Quelimane is one of the 22 districts of Zambezia, it has a district government that shares a number of competencies with the municipality, such as town planning, transportation, water and sanitation, and parks and green spaces.

THE ACTIONS

Within the context of municipal regeneration and economic revival, Quelimane implemented two multi-partner programmes that contribute to improved physical access to fresh produce for the urban population and promote environmental stewardship.

Quelimane Limpa (Clean Quelimane) ran for 2.5 years from 2017 to mid-2019. It is the city's flagship effort to resolve the solid waste management crisis and combat practices that have a negative environmental impact, as well as promote sustainable agriculture and the management of natural resources by farming communities. It seeks to do this by strengthening cooperation between the local government, civil society and private sectors in municipal affairs. By working with the municipal waste company, EMUSA, to clean up solid organic waste from informal dumps, the project renders flood waters – and therefore the aquifer into which they flow – cleaner. The result for agriculture is safer, higher quality produce. The programme also involves separate collection of organic waste at the city's markets, and the creation of a compost industry. The application of compost to land that is lacking in nutrients boosts the quantity and quality of crops produced by small-scale farmers and creates jobs².

¹ Until 2018 Mayor de Araújo was a member of the Movimento Democrático de Moçambique party.

² The other element of Quelimane Limpa is plastic recycling, with the construction of a plastic treatment centre. The practice of burying or burning plastic waste causes pollution problems, yet there is a growing market for recycling plastic that can provide economic opportunities.

A second programme called Quelimane Agricola (Agricultural Quelimane), began in 2018 and will run for three years. Focused on the Quelimane, Nicoadala and Namacurra districts of Zambezia, it aims to contribute to sustainable rural development by strengthening the local agricultural market in cooperation with producers, local authorities, and the

private sector, by promoting sustainable farming practices, and by increasing awareness of local food so that citizens choose healthier local produce rather than imported food.

THE STORY OF QUELIMENE LIMPA

Initiation and securing funding

The initial idea for Quelimane Limpa came about in 2015. The municipalities of Quelimane and Milan had already established a working relationship when Mayor Manuel de Araújo contacted the Municipality of Milan for advice about how to tackle Quelimane's waste problem. His enquiry led to the cities co-writing a project proposal for Quelimane Limpa that they submitted, together with Italian NGO Celim and with input from local NGO SAMcom, to a EuropeAid funding call via the EU local office in Mozambique.

The bid was successful. In late 2016 the partners received EUR338,503 from EuropeAid and brought on board other organisations from the NGO and private sectors and from academia. Co-funding of EUR90,000 was received from the Italian region of Lombardy and the Peppino Vismara Foundation, a private charitable fund, made a loan of EUR70,000. Bioplastics firm Novamont made an asset donation of equipment for waste disposal at the markets, including bioplastic bags, and provided technical assistance, an in-kind contribution that had a total value of EUR30,000.

Research, technical expertise, and strategising

The first phase of the project involved analysis of the kind of waste generated in Quelimane. This research was carried out by academics from the University of Brescia in Italy and passed to AMSA/A2A, the Municipality of Milan's subsidiary company and the leader in the environmental sector in Italy. AMSA/A2A acts as a catalyst for resources and activation of know-how in the Milan area to support the activities of the project.

AMSA/A2A worked on improving Quelimane's waste management plan and facilitated the exchange between technical officers in Quelimane and their counterparts in Milan. In October 2017, Mayor de Araújo and technical staff from EMUSA visited Milan, where the municipality hosted a week of training and exchanges between peers. Furthermore, the Municipality of Milan supported local administrators in improving public policies in the environmental sector. The technical expertise for compostable waste collection bags to be used in the project was provided by Italian bioplastics producer Novamont, whose bags are used in Milan's central market.

Infrastructure, start-ups and education

The next phase, managed by the Municipality of Quelimane and Celim, established the infrastructure on the ground. The waste collection capacity of EMUSA (the Municipal Sanitation Company) was expanded and improved. Employees received training and new collection vehicles were provided. 150 waste baskets were positioned on roadsides to facilitate collection, and awareness-raising activities encouraged the public to use them. The 54 waste collection routes were also reviewed and rationalised.

Part of the central market was re-designed to enable the separate collection of organic waste, using the system developed by AMSA/A2A and Novamont that uses 80 litre compostable bags and bag sacks. The bags are installed by the market cleaners at fixed points for traders to dispose of organic waste.

Each day, members of a microenterprise collect the bags and transport them by bicycle 500m to the newly built composting facility, which has a capacity of 40 tons a year (sufficient for handling organic waste from the main central market and another market) and which is co-located with a centre for treating plastics and a plant nursery. The 12 microenterprise members each received training and micro-finance to allow them to make initial equipment investments. They are paid a subsidy out of project funds but it is hoped they will eventually become municipal employees.

Two other microenterprises have also been set up. One buys plastic waste from households and sells it for recycling, while the other carries out door-to-door awareness-raising on household waste management in areas with no municipal

collection service. They take away plastic waste that would otherwise be burnt and encourage residents to separate out organic waste that can be left to decompose. The members of all three microenterprises were previously unemployed or worked in the informal sector, and were selected from among the members of two associations already working on environmental issues in Quelimane.

Operationalisation

Compost production began at the end of 2017 on the site of the new compost facility, even though the full infrastructure was not yet in place. Compost was delivered to vegetable farmers from March 2018. Since the dedicated compost production facility became operational in early 2019, greater volumes are produced.

The original plan was for food waste to be collected from all 11 markets in Quelimane, but distance and capacity issues meant this was not possible. The project instead focused on transforming operations at Central Market for the foreseeable future. Some of the other markets, which are further afield, may be the subject of a follow-up projects.

The compost takes 90 days to produce. It is then distributed for free to around 140 family-run gardens, where it is used in demonstration fields to show yield improvements, compared to yields from fields that have been repeatedly planted for years without the addition of nutrients.

A commercial value chain is under construction, as the project team is working with several stores to promote knowledge and sales of the compost for a price of MZN5 per kg (about EUR.07).

Community involvement

An important factor in the success of Quelimane Limpa has been community outreach. Local NGO SAMcom ran awareness campaigns targeting specific groups, such as market operators, who have received information on good environmental and hygiene practices, as well as the general public.

Educational materials on good environmental and agricultural practices have been produced and used by grassroots community organisations. The materials were also used by environmental clubs and selected pupils (840 in total) in seven schools (three primary, two secondary, two professional), in cooperation with SAMcom, the District Management of Education (SDEJT) and the Provincial Directorate of Land, Environment and Rural Development (DPTADER).

In collaboration with the municipal Department of Agriculture, Livestock and Food Security, eight groups of farmers from the suburban area were selected to receive training on use of compost; the training was carried out by one technician from the project and one from the municipality.

Outcomes and next steps

As of April 2019, more than 3,000kg of market waste has been collected and almost 10,000kg of organic waste from the market and from trees. This has been used to produce around 7,500kg of compost.

The farmers have seen a clear difference between plots where they used compost and plots where they did not, and have been impressed by the effect on crop quality and quantity. They have all shown interest in using compost in the future. The increased yields translate into increased availability of more vegetables on Quelimane's markets. Moreover, farmers have begun to diversify their crops. Where previously they grew the same vegetables on a plot of land, which runs down the nutrient levels in the soil, they are now planting different kinds of vegetables, leading to greater dietary diversity.

Quelimane Limpa has run for two and a half years, and the initial funding came to an end in June 2019. New practices of waste collection and compost processing will continue, however, now that the local teams have received training and viable microenterprises have been established. The Municipality of Quelimane will continue to support composting activities: the municipal technicians who have been involved in the project will continue to offer support; and some members of the micro-enterprises will become municipal employees.

ORGANISATIONAL ACTORS INVOLVED IN QUELIMANE LIMPA

Local authorities:

- The City of Quelimane and the Municipality of Milan cooperated to come up with the idea for the project and co-wrote the funding bid.
- The City of Quelimane implements the project on the ground, together with Celim (see below).
- District Management of Education (SDEJT) and the Provincial Directorate of Land, Environment and Rural Development (DPTADER) contributed to educational outreach.
- The Municipality of Milan was responsible for the human resources plan, for institutional support to local managers, and for technical training of EMUSA personnel. It had a role of coordination and dissemination between international actors.

University:

- The University of Brescia in Italy conducted an analysis of the kind of waste generated in Quelimane.

NGOs:

- Celim: Played a key role in the design, on-the-ground implementation with the Municipality of Quelimane, and monitoring of the entire project; strengthens collaboration between local authorities, civil society and private sector.
- SAMcom: Contributed to writing the project and managed awareness-raising activities with citizens and in schools.

Private sector:

- AMSA/A2A defined the strategy for intervention; facilitated the exchange between technical officers in Quelimane and in Milan; worked on improving Quelimane's waste management plan and ensured the transfer of know-how for the management of the city's waste collection service.
- Novamont provided technical know-how for the waste collection bags and equipment as well as organising training workshops in Mozambique; the in-kind donation had a value of EUR30,000.

ENABLING FACTORS

- The initiative of the Mayor of Quelimane to seek collaboration with another Milan Urban Food Policy Pact signatory city to address the waste problem, and to identify funding opportunities.
- The spirit of collaboration between two signatory cities of the MUFPP, to share technical knowledge and experiences.
- Expert knowledge of waste types provided by the University of Brescia, which enabled development of a technically-appropriate strategy.
- Community outreach, which has ensured that the wider citizenry is engaged in supporting the project through their daily habits.

DIFFICULTIES FACED

- Due to limited capacity of the composting facility and transportation constraints, an initial plan to collect food waste from all 11 markets in Quelimane had to be abandoned in favour of focusing only on Central Market, the most important market in the city. By bringing together all the actions in a single pilot project, the intention is for them to be replicable in the other markets in the future.
- The 30-month project is relatively short term. An 12-month extension would have been useful to monitor the operational aspects and the development and implementation of new public policies.

THE STORY OF QUELIMANE AGRICOLA

Initiation

The idea for Quelimane Agricola originated from Italian NGO Mani Tese, which has a long history of working in Quelimane. Together with the municipality, Mani Tese identified a need to support agricultural production and sale of produce to local markets, to improve food safety and food security. In 2017 the City of Quelimane, Mani Tese and ICEI8 (another Italian NGO) invited the Municipality of Milan to join them as 'know-how' partner to apply for project funding through the Italian Cooperation Agency (AICS). The consortium was successful; it secured EUR1,674,444 for a 3-year project (2018-2021).

Thus, although the idea for Quelimane Agricola did not come about as a direct result of Quelimane Limpa, the positive experience of cooperation between Quelimane and Milan meant that the two cities were keen to work together again. The involvement of Milan was instrumental to making it happen.

Early implementation

During the start-up phase of the project, the Municipality of Milan provided Quelimane with examples of how municipalities elsewhere have successfully strengthened the local agricultural market. These examples helped inform the detailed definition of the actions to be carried out.

Milan also provided technical support and capacity building for the technical and managerial staff of Quelimane's municipal water service, with the aim of improving management of the city's water service, coached managers in how to conduct such a project at the city scale, and proposed policy interventions to politicians, through which they might support the market for produce that has been produced locally and sustainably.

As the project leader, Mani Tese is responsible for activities on the ground. It receives advice from the Provincial Farmers Union of Zambezia (UPC-Z), to ensure they are appropriate and achievable in the local setting.

Activities to date include:

- Training courses in innovative and sustainable agricultural techniques (syntropic agriculture, preparation and use of biopesticides and biofertilisers) run by Mani Tese and ICEI, to help producers achieve quantitative and qualitative improvements in yields, increase profitability, and adapt their practices to climate-related threats;
- Helping producers to form small, entrepreneurial groups to grow syntropic demonstrative fields (for vegetable production and rice fields) and subsequently to process their crops and package them as value-added products for sale in markets and fairs. So far 18 farmer groups have been formed, each composed of 30 members;
- Development of the 'Productos Agro-ecologicos da Zambesia' brand to promote production and consumption of local agricultural products, including a Facebook page (@produtosdaZambezia);
- Development of a mobile phone-based platform by the cooperative Gnucoop, to provide farmers with real-time information on weather conditions, price trends, markets and more, via SMS;
- Information and communication campaigns to stimulate demand by guiding consumers and businesses towards locally-produced healthy, nutritious foods instead of imported food. A key actor in this activity is the University of Licungo (former Universidade Pedagogica) of Quelimane;
- Improving Quelimane's water system (focusing on markets) through capacity building on public policy and technical assistance, in cooperation with MM S.p.a, the Municipality of Milan's subsidiary company for water service management, mobility and social housing;
- Installation of infrastructure, including:
 - three new warehouses in the districts of Namacurra, Nicoadala, and Quelimane;
 - installation of new irrigation systems, overseen by the University of Florence;
 - 20 rooftop rainwater collection systems in the three districts, in partnership with the Department of Management of Agriculture, Food and Forestry Systems (GESAAF) of the University of Florence.

The programme is expected to benefit 540 producers, 2,000 traders, and 12,700 family members.

As implementation is only getting underway in 2019, no impact data is available at the time of writing. However, following a baseline survey, data is collected on a quarterly basis by local staff, with assistance from Mani Tese. A platform for collecting and analysing data (quantitative and qualitative) and monitoring activities is being developed by Gnucoop.

ACTORS INVOLVED IN QUELIMANE AGRICOLA

Italian government:

- The Italian Cooperation Agency (AICS) funded the project.

Local governments:

- City of Quelimane, the Municipality of Milan, the Municipality of Reggio Emilia, and Fondazione E35 (a local government cooperation in Reggio Emilia for the promotion of economic development) work together to construct public policies for food smart cities.
- MM S.p.a., the Municipality of Milan's subsidiary company for water management, mobility and social housing, works with Quelimane to improve its water system through capacity building on public policy and technical assistance. MM S.p.a. plays a fundamental role in the transfer of technical expertise to the municipality of Quelimane.

Universities:

- The University of Licungo in Quelimane oversees the management committees of the newly build warehouses, supports training and helps to market local agriculture products.
- The University of Florence is responsible for the construction of water collection systems, as well as for the installation of new irrigation systems.

Union:

- The Provincial Farmers Union of Zambezia (UPC-Z) is a local partner and provides advice to Mani Tese on project activities.

NGOs:

- Mani Tese, as the project leader, monitors and supervises all activities, trains farmers, and organises conferences and events.
- ICEI is responsible for agricultural activities and the introduction and diffusion of syntropic agriculture.
- Gnucoop is developing the mobile phone-based technology platform and SMS alert system, and the monitoring platform.

ENABLING FACTORS

- The initiative of the Mayor of Quelimane to seek collaboration with another Milan Urban Food Policy Pact signatory city to address the food and water security, and to share technical knowledge and experiences.
- The provision of expert knowledge to address key challenges faced by Quelimane, such as knowledge on water management provided by MM S.p.a., which enabled development of a technically-appropriate strategy.
- Engagement of local organisations to provide advice on appropriate and achievable project activities, such as the Provincial Farmers Union of Zambezia.
- Community outreach, which has ensured that the wider citizenry is engaged in supporting the project through their daily habits.

DIFFICULTIES FACED

- For Mani Tese, a major challenge has been to develop and implement public policies on the ground that promote the production of local and healthy food, in order for the concepts of 'zero km', organic farming, and agricultural cooperatives take root.
- Another implementation challenge to date has been identifying professionals to deliver nutritional education in a variety of settings, such as in schools, churches, civil society and non-governmental organisations.

There are strong synergies between Quelimane Limpa and Quelimane Agricola which, although funded by different bodies and involving some different partners, work on different aspects of the food security problem.

Cooperation between the City of Quelimane and the Municipality of Milan is fundamental to both, demonstrating how one successful cooperation can bring opportunities to expand and deepen the relationship in the future. Across both

projects, the Cooperation unit of the Municipality of Milan has played a pivotal role in: political and institutional coordination; mobilization of expertise from Milan for local training; technical support and capacity building; and connecting the different international donor agencies operating in the area and the relevant national institutions of Mozambique (see figures 1 and 2).

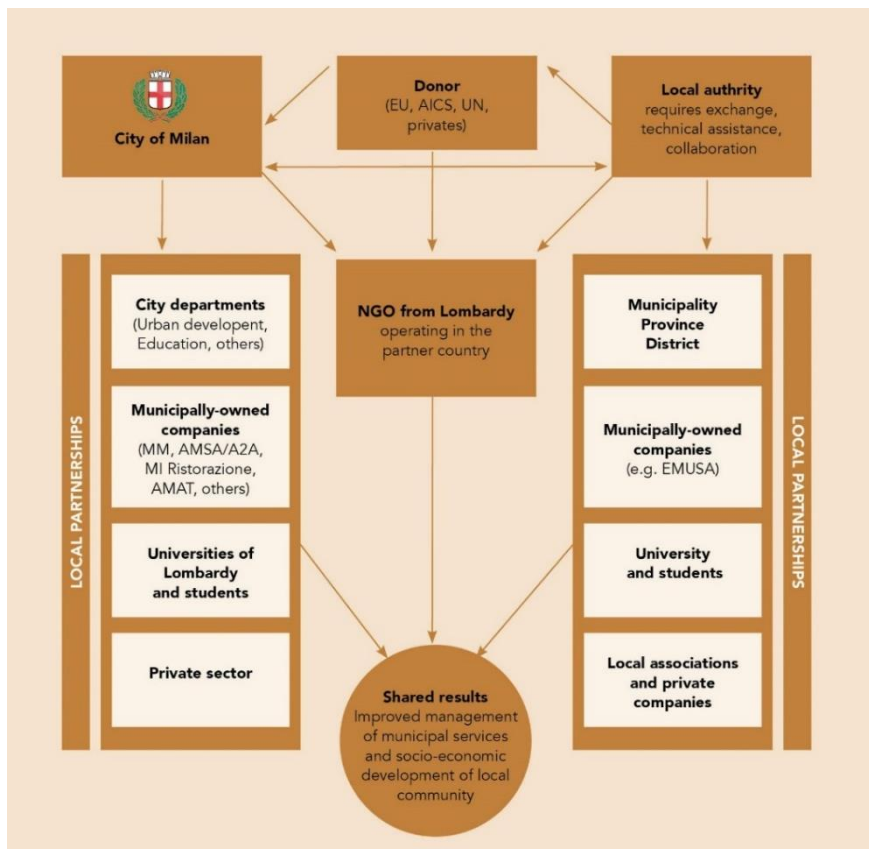
Both projects involved systemic integration across the food chain, and show that active involvement of a constellation of actors from communities and institutions, producers and consumers contributes to achieving systemic transformation.

Figure 1: Intervention model of Milan in Quelimane

| Intervention model in Quelimane | | |
|---------------------------------|------------------------------------|--|
| Duration | 30 months | |
| Intervention levels | TECHNICAL | Technical staff - operators - service managers |
| | MANAGERIAL | Executive managers |
| | PUBLIC POLICIES | Councilors - Mayor |
| | INFRASTRUCTURE AND SERVICES | |

Source: Milan Municipality, International Relations Area

Figure 2: Actors and organisations involved in Milan city-to-city cooperation projects



Source: Milan Municipality, International Relations Area

MORE INFORMATION

- Website: City of Milan: Quelimane Limpa – Mozambico (in Italian)
<https://www.comune.milano.it/aree-tematiche/relazioni-internazionali/cooperazione-internazionale/tutela-e-risanamento-dell-ambiente-urbano-e-suburbano-del-municipio-di-quelimane-mozambico>
- Website: Municipality of Quelimane (in Portuguese)
<http://conselhomunicipaldequelimane.blogspot.com/>
- Website: Celim: Puliamo Quelimane (in Italian)
<https://www.celim.it/it/progetto/puliamo-quelimane/>
- Website: Mani Tese: Mozambico (in Italian)
<https://www.manitese.it/>
- Website: Novamont: Progetto Quelimane Limpa: Il Modello Milano in Mozambico (in Italian)
<https://www.novamont.com/leggi-comunicato-stampa/progetto-quelimane-limpa-il-modello-milano-in-mozambico/>

Citation: This case study version is from the Menu of Actions (2019). Suggested citation: Halliday, J., Platenkamp, L., Nicolarea, Y. (2019) A menu of actions to shape urban food environments for improved nutrition, GAIN, MUFPP and RUAF.