



# Maputo City Profile

## Mobility, Accessibility and Land Use in the Maputo Metropolitan Area

Mozambique

*First English Edition*



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Figure 1: Baixa of Maputo. Source: OMT, Romero

## Preface

T-SUM is an interdisciplinary, intersectoral and collaborative project that aims to identify the conditions under which to develop and accelerate paths towards an inclusive and sustainable mobility and land-use system in fast growing cities of the Global South, with a focus on Freetown (Sierra Leone) and Maputo (Mozambique).

Most rapidly growing African cities are faced with pressing urban and transport challenges. Short and medium-term policies and planning processes could influence the trajectory of these cities towards car-based urban development and land use, or, hopefully towards alternative, more sustainable urban trajectories, reliant on increased accessibility, collective transport and active and integrated mobility.

The Metropolitan Area of Maputo, Mozambique's capital region, faces many of the above challenges. These are driven by mounting demographic and economic pressures and the changes in urban configurations that they entail. It also faces marked challenges in the capacity of the organisations tasked with the planning and development of transport and land use to plan, finance and regulate the necessary reforms for driving growth through a sustainable pathway, and manage the effects of markets for land, transport, and economic opportunities on the city's development trajectory.

This city profile contributes to this discussion by consolidating the available knowledge and data regarding Maputo's urban trajectory, the urban transport system and the recent development of the transport sector. The report also highlights the data gaps that need to be addressed for a comprehensive understanding of the pathways of urban mobility in Maputo and its metropolitan area.

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## List of abbreviations and acronyms

- AFD French Development Agency
- AMM Maputo Metropolitan Area in Portuguese
- AMB *Área Metropolitana de Barcelona*. Barcelona Metropolitan Agency
- AMT *Agência Metropolitana dos Transportes de Maputo*. Maputo Metropolitan Transport Agency
- BRT Large-capacity bus system that goes along separate lanes from the rest of the traffic. It comes from the English “Bus Rapid Transit”
- CFM *Caminhos de Ferro de Moçambique*. Mozambican Railways Public Company
- CMM *Conselho Municipal de Maputo*. Maputo City Council
- DUAT *Direito de Uso e Aproveitamento da Terra*. Right of Land Use and Enjoyment, document equivalent of ownership of the land.
- EMTPM *Empresa Municipal de Transportes Públicos de Maputo*. Municipal Public Transport Company of Maputo
- FEMATRO *Federação Moçambicana de Associações de Transportadores*. Mozambican Federation of Transport Associations
- FTC *Fundo de Transportes e Comunicações*. Fundo de Transportes e Comunicações, an institution within the Ministry of Transport and Communications. an institution inside the Transport and Communication Ministry
- INATRO *Instituto Nacional de Transportes Terrestres*. National Institute of Land Transport.
- INCM *Instituto Nacional de Comunicações de Moçambique*. National Institute of Communications of Mozambique
- INS *Instituto Nacional de Saúde*. National Institute of Health
- JFS *João Ferreira dos Santos*, Mozambican company in the transport sector.
- JICA Japanese Cooperation Agency
- MIREME *Ministério de Recursos Minerais*. Ministry of Mineral Resources
- SUM Sustainable Urban Mobility
- OMT *Observatório da Mobilidade e Transporte de Moçambique*. Observatory of Mobility and Transport of Mozambique.
- PD *Plano Director Integral de Transporte Urbano para o Grande Maputo*. Comprehensive Urban Transport Master Plan for Greater Maputo
- ADE *Agência de Desenvolvimento Espacial*. Space Development Agency dependent of the MTC. Also known as PDE (the old title)
- PEUMM Maputo Urban Structure Plan. Last update in 2008

PMUS *Plano de Mobilidade Urbana Sustentável*. Sustainable Urban Mobility Plan (=SUMP)

PRM *Polícia da República de Moçambique*. Police of the Republic of Mozambique

REM *Rede Estrutural Metropolitana*. Metropolitan Structural Network

RTA Regulamento de Transporte em Veículos Automóveis e Reboques, Decreto n° 35/2019

TCP *Transporte Colectivo de Passageiros*. Collective Passenger Transport, includes all types of public and collective road transport, Chapas and buses.

TPM *Transportes Públicos de Maputo*. Maputo Public Transport. Company name before municipalization and conversion into EMTPM.

T-SUM Transition to Sustainable Urban Mobility

UCL University College of London

UEM Universidade Eduardo Mondlane

## 0. Introduction

The city profile is based on research carried out by the Transitions to Sustainable Urban Mobility project (“Transitions to Sustainable Urban Mobility”, T-SUM, <https://www.t-sum.org/>), whose main objective is to identify the conditions under which mobility policies are being developed in growing cities in the Global South, paying particular attention to the dynamics of inclusion and sustainability of land use and transport.

The project opens its reflections on the observation that, in contexts dealing with rapid economic and demographic growth and low socioeconomic indexes, but progressively relying on individual transport mode and motorization, there is an urgent need for the formulation and the implementation of policies, practices, and partnerships supporting the implementation of sustainable mobility structures in order to limit social and spatial inequalities.

In Maputo, the T-SUM Project collaborates with the Metropolitan Transport Agency (AMT), the Observatory of Mobility and Transport (OMT), and the Eduardo Mondlane University Foundation (FUEM), supporting these institutions in processes of analysis and construction of an interdisciplinary vision and interinstitutional coordination on the issue of mobility. T-SUM seeks to contribute to a more holistic knowledge about the characteristics, dynamics and challenges of the current urban and mobility trends in the Maputo Metropolitan area. T-SUM addresses the issue of transport from the perspective of accessibility to services and social and economic opportunities.

This profile is the result of interdisciplinary work from a team of national and international specialists from the Mobility and Transport Observatory (OMT), Eduardo Mondlane University (UEM), and University College London (UCL) with the direct support of the Metropolitan Transport Agency (AMT).

The mobility and urban planning data provided in this city profile stands as a rigorous attempt to offer evidence-based knowledge to understand the main drivers of current development trajectories (Levy et al., 2017) and their influence on accessibility and its associated social and

environmental issues.

In theoretical terms, this profile is centred on the debate regarding urban transitions towards sustainable mobility and development. It starts by describing the basic urban conditions from which to examine trajectories towards a more inclusive and sustainable mobility. Here, the concept of a sustainable urban mobility transition refers to the capacity of cities to develop systems of mobility, accessibility and land use that are efficient, ecologically sustainable and socially just. As an example, a recognised dimension indicating an eventual shift in this sense, is the change in the correlation between GDP per capita and the percentage of motorised modal share (see Figure 1).

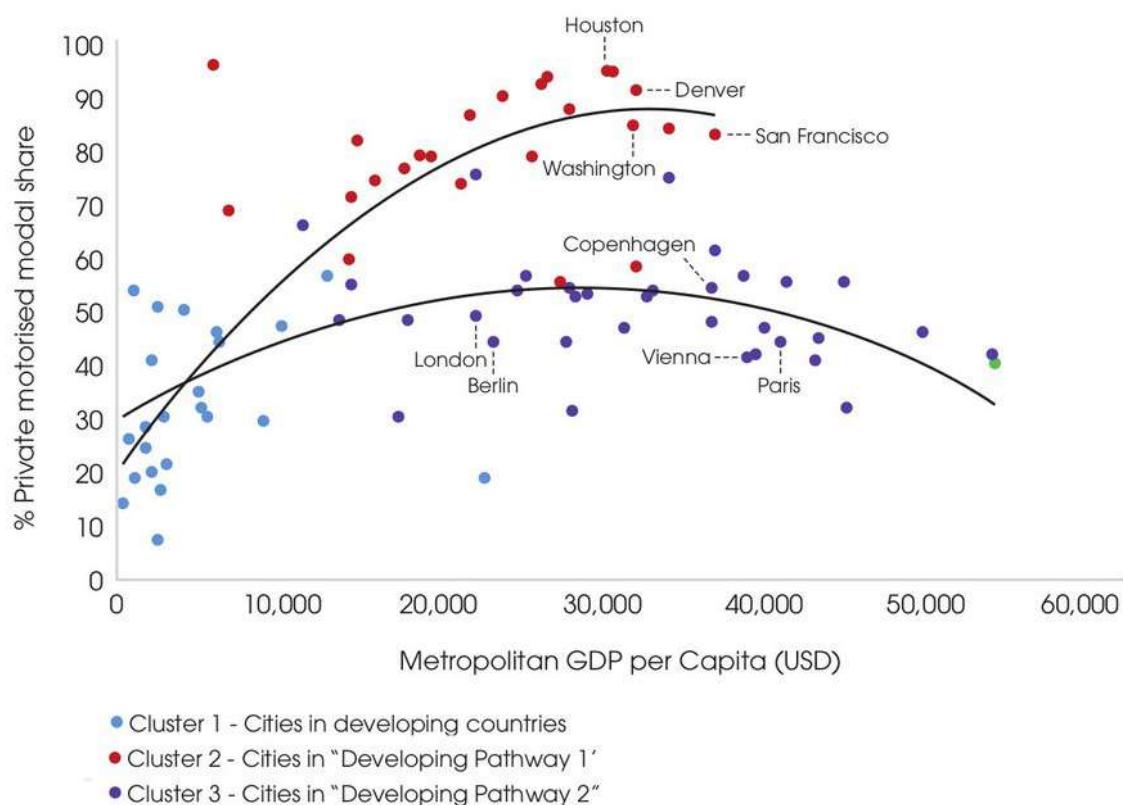


Figure 2: Relationships at city level between GDP per capita and the share of private car mode in several cities around the world. Source: (Teoh et al., 2020)

Although most cities in Africa still present a scenario that consolidates inequalities and patterns of urban exclusion in terms of both socioeconomic development and access to transport systems, they also

present opportunities that can be used to redefine their urban trajectories towards inclusiveness and accessibility (Jones, 2016; Ortúzar, 2019; Venter, Mahendra, Hidalgo, 2019; Woolf & Joubert, 2013). These opportunities include, among others, the fact that the rates of car ownership and use remain comparatively low, and that the commitment for sustainable transport is increasingly gaining its place within local policies and governments aligned with the United Nations' global agenda.

The UN and the broader international development sector are progressively realising and stating in far-reaching development policy agendas such as the Sustainable Development Goals (SDGs) that urban access and mobility are crucial to achieve human development goals for the next decade. Although inclusive mobility is mentioned specifically in target 2 of SDG 11 (“by 2030, providing access to safe, accessible, and sustainable transport systems for all”), a functional and inclusive transport sector is closely linked with many other goals such as SDG 2 (zero hunger), 3 (good health and wellbeing), 4 (quality education), and 5 (gender equality).

Despite the recent increase in research regarding urban mobility within the African context, there is limited evidence about the configuration and development patterns of urban transport in cities in Sub-Saharan Africa. In particular, there are considerable gaps in the documentation and understanding of accessibility and its links with fulfilled and non-fulfilled trips and the opportunities they ought to make possible, as well as debates often unaddressed in traditional urban transport planning practice such as the social role of walking, and the role of the built environment in supporting inclusive and sustainable urban development (Bryceson et al., 2003; Venter et al., 2018; Weiss et al., 2018).

The profile is mainly based on secondary data, such as articles, policy reports and technical documents. These documents were collected from public repositories, when available, and through partnerships with relevant national and local organisations in government, planning and the international development sector. The project's approach involved creating an inventory of available data, highlighting data gaps in urban transport, land use and accessibility, as elaborated at the end of the

challenges section.

This city profile targets national and local government officials in Mozambique, professionals in urban planning and transportation, private entities, NGOs, international development agencies and local communities dealing with transport, land use planning, and accessibility. This document aims to serve as an instrument and a reference to inform future decision-making and deliberative policy-oriented processes relevant to transport and land use planning in the cities of Maputo, Matola and Boane and the Districts of Marracuene and Matutine.

The document proposes a particular focus on the relationship between transport analysis and urban planning, emphasising the interdependence between transport and land use, and highlights the various socio-economic and environmental challenges linked with these issues in a city such as Maputo. The city profile of the Maputo Metropolitan Area (MMA) aims to provide its readers with a general and profound overview of the socio-spatial characteristics of the metropolitan area of Maputo and of the policy trends that could aid the development of more sustainable mobility for the metropolitan area. Likewise, this document provides a basis from which to encourage the debate between the various actors in the mobility sector.



# 1. Context

## 1.1 General Context of Mozambique

Bathed by the Indian Ocean, with an area of 801,590 km<sup>2</sup> and a coastline of 2,770 km, Mozambique has a population of 28,286,863 million, of which 48% are men and 52% are women. 57% of the population are under the age of 20. Annual population growth stands at 2.8%. The urban population is estimated to be 33.4% (INE, 2017). It is estimated that in the year 2041 the population may reach 50 million. It could reach 60 million by 2050.

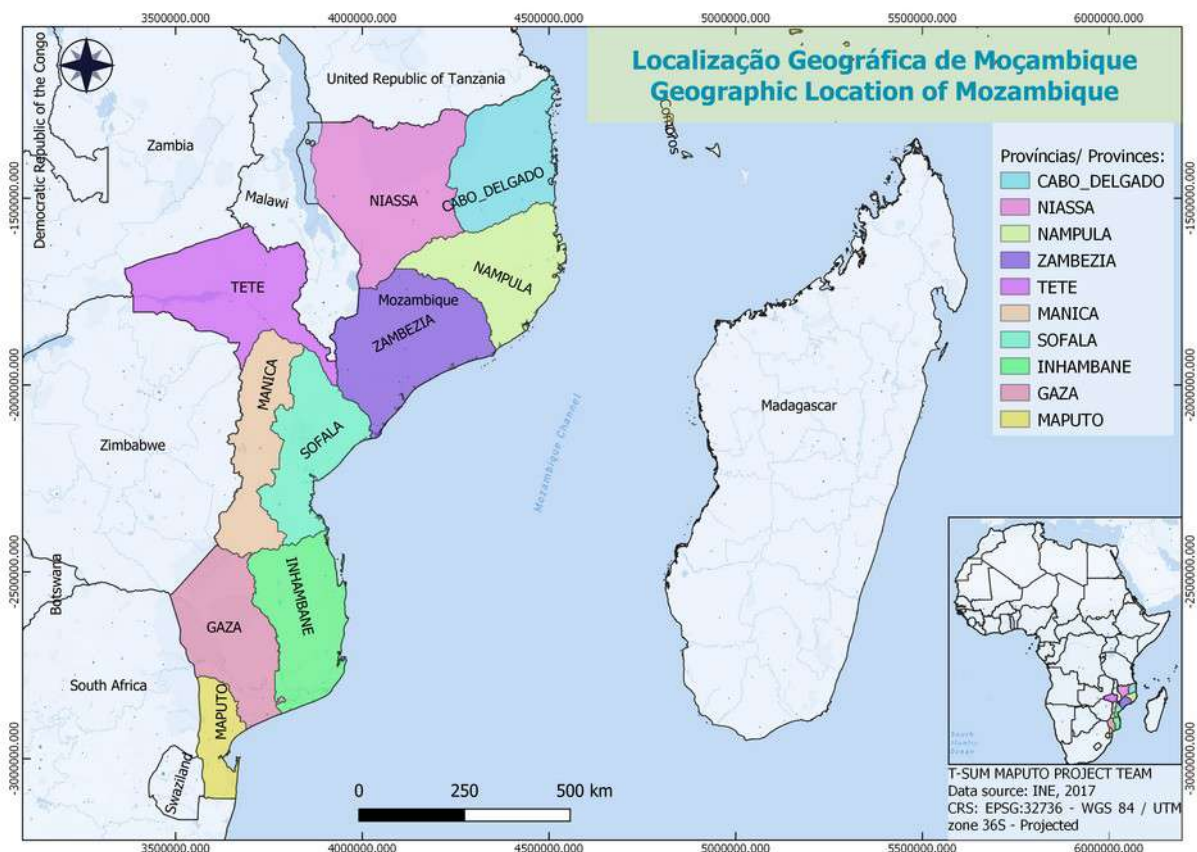


Figure 3: Geopolitical map of Mozambique. Design: OMT, Mindo

Table 1: Mozambique 2017 population indicators. Source: INE, 2017

	2017
Life expectancy at birth (years)	54
Men (years)	51
Women (years)	56
Infant mortality rates (per 1000 births)	71
Gross Mortality Rate (per 1000 births)	12,31
Gross birth rate (for every 1000 inhab.)	38,6
Global Fertility Rate (children per woman)	5,2
Annual population growth	2,63 %

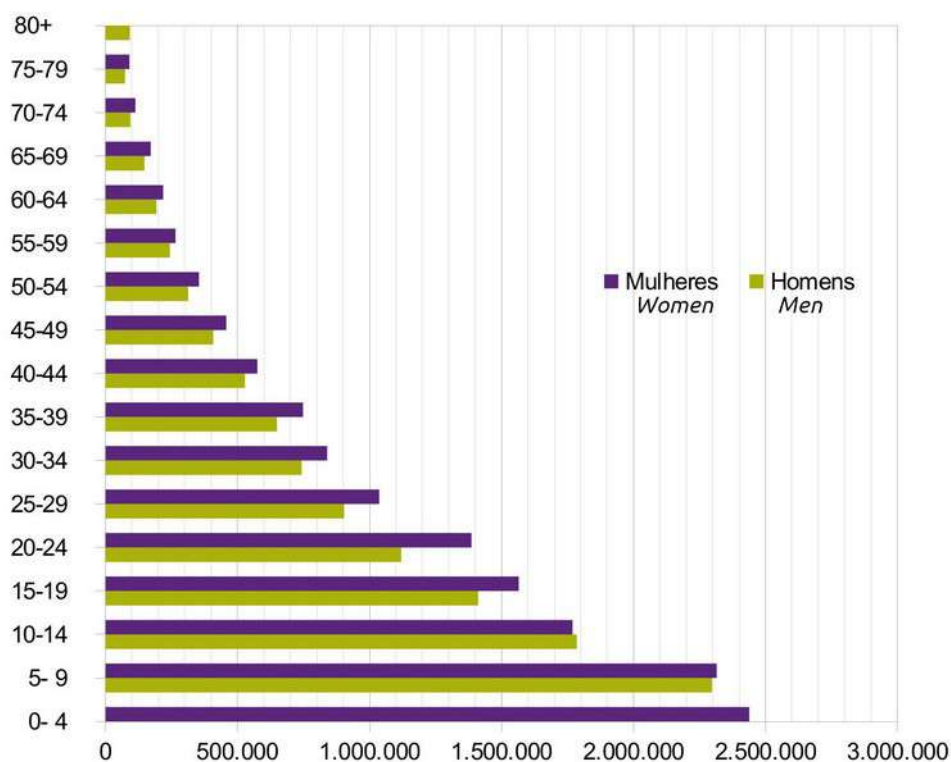


Figure 4: Population pyramid. Source: INE, Census 2017

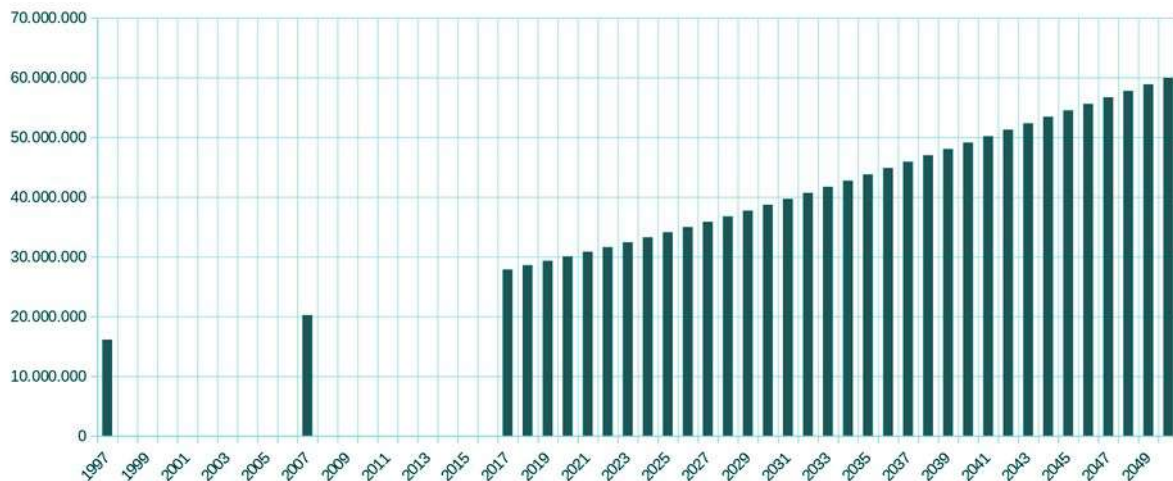


Figure 5: Population Growth Estimate since the 2017 Census. Source: INE, 2017

Following 11 years of fighting that led to its independence, the country suffered a civil war that ended in 1992. The 1990s were marked by an attempt to reactivate the economy following a period of stagnation. Measures to boost the economy began to be implemented in the second half of the 1980s. The decade was characterised by a wave of privatisations (Kikeri, Nellis, & Shirley, 1992), which nevertheless remained dependent on and linked to public office (Castel-Branco, 2017). Those years ideologically impacted the country's development, validating a neoliberal vision of development that had influences, later on, in the urban management sphere as well, with a progressive absence of state planning in favour of the private sector.

Between 2008 and 2015, Mozambique showed improvements at a national level in economic growth rates<sup>1</sup>, whose benefits were unevenly distributed between areas and population. The high country's growth rates until 2015 were due to the foreign investment in the extractive industry and related services, a source of strong internal debates about equitable territorial development, spatial justice and benefit sharing (Chivangue, 2017; Mosca & Selemene, 2011), as well as flows from international cooperation (Cortês, 2018). The 2016 debt crisis triggered an economic recession. However, services such as tourism, transport and finance showed a modest increase.

<sup>1</sup> Between 2012 and 2015 GDP increased by around 7.5% (World Bank, 2018)

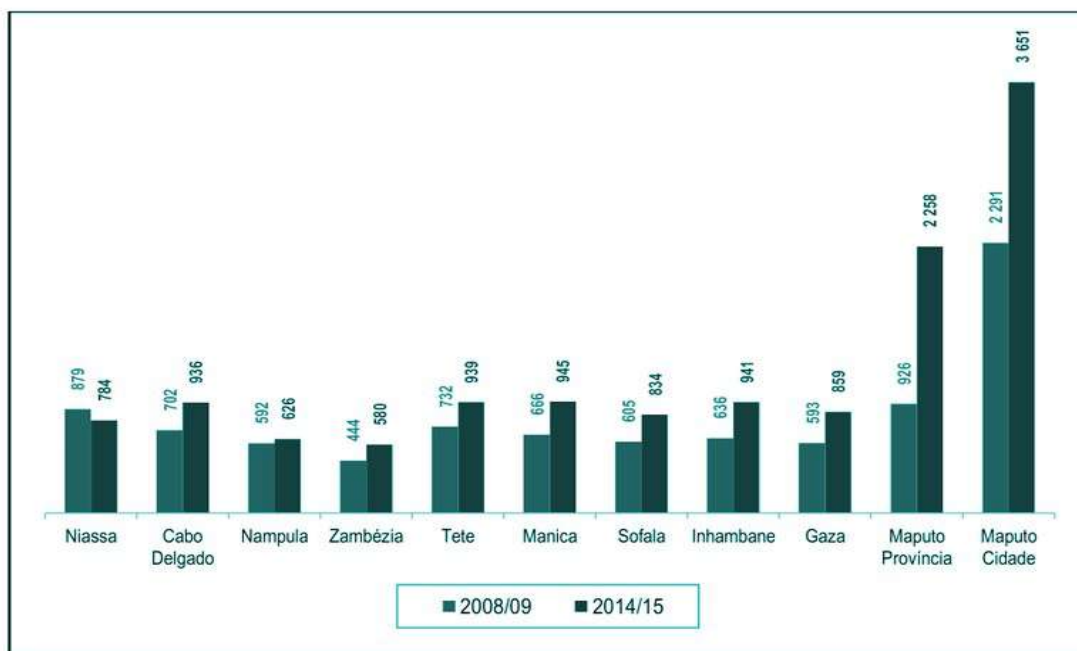


Figure 6: Evolution of Expenditure Per Capita by Province: Source: Final Report of the Household Budget Survey - IOF-2014/15. December 2015

The country's growth opportunities are deeply dependent on the recovery of consumer spending power, especially in the services' sector. Mozambique is struggling to face the challenges associated with population growth and a greater mobility of the population in search of urban land. Inadequate urban planning, land-related conflicts and the lack of an administrative, technical and regulatory framework to accompany the progressive urban expansion and new mobility may contribute to the degradation of the economic capacity of the poorest section of population and their inclusion in urban life.

### **National Economy and Transport Sector**

The main transport corridors in the country connect the key ports (Maputo, Beira, Nacala) to the hinterland countries (South Africa, Zimbabwe and Malawi), serving development interests from a regional point of view. These corridors were strategically structured, back in colonial times, to serve neighbouring countries without access to the sea, making the country a provider of transport, logistics and communications services. Little attention was paid to the development of the national industry, however. The service sector, especially transport and logistics, is still of strategic importance in the context of the country's development.

In the late 1980s, the private sector started to gain importance within the railway transport sector of Maputo, taking advantage of the weakness of the public road transport company to face growing transport demand resulting from the increase in urban population, especially in the cities of Maputo and Matola.

With the discovery of large reserves of natural resources in 2010 (gas or mineral coal), the country has been experiencing a considerable influx of Foreign Direct Investment (FDI), essentially targeting transport infrastructure and extraction logistics, a factor that alters the structure of the transport system in the country. The country is mostly investing in the construction and rehabilitation of large-scale infrastructures (East-West infrastructures), mainly with regard to the rail-port corridors, which constitute an important factor for the spatial model, and which enhance a logic of growth that has been observed since the colonial period.

Historically, the relationship between transport, land use and urban planning has been crucial to boost urban economic development, as well as to define the urban form and expansion of cities. In the southern region, especially in the metropolitan region of Maputo, the strategic importance of neighbouring South Africa has driven the development of the Maputo corridor, through National Road Number 4 (EN4) that links the South African region of Gauteng (Johannesburg and Pretoria) with the Port of Maputo, thus also connecting with sea trade routes. EN4 is also the main connecting road between the City of Maputo and the Municipality of Matola, the two core and most vibrant economic centres of the Metropolitan area.

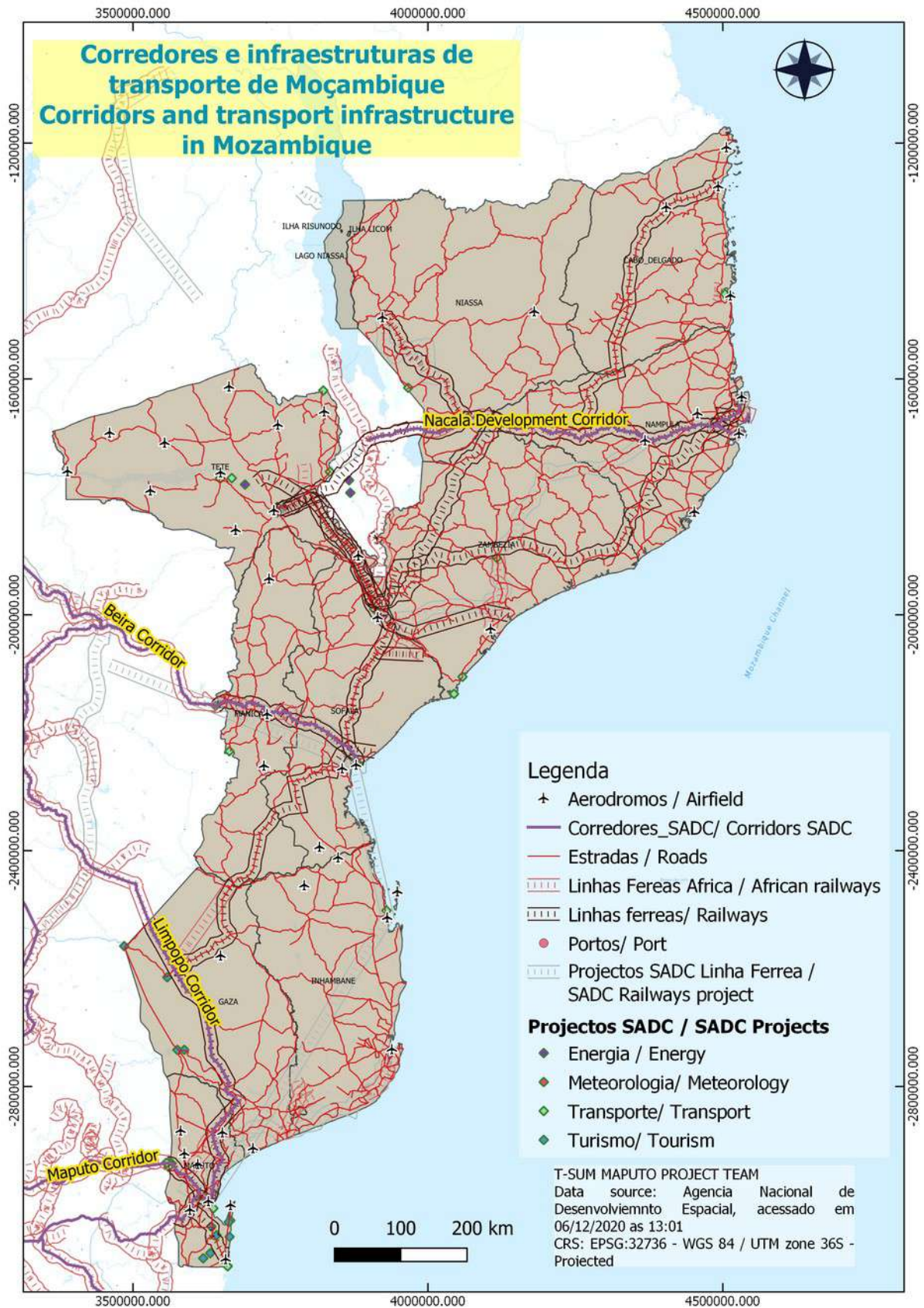


Figure 7: Map of transport corridors at national level (land and rail).  
 Design: OMT, Mindo

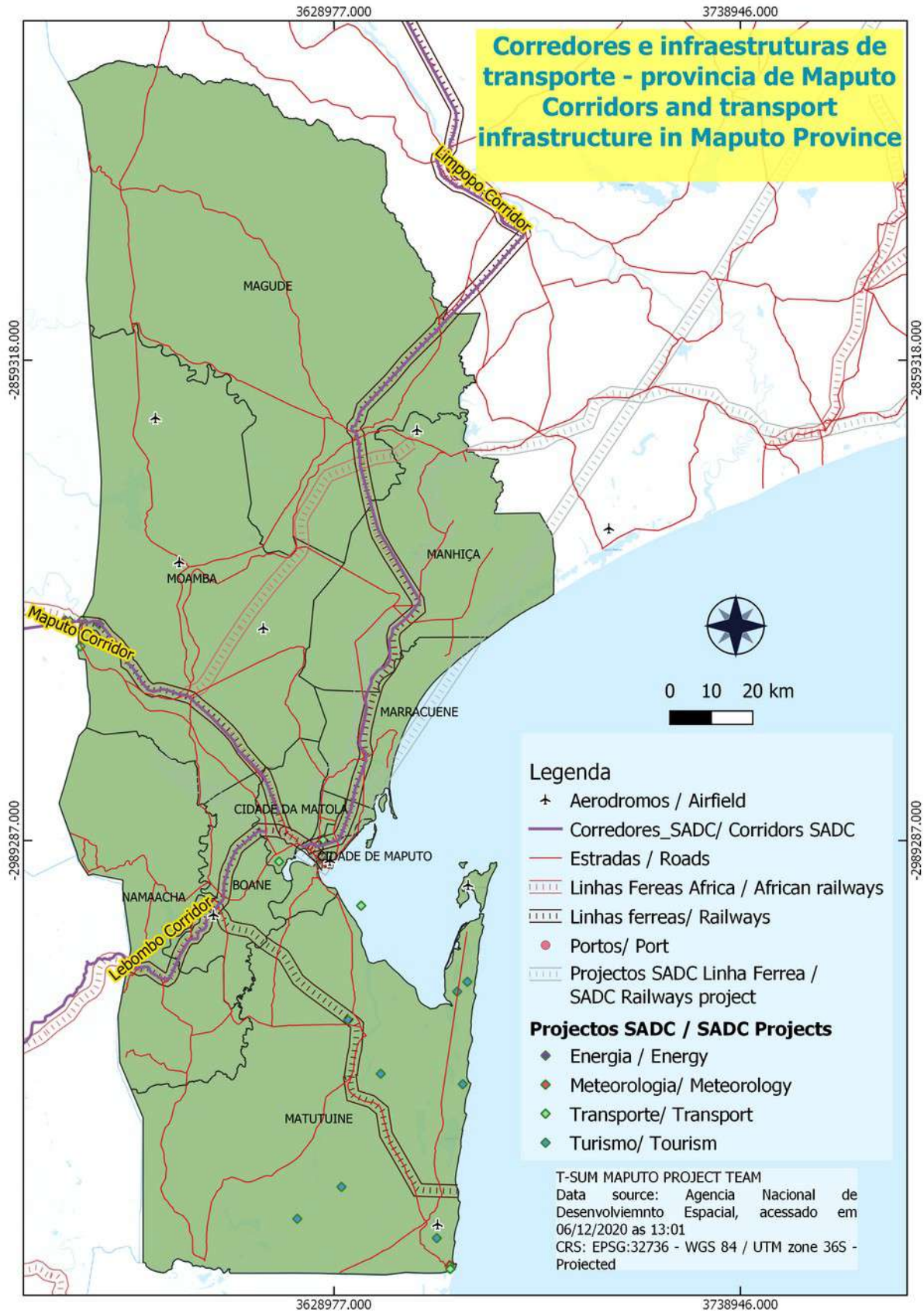


Figure 8: Map of transport corridors in Maputo Province and City (land and rail) . Design: OMT, Mindo

## 1.2 Urban development in Mozambique

Mozambique has a relatively long history of urban settlements compared to its surrounding countries. The way in which land planning and use were initially conceived and then legislated and implemented in Mozambique, was not only determined through the typical state approach to land control, but it was also largely influenced by the Portuguese colonial legacy.

Between the end of the 19th century and the beginning of the 20th century, the territory of Mozambique was controlled by agricultural administration centres belonging to the leasing companies. The main objective was to assume the political and economic control of the indigenous peoples and territories in order to establish mechanisms of land-use for a colonial economy which was purely administrative in nature. From the period before the Second World War, the urban areas directly managed by the settlers expanded and, at the same time, the existing ports became strategic points for macro-regional trade, especially from Lourenço Marques (current city of Maputo), at the time of the gold rush.

At that time, planning was characterised by local interest conflicts: the colonial state tried to establish total control over urban land but was continually challenged by strong private capital and lobbies from landlords. Despite developing several urban plans, the State wasn't able to establish control over urban development. Land management continued to include different practices, some of which established a continuum with indigenous tradition and were even subordinate to it (Jenkins 2001, Raposo, Viegas. and Melo, 2012).

The second main boost to urbanisation occurred in the post-World War II period, when the volume of exports / imports increased as a result of greater exploitation of raw materials. The urban population grew rapidly due to the influx of indigenous population used as a workforce. In the 1960s, urban expansion increased due to an increase in colonial investments with this trend continuing until independence in 1975. However, land management and planning remained secondary<sup>2</sup>.

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<sup>2</sup> After the nationalizations in 1976, the rented and abandoned houses were managed by the State Property Park Administration (APIE). However, in accordance with the 1992 housing policy, these



Urban planning and development control in Portugal were based on master plans that projected physical "schemes" for future horizons (Jenkins, 2008). Different European forms of planning were transferred to Sub-Saharan Africa in the colonial period, resulting in fragmented styles of planning and of control regarding urban development both in the colonial and post-colonial time.

In Mozambique, the concept of a Master Plan was introduced and applied during the last years of colonial domination and in the following decade, while the strategic forms of land use planning (Structure\plans) had a relatively late development in Portugal (beginning 1980s to 1990s) and in Mozambique they were only implemented from the 1990s (Andersen, Jenkins and Nielsen, 2015).

Since independence, while the new State had gained legal control over urban land, a clear strategy for urban development remained lacking, as well as qualified human resources to work on such a strategy. Therefore, urban development action from the private sector remained unregulated; likewise, indigenous practices were replaced by the state apparatus through a capillary organisation at neighbourhood level. As a result, in the face of increased demand for land, a parallel, so-called "informal" land market began to flourish (Jenkins, 2001; Melo, 2015).

The ideology of the new post-independence government, based on rural development as a pillar of the new image of the independent country and on industry as a driving force for the economy, did not pay much attention to the suburban areas that were growing at a fast pace.

The post-independence decade was marked by a pro-socialist approach to urban planning (Jenkins 2012, Mazzolini 2016). Migration from the countryside to the cities to achieve better economic opportunities continued exponentially, resulting in a spontaneous urbanisation process in suburban areas lacking infrastructure and basic conditions for a decent life. Land, abandoned properties, banks and services were nationalised

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housing units were privatized and sold to the respective tenants at symbolic prices. This change was in line with the new constitution and the gradual shift towards liberal democratic capitalism, and eventually led to the emergence of an existing private real estate market in the context of a state-controlled land market.

and controlled by the State shortly after independence. Territorial planning was a responsibility of the central government, under the principle that a centralised control could guarantee a better management of resources, consequently leading to more equitable development. Since the 1990s, the gradual transition from socialism to the market economy (in which the State maintained ownership of the land) led to a complex situation in which land markets began to spread outside the "formal" system yet maintaining a strong social legitimacy (Jenkins 2000), constituting a parallel system of land control.

The prolonged civil war attracted more people to the cities, with the progressive consolidation of peripheral neighbourhoods. After the 1992 peace agreement was signed, several programs of economic rehabilitation and decentralisation were promoted. The territory was then reorganised based on politically autonomous local authorities (1998) that afterwards would have been recognised as Municipalities. Parallel to decentralisation, the Land Law (19/97) of 1997 put the foundations for territorial and urban planning, defining the modalities for the acquisition and transfer of land use rights<sup>3</sup>. The law stipulated that land use right titles could only be granted if the parcels in question were included in officially approved land use plans. Such circumstances slowed down and complicated already unclear land transactions, exacerbating the vision of a dichotomy in the urban sphere, made of formal or informal spaces. Such dualism became an urban narrative that crystallised in the 1990s.

Between 2000 and 2020, with the consolidation of new liberal policies, the land market parallel to the 'formal' one became widespread. Urban space and its expansion underwent conflicts of interest between the state, the private sector and recognized and 'traditional' practices of land access through land use rights recognition by local and neighbourhood authorities, where the urban poor were progressively taken out of city centres.

This dichotomy between centre and periphery (Araujo, 1997) characterised the narrative about the city of Maputo for several decades

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3 Municipal Urban Structure Plan, General or Partial Urban Plan and Detailed Plan, in the case of municipalities and the District Land Use Plan, in the case of districts.

and still culturally permeates society. The concept of 'urban' in the country has always been attached to the concept of Municipality and municipal boundaries (Figure 12). As a consequence, urban development remains disconnected from the broader concept of territorial development. Urban areas have been associated with cities and/or central business areas, while in Mozambique the concept of urban permeates rural and peripheral life as an integral part of a complex system. Cities are still conceived and read in a static and physical way and from the perspective of zoning of economic roles and activities. The city is not conceived and interpreted, by city planners and decision makers, in terms of mobility, exchanges, movements and social and cultural relations. In terms of planning, it is still difficult to decentralise services, and the way in which the city is thought out still puts a lot of pressure on the core city in terms of civil construction, exacerbating already embedded gentrification processes.

Despite this static and dual view of what is urban, cities in Mozambique are urban environments that require continuous physical movement and access to goods and services. The ability and possibility to travel at reduced costs allow full participation in society and constitute a fundamental pillar of the right to participation in urban life. This right is restricted, besides poverty, by the low quality of public transport services, especially in peripheral neighbourhoods with low access to the use of private and collective motor vehicles. As in many other cities and not solely in the Global South, this dynamic leads to an increase of spatial and social segregation, as a consequence of land-use patterns developed through a succession of narrowly conceived urban plans relying on economic and functional criteria that do not reflect real life dimensions and needs.

Over the last decade, the Government, particularly the Ministry of State Administration and Public Function (MAEFP), and most recently President F. Nyusi in person, has been emphasising with growing conviction the need for a national urban policy, which can better direct and regulate planning actions in the long term. Nyusi has been highlighting with increasing conviction the need for a national urban policy, which can better direct and regulate, in the long term, planning actions, particularly with regard to greater spatial and social equity.

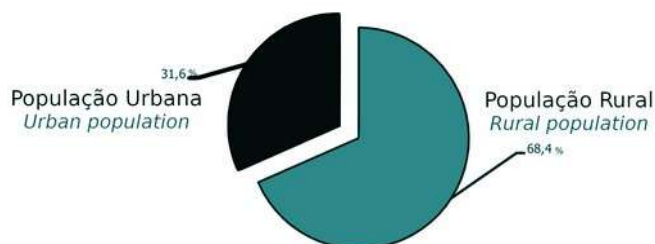


Figure 9: Official share of the urban-rural population in Mozambique. Source: INE, 2014

### 1.2.1. Space occupation processes

In Mozambique, much of the collective and individual economy, as well as the possibilities for urban inclusion and social ascension in the city, are based on land negotiations. Land-related practices are a key part of the roots of people's "economic" behaviour in the country (Granovetter 1985). The land market works with different degrees of involvement of the local institutions and according to the systems of values and relationships that regulate the life of the individual and the communities.

Even though land is formally owned by the state, land allocation and selling coexist outside the formal system, through multiple local governance regimes involving the state, the private sector, and traditional authorities (e.g., neighbourhood secretaries). The general absence of conflicts at the neighbourhood level is proof that the so-called informal land market operates as a co-producer of urban space. In reality, completely unplanned areas do not exist, despite the recent efforts towards a stricter classification of land plots depending on the planning process attached to them.

According to the Mozambican Constitution, it is the State that has the responsibility (district or administration), to grant natural or legal land use right titles (Direito de Uso e Aproveitamento da Terra, from now on DUAT<sup>4</sup>) to people. These titles are formally allocated on a usufruct title

4 DUAT (Right to use and benefit from land) is the right to use the land required to occupy and build. A DUAT protects communities' customary rights to their traditional territories and recognizes communities' and individuals' land rights acquired through customary systems and good faith occupancy, even without formal documentation of those rights. Community land use rights are legally equivalent to rights granted by the government to individuals and entities. The DUAT is the only recognized right of possession and use of land, and may be held individually or collectively. According to the Land Law, a DUAT can be acquired in three ways: (i) Customary occupation following customary norms and practices (this applies to local communities and individuals and households

and are administered by the provincial governments, except in municipal areas, where land is intended to be a source of income through the property registry. However, as explained, owners of DUATs are used to selling land themselves, regardless of their status (formal or customary land use right title, see also Mundamule, 2017).

Despite the existence of a certain commitment and institutional will to include the so-called "informal" land system in the cadastre or to properly register the plots, the new package of urban land regulations (from 1997 to 2008<sup>5</sup>) established "planning" for urban land as the precondition for accessing land titles in urban areas. In addition, a top-down planning vision gained importance, based on a general urban structure plan and on specific "urbanisation plans" and parcelling plans.

Urban land has gradually become a source of income for individuals and local communities, also because of the absence of other investment opportunities. An ambiguous -but recognised by local authorities and by the overall socio-political and cultural setting- relationship between the "formal" and the "informal" was established, with complex forms of "planning" managed at different administrative levels. This quality of ambiguity has always been an advantage for economic elites and higher-income citizens.

An out-of-date cadastre (for Maputo City since 2015) and the rapid and low density current urban expansion are other factors that contribute for these 'informal' or semi-formal practices to remain as guidelines for access to land in areas not officially planned. In areas occupied by the higher-income population, this leads to an exacerbation of speculation. This happens more and more through the creation of ad hoc urban plans, requested and elaborated by the same residents in lack of plans made available by the municipality<sup>6</sup> (Nielsen, 2009, Mazzolini, 2016). The concepts of formality or informality are then increasingly characterised

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within them); (ii) Good faith occupation (after using the land for at least 10 undisputed years); or (iii) Award and assignment of a 50-year lease by the State.

5 Law 8/2003 on Local State Bodies; Law 19/2007 Land Planning Law; Decree\_23\_2008 - Regulation of the Land Planning Law; Decree 26/2009

6 These inverted governance processes, which began more than a decade ago, have been adopted as hybrid (semi-formal) mechanisms for accessing land and are today one of the greatest tools for organizing urban land. Resident groups create associations for the purpose of paying technicians or architects to create ad hoc plans in order to allow the DUAT application process to begin.

by an increasing complexity of plans and actors.

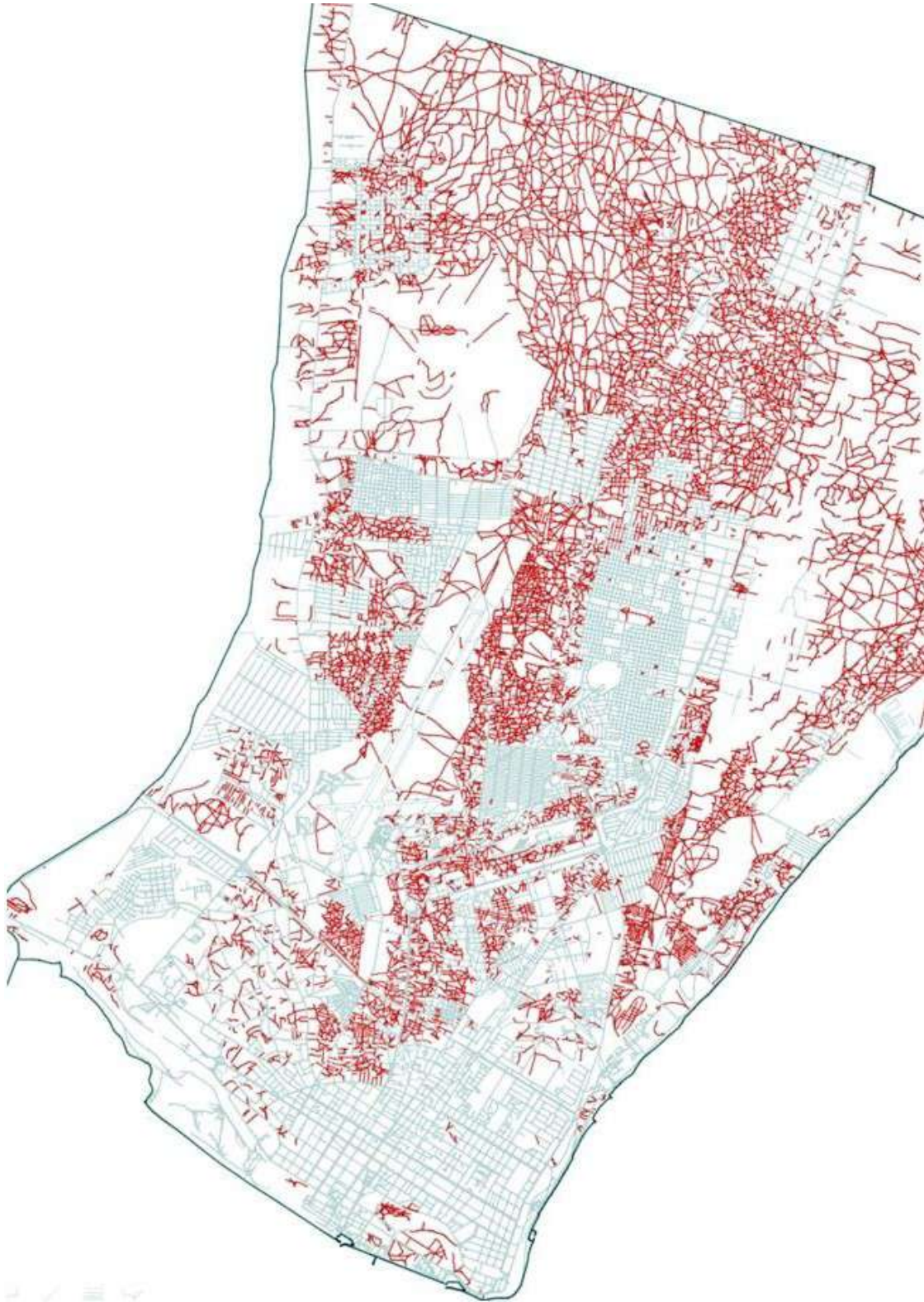


Figure 10: Maputo City planned and organic urban grid. Source: Viana 2015

The state has a limited record of land use and property rights from the past decade. International cooperation programs focused on the land rights registration as the key for a more equitable urban development that could also allow for better infrastructure (e.g. with the ProMaputo and Terra Segura program). These programmes offered technical support to the government for massive regularizations processes. Across the country, the percentage of people who own DUATs on their properties is still very limited, and the percentage is difficult to define. The procedures for obtaining the DUAT have always been complex for most people, which does not encourage its obtaining<sup>7</sup>, even in the areas registered in the cadastre.

The ambiguity and multi fold/multi actor character of the land access dynamics, the weak control and coordination of expansion plans to the limits of the city of Maputo and in outskirt areas constituting the Metropolitan Area led to the impossibility of managing urban expansion with inclusive land access policies and plans and appropriate infrastructure and transport networks.

The aforementioned processes fostered an urban expansion trend based on low density settlements and on the use of cars, with an increase in socio-spatial polarisation. The ambiguity of land access systems, weak control over expansion plans and the lack of a metropolitan vision led it to be impossible to manage urban expansion through inclusive policies for land, infrastructure and transport.

In parallel with these structuring factors, a strong urban ideal based on land purchase and incremental self-construction of a house exists and is shared among all social classes, regardless of income levels. Such an ideal is reinforced by the feeling of a desired autonomy as a city user, characterised by the possibility of developing a lifestyle closer to the rural land and having a large yard to use, thus far from the intensity and congestion characterising the urban and business centre. Such lifestyle and a location on the outskirts at the same time allows the possibility of inhabiting and displaying a more luxurious life (several cars, swimming pool, gardens, etc.) in the outdoor space that was traditionally used to

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7 Customary rights over land are recognized and safeguarded by the Constitution of the Republic to local communities, which must be (obligatorily) consulted on requests for DUAT of the lands where they reside.

prepare food, cook, wash clothes and maintain social and caring relationships.

Such a housing ideal and aspiration is one of the main drivers for a low-density urbanisation (Mazzolini 2016, 2017) and has as an essential complement private car use, materialising the desired autonomy in the sphere of mobility.



Figure 11: Photo of a backyard wall in a peripheral neighbourhood of Matola City. Even the backyards of the most humble families reserve space for future cars and a space on the wall for the access gate. Source: Romero, J.

## 1.3 Urbanisation of the City of Maputo

### 1.3.1 Brief administrative profile

The city of Maputo, with an extension of 347 Km<sup>2</sup>, is located in the extreme south of the country, bordered by the Indian Ocean, and crossed, at the Southeast, by the estuary of the Matola river. According to the 2017 Census data, the city has a population of 1,120,867 inhabitants, a slight increase compared to 2007 data that counted a population of 1,111,638 inhabitants.

At administrative and governance level, it is necessary to differentiate between Maputo City and Maputo Province. Maputo City has a status equivalent to provincial level, with independent administrative management from Maputo Province. The administrative capital of



Maputo Province is Matola City.

The municipality of Maputo is composed of non-contiguous areas around the bay of Maputo: The Municipality Centre, KaTembe and the islands (KanYaka Island, Portuguese Island and Xefina Grande Island). The Municipality Centre is the largest area (about 167Km<sup>2</sup>, 54% of the entire Municipal territory), followed by KaTembe (31%) and KanYaka (15%). Administratively, the municipality is divided into the following Urban Districts: KaMpfumo, Nlhamankulu, KaMaxaquene, KaMavota, KaMubukwana and Municipal Districts of Inhaca Island and KaTembe. These are shown in Figure 12.

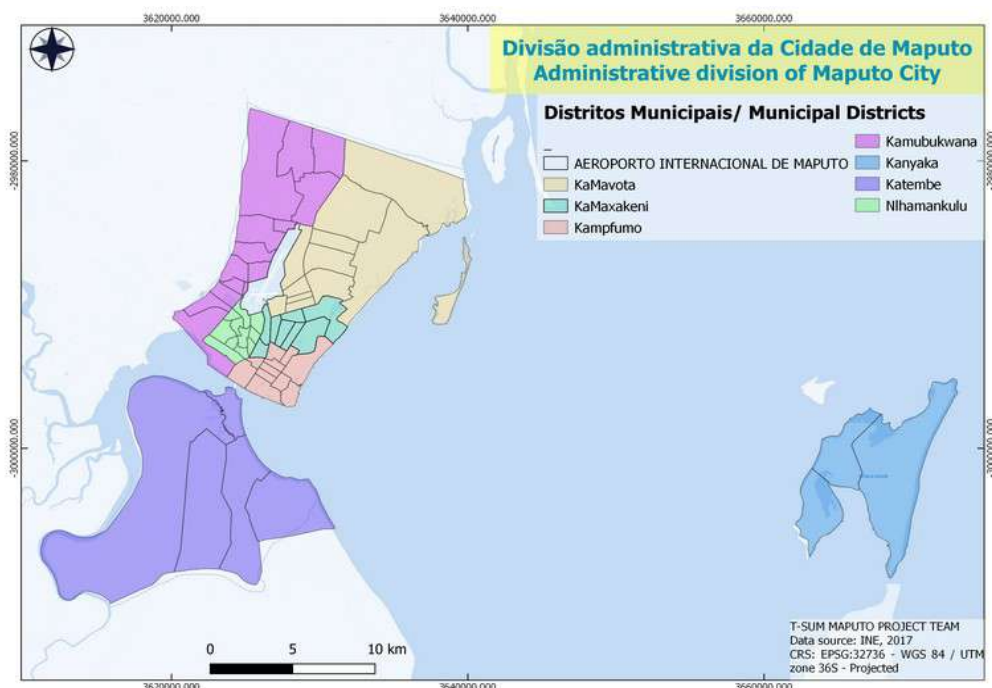


Figure 12: Maputo City Map. Design: OMT, Mindo

According to PEUMM regulation (Plano de Estrutura Urbana do Município de Maputo) the space allocated to the Ecological System in the Municipality of Maputo is constituted by several green areas, as far as possible continuous or interconnected and integrated within the urban space, which hold a high importance in the urban ecology (e.g.: the potential to secure the biological systems functions, to regulate atmospheric flows, water runoff from rainfall). These areas also contribute to the quality of urban space offering suitable places for recreation and leisure.

The land considered as Developed Urban Areas (Áreas Urbanas Desenvolvidas) and Developing Areas (Áreas Urbanas Desenvolvíveis) correspond respectively to the consolidated areas of the Municipality and to areas still susceptible to densification. Industrial activities, storage facilities and office space occupy approximately 456 hectares. Land occupied by agricultural practices, still one of the main livelihood activities for a considerable part of the population, represents 25% of the municipal territory (PEUMM, 2008).

### 1.3.2 Brief socio-economic profile

In Mozambique, 51.5% of GDP comes from the country's 23 cities. The city of Maputo, with its commercial and services sectors, is the core of the economy in the entire metropolitan area.

As shown in Table 4, In 2017 the GDP per capita of Maputo province was 1,111 USD and 1,842 USD for Maputo City, placed much higher in relation to the country's other provinces, whose GDP varied between 181 USD (Niassa) and 716 USD (Inhambane). Much of the investment for development has often been allocated for the city of Maputo, creating better economic conditions and possibilities in relation to the rest of the country. The following data shows the GDP evolution in the province of Maputo and in the city in comparison with the rest of the country.



Figure 13: Provincial GDP evolution 2007-2017. Source: INE 2017

Tables 2: Tables of provincial GDP 2007-2017. Source: INE 2017

Regions/ Provinces	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
<b>North</b>	<b>298</b>	<b>352</b>	<b>344</b>	<b>320</b>	<b>385</b>	<b>441</b>	<b>510</b>	<b>463</b>	<b>404</b>	<b>281</b>	<b>282</b>
Niassa	232	268	260	239	288	325	297	304	261	177	181
Cabo Delgado	258	312	308	290	354	408	2.874	444	405	284	307
Nampula	333	394	383	356	428	490	459	523	453	317	357
<b>Centre</b>	<b>327</b>	<b>407</b>	<b>366</b>	<b>317</b>	<b>370</b>	<b>466</b>	<b>442</b>	<b>469</b>	<b>411</b>	<b>283</b>	<b>344</b>
Zambézia	265	380	304	237	266	404	388	336	301	206	226
Tete	304	320	312	281	341	395	362	468	407	283	343
Manica	234	280	271	248	292	331	307	334	287	196	208
Sofala	576	675	656	603	718	819	787	907	790	549	600
<b>South</b>	<b>923</b>	<b>1.068</b>	<b>1.037</b>	<b>954</b>	<b>1.134</b>	<b>1.301</b>	<b>1.257</b>	<b>1.454</b>	<b>1.255</b>	<b>869</b>	<b>1.012</b>
Inhambane	566	655	649	609	746	887	814	942	830	584	716
Gaza	348	424	419	395	479	556	517	556	501	352	380
Maputo province	1.312	1.462	1.367	1.215	1.423	1.587	1.553	1.765	1.477	991	1.111
Maputo City	1.554	1.825	1.802	1.678	1.974	2.273	2.240	2.674	2.325	1.636	1.842
<b>Total from Mozambique</b>	<b>458</b>	<b>544</b>	<b>516</b>	<b>466</b>	<b>552</b>	<b>650</b>	<b>662</b>	<b>692</b>	<b>601</b>	<b>416</b>	<b>466</b>

Official data shows that Maputo recorded a decline in its poverty rate from 53.6% to 36.2% between 2002/03 and 2008/09, mainly due to the increase in employment in construction and in private security companies, although it is eventually also related to advances in the informal economy (Tvedten et al., 2013). Nevertheless, data from the IOF (Inquerito ao Orçamento familiar translated as Families' income Survey) from 2014/15 indicates that the province of Maputo has the highest unemployment rate in the country (45.2% unemployment rate), mainly affecting young people between 15 and 29 years old. About 20% of the unemployed population belongs to the younger age group.

The city of Maputo concentrates most of the services and corporate headquarters of the main economic groups and companies (public and private). Despite concentrating only 5.4% of the country's population,

Maputo is responsible for 20.2% of Mozambique's GDP. Trading, transport and communications, and manufacturing sectors are the most significant, accounting respectively for 29.6%, 29.5% and 12.4% of national GDP, according to INE (2018). Informal commerce is mostly practised by women and young street vendors for the sale of food products.

The lead economic sector in Maputo city is that of trade and services. A structural feature of these two sectors is their level of informality and precariousness, as well as profound disorganisation in terms of location and accessibility. In terms of commerce, informal commerce is mostly done by women selling primary food items and by young people occupied in street vending of all kinds of items.

Western-based and modernist views of the cities remain increasingly shared by society and by urban planners in Mozambique (Roque 2020), these kinds of economic and spatial informalities (e.g., informal street vendors) are seen as a "urban inadequacies" in the city. However, these activities and spaces allow users to carry out their daily practices that constitute the foundations for their feelings of urban belonging, citizenship, and for basic family sustenance.

### **1.3.3 Process of urbanisation of the city of Maputo**

The Portuguese establishment of the former city of Lourenço Marques (Maputo) started in 1781, but it was consolidated in 1805, with the arrival of the colonial military force. The city became the capital in 1887 and, the same year, the first urbanisation plan was elaborated. The first urban plans for Lourenço Marques were inspired by the idea of a metropolis (Melo 2013) and were planned on a large scale and with an orthogonal geometry. Suburban neighbourhoods started arising in those very first years, and some of them were purposely designed to accommodate the poorest populations<sup>8</sup>.

Under colonial administration the city experienced forms of deep social, economic and racial segregation. These were based on the colonial

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<sup>8</sup> Já o plano de 1887 previa a criação de um pequeno bairro indígena (Morais 2001) que não chegou a ser formalmente criado.

Indigenato legislation<sup>9</sup>, which imposed a categorisation of the society into civilised, indigenous and assimilados (honorary civilised). Such categorisation also imposed restrictions on the right of access to the “cement city” by the indigenous (Newitt 1995), since the city had strict boundaries through which indigenous people were allowed to pass by showing a special pass. Indigenato legislation ended in 1962 but its effects remained present during the colonial era and shaped the racial-based access to the city (Bertelsen et al. 2014) as well as the vision of a segregated city.

In 1972, the first Master Plan for the City of Lourenço Marques was approved. Between the 70s and 80s of the last century, the administrative borders of Maputo were enlarged, welcoming a large part of the rural population that settled in the transition area included within the city’s administrative limits. Thus, in the 1980s, the peripheral areas of Maputo presented the characteristics of a rural lifestyle (Raposo and Salvador, 2008), while the city expanded exponentially due to migrations from the rural environment. In 1980, almost 50% of the urban area was made up of peri-urban settlements. Those years witnessed the first attempts to control the city’s expansion.

The end of the 1980s was a period of significant political and administrative changes for Mozambique, while at the same time a critical moment for Maputo’s urban management (Jenkins 2012). The “Basic Urbanisation Program” (1981/87) conceived in those years tried to improve the city’s infrastructures. Nevertheless, due to limited financial and administrative capacities, the improvements foreseen by the Program were never implemented. Meanwhile, inhabitants continued to find alternative ways of accessing land and urban space. In 1985, the first Structure Plan attempted to establish the instruments for management of peri-urban areas, as well as for city expansion planning. Considering the character of the peri urban settlements at that time (still holding a rural lifestyle), the plan (which was never implemented) finally resulted in a morphological coexistence between formally planned areas and areas in which traditional land access dynamics were adopted and accepted.

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9 The set of regulations, institutions and behaviors that defined the difference between colonist citizens and indigenous subjects in colonial Mozambique.

The structural adjustments in the late 1980s furtherly depleted the state's technical and financial capacities, while the conflicts and attacks during the civil war occurring in rural areas worsened and led the population to flow into central areas of the city for job opportunities and services. The population boosted into the central areas especially between 1987 and 1992. With the end of the civil war in 1992, the new Constitution privatised housing while land remained property of the State. Land and housing progressively started to be bought and sold, despite the fact that land transactions were considered illegal, a circumstance that, as mentioned above, laid the foundations for the co-production of the urban space between the formal and the so-called 'informal' market.

The economic liberalisation measures led to the weakening of the state and of state-owned enterprises, as well as to a crash in salaries and to more unemployment. At the time of the introduction of the neoliberal vision of urban development, the war was still displacing a huge number of people from the rural areas to the urban ones. It is during that period of increasing demographic pressure, political and economic collapse, rising unemployment and slow opening to private economic initiative that informal sellers and markets emerged on the streets of Maputo's city centre.

After the 90s, with the end of the civil war, the entry of foreign direct investment and the emergence of a national business class, a part of the population gradually regained some purchasing power and improved houses in peripheral and central neighbourhoods replacing reed (*caniço*) with masonry, but still lacking basic infrastructure. In structural terms, the first moment of Maputo city's expansion took place with the progressive replacement of reed areas by the construction of conventional private infrastructures (as in the case of housing complexes in Triunfo, Costa do Sol and Polana Caniço). The coexistence between "reed" and "cement" in Maputo is the result, according to Araújo (1997) of the effects of migration (countryside - city).

With the creation of local authorities (*autarquias*) at municipal level and the consequent elaboration of urban plans, an attempt was made to recover the image of the capital city and to contrast "informal

occupation” through land use regularisation and land parcelling. This regulatory trend seemed to slow down during the 2000s, when the government turned its attention to the production of urban plans. It was after the elaboration of several detailed plans (1998-1999) that planning began to be developed at the level of the metropolitan scale (the area called Greater Maputo), including the city of Matola and the districts of Boane and Marracuene<sup>10</sup>, through the structure plan elaborated in 2008 - the Plano de Estrutura Urbana do Município de Maputo [Urban Structure Plan for the Municipality of Maputo] (PEUMM). With the 2008 PEUMM, the concept for a ring road that would connect Maputo to the neighbouring cities of Matola and Marracuene was drafted, taking it through the still low-density urbanised plains. This was the means to answer the urgent problem of accessibility to the city centre and to promote a polycentric metropolitan area.

The PEUMM, which is still in force, gave more importance to municipal finances and revenues and developed a set of many Partial Urbanization Plans (Planos Parciais de Urbanização, PPU) including better services such as waste management systems. Some of the principles of the plan were further developed by the World Bank programme Promaputo, a 10-year, two-phase Municipal Development Program for Maputo city (from 2007 to 2017). Along with these planning challenges, a (re)approximation of Mozambique to other countries (as China, Pakistan, Turkey) through means of bilateral relations occurred and progressively intensified. Urban planning became more linked with broader economic interests (Beja and Mazzolini, 2021) and progressively managed by private investors that, with the endorsement of the Municipality, promoted gated communities as the main urban development form in the city’s central areas.

### 1.3.4 Current urban trajectory

It is in the Greater Maputo region and especially in the areas of “Maputo Norte” (Northern Urban Districts KaMavota and KaMubukwana) that most of the urban expansion has taken place over the last two decades. The expansion was due to the spatial subdivision and housing improvements carried out by residents holding improved economic

<sup>10</sup> This plan reactivated one of the two alternative planning scenarios of the old 1985 plan, that of concentric development.

conditions and searching for better and calmer areas on the outskirts, through negotiations in agreement with the local power structures. The neighbourhoods of Zimpeto, Xiangó and KaTembe are some of the key areas in the current urban expansion and they are undergoing significant changes in terms of density and nature of land use. At the level of “formal” planning by the authorities, the emphasis has been placed on detailed urban plans at neighbourhood level and on stricter regulation on the procedure for issuing DUATs. The regulation of the land titles is currently used as a privileged instrument for the urban renewal process (Andreatta and Magalhães, 2011) both at the city level (with the revision of the Maputo Structure Plan 2008), as well as at neighbourhood level, with many partial or detailed plans.

The 2008 PEUMM aimed to manage the new expansion trend, through: (i) the improvement and development of almost 4,000 informal urban areas by 2018, (ii) the elaboration of accessibility parameters, (iii) the densification of urban areas such as how to deal with urban sprawl and the costs of infrastructure and services; (iv) the development of new residential areas called “new centres”, in order to make room for an increase in the population, including social housing projects. Therefore, the Structure Plan highlighted, once again, the need to define, classify and control the expanding areas of the city. It distinguished two main types of urban land: already urbanised and “to be urbanised”.

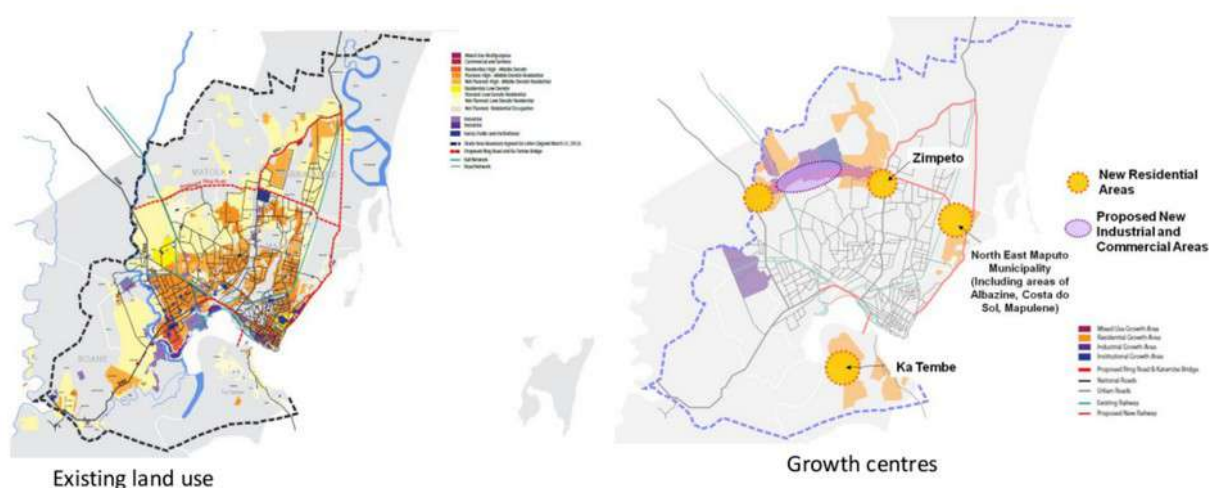


Figure 14: Urban Trajectory and Growth Poles in the AMM. Source: Greater Maputo Mobility and Transport Master Plan



In reality, new forms of settlements, which cannot be defined as urban or rural areas, are growing and expanding in the peri-urban areas of cities. In Maputo, the low growth rate of the city's population needs to be understood with the fact that a great part of the population is currently settling in those areas ('non-urban' / 'non-rural' areas outside the urban administrative frontier). These 'proto-urban' areas (Jenkins 2013) such as Marracuene and Boane, are anyway clearly linked to the city through daily mobility and the intersection of different functions between the residential and the commercial.

According to UN-Habitat (2018), more than 75% of the people who live in the city of Maputo live in "informal" neighbourhoods. Such areas, which remain attractive because of their proximity to the city centre and the relatively short commute time to work or other sources of income, education and leisure opportunities, are characterised by a lack of sanitation, a general degradation, difficult access routes and environmental risk factors such as the risk of floods and the presence of waste.

Despite efforts made to include informal settlements in the city by providing infrastructure and improving accessibility, these areas tend to be perceived by the government as improper and incomplete urban areas and as places that are still to be fully urbanised. This perception is founded on the cultural and historical roots mentioned in the previous sections about pre- and post-independence periods. The colonial administration had defined the suburbs, the "informal" city, as temporary places awaiting to become a planned city (Morton 2019; Roque 2009, Roque et al. 2020); on the other hand, the post-colonial government, following an initial neglect towards the development of urban areas, had fully embraced an urban modernisation model valorising a formal spatial organisation instead of a spontaneous one (Sumich 2005, 2010, 2018; Nielsen 2017).

In the city 'centre', local authorities have tended to prioritise large scale residential developments or commercial buildings. These were not developed alongside sustainable mobility infrastructures (e.g., mass transit or cycling), leading to increased car use levels and congestion in the main arteries. Furthermore, there has been limited allocation of

public space for green areas or leisure activities in the city centre.

In general terms, the pattern of intervention in urban management and planning in the Maputo metropolitan area contributes to socio-spatial exclusion and fragmentation. Such socio-spatial segregation is increasingly related to a lack of mobility options, that is, the exclusion of the population with less resources from the benefits provided by the urban territory, in particular: basic infrastructure (sanitation, water supply, electricity, road and drainage), decent housing and qualified public spaces, essential for the creation of better living conditions and consequently a more inclusive urban life.

The patterns of urban expansion shown in Figure 14 can be further interpreted from the perspective of spatial segregation, a common issue in rapidly growing cities. The lack of housing access opportunities within the city boundaries pressures especially the new generations to settle down, spreading themselves into new expansion neighbourhoods without infrastructure, including the lack of public transport. This radically reduces the accessibility to these areas; moreover, the search for services, leisure and commercial activities, amenities that facilitate social interactions and other opportunities remains limited to the urban core, reinforcing the attraction towards and use of private transport as the only means to have a full and decent life.

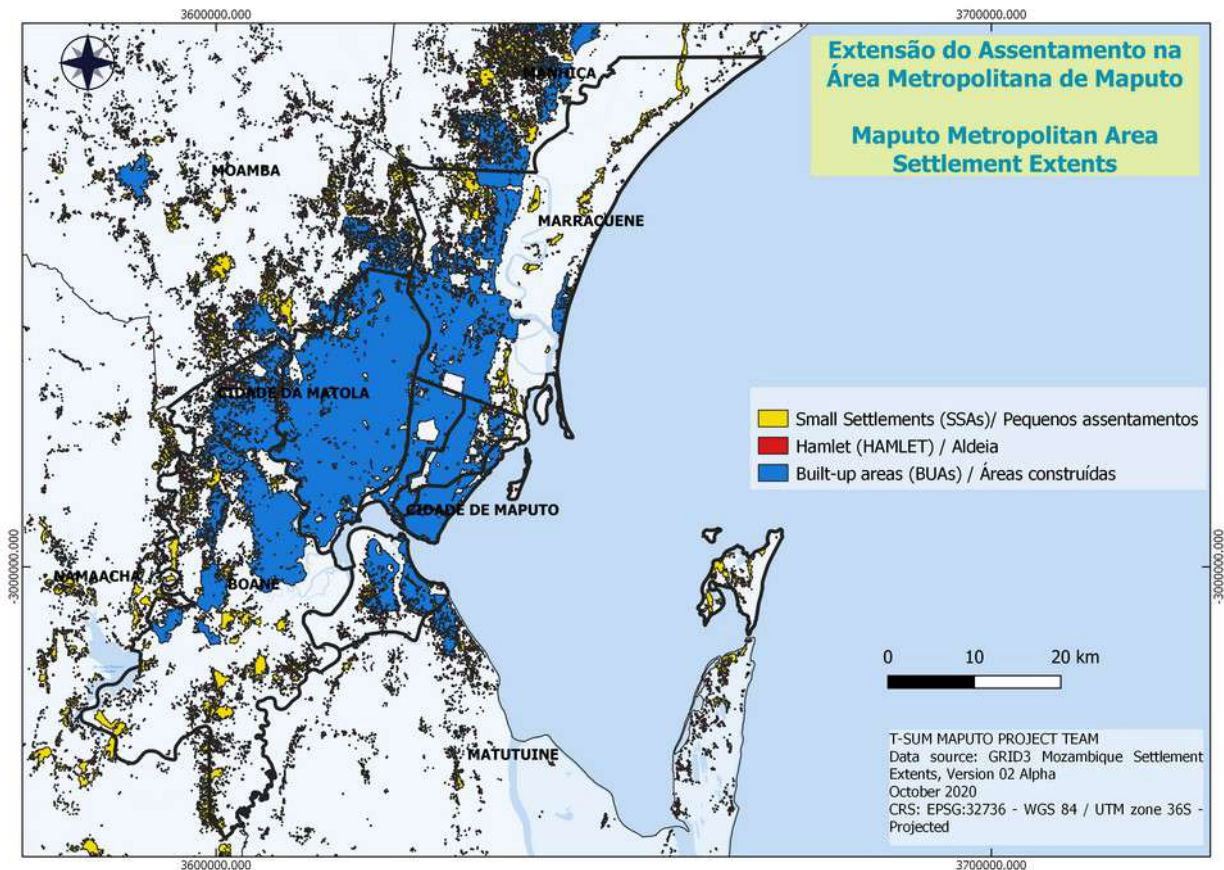


Figure 15: Map of population settlements in the Maputo Metropolitan Area. Source INE 2017 elaboration of the WTO based on data from the GRID3 program: OMT, Mindo

11

This general context is exacerbated by the fact that there is still no urban planning strategy at metropolitan level. Each Municipality designs and implements its Urban Structure Plan and all are interrupted within the territorial limits of their jurisdiction. Furthermore, this form of planning comes to an abrupt halt at the city limits.

Observing the growth dynamics of Maputo, if the city continues with the historical trend, it will continue to expand in the coming years with new settlements in the peripheries of the metropolitan region, which are likely to face a scarcity of services. New urban management models are needed to steer the metropolitan region's urban trajectory towards a more sustainable one. Likewise, new forms of institutional coordination between the different actors in the planning sphere need to be adopted,

11 The GRID3 Program seeks to create a georeferenced database based on data from the 2017 INE Census. The base is freely accessible and allows downloading to model precise maps for each project.

so that citizens have access to both opportunities and mobility conditions and choices that allow them to access them in a safe and comfortable manner (Seabra, Pinheiro, Marcelino, Santos, & Leitão, 2011). This implies a radical change in the planning system, seeing the spatial structure of the city as the main promoter of social interactions between people, whether in the economic, community or individual field.

## 1.4 The Maputo Metropolitan Area

The Maputo Metropolitan Area (AMM) is a territorial part of the province of Maputo which, due to the close connection of daily activity with the City of Maputo, constitutes a supra municipal socio-economic system. The AMM includes the municipalities of Maputo, Matola, the municipal town of Boane and the town of the Marracuene District. If looking at the provision of Passengers Collective Transport (TCP) the AMM territory is much more extensive, encompassing the municipalities of Namaacha, Manhiça, and the districts of Matutuine and Magude.

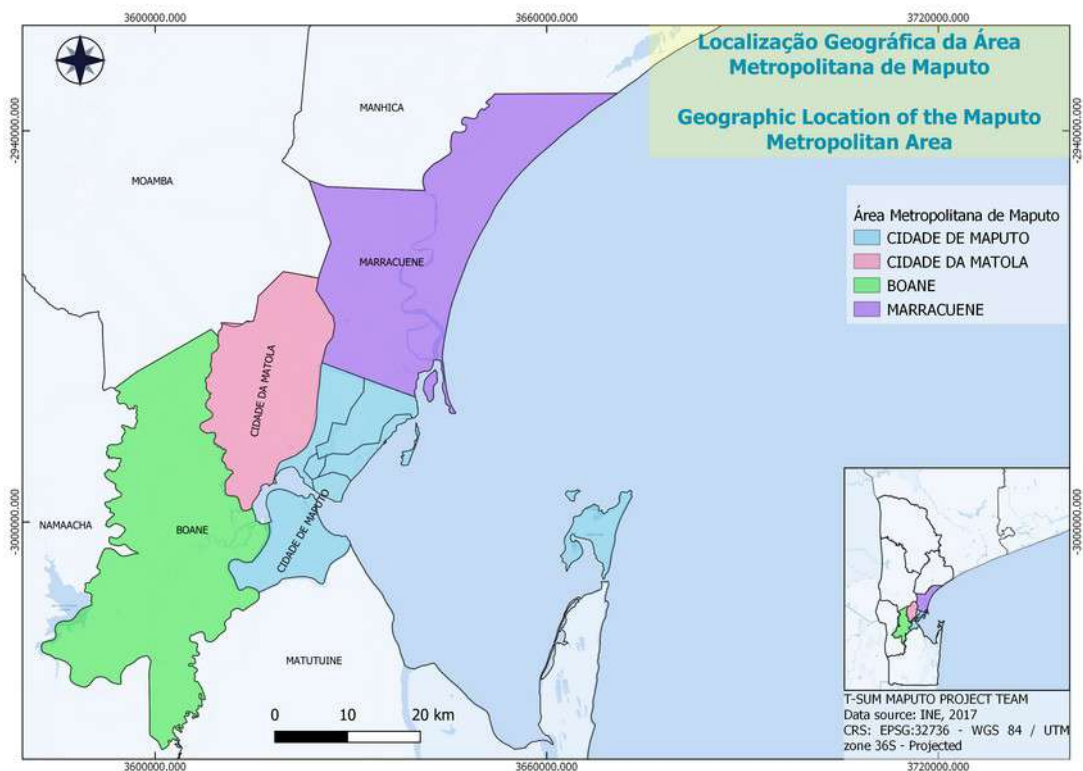


Figure 16: Map of the Maputo Metropolitan Area. Design: OMT, Mindo

The General Population and Housing Census (2017) indicates that 2,582,219 people live in the AMM, which corresponds to 10.9% of the resident population of the national territory. AMM's population nearly doubled from 1997 to 2017, as shown in Table 5. Census data for 1997, 2007 and 2017 indicate that the AMM population grew from 966,837 to 1,533,177 and 2,582,219 people, respectively. This data shows an average annual growth of 3.10%. Data from the last 2017 Census showed a very differentiated growth when comparing the single municipalities: the City of Maputo has increased its population by only 0.08% annually since 2007; the city of Matola grew by 5.37%, Boane by 10.51% and Marracuene by 15.75%. This data reveals the growth trend of the metropolitan region, with the displacement of the housing areas outside the city centre.

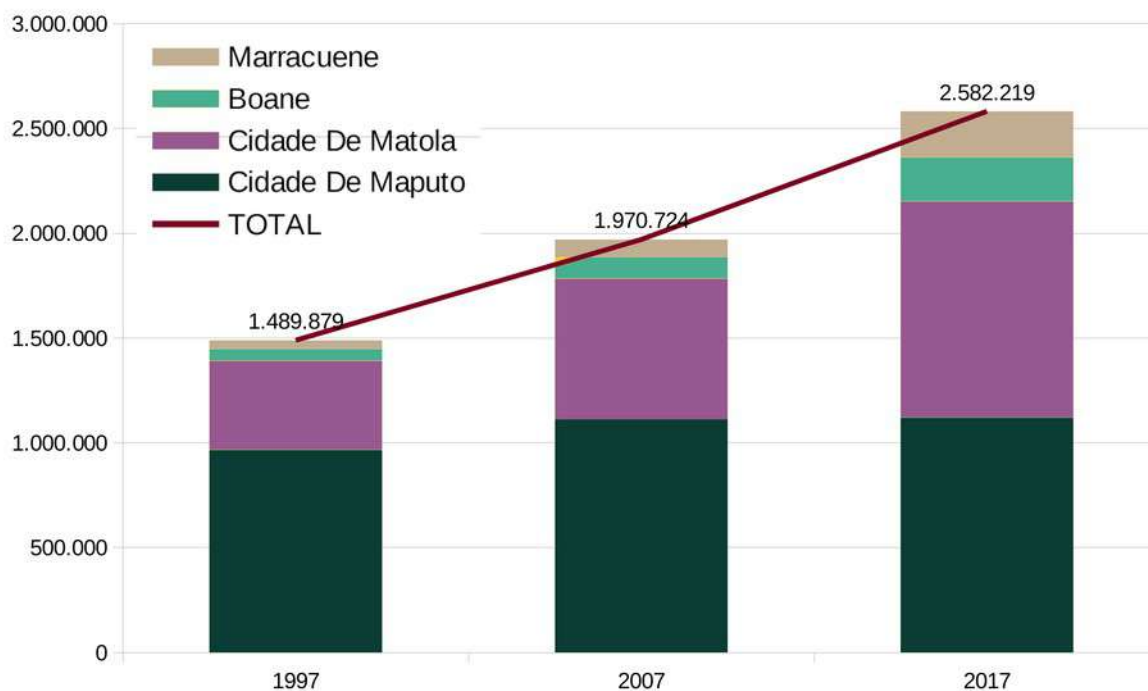


Figure 17: Graph of growth distribution among AMM municipalities. Source: INE 2017

The cities of Maputo and Matola remain economically central in the AMM and the movements of the population between the two cities play a fundamental role in the economic life of many residents. Although only 7.5% of Mozambique's population live in Matola and Maputo, this percentage is responsible for 51.4% of national GDP. In these areas, the

per capita consumption is three times higher than in rural areas (Ghosh, et al, 2010). The city of Maputo, being the country's capital, constitutes the focal point of all economic activity and of financial and social services. The municipality of Matola, in turn, brings together the largest industrial park in the region, with particular importance of the transport and communications sector. The presence of the cargo ports, the southern railway line and the EN4, bring a high volume of through traffic in Maputo. Moreover, the main roads connecting Mozambique to South Africa and the eSwatini region, cross the city of Matola, namely the borders of Ressano Garcia, Namahaacha, Bela Vista and Goba (for eSwatini). The municipal town of Boane, category C in the classification of municipalities and divided into two localities (Eduardo Mondlane and Guegueue localities) is an emerging residential zone where the former population of central neighbourhoods in the city of Maputo is progressively searching and occupying space. Regarding Marracuene district (especially the Posto Administrativo of Marracuene town), the part that is included in the AMM is the district's Headquarters, where the gateway to the capital via the N1 national road is located, serving the interior and the emerging neighbourhoods of Cumbeza, Intaka, Memo, Agostinho Neto. Just like the municipality of Boane, Marracuene is undergoing considerable housing, commercial and industrial investments, especially due to the connecting routes to Maputo, both on the N1 side and on the Marginal side of Chiango neighbourhood.

Araújo's studies (1997, 2005, 2006) show that most of the people who nowadays live in the new expansion zones (e.g. Zimpeto, Machava, N'kobe, etc.) came from the caniço areas, in the suburb of Maputo city, leaving their former homes as the "cement" zone was expanding. More recently, also formerly resettled people living on the outskirts of Maputo, in areas such as Laulane, Mafalala, Lhamanculo, Magoanine, have been occupying plots in the new expansion neighbourhoods, sometimes lacking basic living conditions.

In the Figure shown below, it is possible to appreciate the evolution in the occupation of the territory from the massive georeferenced data accumulated in the Global Datasets of the Global Program for Human Settlements.

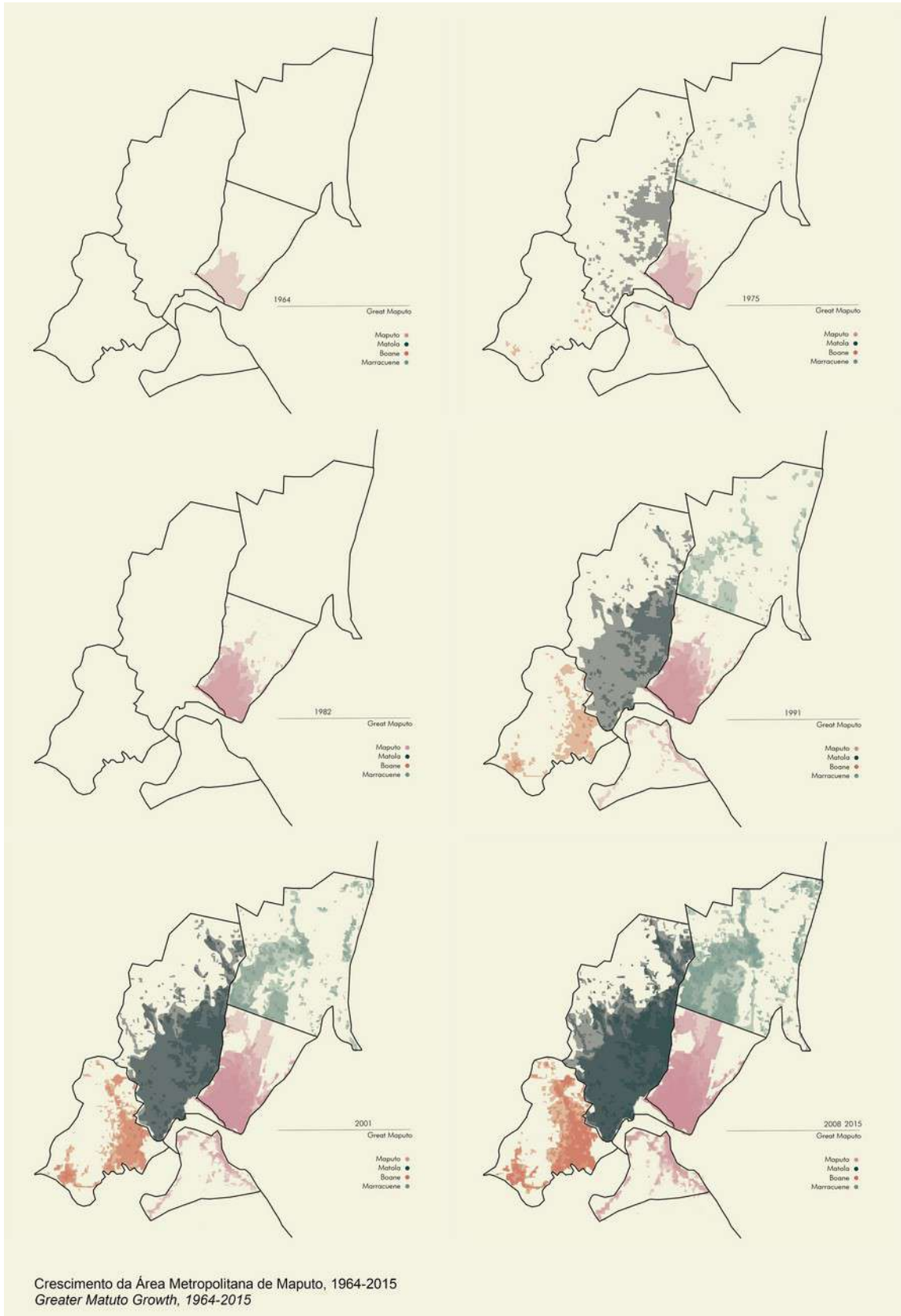


Figure 18: AMM Growth Map. Source: Global Datasets of the Global Human Settlement Program (GHSP), developed by the Joint Research Center (JRC) and DG REGIO of the EU Commission. Design: UN Habitat, Botella

It was about two decades ago that the concept of a metropolitan area (Greater Maputo) started to be discussed (Matos, 2003). Initially, the concept seemed to consider just the cities of Maputo and Matola, but later on Boane and Marracuene started to grow at a fast pace and to interact intensively with the two main cities. It was in particular, from the year 2000, that people started to settle in the new zones, in particular in the Municipality of Matola (neighbourhoods of Txumene, Picoco, Kongolote and Mozal) and Marracuene (neighbourhoods of Guava, Agostinho Neto, 15 of August). As a matter of fact, the Greater Maputo Mobility and Transport Master Plan of 2014 (JICA) already included those territories. In 2017, with the creation of the Metropolitan Transport Agency of Maputo (Decree n. 85/2017), it was officialised that the AMM “comprises the Municipalities of Maputo, Matola and Boane, the Districts of Boane and Marracuene and others contiguous in the province of Maputo” (Art.3, point 3). The districts of Marracuene and Boane and Municipality Boane are currently the regions attracting the construction of social housing in the metropolitan region, and the district of Magude, which is approximately 160 km. from the centre of Maputo. More recently, this metropolitan concept has been reinforced by the Decree 02/2021 which updated the restrictive measures against COVID-19. The decree, among other measures, imposed a “Mandatory curfew” just for the Maputo Metropolitan Area. The collective transport system management had a great importance for the creation of the metropolitan vision. In fact, the AMM transport network also includes the districts of Boane, Matuitine, Magude and the municipalities of Namaacha and Manhiça.

The following table illustrates the distribution of the AMM population according to the Population and Housing Census in the last two decades for the cities of Maputo, Matola, Marracuene and Boane.



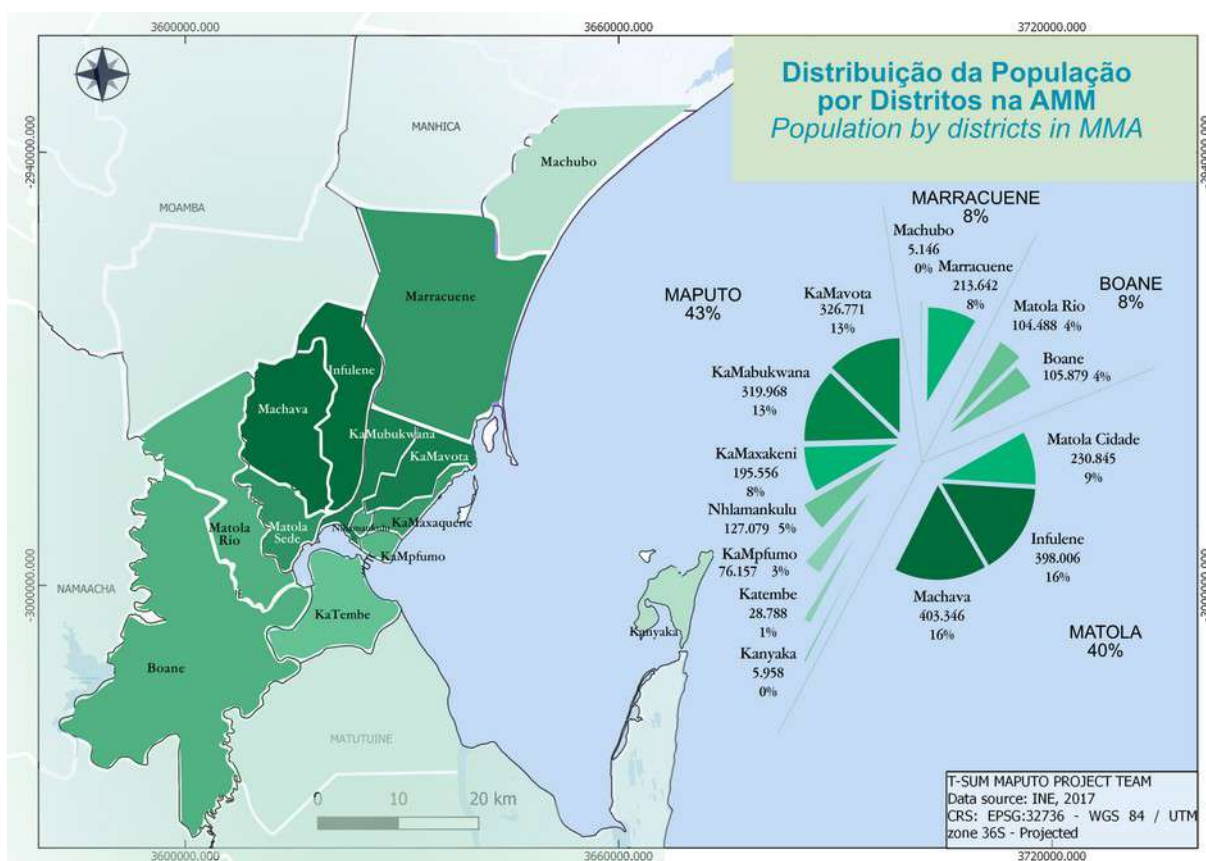


Figure 19: Population distribution by urban and municipal districts.  
Design: OMT, Mindo and Romero

	Population Census 1997	Population Census 2007	Population Census 2017	Extension Kms2	Population density 2017 Habs./Km2
Mozambique	16.099.246	20.632.434	28.861.863	801 590	36
<b>MAPUTO PROVINCE</b>	<b>806.179</b>	<b>1.225.489</b>	<b>1.968.906</b>		
CIDADE DE MATOLA	424.662	671.556	1.032.197	373	2.767
<i>Average annual growth</i>		5,81%	5,37%		
BOANE	56.703	102.555	210.367	820	257
<i>Average annual growth</i>		8,09%	10,51%		
MARRACUENE	41.677	84.975	218.788	666	329
<i>Average annual growth</i>		10,39%	15,75%		
<b>MAPUTO CITY</b> (another different province)	<b>966.837</b>	<b>1.111.638</b>	<b>1.120.867</b>	347	3.232
<i>Average annual growth</i>		1,50%	0,08%		
Maputo Province + Maputo City	1.773.016	2.337.127	3.089.773		
<b>Maputo Metropolitan Area</b> (Maputo, Matola, Boane and Marracuene)	<b>1.533.177</b>	<b>1.970.724</b>	<b>2.582.219</b>	2.206	1.171
<i>Growth between Census:</i>		29%	31%		
<i>Average annual growth:</i>		3%	3%		

Figure 20: Population and density evolution in the AMM according to Census 1997-2007-2017 Source: INE and OMT

The graph below shows the future population growth projection in comparative terms.

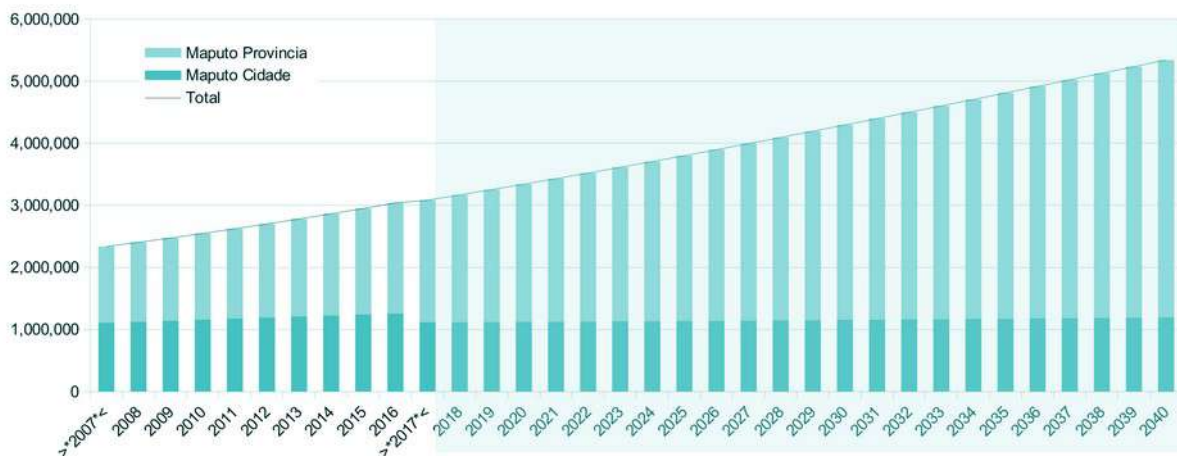


Figure 21: Population growth projection in the AMM between 2017-2040.  
Source: INE 2017

From an urban planning perspective, the growth of AMM in terms of spatial arrangements is the result of a way of conceiving space that follows a capitalist model of creating urban space.

Both the authorities and citizens have interiorised certain modes of spatial creation as the only way to create a modern, middle class-like city. Gated communities are currently the main mode of organizing new spaces in the city (Morange et al. 2012, Quembo 2009), as they provide new opportunities for increased privacy and security to a growing number of residents who aim to have a plot outside of the spatial, social and infrastructure disorder of the city centre. Gated communities, once associated only to an elite, are now the symbol of a new urban aspiration (Nielsen and Jenkins 2020, Bertelsen 2021).

Also, members of the lower middle class, or natives originally working in agriculture in outskirts areas, nowadays attempt to create enclaves to secure their habitational space thus experimenting forms of privatisation normally only accessible to a privileged elite (Sumich and Nielsen 2020). This is highly supported by the Municipal planning authorities, who privilege these settlements in detriment of individual form of securing land, such as in Mapulene neighbourhood. In many of these settlements, it has been observed that this kind of urban and architectural form

exacerbates segregation (Mazzolini, 2018), the use of private cars and limits the collective use and preservation of public spaces and ecosystem (Beja and Mazzolini 2021).

Morphologically, the AMM is characterised by an alternation of consolidated spaces and of urban and rural interstitial areas that are also defined as a 'transformed rural' (Mendonça 2014). The most recent settlements that emerged (e.g., Boane) always mean more residential alternatives for the population that still resides in Maputo, be it for the value of the land or for the lifestyle sought by an elite, thus creating more complex way of lives for people and driving the much more car use.

Peri-urban expansion areas became spaces that are increasingly desirable for the population with an increased purchasing power. In several places, such as Mapulene and Costa do Sol, residents' associations often organise the urban space themselves, producing their own urbanisation plans, in the absence of quick processing done by the planning authorities. In the peri-urban areas of Boane, for example, the practices of transforming the land previously dedicated to subsistence agriculture into high-value residential plots has led to an increase in the land value, especially if acquired by investors who build high class gated communities. These areas also function as reserves for planned areas for the resettlement of populations removed from areas considered unfit for housing or subject to other economic interests over land. In general, these peri urban areas are very attractive in terms of private, residential and industrial investments, although their population remains dependent on the city centres, which require daily trips from/to Matola and Maputo.

The region was already accommodating large middle- and high-class housing projects, such as the Intaka Project (Zimpeto), promoted as the location for a new urban lifestyle. Socio-economic changes - with the rise of a wealthier class - has led the inhabitants of many suburban and central neighbourhoods to leave their homes and move to peri-urban neighbourhoods, especially the KaMavota and KaMubukwana districts.

At the same time, the current "formal" planning promoted by the state based on the creation of new land use plans, "regularising" areas defined as "not officially planned", is also contributing to a process of

gentrification that pushes the poorest residents to progressively settle in the metropolitan area and further away from the centre of Maputo. 'Informal' areas in the suburbs of the city are under more and more pressure as developers are increasingly buying plots from local residents, often at prices below market value. Some of the poorest residents are pushed further away from the peri-central locations also because of a sense of not belonging to the city anymore since other models of housing development and urban imaginary are dominating the urban sphere (Mazzolini, 2016). An increase in transport costs and time spent are the first negative consequence of this process for the poorest segment of the population.

For a metropolitan vision to be adopted, it is necessary to recognize the different forms of occupation and promote integration between them. Urban equity is constituted by the coexistence of social justice and distributive/spatial justice. Both components are related to individual mobility, as this includes the possibility for residents to access services and opportunities. The weak knowledge of the real urban dynamics of land access, locational preferences, and mobility routes between peripheral residential neighbourhoods and the city centre, as well as the socioeconomic dynamics that allow for efficient dimensioning of the infrastructure network, has as its consequence an inefficient urban planning. Moreover, the absence of an up-to-date cadastre has weakened municipalities in the analysis of urban land use and in the capacity to properly capture urban land value.

## 2. Transport and Mobility in the Maputo Metropolitan Area (AMM)

Urban dynamics in Mozambique and the specific urban trajectory of the AMM described in previous sections are strongly linked with the structure of the urban mobility system in the region. Considering the strong links between urban development and the provision of both infrastructure and services for urban mobility, solving the problem of lack of organised and sustainable public transport in the AMM region has progressively become a policy issue at national level.

This chapter provides an overview of the main regulatory, planning, functional and governance features of transport and mobility in the AMM, discussing its implications for sustainable mobility and links with urban development in the region. Different reforms and transport system configurations are described in detail depending on available information. Furthermore, relevant initiatives seeking to improve accessibility and sustainability of the transport system in the region are covered in detail.

For instance, with a view to improving the policy coordination for the public transport sector, in 2009 the Government had approved the Strategy for the Integrated Development of the Transport System (Decree n. 37/2009). This strategy was aimed at enriching the transport services offered, at providing technical assistance for vehicle comfort and safety, and at extending the access and coverage of public transport. The main priorities and challenges were to ensure a more inclusive accessibility, to improve the regulation of vehicle flow to avoid imbalances and congestion, to minimise distances and waiting time, and to create a transport strategy that could proactively adapt to forthcoming environmental and changes in the transport system.

## 2.1 The Mobility Master Plan

The Greater Maputo Mobility and Transport Master Plan 2014 prepared by the Japanese International Cooperation Agency, JICA, represents a milestone in the evolution of transport planning with an emphasis on sustainable development. This plan also encompasses the issue of sustainable land use for a better use of mass transport systems. The Master Plan introduced the concept of Transit Oriented Development (TOD), which refers to mixed land-use with dense urban development concentrated around public transport stations, supported by high-capacity public transport systems, and which supports walkable and liveable environments for local mobility (Ibraeva et al., 2020).

By incorporating the concept of TOD, the plan emphasises the need for intersectoral urban planning with the participation of all actors involved in the transport sector: several associations, the Government, the private sector and public companies. The Master Plan for Mobility and Transport of Greater Maputo has a time perspective of up to 2035. This Plan aims to promote a set of coordinated actions among various local and national institutions to foster and streamline the safe and inclusive mobility of people and goods in a context of rapid urbanisation. The Master Plan assesses the transport situation and makes projections of possible options for the evolution of growth and proposes a strategy and a set of projects to implement the decentralisation of public transport activity in the region in centres connected by major infrastructure and mass transport systems. In particular, the plan envisions the development of a Bus Rapid Transit (BRT1).

The plan proposes 3 corridors where BRT<sup>12</sup> can be deployed in the metropolitan region, namely: (1) BAIXA-MUSEU for ALBAZINE; (2) Zimpeto-Baixa along the EN-1, and (3) Baixa-Matola, along the EN4. The Plan foresees 3 phases, detailed in the box below.

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12 Bus Rapid Transit systems are typically bus services running on exclusive lanes with protected right-of-way, with fare payment at the station, and with higher frequencies and vehicle capacity than regular bus systems.

**Phase 1 - 2018:** The proposed first phase covers the high demand of mobility towards and from the areas of Magoanine / Xiquelene / Praça dos Heróis and Baixa. This phase is conceived to serve as a test to determine how effectively the concession is working in terms of expected costs and timeframes, how the BRT route interacts with other modes, and how private plate operators react to necessary changes in regulations and operations. Phase 1 also considers the extension of BRT services to the important N1 corridor that serves the Baixa area. This could be achieved by building a specific new corridor to Brigada (or along Avenida Joaquim Chissano), or a lower cost option would be to connect the main residential areas along the N1 to the pilot scheme busway on Av. Acordos de Lusaka.

**Phase 2 - 2025:** the second phase includes the main Matola-Maputo connections with two new options: one via Museu and the other on the widened Joaquim Chissano road. This phase proposes to insert a bus lane on the highway as part of the general access to the Katembe Bridge. Each BRT route will depend on one or more integration terminals that will receive the associated feeder routes. At this stage, inter-district routes would also be introduced, linking BRT corridors (and eventually upgraded rail services) without the need for passengers to switch transport modes in central areas. These would also be controlled (or operated) by BRT concession holders. It is anticipated that at least two inter-district routes would be needed to complete the network: as part of Phase 2, the first would be introduced through the denser inner suburbs. No special infrastructure is required, except a reasonable paving surface.

**Phase 3 - 2035:** In this final phase the extension of the first route to Albasine could be achieved by expanding the BRT corridor along Avenida Julius Nyerere or using the wide right-of-way of Rua Cardeal Alexandre dos Santos to incorporate a central BRT busway. This phase would be an extension of the BRT system to Katembe through a new bridge. A BRT / HOV [high-occupancy vehicle] lane, for example, could provide the necessary transport preference. The second route, following the ring road and serving the latest

developments, could then be incorporated into the system.

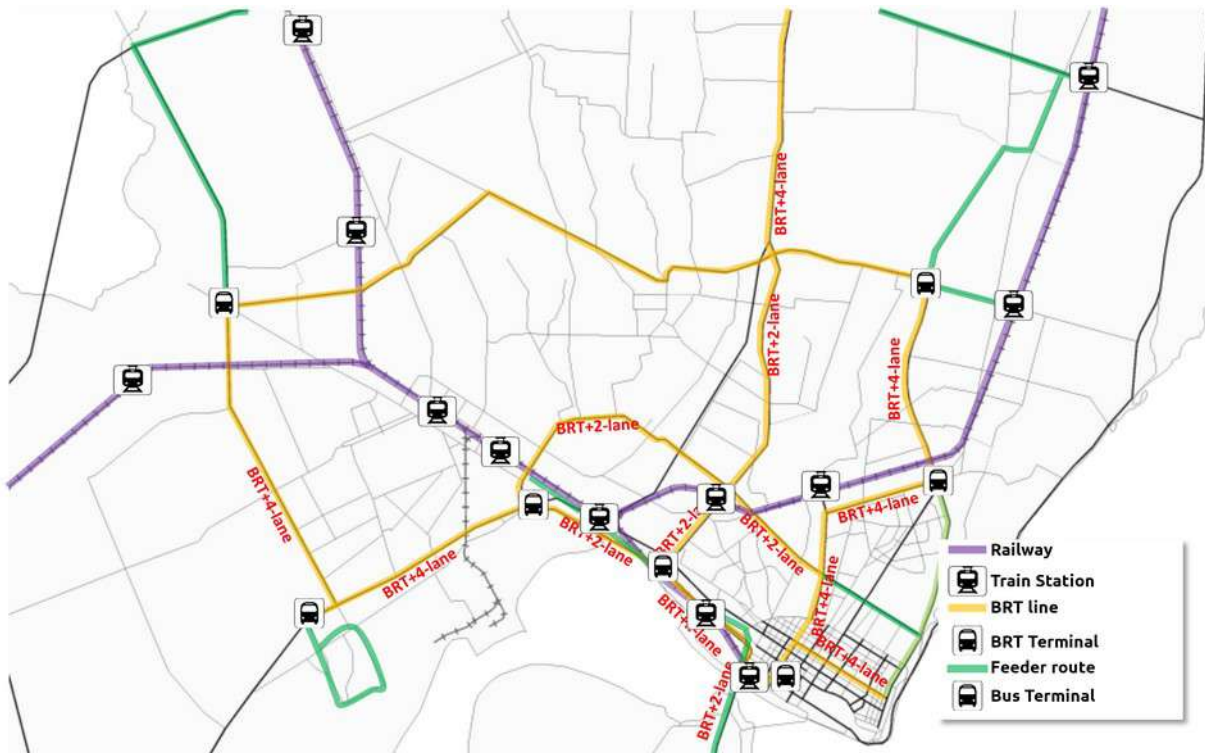


Figure 22: Proposal for a structuring public transport network for passengers in 2035. Source: JICA, 2014

As shown above, the proposals in the mobility master plan consider the integration of transport and land-use planning and a concerted development of both public transport infrastructure, operations and management to use public transport as a driver of urban development. The long-term vision proposed by the masterplan involves not only the provision of high-capacity infrastructure and the reform of public transport operations, but it emphasises the gradual introduction to changes in governance and regulatory environments for the operation of transport services that can enable the sustainability of transport-driven changes in the city's trajectory.



## 2.2 Public Transport governance and policy

AMM's urban transport governance landscape is complex and involves the interaction of actors at all scales and in areas beyond transport. Different institutions collaborate in the mobility sector, including public, private and international partners, and operate at various scales, from national to metropolitan and municipal levels. In Mozambique, the transfer of functions from the national to the municipal level follows the municipal legislation (Decree 33/2006) which establishes gradual decentralisation of functions based on proven technical and organisational capacities of the municipality. Collective passenger transport was one of the first sectors transferred to the responsibility of some municipalities in the AMM, namely Maputo (in 2008), Matola (in 2008) and Boane (in 2018). In the district of Marracuene the sector is still under central government management.

At national level, there are several public institutions linked to the Ministry of Transport and Communications and the Ministry of Public Works holding a certain degree of regulatory and coordination powers in the transport sector, namely:

- The Road National Administration (ANE), which plans and administers the public road network, and implements national road investments, in addition to proposing administrative and technical regulations on urban and national roads;
- The National Institute of Inland Transport (INATRO), which regulates and supervises the activities carried out in the field of land transport in order to meet the mobility needs of people and goods. INATRO is the body responsible for issuing driving licenses;
- The Transport and Communications Fund (FTC) acts as a financier for the sector, both to private and public operators via the respective municipalities.

In the metropolitan area, the Metropolitan Agency of Maputo is the entity responsible for transport system management. This was created by the Government (Decree no. 85/2017, of 29 December) and is subordinate to the Ministry of Transport and Communications.

At the municipal level, the Municipalities of Maputo, Matola, Boane, Namaacha, and Manhiça, and the District Governments of Marracuene and Matutine are those cooperating in the mobility development. These municipalities have the authority to licence public transport under their jurisdiction and, through the municipal police, to control the operations of public transport within their territory. In the Municipality of Maputo, the EMME, EP (Municipal Mobility and Parking Company) is the entity responsible for planning, organising and controlling both the main transport terminals and parking throughout the city. Five municipalities have their own municipal public transport company<sup>13</sup>.

In the annexes it is possible to find a compilation and description of the different sector's actors, identified in the T-SUM project through the Map of Initiatives and Entities (MIE).

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13 The Maputo Municipal Road Transport Company (Maputo Municipal Assembly Resolution of 17 March 2011); Matola Municipal Public Transport Company (Resolution No. 56/2011, of 27 July); the Municipal Transport Company of Boane (Resolution n.º 85/AMVB/2017, of November 3rd) (in Boane); the Municipal Transport Company of Manhiça; and the Namaacha Municipal Public Transport Company. These companies make connections within their municipal territory, but also to other municipalities, especially to the city of Maputo, in Praça dos Trabalhadores (Baixa).



Figure 23: Stakeholders on Urban Mobility Sector in AMM, 2021.

Source: T-SUM-MIE

## 2.2.1 The Maputo Metropolitan Transport Agency

The Maputo Metropolitan Transport Agency (AMT) is a subordinate institution of the Ministry of Transport and Communications. It was created via the Decree n. 85/2017, which assigned the AMT the responsibility of [...]“Coordinating and implementing the Mobility and Transport Master Plan for the Metropolitan Area of Maputo”. The AMT is responsible for coordinating mobility and transport in the cities of Maputo, Matola and Boane, and in the districts of Boane and Marracuene, including contiguous areas. Currently, given the need for supply in transport, this responsibility has been extended to Manhiça, Matutuine, Namaacha and Magude. The AMT coordinates and assists the transport cooperatives of these municipalities and districts<sup>14</sup>.

Among the attributions of the AMT, the following stand out:

- a) To plan and manage public transport services for passengers in the Metropolitan Area of Maputo.
- b) To respond to the needs of citizens, and to the priorities of provincial governments, districts and private partners in the Metropolitan Area of Maputo, as well as of the central Government, in matters of transport.
- c) To ensure the financial management of the Integrated Transport System for the Metropolitan Area of Maputo, as well as subsidy and compensation mechanisms for urban public passenger transport.
- d) To evaluate and approve transport routes and circulation schedules.
- e) To identify and mobilise internal and external resources for the Integrated Transport System for the Metropolitan Area of Maputo.
- f) To supervise, evaluate, monitor and control the collective public transport services for passengers.
- g) To systematise data and information on public transport costs.

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<sup>14</sup> AMT has three executive directors, one of which is the PCA and two departments, namely, the Technical department and the Human Resources and Finance department.

h) To establish and update the characteristics of transport lines, such as terminals, itineraries, stopping points and integration stations, operating hours and service frequency.

i) To coordinate with other public entities the implementation of projects of common character and interest.

From a technical point of view, the AMT has the role of defining and planning projects to respond to passengers' needs in the Maputo Metropolitan Area. In terms of an integrated public transport system, the AMT is responsible for:

1. Organising, coordinating and controlling the operational systems and maintenance plans specific to public transport services.
2. To grant, contract and authorise the transport activities, including repairing and maintenance of public transport in the Metropolitan Area of Maputo.
3. To approve fees for public transport in the Metropolitan Area of Maputo, outside the areas of jurisdiction of the single municipalities.

### **2.2.2. The Government “Plan 1,000 Buses”**

In parallel with the establishment of the Metropolitan Agency, the Government put in place a scheme to support public transport in the AMM. This scheme was known as “Plan 1000 Buses”. The plan aimed, on the one hand, to deliver 1,000 new buses throughout the country, and on the other hand, to encourage the integration and formalisation of traditional public transport operators through the creation of cooperatives<sup>15</sup>. The implementation of this plan was developed in collaboration with the Mozambican Federation of Transport Associations

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15 The first 230 vehicles of different capacities, until June 2018, were delivered by the Transport and Communications Fund. After the creation of the AMT in August 2018, the rest of the vehicles were distributed by this institution as the new representative of the Ministry of Transport and Communications for this Plan. Initially, the delivery of the vehicle included a signed three-part contract between the Ministry/FTC/AMT, the manager/transporter and the cooperative to which it belongs. With the AMT, the contract was only signed between the AMT and the Cooperative and/or Municipal Company. The contract commits the parties, among other responsibilities, to the payment of 60 bills or monthly installments.

(FEMATRO). This strategy plan combined different measures to renew the bus fleet and ensure their durability and a more efficient maintenance service through the creation of a maintenance company (Saúl, 2017).

The process of buying and delivering buses to private operators has been the strategy carried out by the Government over the last 15 years. However, the purchase volume, which started in 2016, had never been substantial and consistent. The delivery contract to private operators includes the payment of monthly rates as a way of contributing to the financial charge of the State, which is responsible for the purchase, and the insurance and maintenance of the vehicles for five years, as a way to prolong the vehicle duration.

This approach involved significant reforms in the governance of public transport services. The support for the creation of cooperatives of individual operators coordinated within a metropolitan transport network (REM) through the FTC (first) and AMT (later), aimed at providing dynamism and professionalism in the provision of the service as well as promoting the private sector as it is believed that it will tend to improve the quality of service.

The first cooperative created with the support of the government and the Municipality of Maputo was COOTRAC1, operating on the Zimpeto–Baixa/Museu route, which initially (2016) received 50 buses of 55 seats. The experience of this cooperative stimulated, in 2017, the creation of more cooperatives throughout the metropolitan region, up to a total of 10.

## **2.3 Transport demand**

In-depth knowledge of the needs, behaviours, preferences and habits of the population in search of transport is one of the major data gaps in Mozambique. Available fundamental recent basic data from previous studies developed by the Japanese Cooperation (JICA) refers to the years 2012 and 2013 and it was collected for the development of the Greater Maputo Mobility and Transport Master Plan (PD). One of the studies is a household survey carried out among 10,037 families, randomly sampled in Greater Maputo. From this study, the following

basic information is extrapolated:

- The average travel rate within the AMM is 1.66 trips/person/day. In families declaring to hold one or more cars this rate increases up to 2.15 trips/person/day (JICA, 2012);
- The Origin / Destination matrix analysis highlights how the attraction towards the KaMfumo District prevails upon all the other destinations.
- In 2012, the displacements within the AMM were carried out mostly by walking (45.9%<sup>16</sup>), followed by chapas (32.9%<sup>17</sup>) and buses (EMTPM, ETM, ETB) (9.2%). The use of the car and taxi corresponds to 10.2%, and other means like train, boat and motorcycles corresponds to 1.9% (JICA, 2012).

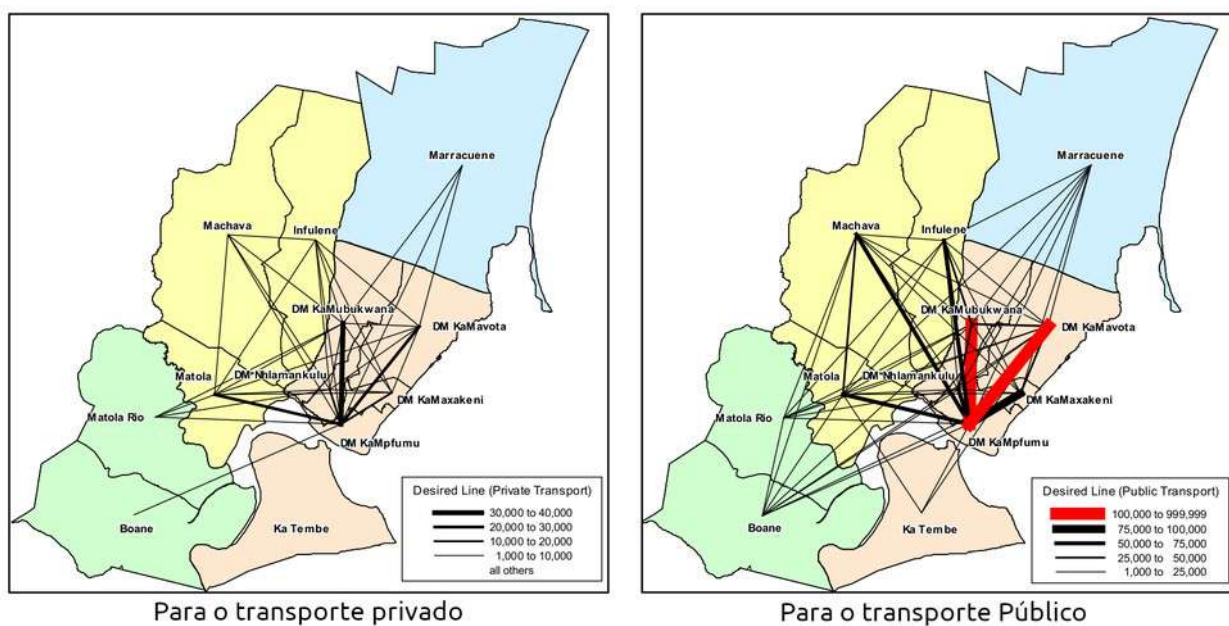


Figure 24: Volume of connections between the different urban districts and administrative posts of the AMM. Source: JICA, PD

16 This percentage includes bicycle trips, which are not very common in urban areas and more so in rural areas within the AMM.

17 At the time of JICA's research, the fundamental alternatives for Collective Passenger Transport were 15L and 26L Chapas, Open Box Vans, Public Companies Buses and CFM trains.

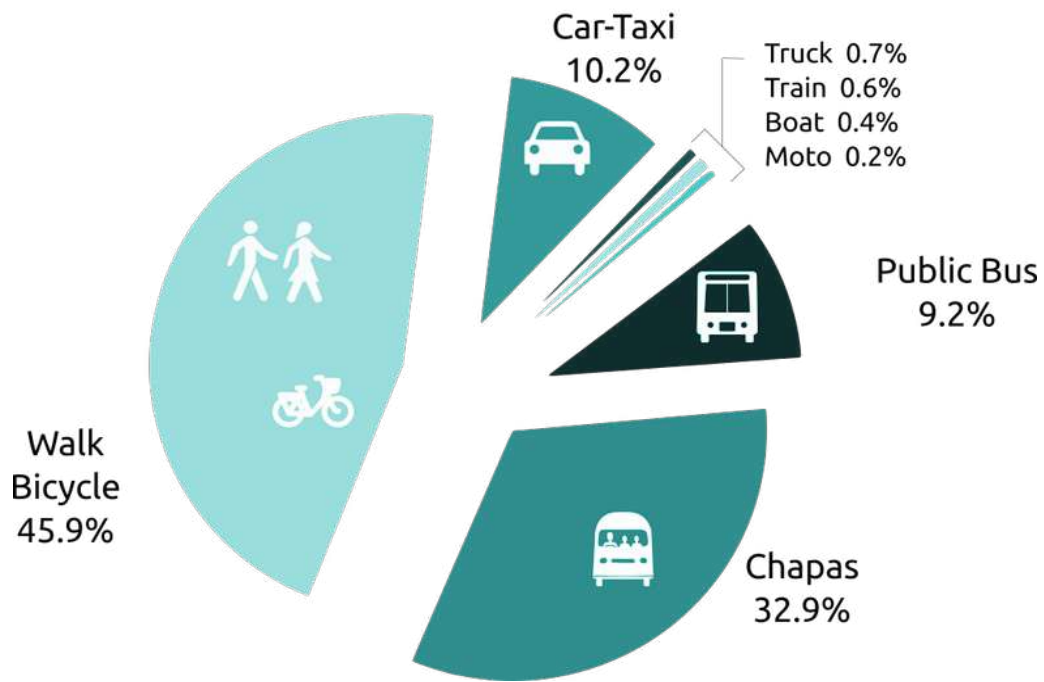


Figure 25: Repartição Modal. Source: JICA, 2014

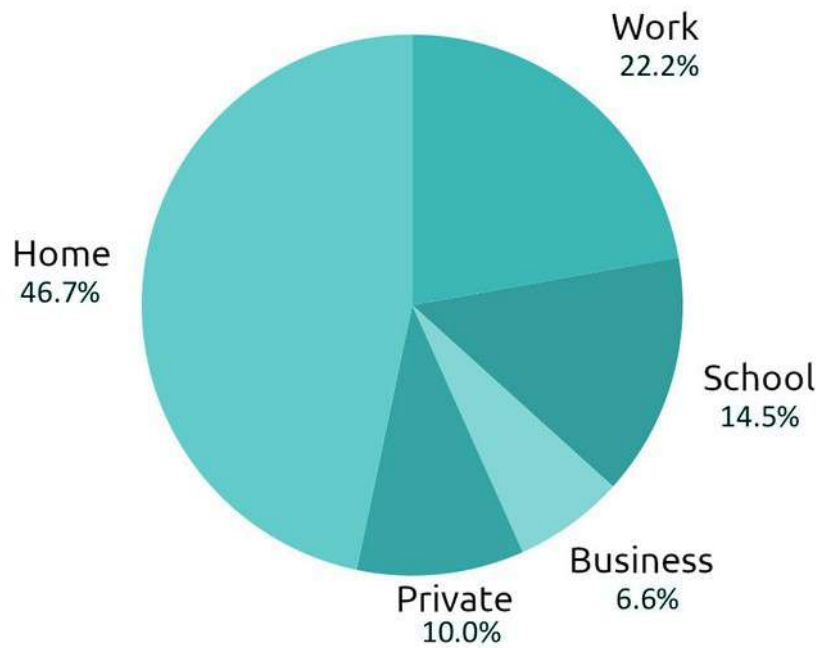


Figure 26: Travel reasons. Source: JICA Survey, 201



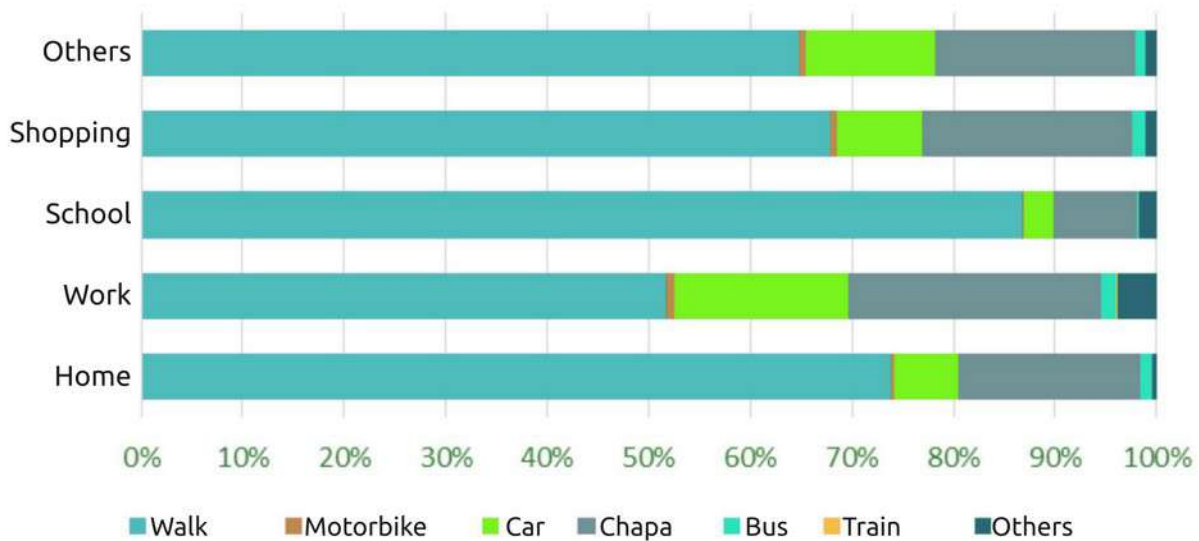


Figure 27: Modal breakdown by reason of travel. Source: JICA, 2014

The most recent data on transport for Maputo Metropolitan Area corresponds to the unpublished study (“Study of the demand for public passenger transport services in the greater Maputo area”, Matos, 2017) financed by the Fundo dos Transportes e Comunicações (FTC), the Transport and communication Fund. From a total of 72,000 interviews carried out between household surveys and interviews at the exit and/or entrance of the main lines of use of the Collective Passenger Transport, including Chapas and Buses, the following results were found:

- About 70% of the people interviewed stated that they use collective transport everyday;
- Households were composed of 6 people per family (average);
- On average, 70% of family members use collective transport;
- The amount spent on collective transport was, on average and per family, of around 63 MT per day. The families that spent the most on collective transport were those from the Boane area (almost 100 MT per day) and those that spent the least were those from the areas of Jardim, Benfica and Patrice Lumumba (47.00 MT per day).

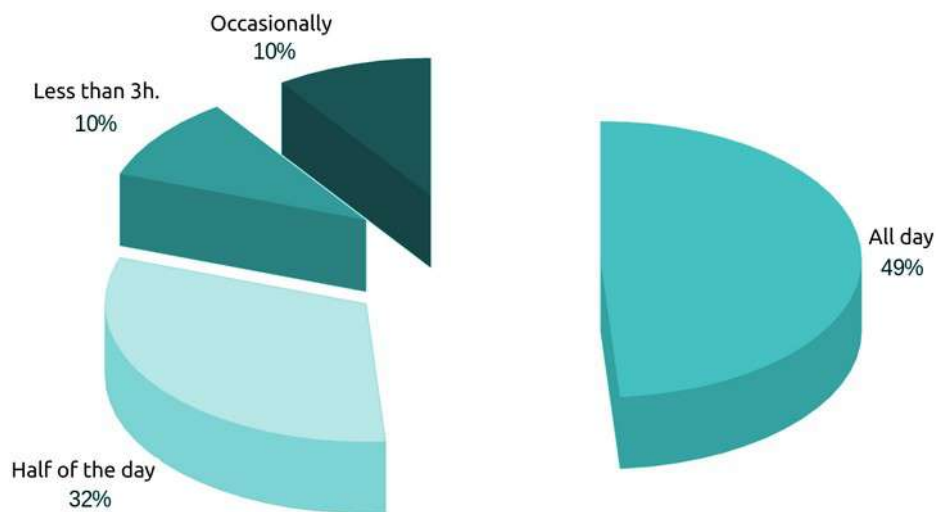


Figure 28: Distribuição dos passageiros por tempo que ficam no destino

The data shown in the figures below is the average of the data presented in the mentioned study, organised by geographic area along the first 5 metropolitan corridors provided by the Transport and Communications Fund (FTC, by the acronym in Portuguese, an institution inside the Transport and Communication Ministry).

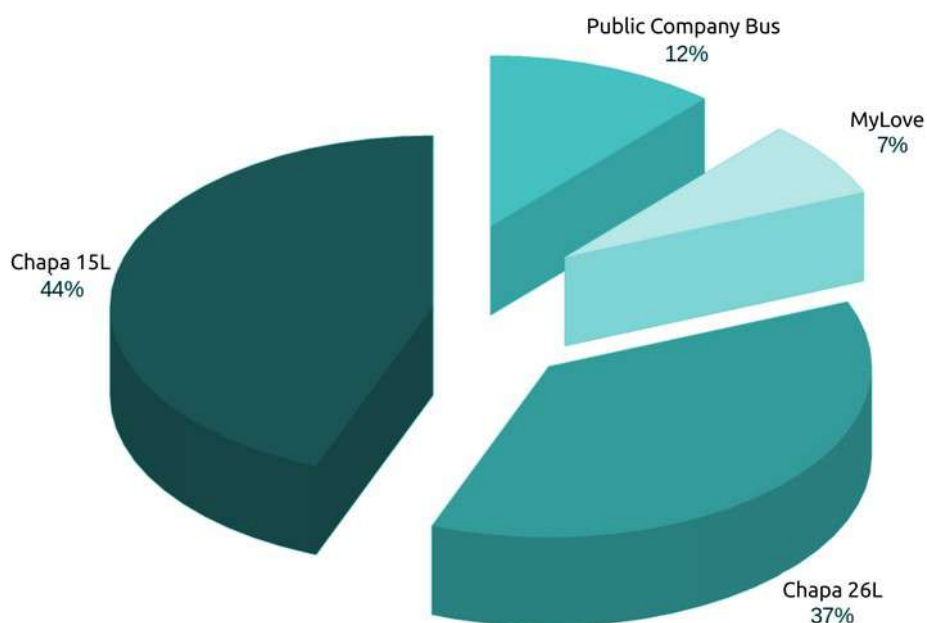


Figure 29: Distribution of road transport modes used. Source: Matos 2017

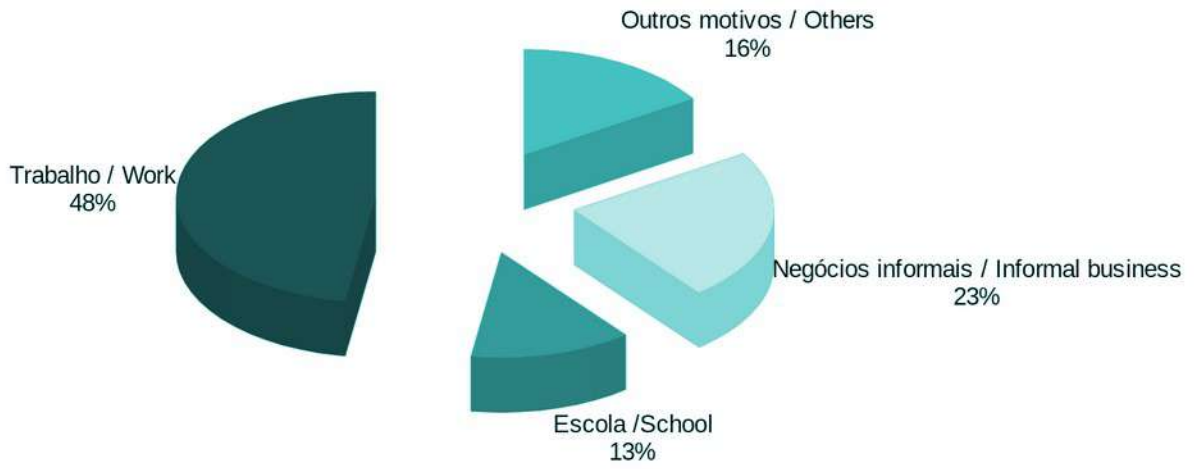


Figure 30: Distribution by Travel Reasons. Source. Matos 2017

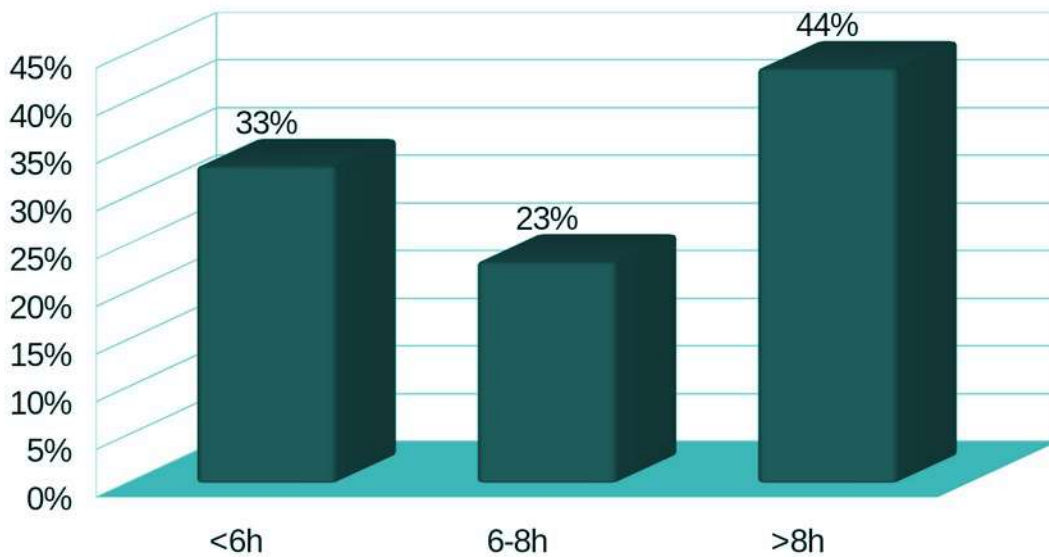


Figure 31: Distribution of TCP users by time of leaving home. Source. Matos 2017

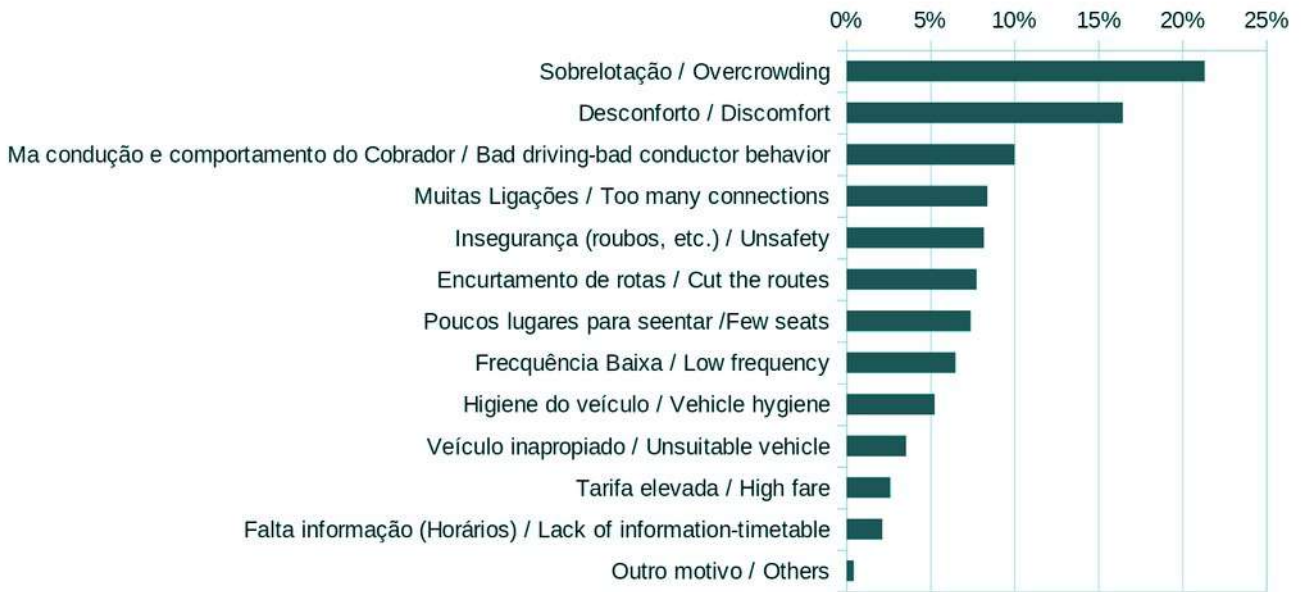


Figure 32: Importance of the various difficulties felt by users. Source: Matos 2017

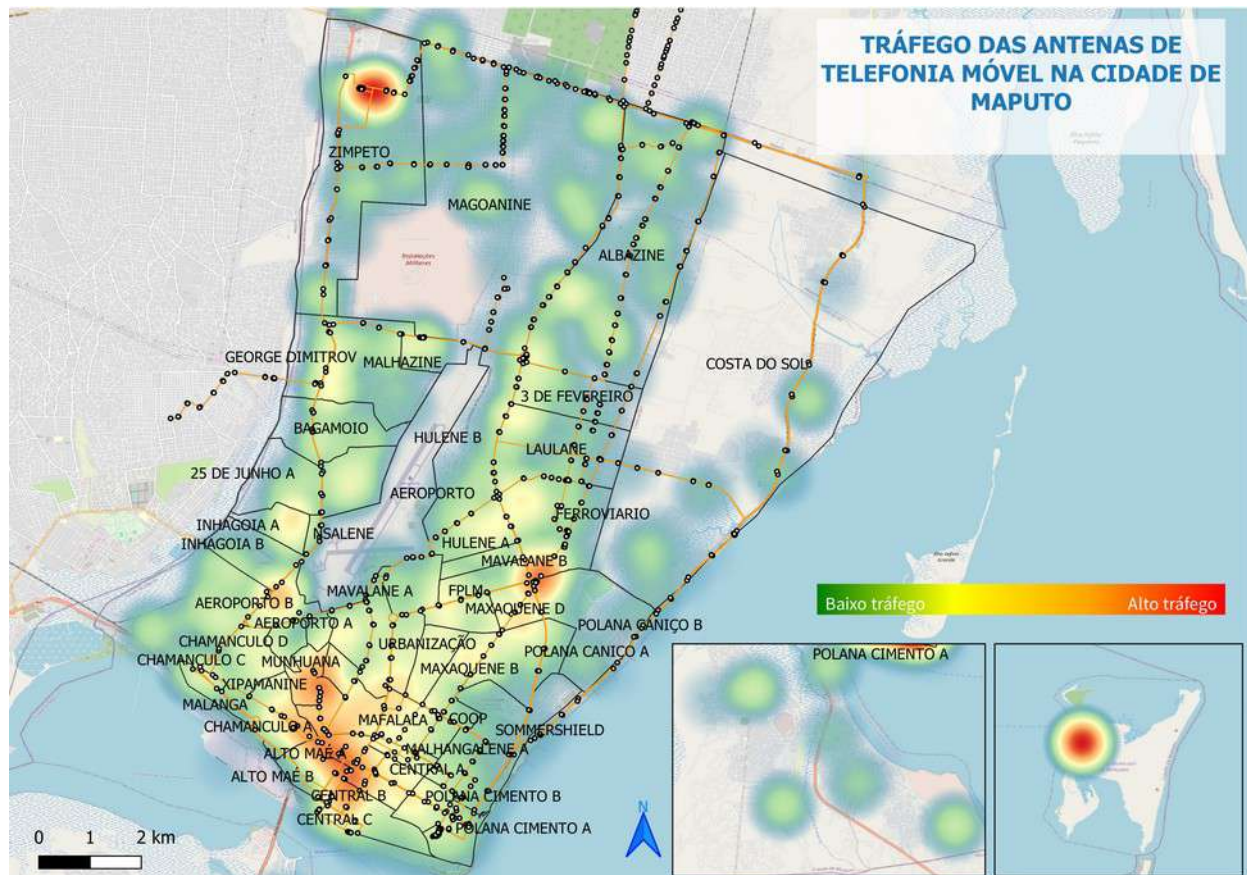


Figure 33: Organized zones with 3 km radius of the main metropolitan corridors in 2017 Design: Mindo,I.

Household transport expenditure varies depending on the distance and number of connections required to reach the desired destination. Mendonça's study (2014) concludes that, in Maputo city, the poorest segment of the population often spends up to 30% of the family income on public transport. However, according to INE, between 2008 and 2015 the national average expenditure for transport is 12.5% of the monthly household budget (INE, 2015). Transport costs are the third main household expense, following the expenses related to housing (31%) and food (20,7%). Rural population allocates just 6,5% of their income to transport, food being the first line of expense, accounting for the 54% of the family expenses.

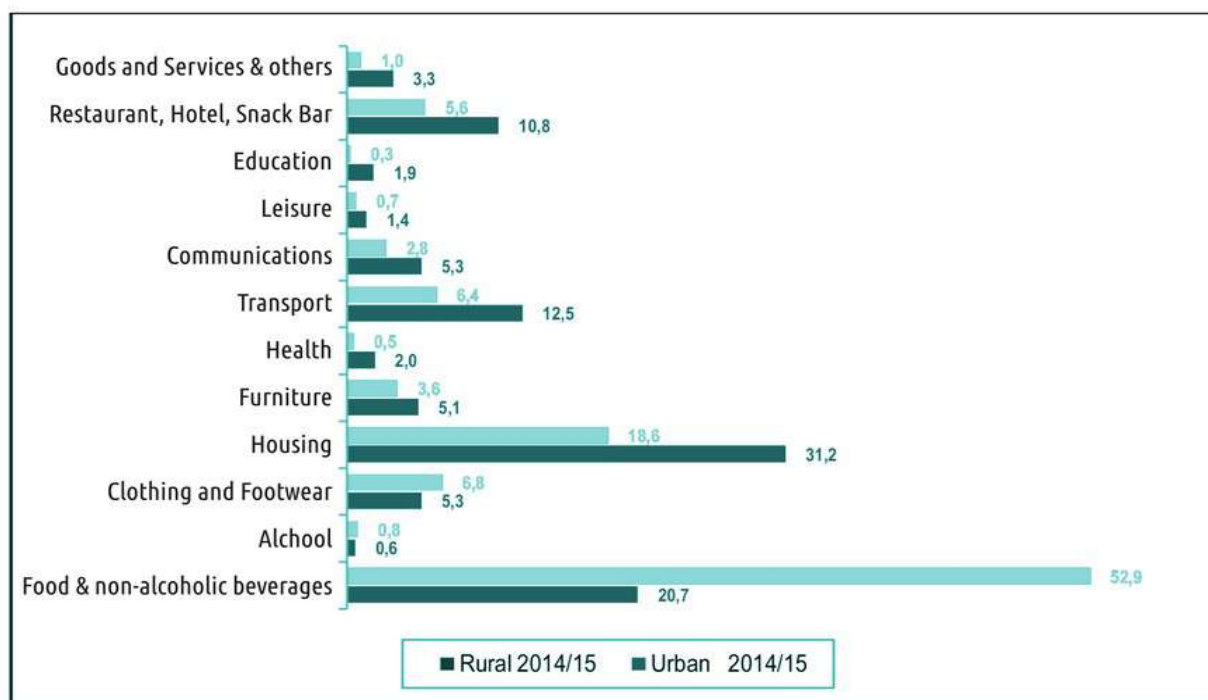


Figure 34: Monthly Expenses Per Capita By Expense Division, According to Area of Residence (Percentage). Mozambique, 2008/09 to 2014/15. Source: INE, IOF 2008-2015

Anifa Assane's work (conducted in 2014) on transport costs related to primary school teachers in Maputo identified, among 44 teachers, that 49% of them spent between 300 and 600 MZN/month (10 and 20 \$/month<sup>1</sup>) for Chapa (minibuses). This is between the 11% and 22% of the minimum wage for the civil service in 2013 (2,699 MZN<sup>2</sup> <sup>18</sup>).

<sup>18</sup> 30 MZN per \$ in June 2014. The Metical exchange rate with foreign reference currencies has experienced important changes over the last decade.

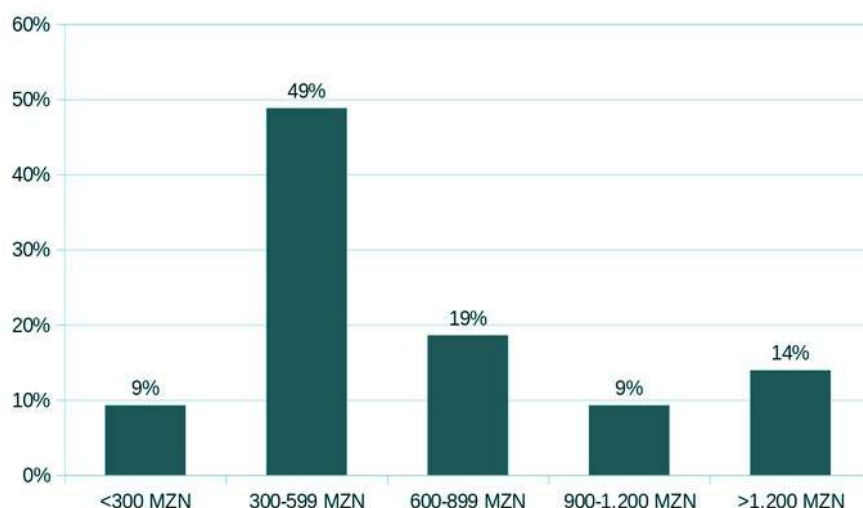


Figure 35: Transport costs of primary teachers in Maputo. Source: Assane, 2015

The 2017 Census shows that in Mozambique, 4% of households hold one or more cars, 8% one or more motorcycles and 29% one or more bicycles. The car is more present in urban areas and in the south of the country. However, bicycles and motorcycles are more common in rural areas and particularly in the north of the country. 48% of households claiming to own one or more cars live in Maputo Province (16%) and Maputo City, while only 3% of households own bicycles in these areas. At the level of Maputo City and Province, 20% of households own one or more cars, 9% have bicycle/s and 2% motorcycle/s (Census, 2017).

	<b>Population</b> <i>(adjusted the default rate)</i>	%	<b>Household Chefs</b>	<b>Cars</b>	%	<b>Motor-cycles</b>	%	<b>Bicycles</b>	%
<b>Total</b>	<b>27.909.798</b>		<b>6.145.684</b>	<b>260.593</b>	<b>4%</b>	<b>495.942</b>	<b>8%</b>	<b>1.788.363</b>	<b>29%</b>
Urban			<b>1.996.258</b>	<b>201.359</b>	<b>77%</b>	<b>179.436</b>	<b>36%</b>	<b>343.525</b>	<b>19%</b>
Rural			<b>4.149.426</b>	<b>59.234</b>	<b>23%</b>	<b>316.506</b>	<b>64%</b>	<b>1.444.838</b>	<b>81%</b>
<b>By provinces</b>									
Niassa	1.810.794	6%	384.683	5.733	2%	51.242	10%	191.595	11%
Cabo Delgado	2.320.261	8%	545.509	8.950	3%	48.794	10%	172.298	10%
Nampula	5.758.920	21%	1.318.809	21.812	8%	146.507	30%	329.076	18%
Zambézia	5.164.732	19%	1.158.620	10.602	4%	95.734	19%	470.380	26%
Tete	2.648.941	9%	579.508	13.146	5%	52.027	10%	195.474	11%
Manica	1.945.994	7%	380.853	13.477	5%	29.471	6%	111.748	6%
Sofala	2.259.248	8%	460.969	18.436	7%	35.661	7%	154.742	9%
Inhambane	1.488.676	5%	335.958	19.852	8%	9.699	2%	58.844	3%
Gaza	1.422.460	5%	292.974	22.702	9%	11.664	2%	45.777	3%
Maputo Provincia	1.968.906	7%	452.051	72.822	20%	10.303	2%	43.505	2%
Maputo Cidade	1.120.867	4%	235.750	53.061	20%	4.840	1%	15.024	1%

Figure 36: Households by possession of durable goods, according to area of residence, province and gender of the household head. Source: 2017 Census Table 60 edited by the OMT



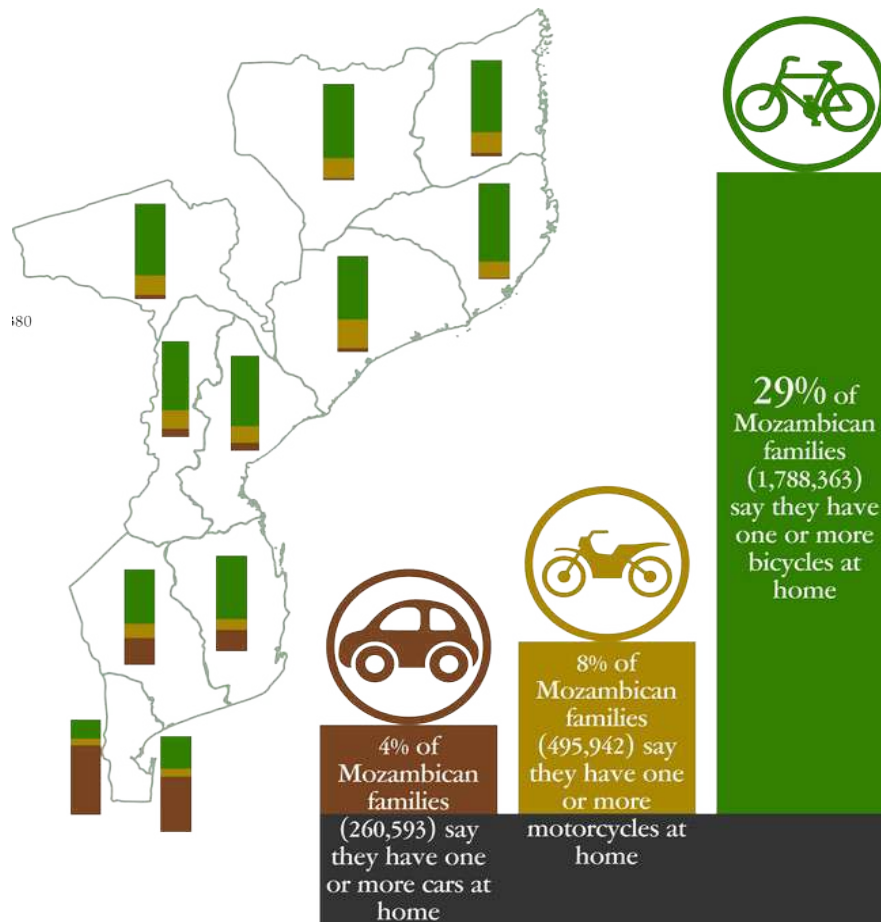


Figure 37: Households by possession of vehicles, according to area of residence, province and gender of the household head. Source: 2017. Design: AMT-OMT, Romero

In 2020, the AMT together with its partners INCM<sup>19</sup> and the PDE<sup>20</sup> (current ADE) developed an innovative pilot project for the country. They wanted to analyze the data produced by the use of mobile phones to try to outline the mobility dynamics of the population in the context of the Covid-19 Pandemic. One of the resulting figures was on mobility between the urban districts of the city of Maputo (Figure 38).

19 INCM, Instituto Nacional de Comunicações de Moçambique. Dependent on the Ministry of Transport and Communications (MTC)

20 PDE, Programa de Desenvolvimento Espacial, is currently call ADE, Agência de Desenvolvimento Espacial. Also dependent on the Ministry of Transport and Communications (MTC)

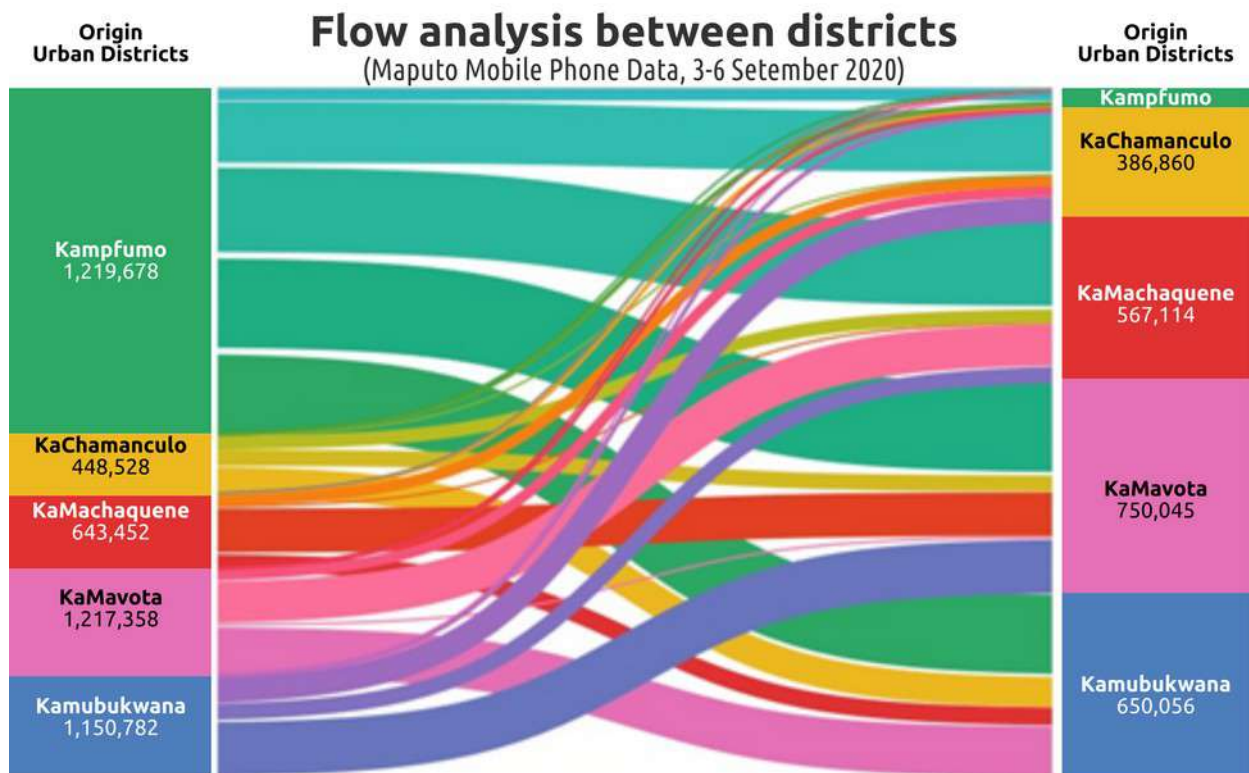


Figure 38: Analysis of flow between Urban Districts of Maputo. Source: INCM, PDE and AMT, 2020

## 2.4 The Transport Supply

This section describes the different transport options that are available in the AMM (public, collective and private ones).

Up to 2014 informal minibuses (named officially as “semi-collective” and popularly as “Chapas” in Mozambique) were responsible for about 75% of all non-active travel (e.g., walking or cycling) displacements, while only about 17% of trips were made by conventional buses. Until the same year, cars and taxis were only responsible for 8% of trips. Over the last, 5 years transport alternatives have been growing, configuring the following scenario:

- **Semi-collective networks (Chapas)**, vehicles with a capacity of 15 places or 26 places, internationally recognized as "minibuses" and "middle buses". Maputo and Matola's routes only have 2,435 chapas (OMT, 2020).
- **Metropolitan Structural Network (REM)**, coordinated by the Metropolitan Transport Agency with 7 corridors, 400 buses and 15 “mixed vehicles” (passenger and cargo transport vehicles) operated by 10 transport cooperatives and 5 municipal public companies.
- **Public Railway Network** managed by the public company Caminhos de Ferro de Moçambique (CFM);
- **Metro-Bus**, a mixed road and rail network managed privately by the company Sir Motors, focused on the needs and economic capacities of the middle class.
- **“MyLoves” network**. These are small pickup trucks without conditions or municipal licence for the transport of passengers that are used mainly on the routes of expanding neighbourhoods, on unpaved roads and sometimes mixed with merchandise. They often serve as feeders for the large bus terminals that enter the cities.

These means of transport use different road and rail routes with little intentional interconnection between one and the other. In parallel, Taxis and Txopelas (motorised passenger tricycles) also operate, mostly offering door-to-door services and sometimes make commuting trips for

a small part of the population with greater economic capacity in the central areas of cities.

These means of transport use different road and rail routes with little or no integration between them.

Moto-taxi and Bici-taxi services are not known in the AMM, but they are largely used in the Northern provinces of the country. The international application UBER does not yet exist in Maputo, although other taxi companies have adopted applications for their services.



Figure 39: Bus, 15L Plate and 26L Plate on Av. Guerra Popular. Source: Rede Uthende, Mr. John

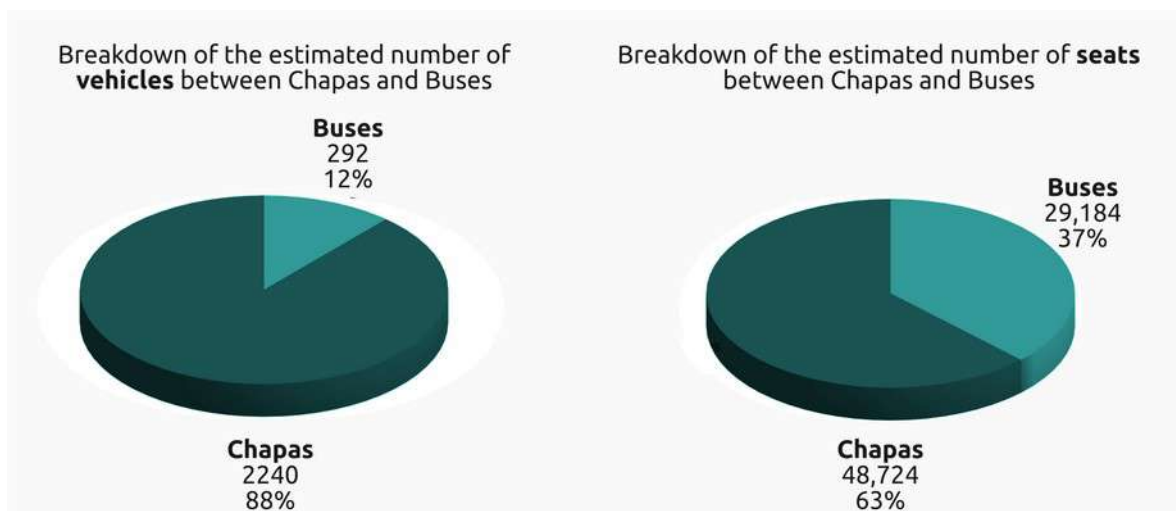


Figure 40: Capacity distribution of Chapas and REM Buses . Source: Campanha de Contagem de Chapas 2020, OMT-AMT, 2020

## 2.4.1 Public transport fares

The key fares for road passenger transport in Mozambique are determined by the Municipalities, after consultation or negotiation with the operators and, in the case of the capital Maputo, also with the Metropolitan Agency and the Ministry of Transport and Communication. On the longest routes differentiated prices can be applied, according to the distance between boarding and alighting stops, leading to a complex matrix. This matrix maintains a certain logical structure starting from the "intermediate stops or points", which are those where the value of the fare changes according to the distance. Below is an example of the price matrix for the 101-BAIXA-BOANE route from 2017-2021.

Rota: 101 - BAIXA-BOANE	
Via: Portagem	
Operador: COOPTRAB	
Nome da Paragem	
<b>PRACA DOS TRABALHADORES</b>	<b>PRACA DOS TRABALHADORES</b>
Laurentina	10
Mandela	10
Entrepasto / Guerra Popular	10
Escola Alto Mãe-Bombas	10
Versalhes	10
Fajardo	10
Majanga	10
Hospital José Macamo	10
Brigada Montada	10
Maquinaque	10
<b>Drenagem</b>	<b>Drenagem</b>
Casa Branca	13
Piliyi / CMC	13
Bic	13
Ceres	13
João Mateus	13
Pantera	13
<b>Matola Rio</b>	<b>Matola Rio</b>
Nkaene	15
Thandavanto	15
Cimoc	15
Km 16	15
Xidiminguana	15
Aldeia	15
Eucalipto	15
ISTEG	15
Palhota	15
<b>Bloco Dois</b>	<b>Bloco Dois</b>
Primeiras Casas	21
Mazambanine	21
Entrada Do Areeiro	21
Fábrica De Cimento	21
Tedeco	21
Eucalipto	21
Instituto	21
Joaquim Chissano	21
Cruzamento	21
<b>BOANE</b>	<b>BOANE</b>

Figure 41: Fare Matriz from route 101-BAIXA-BOANE (2017-2021). Source: AMT

Each REM corridor also detains its own specific pricing logic. Before the launch of the Famba card, the AMT recorded each of the price matrices for more than 90 routes, finding almost 300 different combinations of fares. During the first implementation phase, the fare logic of each of the corridors is respected, although the long-term objective is to harmonise all fares at the metropolitan level in relation to distances.

Within Maputo city there are only two price ranges that are approved for chapas and bus transport operators. In January 2022 the lower value increased from 10 Meticaís (0,16 US dollars<sup>21</sup>) to 12 Meticaís (\$0,19) for distances under 9 Km and from 12 to 15 Meticaís (\$0,23) for other distances within the city. At the metropolitan level, to cover 30 km the fares increased, from 21 Meticaís (\$0,33) to 24 Meticaís (\$0,38) for Boane (33km), and from 25 Meticaís (\$0,39) to 34 Meticaís (\$0,53) for Marracuene (30 km).

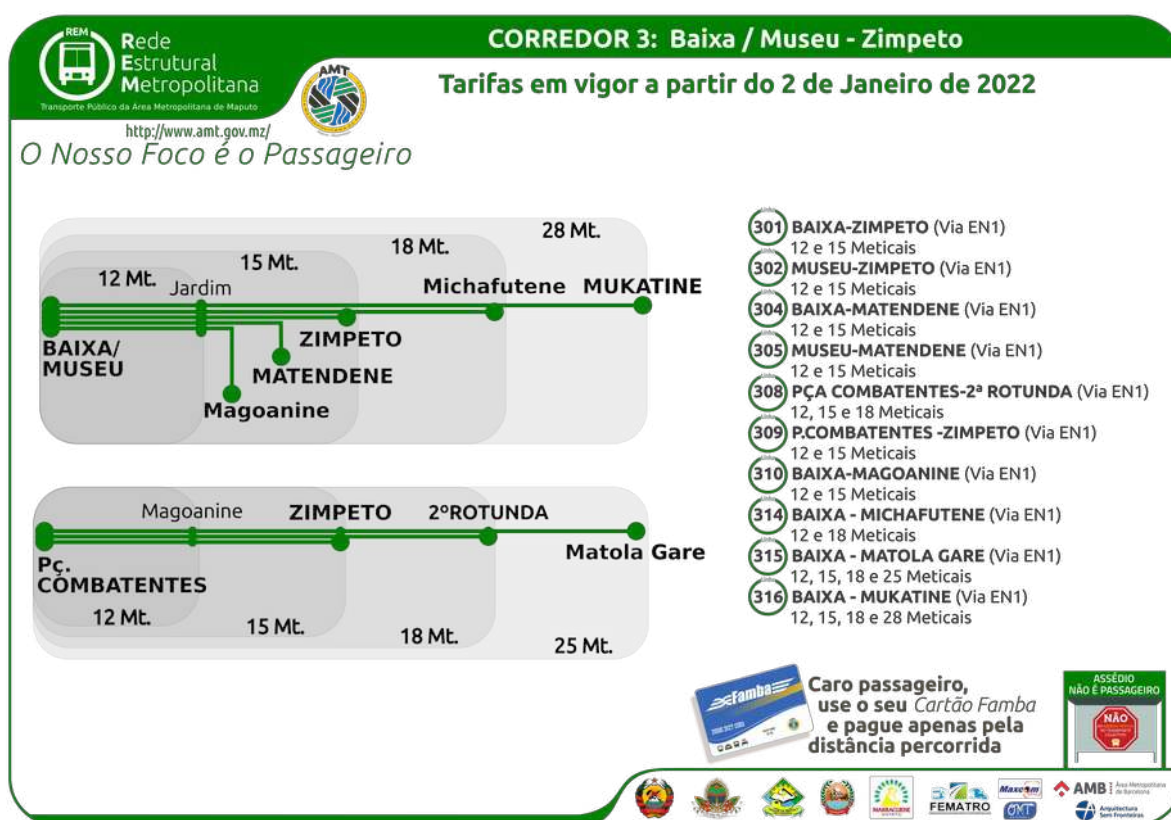


Figure 42: Communication poster of the new January 2022 fare. Source: AMT

21 Exchange rate on January 1, 2022 of 63.73 Meticaís per dollar unit.

Chapas' prices in Maputo city have risen moderately over the last 15 years. Passing from 5 to 7.5 Meticaís in 2008, new prices caused the first major strike, with a duration of two days and, unfortunately, leading to 14 deaths. The government's attitude had been very conservative in that regard.

In that same period the Metical underwent a high inflation in relation to the dollar, which is actually the currency of reference for the import fees of vehicles, for the purchase of spare parts and fuel, and in general referring to the main components of transport operation costs in Mozambique.

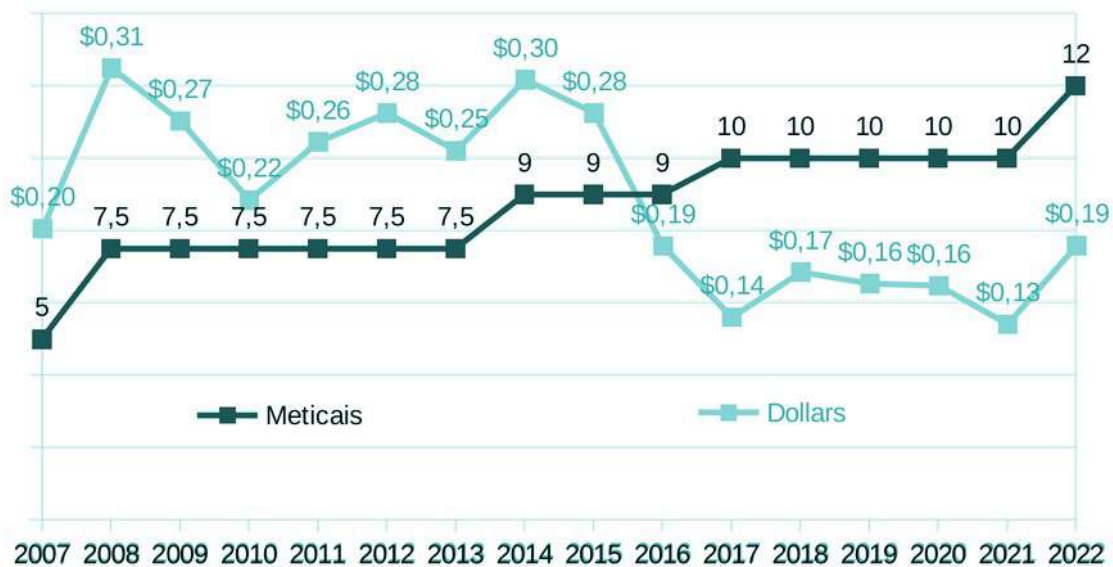


Figure 43: Rise in the price of the Minimum Tariff in Maputo (2008-2022). Source: OMT, Romero

## 2.4.2 Semi-collective transport or Chapas

Chapas are officially known as “semi-collective” and, together with “MyLoves”, are internationally labelled as “paratransit”, “semi-informal”, or “popular transport” modes of transport. Chapas are privately operated vans with small and medium capacity for the transport of passengers. These vehicles serve urban, inter-provincial or international routes, mainly to South Africa. They are usually second-hand imported vehicles and modified to accommodate more seats and allow the transport of people in the form of pickup trucks for passengers and school transport

(as illustrated in the figure below). The crew of urban chapas is composed of a driver and a ticket fee collector standing by the access door.

The smaller capacity vehicles are known as 15-seater Chapas (15 Seats); vehicles of medium capacity are designated as 26-seater Chapas (26 Seats), also known as “Coasters”. The 15-seater chapas, given their smaller size, circulate faster and more flexibly (although often illegal and dangerous) and therefore can undertake more daily trips; they often use alternative routes to avoid traffic congestion in peak hours.



Figure 44: Picture of 15-seater Chapa at a chapa stop, picking up passengers, Maputo 2015. Source: Rede Uthende, Mr. John



Figure 45: Picture of 26-seater Chapa (left) and of 15-seater Chapa (right) leaving Museu Terminal in 2020. Source: OMT, Romero



The original name of these vehicles was “Chapa100” and they appeared in the late 1980s and early 1990s in Maputo due to the lack of capacity of public transport companies to meet the real demand. The ticket price at the time was 100 MT (today equivalent to 1 MT). In the beginning they were operating informally (i.e. they did not have a public licence to operate). They started as pickup trucks that were then covered with canvas or zinc plates and began to transport passengers in the cities of Maputo and Matola. A conductor used to shout towards potential passengers announcing their route/destination and the price, “one hundred meticais” of the old currency. Although they were not encouraged by the government, given the poor conditions in which they had always operated, they were considered a “welcome relief” given the public transport company's inability to meet the growing demand in the city and surrounding areas. The economic liberalisation of the 1990s stimulated the emergence of a business niche for private transport, using the 15-seater closed-type minibuses, apart from the traditional taxi. These private initiatives for passenger transport were formalised by the government through the Ministerial Diploma of MTC n° 92/89 (September 20, 1989).

The current aim of the Municipal Government of Maputo is to exclude or limit as much as possible the presence of 15-seater Chapas. Since 2020, the Municipal Transport Department of Maputo (DMTT) has not accepted new licences for 15-seater Chapas but only renewals, as part of the strategy to favour the 26L chapas. 26L Chapas are considered more efficient; although they have a higher purchase and maintenance cost, because their capacity to transport passengers and produce profits is greater than the 15-seater chapas.

According to data from the last campaign of Chapas' count (“Contagem” campaign, AMT-OMT, 2020), Maputo has 37 Chapas routes with 963 vehicles in operation. 88% of the vehicles are 15-seater chapas and 12% are 26-seater. Matola, with a population similar to Maputo, has 1,406 Chapas (96% with 15 seats) operating on 98 routes. While in Maputo the vast majority of routes run within the city, in the city of Matola 44% of the routes are connection routes to the capital. Of the Chapas fleet of Maputo and Matola, 71% operate on working days, 60% on Saturdays and only 38% on Sundays. Within the AMM there are a total of 11

associations of Chapas transporters: 3 in Maputo, 2 in Matola, 1 in Boane and 4 in Marracuene.

Since the beginning of the first transport cooperative such as ATROMAP (1989) these associations have progressively become regular interlocutors for the government, and they are consulted on a regular basis when it comes to take important decisions within the sector.

Through dialogue or negotiation between associations and the Maputo Municipality, several regulatory measures were introduced: standards for the format of vehicles, licence regulations, the consolidation of routes and corridors by colours, and the identification of vehicles with a banner with the name of the route.



Figure 46: “Chapa 100” in 1990 with the technical specifications of the Ministerial Diploma of 92/1989. Source: Photographic Training Centre and Rede Uthende Association.

### 2.4.3 Open vans or “MyLove”

Open trucks or “MyLove” are open box cargo vehicles (generally up to 4 tons). This type of transport stems from the Chapa100 which originated in the 80's and 90's; those were almost completely eradicated in the 2000s by closed mini-buses, until they reappeared around 2010 under the name of “MyLove”. The term arises from the fact that, since the vehicles don't have a proper structure to transport people, passengers are forced to stand up and hug (out of necessity) each other, so as not to fall. MyLoves have shown a great capacity and flexibility to work in difficult to access peri-urban neighborhoods. These vehicles operate fundamentally during peak hours as feeders for large bus stops and terminals, allowing a large number of citizens from the most remote neighborhoods and without public transport vehicle traffic infrastructure, to access the main terminals. They are not legalized (licensed) by any of the municipalities. In 2020, the Municipality of Maputo prohibited the circulation of this type of vehicle. But, due to the high demand, these vehicles have continued to operate.



Figure 47: Photo. MyLove loaded with people at the Zimpeto Terminal, 2019.  
Source: OMT

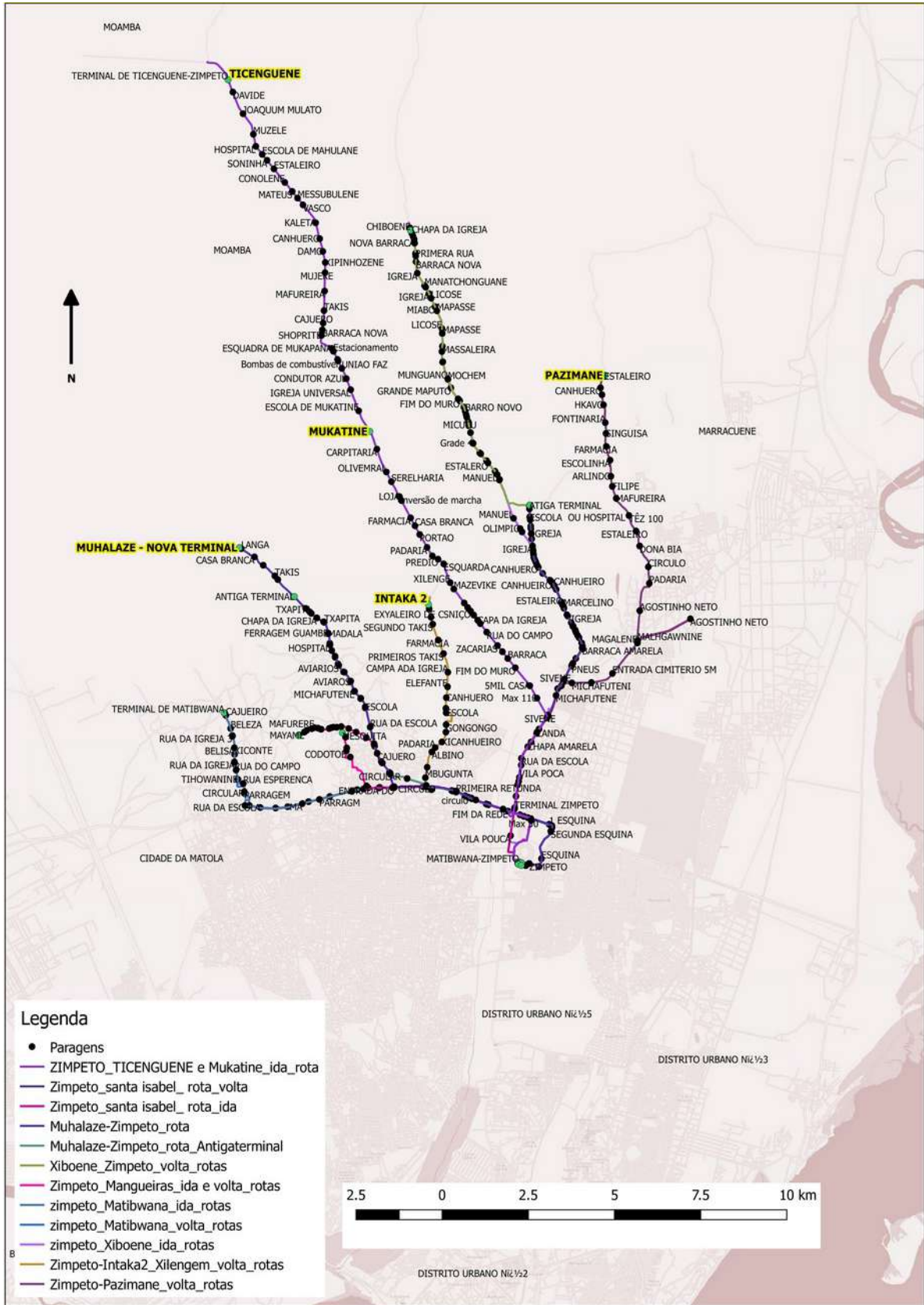


Figure 48: Mapping of the MyLoves network from Zimpeto, 2018. Source: WAZA/OMT, Mindo

## 2.4.4 Structural Metropolitan Network (REM)

The Structural Metropolitan Network (REM) network is the result of two important milestones of the Government of Mozambique regarding the transport sector: On the one hand, the “Plano 1000 buses” and, in 2017, the creation of the AMT.



Figure 49: Momento inaugural da abertura da faixa exclusiva temporal dos transportes públicos na EN1, em Fevereiro de 2016. Source: Romero.

Hitherto, within the context of “Plano 1000”, 385 buses and 15 mixed vehicles have been delivered. All of them are coordinated by the AMT in collaboration with the Municipalities of Maputo, Matola, Namaacha, Manhiça and Boane and the Districts of Marracuene, Matutine and Magude. The REM covers 7 corridors and 94 routes operated by 5 Public Companies and 10 transport cooperatives, transporting around 250 to 300 thousand passengers/day. Recently, more 19 buses were included by three private companies operating within REM routes and willing to be integrated into the Famba system. The distribution of buses and operators is shown in the table below (data refer to August 2020).



for Transport and Communications (FTC) which designed 20 routes in 20 corridors along the AMM to allocate the new buses that were going to be delivered. The first route proposal was evaluated in the “Study of Demand for Public Passenger Transport Services in the Greater Maputo Area” commissioned by the FTC (Matos, 2017). That study evaluated the characteristics and volume of transport demand to calculate the number of buses to be allocated on each of the 20 routes selected by the FTC. The REM network was last updated in 2019 and 2020. The current vision is that REM should occupy, in an almost exclusive way, the structural routes of AMM through scheduled and predictable bus services. The 15-seater Chapas would become “feeders” from the neighbourhoods and the 26-seater chapas would be integrated as much as possible within the REM routes having less transport demand (or, in alternative, on routes that are inconvenient for the circulation of buses). In addition to this, another fundamental objective is to respond to the transport demand along the outer AMM crown, creating new connections that could respond to the population movements avoiding people having to reach the main terminals of Maputo city (Museu and Baixa).

In 2019, the AMT participated in a project together with the Municipality of Maputo, the company João Ferreira Dos Santos (JFS) and Think&Do Tank Waza<sup>22</sup> to develop a smaller and more versatile vehicle to meet a double fold transport demand: both passengers and goods accessing the neighbourhoods through unpaved roads. These vehicles, called here “Mixed Vehicles”, count 15, as of February 2021. The routes used by Mixed vehicles, which pertain to different operators and to the Municipality of Maputo, constitute Corridor 7 of the REM. This corridor is not conceptualised from a specific geographic area: its routes are spread over the most inaccessible and unpaved routes throughout the AMM, including the Matutuine District (Maputo Special Reserve, Machangulo Peninsula), Matola, KaTembe and the Island from Kalnhaca.

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22 Think and Do Tank WAZA is a social enterprise proposing initiatives that gave rise to the Mobility and Transport Observatory (OMT)



Figure 51: Mixed Vehicle. Source: AMT

Five public urban transport companies operate in the AMM area: the Municipal Road Transport Company of Maputo, E.P. (EMTPM, EP), the Public Transport Company of Matola, E.P. (ETM), the Municipal Transport Company of Boane (EMTB), the Municipal Transport Company of Manhiça and the Municipal Transport Company of Namaacha. These last three were trained with the support of the AMT to start operating the buses purchased by the AMT. Public transport companies are regulated by the law on public companies (Law 6/2012, of 8 February) and supervised by the respective municipal councils and by the Ministry of Transport and Communications.

### ***Electronic ticketing: Famba Card***

In February 2021, the electronic ticketing system was introduced on REM buses. It has been designated as Famba Card and it has gradually been implemented along all corridors, adopting the same official fares as those for cash payments. After having consolidated its use in the REM network, it is planned to extend its use to semi-collective transport, Taxis, Boats and Trains.

Electronic ticketing allows the creation of fares based on the actual distance of the journey and can be modulated according to the interests



of the transport system. The Famba card enables secure transactions, avoids handling of notes and coins, reduces fraud and allows the incorporation of financial services. In addition, offering users good integrated and intermodal information systems, including timetables, fares, connections and services, this modality improves the attractiveness of public transport. Through electronic ticketing there will also be the possibility to gather reliable data that will allow better decisions for the adjustment of the overall metropolitan network and to improve its efficiency.



Figure 52: Famba Card



Figure 53: Famba card validator already installed inside a bus

### 2.4.5 CFM railway network

The rail network, operating at the provincial level, is managed by the public company Caminhos de Ferro de Moçambique (CFM). CFM is a state-owned company responsible for railways and ports throughout the country. The bulk of the CFM economy depends on the transport of goods, but also some passenger transport routes, such as in the AMM.

CFM has stated that passenger transport is a type of a social service offered by the company, considering that there is any profit for this, because the company finances 85% of the operating cost per ticket sold. Train fares are cheaper than road transport with an average fare per passenger/kilometre of 0.4 Mt (CFM, 2019). Ticket prices vary between 7 and 31 Mt within the Maputo province. All routes leave from or arrive at the Maputo Central Terminal, located in the city 's Baixa district (Praça dos Trabalhadores). From there, trains depart for the terminals of Ressano Garcia, Matola Gare, Manhica, Goba, Chokwe and Chicualacuala. On average, 5 trains depart and 5 arrive each day.

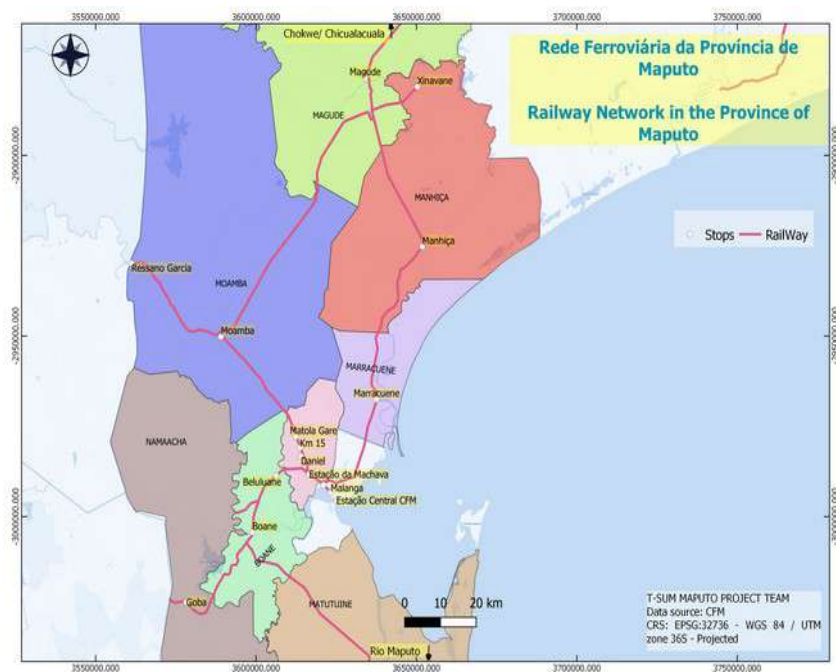


Figure 54: Map of the railway network in Maputo Province and its terminals used by CFM. Source: OMT, Mindo



Figure 55: Metrobus Train in 2019. Source: OMT, Romero

### 2.4.6 Metrobus

The Metrobus network is one of the most recent innovations in mass transport in the AMM. It is a privately conceived and privately managed network held by the company SirMotores Lda, and it combines train and bus routes. The network comprises 4 train routes and 16 bus routes where more than 300 buses of 26 or 72 seats serve the AMM. The network is organised through pendular movements of entry and exit to and from the Kamfumo District, connected with various corners of the AMM. This network is active only in the early hours of the morning to access the Kamfumo District and at the end of the day for return journeys. According to the company, in 2018 these trains allowed the flow of about 3.6 million people of Maputo and neighbouring districts as Goba, Marracuene, Ressano Garcia and the town of Manhiça. Metrobus users can subscribe to 'packages' whose prices vary depending on the frequency of use and on whether the user requires the use of the connecting buses (large or small) or simply the use of trains.

The service has a higher price than the rest of public and collective road

transport, focusing on the middle class. From March 2022, fares are 25 Meticaís (\$0.39) for bus journeys and 49 (\$0.76) for each single journey on the train.



Figure 56: Metrobus topological Map in 2017. Source: Metrobus

## 2.4.7 On-demand transport services

In parallel, three types of on-demand services operate:

**Traditional taxis.** They are led by the Taxi Drivers Association and licensed in Maputo City with the colours green and yellow. It maintains the classic traditional taxi business model, still without a meter, but applying a price list agreed internally but not exposed to the public. They are widespread in Maputo, however, there is no data on the percentage of drivers who are employed workers and those who are also owners.

**Taxis by application.** In the last 4 years, several taxi companies have appeared with their own applications such as Zip-Taxi or Viva-Taxi. They also work through a telephone exchange. Prices are determined by the app's algorithm after the route is completed. The final value on short journeys is usually much lower than the traditional taxi and below the general fares of Txopelas. Viva-taxi owns the vehicles and has a contract with drivers who work 24-hour shifts every other day.

**Txopelas.** This is what motorised passenger tricycles or Tuk-tuks are called. They were introduced in the country by a company called "Txopela" in 2010 and they took that name<sup>23</sup>. Their presence has grown a lot in recent years, and they occupy more and more corners of the Kampfumo District (CDB) fighting those positions with traditional taxi drivers. There is an association of Txopelista that tries to organise the sector. Part of the success may have to do with the model of agreement between the owner and the driver who, after 100 weekly receipts, owns the txopela. In addition to "on demand" services, some even make "commuting" trips with customers with greater economic capacity who avoid the car.

## 2.4.8 Private transport

This refers to both motorised and non-motorized vehicles, cars, motorcycles and bicycles are included. At AMM, private motorised

<sup>23</sup> "Txopela" means "to travel hanging" in the Changana and Ronga languages, predominant in the Maputo region.

transport is carried out by the car, motorcycles are not very represented. In the case of non-motorized or active private transport, there is only a small representation of the bicycle Data of the National Institute of Land Transport (INATRO), responsible for registering motor vehicles, pointed out that the automobile fleet includes 735,954 vehicles of 4 types: light vehicles (under 3.500 Kg., 64%), heavy vehicles (buses and trucks, 23%), motorcycles (9%), trailers (3%) and tractors (2%).

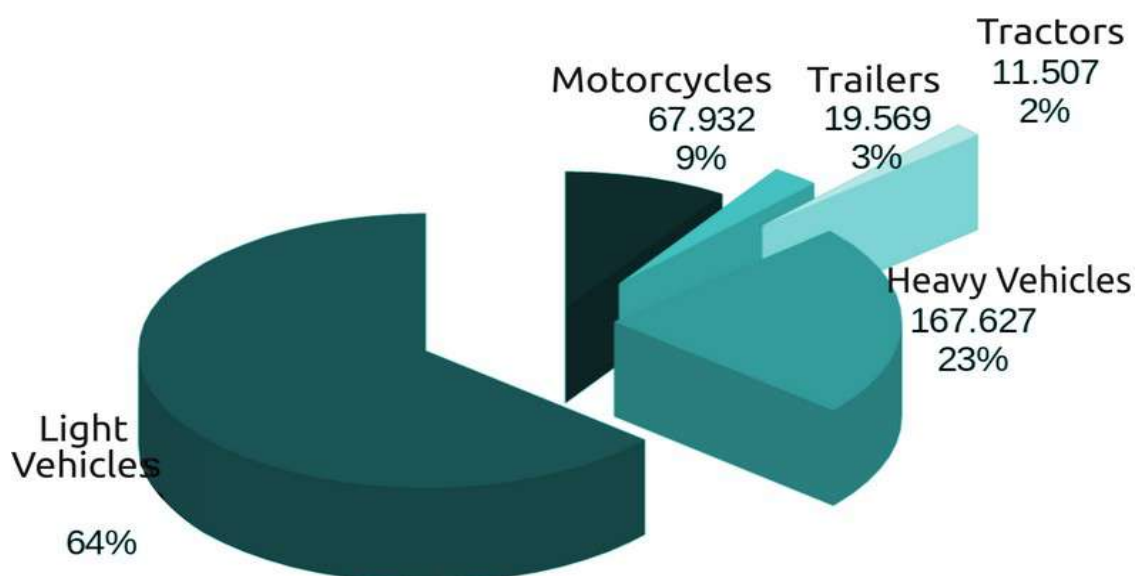


Figure 57: Distribution of the car fleet according to the type of vehicles.  
Source: INATRO

By 2017, INATRO had registered a total of 68,070 motorcycles across the country, while in the INE Census of the same year, 495,942 households had declared to own one or more vehicles of this type. This gap is probably attributed to the fact that motorcycles with less than 50 cc are not registered by INATRO, but by municipalities. This type of motorcycle is the most widespread in the centre and north of the country.

On the other hand, INATRO declares having registered 470,671 light vehicles in 2017, while in the INE Census there were 260,593 households across the country that acknowledged having one or more vehicles. This disparity in information shows the difficulty of obtaining uniformity in methodologies and data, by state institutions in the collection and systematisation of the same type of information.

At the national level, the distribution of vehicle ownership is unequal. The Province of Maputo and the City of Maputo accumulate 79% of vehicle registrations across the country. However, it is necessary to put this value into perspective because there are a number of vehicles that enter and are registered with Maputo registration, while later they will circulate in other provinces of the country. This amount has not yet been determined.

<b>Provincia</b>	<b>2017</b>	<b>%</b>
Zambezia	3.278	0.4%
Niassa	5.272	0.7%
Cabo Delgado	8.239	1.1%
Tete	11.168	1.5%
Inhambane	17.118	2.3%
Manica	17.346	2.4%
Gaza	17.960	2.4%
Nampula	31.193	4.2%
Sofala	43.655	5.9%
Maputo Provincia	285.366	38.8%
Maputo Cidade	295.359	40.1%

Figure 58: Distribution of the car fleet by provinces. Source: INATRO

The increase of private motorised vehicles in Mozambique has accelerated over the past 10/12 years (as illustrated in table 8), partly due to a rise in the import of second-hand foreign vehicles, in parallel with the country's economic growth experienced between 2008 and 2015.

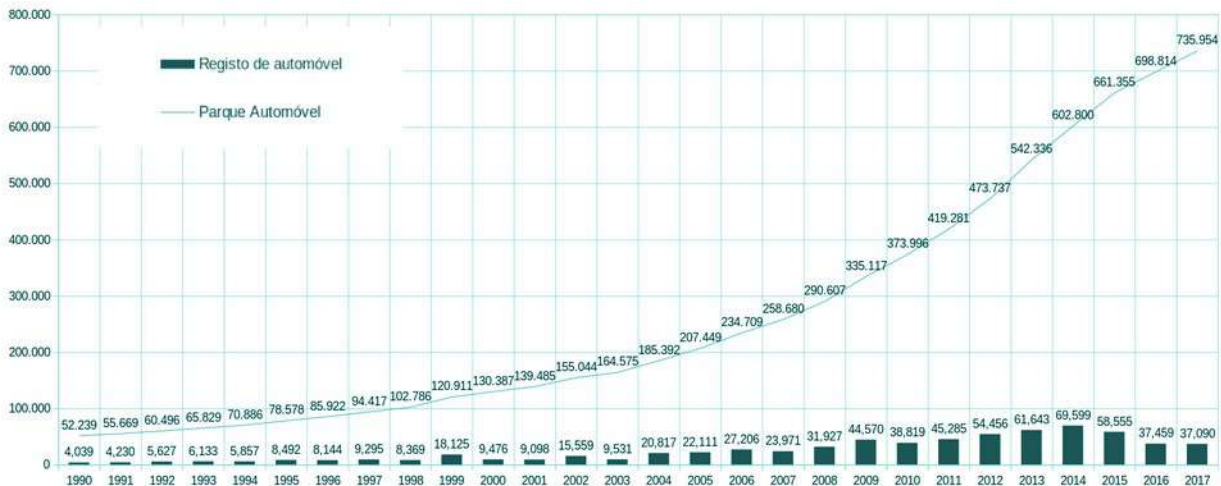


Figure 59: Evolução do parque automóvel de 1990 até 2017 em Moçambique.  
Fonte. INATRO

A 2018 study on fuels and cars carried out by Matos and Romero (2018) questioned the estimated total number of motorised vehicles circulating in the country. The study found out that the INATRO database does not remove cars that have stopped circulating from the total number. In the table below the adjusted numbers for the 2017 register are shown and distributed by types. Thus, the study adjusted the 2017 data to 634,194 vehicles distributed by type as follows:

<b>TOTAL VIATURAS corrigidas</b>		<b>634.194</b>	
Ligeiros	404.426		64%
Pesados	144.449		23%
Tractores	9.916		2%
Reboques	16.863		3%
Motos	58.539		9%

Figure 60: Corrected total Mozambican car park data. Source: MATOS-ROMERO, 2018





Figure 61: Av. 25 de Setembro, Maputo, 2014. Source: Romero

Mozambique does not have an industry for the production of motorised vehicles, these are imported. The majority of them come from Japan and South Africa. Of the total number of vehicles in circulation, 67% are second-hand and 33% are new (INATROINATTER). The average age of vehicles is 12 years old (Matos and Romero, 2018). Most of the new car dealers are company members of the Mozambican Automobile Importers and Distributors Association (AIDAM). The data available show that 84% of the imported vehicles use Diesel engines, 15% Gasoline and only 1% gas; three brands dominate 54% of the new car market: Toyota (24%), Nissan (16%) and Ford (14%). Detailed data on used vehicles reveal that more than 90% of imported vehicles between 2012 and 2017 were Japanese (Toyota was 69% of the total). The 50% comes with engines smaller than 1,800 cubic centimetres, thus these are typical gasoline touring cars. Of the more than 150 different models of imported second-hand vehicles between 2012 and 2017, the best-selling model has been the Toyota Hiace (14,137 units, 6.6% of the total). Precisely, these pickup trucks are used as 15-seater Chapas.

## 2.5 Inland Transport Network Infrastructure

The AMM's road network, despite being considerably more developed compared to other cities in Mozambique, still needs substantial investments to face the growing number of vehicles and trips in the city.

Lall et al. (2017) explain that although the central government has maintained primary roads in a functional state, secondary and tertiary roads lack maintenance and rehabilitation. The report highlights that only a quarter of secondary and tertiary roads are in good condition; about 65% of secondary and tertiary roads in Maputo are classified as not compliant and in poor conditions.

Road infrastructure is shared between private transport, freight transport and collective passenger transport.

In the past 10 years, major new roads and streets have been built (Marginal, Circular, Katembe-Ponta Douro and continuation of Julius Nyerere Avenue); EN4 was widened; Katembe Bridge was built; and a large number of kilometres of access roads were paved. Many of these new developments have already been outlined in the 2014 Master Plan.

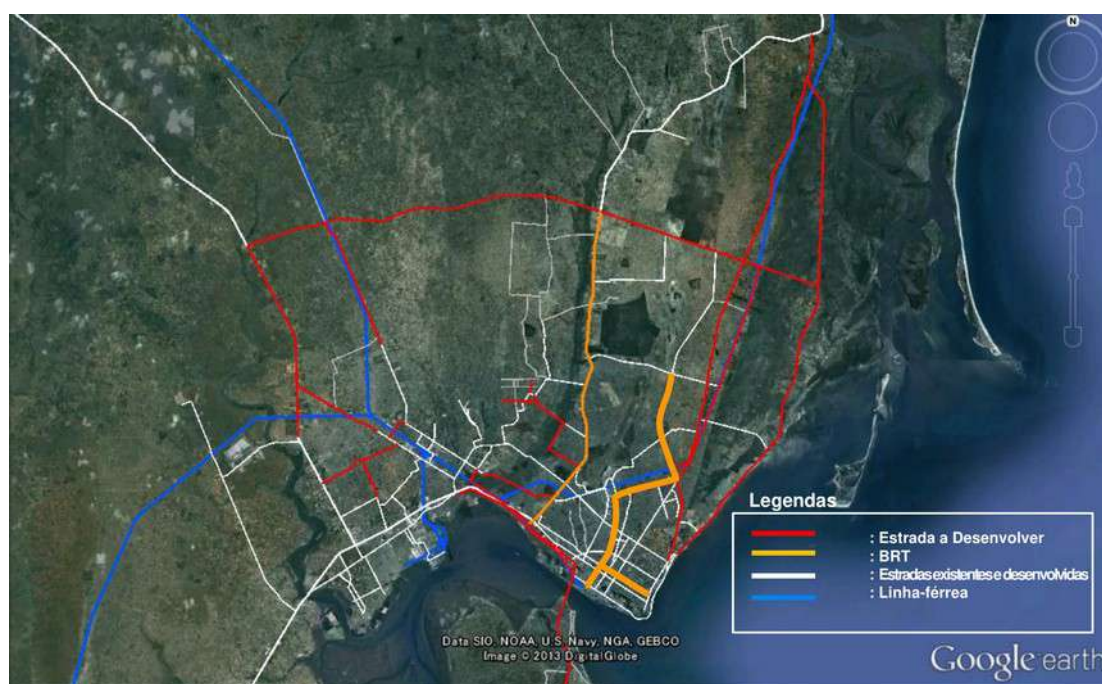


Figure 62: Road network proposed by the Master Plan for the year 2018. Source: JICA 2014

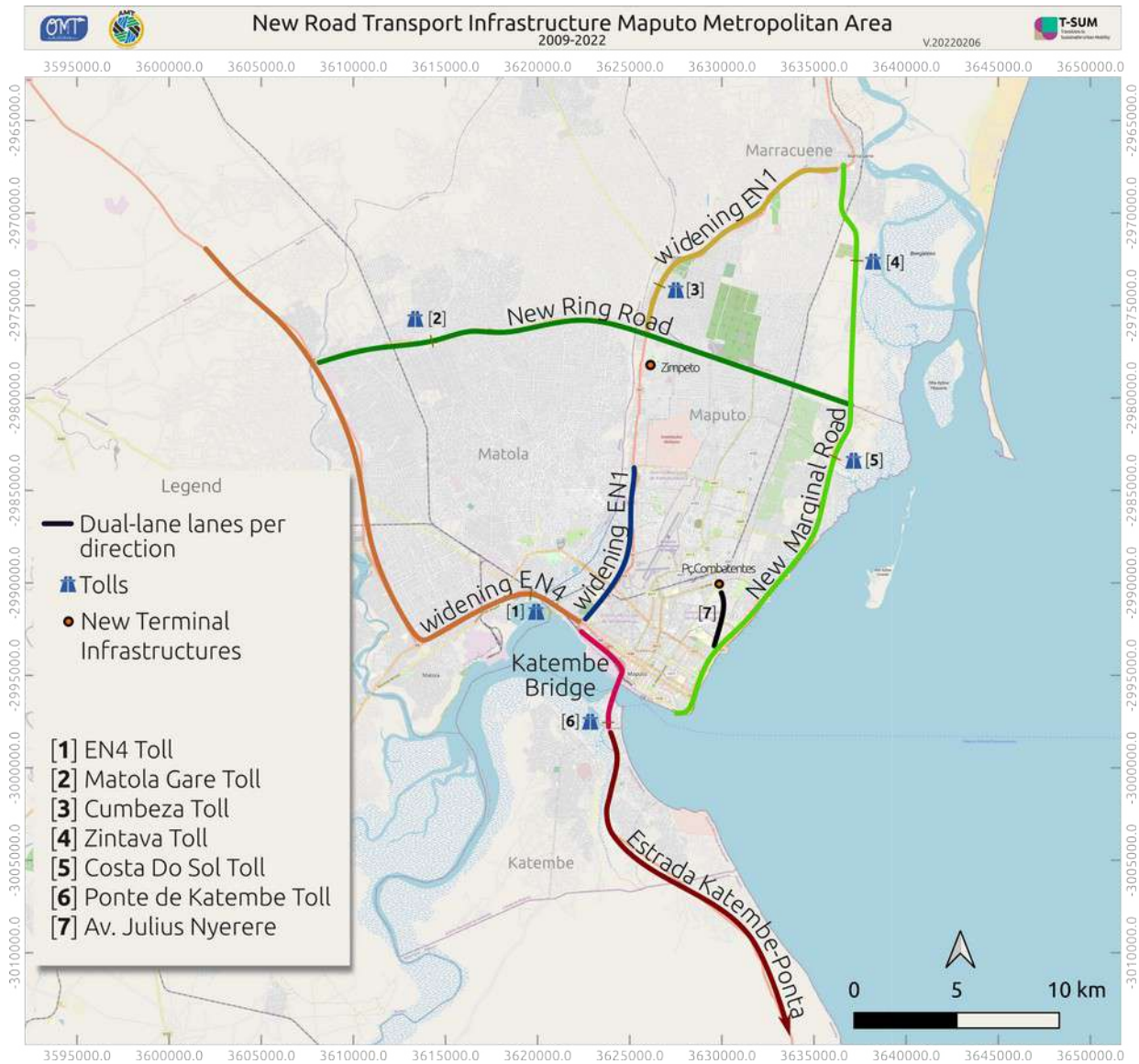


Figure 63: Map of new road transport infrastructure within the AMM 2009-2022. Source: TSUM-OMT, Romero

In February 2022, the northern toll road entrances towards the AMM via the ring road were put into operation. Also the entrances located in the EN1 between Marracuene and Zimpeto and on the ring road before and after the Xiango roundabout became operational. These recently built entrances, together with the toll road entrances on the EN4 to Matola and Boane and that of the Katembe Bridge - close the toll circle around Maputo city. With the exception of the one on EN4 (TRAC), these are under concession of Rede Viária de Moçambique S.A. (REVIMO). The payments for light vehicles are 40 Meticaís. Chapas pay 10 Meticaís and buses pay 35 Meticaís. In the case of the Katembe Bridge toll, the price is much higher: 160 Meticaís, with discounts for collective transport

vehicles and buses.

In most cases, new road infrastructure has not prioritised collective/public transport (e.g. dedicated bus lanes) and active travel (segregated pedestrian or cycling infrastructure). The focus has mostly been on improving traffic flow, and accommodating the demand for car use.

The infrastructures exclusively dedicated to public transport have been the stopping bays of the Marginal and ring road, the terminals of Praça Dos Combatentes and Zimpeto and several projects of roofed bus stops. In this last case, it is worth mentioning two initiatives in particular: the Metropolitan Procedures Manual for Bus Stop Installation<sup>24</sup> (ASF, 2018) and the new bus stop shelters that the Maputo Municipality has installed in partnership with the company Sprint, who funded the project and received the advertising space included in the bus stops.

There is currently no transport infrastructure suitable for cycling. The sidewalk of the KaMfumo district (CBD) are mostly degraded and occupied for parking private cars. This occupation has developed in parallel with the growth in car stock.

Many of the new paved streets in Maputo include the construction of side-walk with very limited dimensions in proportion to the space dedicated to the traffic (Figure 64).

In other cases, the hasty policy of paving streets and avenues in expanding neighbourhoods does not always include the conditioning of the sidewalk for pedestrians (Massigue, S. A., & Oviedo, D. ;2021) (figure 65).

Like cycling for commuting, walking is also identified with low status and avoided by classes with higher social self-esteem. (Massigue, S. A., & Oviedo, D.; 2021)

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24 This document is one of the products of the cooperation project between the Municipality of Maputo, the AMT, the Metropolitan Area of Barcelona and Arquitectura Sem Fronteiras.



Figure 64: Newly paved street in Maxaquene B neighborhood (Maputo City).  
Source: Romero



Figure 65: IMAP street in Matola. Source: Matola City Council Annual Report

## 2.5.1 BRT project for Maputo

The Director Plan (JICA, 2014), among different suggestions for infrastructure improvement, highlights the introduction of a BRT and the derived infrastructure, in addition to the upgrading of train services.

With regard to public transport, the plan identifies the main axes to be developed. It proposes 5 BRT developments: 3 radial and two circular (Figures 66 and 67)

In 2014 and 2015, proposals and technical drawings were elaborated to initiate the BRT project, starting with the first corridor from Baixa-Museu to Magoanine, with funding from the Government of Brazil and implemented by the Brazilian Company Odebrecht. In 2016, the project was interrupted due to the economic crisis in Mozambique and Brazil.

From that moment on, transport planning efforts in Maputo started to focus on establishing a “light” BRT proposal, envisaging exclusive lanes for all public and collective transport throughout the day or, in alternative, only during peak hours. In 2016, a first attempt in this direction was developed along the EN1 (from Praça de Missão Roque to Praça 16 de Junho), establishing the use of the left lane exclusively for public and collective transport vehicles (i) between 6 and 8 am and in direction of the entry in the city center, and (ii) between 15:30 and 19:00 on the way out of the city. This experience was taken as a support measure for the new Central Government plan for the Municipality of Maputo, with the aim to reinforce the capacity of the transport offer and to formalize private collective transport operators, many of which were operating informally and out of the legal system. Nevertheless, a system of temporary exclusive lanes without physical segregation requires a major daily effort that was not developed, so this attempt ended in 2018.

In 2021, a new BRT proposal was introduced within a larger package of institutional and regulatory reforms and capacity building actions, through World Bank funds and counting with progressive results over 5 years of implementation. It is a long-term process led by MTC, Maputo and Matola Municipalities and AMT. The preliminary study suggests a similar route to the first one indicated by the Master Plan: from Baixa to Magoanine with several non-segregated feeder roads continuing to

Albazine, to Zimpeto and to Matola Gare via the Circular. (Figure 67)

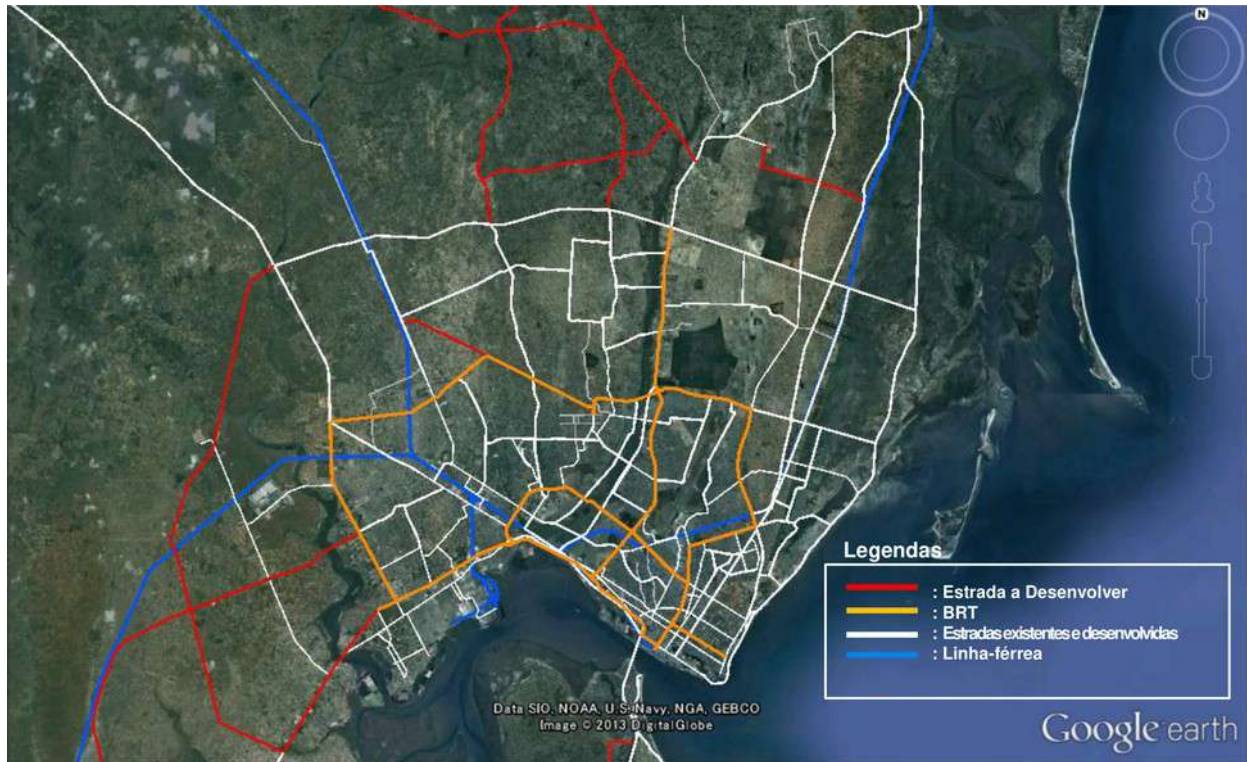


Figure 66: Propose BRT Network for 2035 by M.P. Source: JICA, 2014



Figure 67: Key Corridors for Transport Network Development by M.P. Source: JICA, 2014

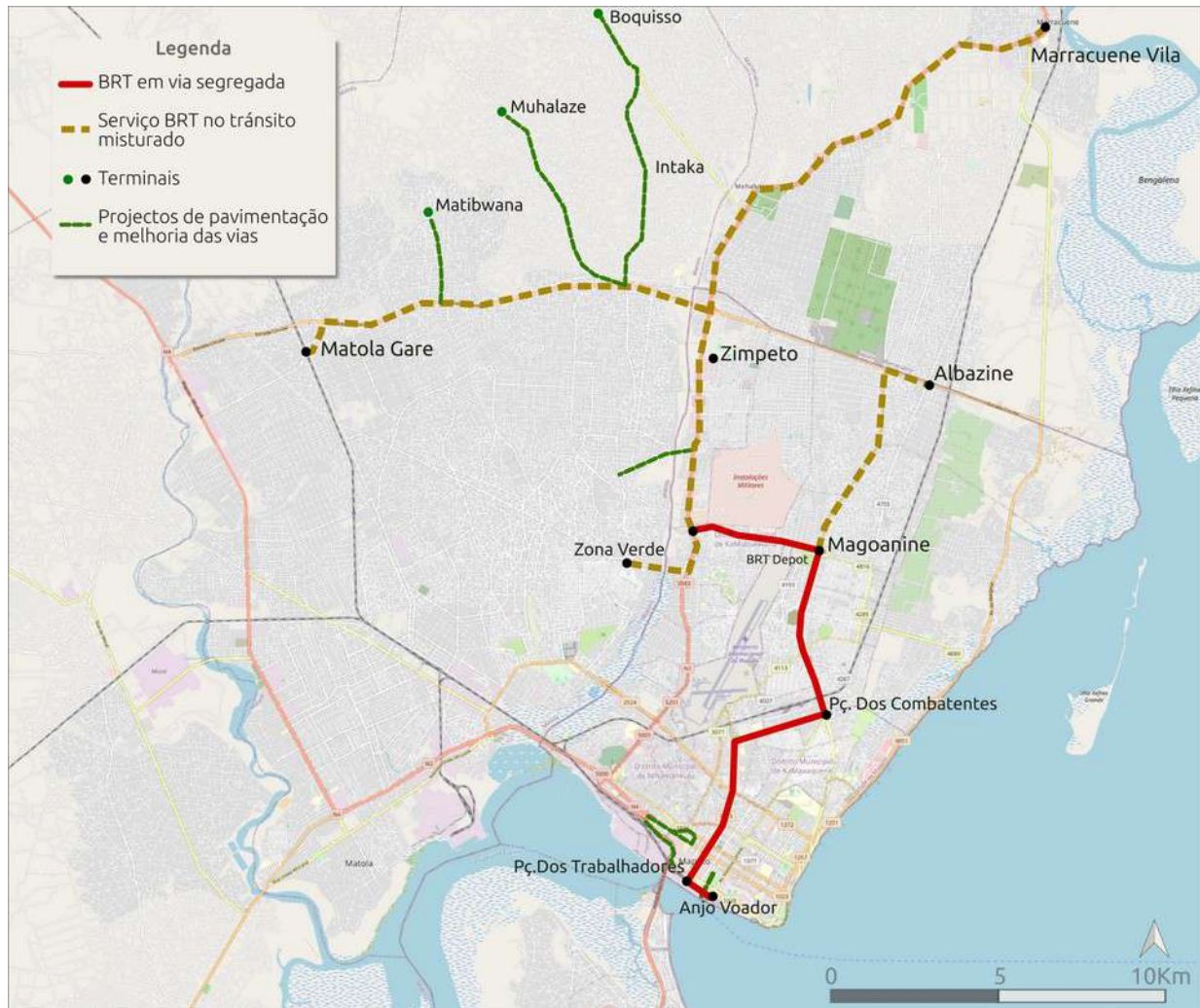


Figure 68: Proposed layout of the future MTC BRT route with WB funding.  
Source: MUAMM Pre-Feasibility Study of the MTC and WB project. Design: OMT-ComSSA, Romero



## 2.6 Technological innovations applied to mobility

In recent years, different digital solutions have started to emerge in the context of the AMM mobility. A detailed table of all those that the project has been able to identify is included in the appendices section.

### **The "Mapa Dos Chapas Project" and the Mapatons**

The "Mapa Dos Chapas Project"<sup>1</sup> has been led by several people and organizations since 2013. The most emblematic product is the Maputo City Public Transport Map (Figure 69 and 70) which was taken over by the Maputo Municipal Council and published in 2017 (Klopp and Cavoli, 2017; Klopp and Cavoli, 2019). Besides the well-known version present on some of the billboards at bus stops in the city of Maputo, there is also a digital aspect. All data was collected with digital geolocation devices, producing a GIS map complete with routes and stops. All this information was disseminated through the OpenStreetMap.org platform in two Mapaton campaigns jointly carried out by several organisations such as #MapeandoMeuBairro, OMT, UN Habitat, ASF, AMT, etc. The transport map covers chapas routes and stops, railway lines (for passenger transport) and public bus lanes (Figure 71). The georeferenced database of all the stops and routes data is accessible from any web browser in the world<sup>25</sup>.

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25 <https://www.openstreetmap.org/#map=19/-25.96526/32.57548>

# Mapa de Transporte Público do Município de Maputo

Versão 17.08

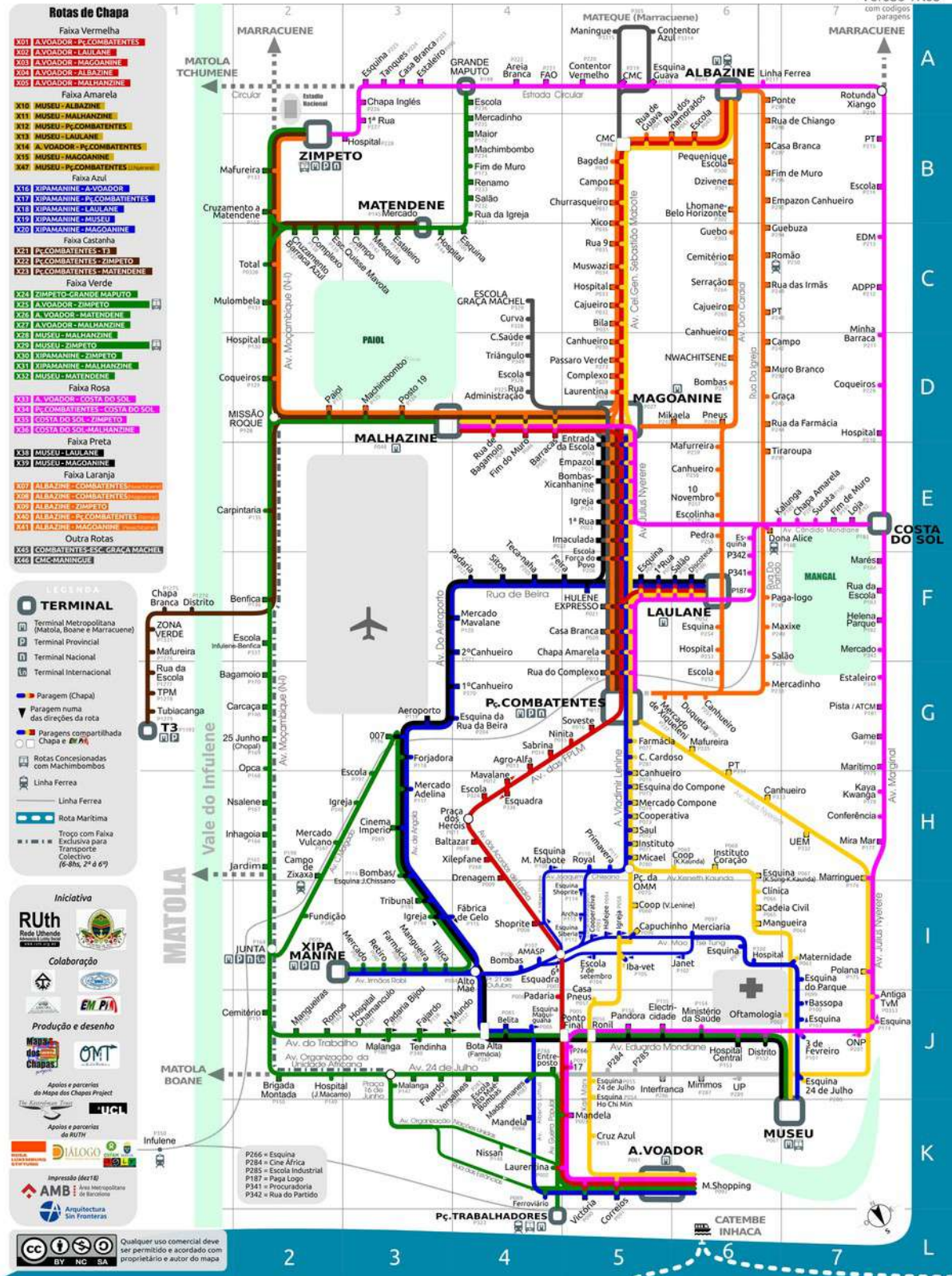


Figure 69: Front of Maputo City Public Transport Map V.17.08



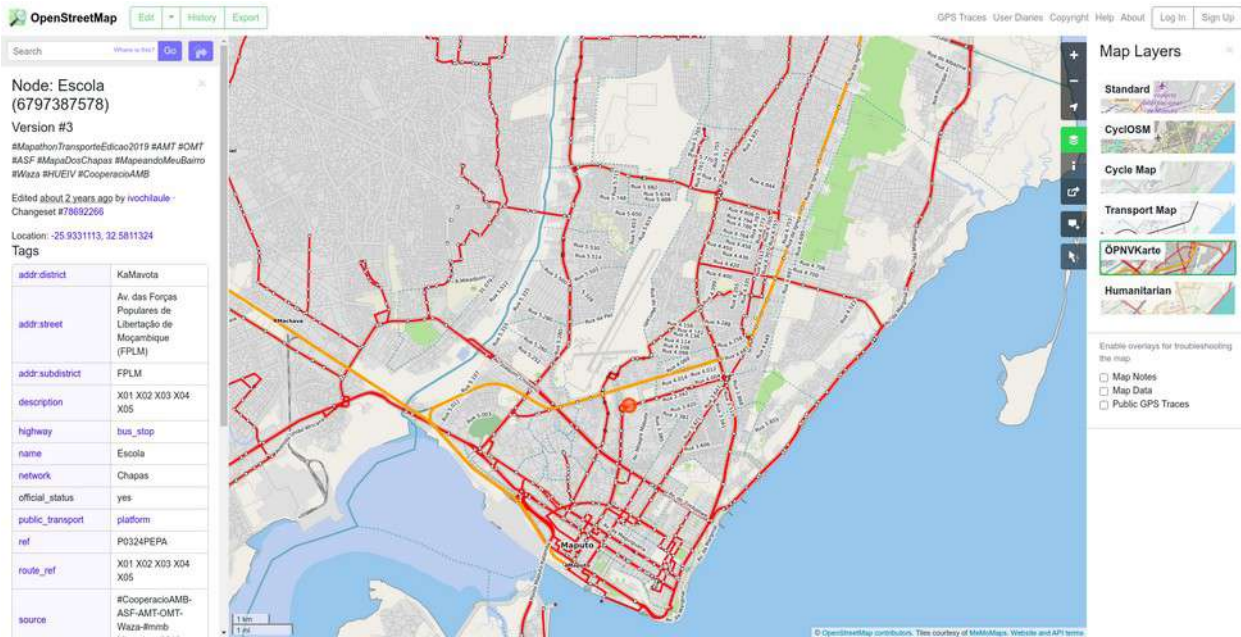


Figure 71: Extract of the representation of georeferenced data through the OPNVKarte layer of the Open Street Map platform (right), plus an example of the cataloguing of the "Escola" stop on FPLM Avenue in Maputo (left).

## Txapita

Mozambican initiative to develop a smartphone application to locate REM buses for passengers and operators supported by AMT

## Metrobus

The private public transport network led by SirMotors also has several digital elements for the operation and to provide the service to the passenger.

- Geolocation of all vehicles for efficient fleet management.
- Electronic ticketing through a card to make payments on buses and trains after recharge or payment of the selected monthly travel package. This card makes the service the closest to a MAAS in Mozambique.

## Cartão Famba

Look at [chapter 2.4.4](#).

### 3. Knowledge gaps

Carrying out a comprehensive city profile posed remains a major challenge due to lack or outdated data in many of the mentioned sector areas.

1. Geolocalization of the 2017 Census by neighbourhoods is still pending.
2. The AMM Household Mobility Survey will make possible to update the modal share and the origin-destination matrix, as well as a characterization of trips by reason, distance and other relevant variables. It is currently being developed by UEM within the PMUS project).
3. It is registered an absence of vehicle traffic counts by types at key points in the city and publication of data from the different tolls surrounding the city.
4. There is a weak understanding of the dynamics of the functioning and operation of informal transport and the processes of formalisation<sup>26</sup>. For example:
  - a. Average number of vehicles per owner;
  - b Type of relationship between owners and crews;
  - c Identification and adhesion of owners to transport associations;
  - d Role of associations in the organisation of the transport network and differences between municipalities;
  - e Correct distribution of operating costs;
  - f Definition of Key Performance Indicators (KPIs);
  - g Occupancy ratios;
  - h Frequencies.

5. The full mapping of the Chapas routes in the Municipalities of Matola and Boane and the district of Marracuene has not yet been carried out.<sup>27</sup>

6. Lack of mapping characterising mobility derived from the activity of

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<sup>26</sup> In this sense, they are working on the Transitions project of the UK-AID High Volume Transport Applied Research Program (“HVT High Volume Transport Applied Research Programme”), seeking to solve some of these gaps.

<sup>27</sup> AMT with AFD has launched a call to fill this gap.

the informal economy and small cargo.

7. Road and new street paved infrastructure inventory updated from the different municipalities and district.

8. Absence of a digital strategy for transport information and data. Data collected from surveys and mappings should be published in open digital formats and standards to allow easy access. The same happens in the first operational databases of companies and regulators that have already started with the digitization of their services. It would be very appropriate to agree on common national digital standards that allow an adequate connection between the different databases, automatically feed passenger information services and facilitate access for monitoring and research.

9. Studies and plans on land use are limited and not updated.

10. Lack of studies and plans for land use and its impact on mobility and accessibility in the Maputo Metropolitan Area. Without due investments in the study of the real dynamics of transport demand, metropolitan territorial planning in the AMM will not be achieved.

11. Real impact of the Covid crisis and the measures applied to seek physical distancing in transport in the transport system both on the passenger and transport side.

12. AMM car park growth in the last two years (since the start of the Covid crisis).

13. Calculation of the volume of vehicles that are registered in the city and province of Maputo that in fact circulate in these same provinces on a regular basis.

14. Studies on operating dynamics, percentage of modal split and impact of school and corporative transport.

15. Ideal volume of private vehicles that can be absorbed in a sustainable and functional way in the city of Maputo, and the relative percentage in the modal split.

16. Impact and behavior of Txopelas and taxis by app on AMM mobility.

## 4. Challenges

The information presented in the previous chapters helps identifying the challenges and opportunities that the present context offers in terms of a possible transition towards Sustainable Urban Mobility policies within the Metropolitan Area of Maputo.

For the Maputo metropolitan area this is a crucial moment to re-think how to structurally change the current transport system in order to move towards more sustainable mobility policies, in parallel with a joint effort towards a sustainable and inclusive urban development.

As described throughout this document, such a moment requires the active commitment and innovative involvement of all stakeholders from citizens and civil society organisations to national public institutions, companies and municipalities. This commitment requires meaningful changes in the ability to inform and make decisions, and the ways in which public resources are administered and prioritised.

In this regard, further developments in the collection of accurate and reliable data, capacity building and expansion of human talent in the transport sector, and the strengthening of public participation, can contribute to improving decision-making regarding urban mobility. Such changes in the basis for policy need to be joined by higher levels of public investment and cross-sectoral work as some of the indispensable elements in supporting the transition process. It is necessary to integrate more clearly and effectively the concepts of mobility and accessibility across different planning and regulatory fields, not only for vehicles but including broader issues such as the preservation of public space and the strategies to improve mixed land-use development and its integration between public, non-motorised transport.

This effort should aim to jointly and gradually address the key challenges and constraints listed in this final section.

At present, Maputo is at a crossroads. Should current trends remain unchanged, Maputo and its Metropolitan Area will become another African capital characterised by persistent traffic congestion, poor air quality, noise, inefficiency and unequal access to essential opportunities

for its citizens, particularly those in the lower socioeconomic strata and those facing vulnerable conditions. There is a collective imagination about the car as a symbol of both wealth and status and a generalised desire to acquire it among the population. This adds to a widespread perception of the lack of an acceptable collective alternative. In parallel, many decision-makers perceive a lack of resources, and constraints to apply different urban policies, sharing with the population the imaginary of the car as a means of social ascension and of the much-desired development.

The metropolitan reality needs effective and efficient governance in balance with municipal competences.

At the administrative level, the most urgent challenge is to establish mechanisms for coordinated planning among different municipalities and districts and between urban areas and their surrounding 'rural' districts. Urban policies and plans lack a metropolitan perspective, which implies they also lack long-term vision, proper coordination with urban mobility plans and a planning perspective of the expansion areas that responds to current and expected dynamics of mobility and urban expansion.

Mobility is one of the areas where this inter-municipal and inter-sectoral interaction is most visible. The AMT's efforts to organise a transport network at the metropolitan level has become a pioneering exercise and the driving force towards such a new layer of governance.

At the same time, two major difficulties appear: the competition for independence and competences with the municipalities and organising and formalising traditional transport operators.

There is a reciprocal relationship between transport demand and land-use. As transport connectivity improves, so does land attractiveness. By the same token, more concentration and diversity of opportunities and land uses increases both attractiveness and value of the land, which in turn pulls infrastructure investment and provision of transport services (Geurs and Van Wee, 2004; Mendonça 2014). Lack of studies and plans for land use among various urban agglomerations and the lack of a strategy that integrates the development of different AMM poles has an impact on the sustainability of the transport system.



Despite the fact that accessibility concept has gained increasing relevance in urban and transport policy and discourse at the global level (see UN's Sustainable Development Goals 11.2) and has been adopted by national and urban authorities worldwide, it still plays a limited role in urban investments or policy decisions in the context of Maputo. Nevertheless, a balanced and more equitable development of the region actually depends on decision-makers' understanding and adoption this concept.

The ability to address all these factors is often constrained in developing contexts. However, it is possible to identify, agree, produce and monitor the right indicators to measure the evolution of the level of accessibility in the AMM. For instance, supply-level indicators such as coverage of public transport routes and stops can give a first indication of underserved communities. Affordability indicators can suggest what areas and populations are facing economic challenges for accessing opportunities. Walking and waiting times for public transport can show where service frequencies are insufficient for the levels of demand.

The policy choices that authorities make will partly determine the city's trajectory and whether it is aligned with high-level objectives towards sustainability, such as the Sustainable Development Goals or the Climate Agreement. The AMM has the opportunity to maintain the current modal split (relatively low levels of car use and high pedestrian mobility) and establish innovative solutions to achieve sustainable and inclusive land use and mobility patterns, thus avoiding being "trapped" in a car-oriented development trajectory - which can be very difficult and expensive to correct at later stages of development.



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# Annex

## Annex 1: Map of Initiatives and Projects in the Mobility and Planning Sector of Maputo

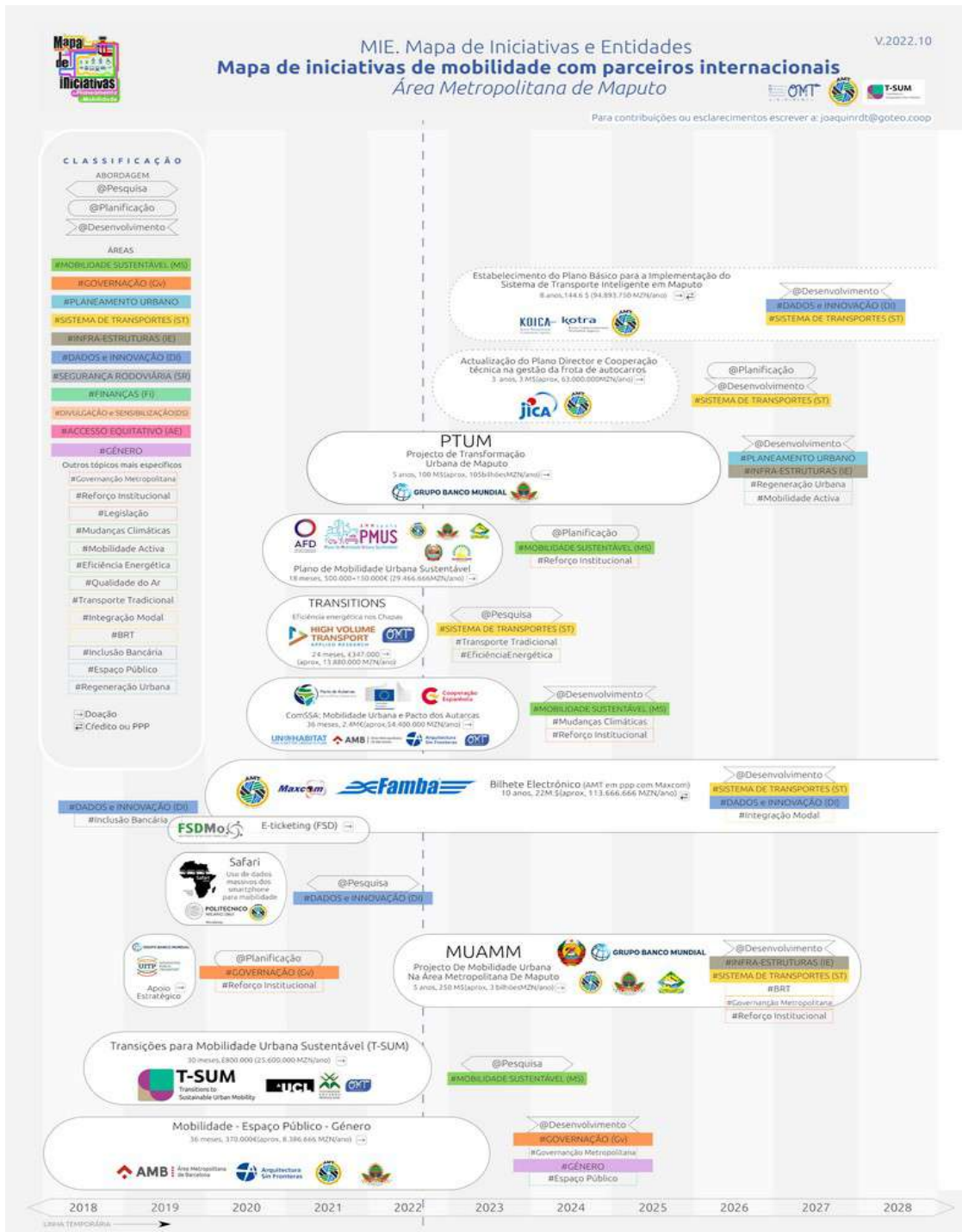


Figure 72: Temporal and relational diagram of projects with urban mobility components linked to international partners. Mapa de Iniciativas e Entidades (MIE)

The Map of Initiatives and Entities (MIE) is a line of work between the T-SUM project and the Observatory that seeks to identify all the programs, projects and proposals, as well as the entities directly or indirectly involved in the Sustainable Mobility and Planning sector Urban in the Metropolitan Area of Maputo.

## ACADEMY

ISUTC Instituto Superior de Transportes e Comunicações

POLIMI Universidade Politécnica de Milano. Projecto Safari

UCL University College of London. Projecto T-SUM

UEM Universidade Eduardo Mondlane.

## INTERNACIONAL COOPERATION

AECID Spanish cooperation that supports institutional capacity building and measurement of air quality call ComSSA-III, since 2020. Project also co-financed by the European Union.

AFD French Cooperation Agency, which is funding the development of the Sustainable Urban Mobility Plan for the AMM, which will expire in 2022. This Plan will outline the main lines of development of sustainable mobility, as well as describe the current situation of demand and availability of transport (anyway) in the AMM.

AMB Barcelona Metropolitan Area. They maintain agreements with AMT, ASF and the Municipality of Maputo to develop projects related to urban mobility, public space and gender since 2018.

ASF Architecture Without Borders Spain in projects together with AMT and Municipalities of Maputo and Matola financed by Área Metropolitana de Barcelona (AMB) since 2018. Also involved in the implementation of ComSSA-III project with UN Habitat and AECID.

FSD British Cooperation Financial Inclusion Programme. Supports AMT for the development of the Famba Card.

JICA Japanese cooperation. (which in 2014 drew up the first major Master Plan for the development of transport, foreseeing the introduction of the BRT and a combined and integrated transport system in the three municipalities (Maputo, Matola and Boane), including part of the District of Marracuene. it has not been implemented although work is under way with multisectoral teams in order to conclude different projects, to be financed by the World Bank.

KOICA Korean Development Agency

KOTRA Korea commercial agency

Instituto Global	Tony Blair Institute for Institute for Global Change. Specialized Technical Assistance at the Ministry of Transport and Communications.
UE	European Union. Funder of the ComSSA-III project
UITP-UATP	União Internacional de Transporte Público. Parceiro de implementação do Banco Mundial para o projecto de apoio institucional desenvolvido no ano 2018 e 2019 pelo Banco.
ONU Habitat	Apoia os projectos no âmbito da planificação territorial, mobilidade e espaço público. É um dos implementadores do projecto ComSSAIII da AECID e UE.
UNICEF	Financiando o Projecto de Espaço Públicos para Crianças implementado pelo UN Habitat
WB	Banco Mundial. Histórico Apoia vários projectos de desenvolvimento urbano na cidade de Maputo, como seja o ProMaputo. Neste momento apoia ao MTC no futuro projecto de introdução do BRT.

## NATIONAL PUBLIC INSTITUTIONS

ADE	Space Development Agency from MTC.
AMT	Maputo Metropolitan Transport Agency
ANAMM	National Association of Municipalities of Mozambique
ANE	National Roads Agency
CMBoane	Boane City Council
CMMaputo	Maputo City Council
CMMatola	Matola City Council
Distrito de Marracuene	Marracuene District rule directly by the Central Government.
EMME	Municipal Mobility and Parking Company of the Municipality of Maputo, responsible for parking and transport terminals.
FTC	Transport and Communications Fund
INATRO	National Institute of Road Transport
MAEFP	Ministry of Administration and Civil Service
MIREME	Ministry of Mineral Resources
MITADER	Ministry of Land, Environment and Rural Development
MTC	Ministry of Transport and Communications

## OPERATORS (I)

AIDAM	New Automobile Import and Distribution Association of Mozambique
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Autogás	Public and private capital company for the promotion of gas as a transport fuel in Mozambique
Kwellaa	Car sharing and seat reservation app in Chapa
MAXCOM	Implementing company of the Famba card with Tanzanian and Mozambican capital
Sir Motors	Company responsible for the Metrobus system and the sale of TATA and Yutong buses working at REM
TRAC	Company that has the maintenance concession for the motorway that connects the regional corridor between Maputo and Gauteng where the existing toll between Maputo and Matola on the EN4 is located

**OPERATORS (II)** The private sector is represented by FEMATRO (Mozambican Federation of Road Transport Associations). This brings together several municipal and regional transport associations, namely:

#### Maputo

ATROMAP	Associação dos Transportadores de Maputo. 685 chapas and 19 routes(Contagem 2020).
ATHMAP	Associação de Transportadores de Hortaliças and Mariscos de Maputo. 136 chapas and 4 routes(Contagem 2020).
ASOCTRA	Associação Organizadora dos Transportes Semi Colectivos. 142 chapas and 4 routes(Contagem 2020).
AKT	Associação de Katembe de Transportadores. 66 chapas and 10 routes(Contagem 2020).

#### Matola

UNICOTRAMA	União das cooperativas de Transportadores da Matola. 630 chapas and 46 routes(Contagem 2020).
UTRAMAP	União de Transportadores da Matola. 776 chapas and 57 routes(Contagem 2020).
ATRIMU	Associação de Transportadores de Muhalaze

#### Boane

ASSOTRABO	Associação dos Transportadores Rodoviários de Boane. 206 chapas and 34 routes(Contagem 2021)
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#### Marracuene

ATBAN	Associação dos transportes do bairro Agostinho Neto
ASSOCOTRAMA	Associação dos Coordenadores de Transportes da Província de Maputo
COOPTRAMAR	Associação de Transportes de Marracuene
ATROMI	Associação dos Transportadores de Michafutene

## Província

**ULTRAMAP** União dos transportadores de Maputo. It works in Maputo Province, which includes operators from districts not covered by the metropolitan region, such as Manhiça, Magude, Moamba and Namaacha, carriers are associated with FEMATRO.

In addition to the mass transport mentioned above, Taxis and Txopelas are also organized in associations.

**CIVIL SOCIETY - 3rd Sector.** The private transport sector is monitored by several national non-governmental bodies, which promote advocacy and assistance in various ways. They are for example:

**AMEND** NGO working in the field of Road Safety. There is the Children's Court project.

**AMVIRO** Association of Victims of Road Accidents. AMVIRO, is a voluntary non-profit organization, endowed with legal personality, with administrative, financial and patrimonial autonomy that promotes activities aimed at the prevention, advocacy and mitigation of the effects of road accidents, with statutes published in BR no 34, series iii, of August 26, 2009. AMVIRO carries out its activities in the areas of road safety, Mitigation of the effects of road accidents and advocacy in all provinces of the country.

**AEC** Association of Driving Schools

**DCU** It is a non-profit project with the objective of creating spaces for discussion, reflection and engagement in relation to urban citizenship.

**FMC** Mozambican Cycling Federation

**#MMB** MappingMyBairro. Mozambican association that has participated in several transport Mapathons together with UN Habitat, OMT, AECID, AMT, etc... Member of the Mapa dos Transportes group.

**MOVECOA** Associação de Conductores Profissionais

**OMT** Mobility and Transport Observatory in Mozambique. Monitoring and research association in the various sectors of transport with intense activity in the field of Urban Mobility. It was an initiative of Think-and-DoTank WAZA from 2018

**RUth** Uthende Social Advocacy Network. Now extinct, it was the first Mozambican Civil Society Association dedicated to monitoring urban mobility in Greater Maputo with the fair access to the city program and institutionally led the production of the public transport map of the city of Maputo (2013-2017).

**WAZA** Xitique of Ideas. Think Tank and social enterprise created by national and foreign professionals from different sectors, especially those related to Transport and Energy (2016-2020). Origin of the OMT and Women in Energy Associations.

## OTHERS

JFS Group João Ferreira dos Santos. Involved in the Mixed Car project with AMT and Maputo Municipality.

Jornal Transporte e Tránsito Independent communication body of the Sector (2020-2021)

Mapa dos Transportes group Working group made up of several organizations that leads the mapping of transport in the Maputo metropolitan area: OMT, #MMB, ASF and VOID.

Mozambikes Mozambican social company for the assembly and sale of bicycles

Sprint Advertising company implementing the shelters project for stops with the Municipality of Maputo

Txapita AMT application for locating REM buses

VOID Technological content company member of the Mapa dos Transportes group

## Annex 2: Capacity distribution between REM Chapas and Buses

*Tabela 3: Logical sequence of numbers until estimating the total capacity per seat of the fleets of Chapas and Buses together for AMM on working days and the distribution of the total between each one of them without taking into account the number of daily trips made. Source: Plate Counting Campaign 2020, OMT-AMT, 2020*

<b>79.014</b> Capacity estimation by seats of the sum of the Chapa and Bus fleets on working days in the AMM			
CHAPAS		BUSES	
2.435	Total Chapas vehicles registered by inspectors in the 2020 count campaign	384	Number of Buses registered in the AMT database that operate within the REM
69%	% of vehicles working each BUSINESS DAY relative to the total fleet	78%	% of REM buses operating each BUSINESS DAY in relation to the total fleet
1.680	Number of 15L and 26L Chapas that work on average on weekdays on routes in the cities of Maputo and Matola	292	Total REM buses registered in the 2020 Count campaign
93%	Das Chapas on the Maputo and Matola routes are 15L (Mini bus)		
7%	Das Chapas on the Maputo and Matola routes are 26L (middle bus)		
20	Real seats per 15L plate	100	Real average seats in the different models of REM Buses
45	Real places by 26L plate		
75%	Estimate on the % of the AMM Chapas fleet allocated on the Maputo and Matola routes		
2.240	Estimate of the total sheet metal fleet for the entire AMM on working days.	301	Estimate of the total number of REM buses across the AMM on working days.
2083	Estimativa do número de Chapas de 15L nos dias úteis na AMM		
157	Estimate of the number of 26L Chapas on working days at AMM		
<b>48.899</b>	Capacity estimation by seats of AMM's total sheet metal fleet on working days	<b>30.115</b>	Estimated capacity per seat of REM's total bus fleet on weekdays
<b>62%</b>	Estimate of the % capacity per seat of the total fleet of Chapas at AMM on weekdays relative to the total capacity between Chapas and buses at REM.	<b>38%</b>	Estimate of the % capacity per seat of REM's total bus fleet on weekdays relative to the total capacity between Chapas and REM buses.

## Annex 4: REM operatorS table

Table 4: REM operators and buses. Source: AMT-2020

Operador name <sup>28</sup>	Main Corridor	Owner ship	Number of buses	Nº de Viaturas mistas	Nº de Gestores	Nº rotas em funcionamento (fev2020)
COOTRAC1	3, EN1	Privada	78		30	5
COOPTRANS	2, ;MATOLA	Privada	74		34	15
COOPTRAB	1, BOANE	Privada	58	2	23	13
COOTRALBA	4, BAIXA-ALBAZINE	Privada	43		21	2
CORALBA	4, BAIXA-MAGOANINE	Privada	28		8	8
COOTRAMAR	5, MARRACUENE	Privada	20		-	7
COTRAZIMA	3, BAIXA-MAGOANINE	Privada	18		15	2
TTM (*)	4, BAIXA-ALBAZINE	Privada	15		1	
COOPTRAK	6, KATEMBE	Privada	12	1	11	13
TRAD TRANS & SERV (*)	-	Privada	3		1	
COODETRAMA	7- Viaturas Mistas	Privada	2	3	-	5
PFUKA WANSATI (*)	-	Privada	1		1	
COOTRACBOM	7- Viaturas Mistas	Privada	0	4	4	3
EMTPM (Maputo)	-	Pública	46	3	1	

28 COOTRALBA - Cooperativa de transportadores rodoviários de Maputo (Albasine); COOTRAZIMA - Cooperativa dos transportadores rodoviários de Zimpeto-Malhazine; COOPTRAB - Cooperativa de transportadores do Corredor 2-Boane; CORALBA, LDA - Cooperativa de transportadores rodoviários do corredor do Albasine; COOTRAC 1, LDA - Cooperativa de transportadores do Corredor 1; COTRAMAR, LDA - Cooperativa Transportadores do distrito de Marracuene; EMTM - Empresa Municipal de Transportes Rodoviários de Maputo; COOPTRAK, LDA - Cooperativa de transportadores de KaTembe; EMT BOANE - Empresa Municipal de Transporte Rodoviário de Boane; ETM - Empresa Municipal de Transportes Públicos da Matola; COOPTRANS (consórcio) – cooperativa de transportadores da Matola; COODETRAMA - Cooperativa de Transportadores do distrito de Matuitune; EMTN - Empresa Municipal de Transportes da Namaacha; EMTM- Empresa Municipal de Transporte da Manhiça; COOTRACBOM - Cooperativa dos transportadores rodoviários do corredor de Boquisso, Michafutene e Muhlaze



Operador name	Main Corridor	Owner ship	Number of bused	Nº de Viaturas mistas	Nº de Gestores	Nº rotas em funcionamento (fev2020)
ETM (Matola)	2, ;MATOLA	Pública	18		1	
ETM BOANE	1, BOANE	Pública	4		1	8
EMTM (Manhica)	5, MARRACUENE	Pública	3		1	2
EMTN (Namaacha)	1, BOANE	Pública	2		1	1
			<b>425</b>	<b>13</b>	<b>150</b>	
(*) Other private companies with their own buses outside the “Plano 1000”						

## Annex 5: Evolution of the car park from 1990 to 2017 in Mozambique

*Tabela 5: Evolution of the car park from 1990 to 2017 in Mozambique. Source. INATRO*

Year	New cars registration	Car park	Growth rate
1990	4.039	52.239	
1991	4.230	55.669	7%
1992	5.627	60.496	9%
1993	6.133	65.829	9%
1994	5.857	70.886	8%
1995	8.492	78.578	11%
1996	8.144	85.922	9%
1997	9.295	94.417	10%
1998	8.369	102.786	9%
1999	18.125	120.911	18%
2000	9.476	130.387	8%
2001	9.098	139.485	7%
2002	15.559	155.044	11%
2003	9.531	164.575	6%
2004	20.817	185.392	13%
2005	22.111	207.449	12%
2006	27.206	234.709	13%
2007	23.971	258.680	10%
2008	31.927	290.607	12%
2009	44.570	335.117	15%
2010	38.819	373.996	12%
2011	45.285	419.281	12%
2012	54.456	473.737	13%
2013	61.643	542.336	14%
2014	69.599	602.800	11%
2015	58.555	661.355	10%
2016	37.459	698.814	6%
2017	37.090	735.954	5%

## Annex 6: The legal framework of the mobility sector

The legal and regulatory framework for the public passenger transport sector has evolved in a dispersed and disorderly manner, in part trying to keep up with the dynamics of growth in demand for public transport. The following table illustrates this evolution:

*Tabela 6: Legal norms related to Transport and Mobility in Mozambique. Source: Machanguana, 2020*

Law	Aim
Decreto n.º.46323/65, de 03 de Maio	Regulates the licensing of rental vehicles with or without a driver, better known as "Rent-a-car".
Decreto n.º. 24/89, de 8 de Agosto	Approves the Transport Regulation in Automobiles.
Decreto n.º.15/96, de 21 de Maio	Approves the revision of the Car Transport Regulation.
Portaria n.º. 54/71	Updates Ordinance no. 378/70, of the 28th of July, which approves the licensing of rental vehicles with or without a driver, better known as "Rent-a-car".
Diploma Ministerial n.º. 92/89, de 20 de Setembro	Introduces the Semi-Collective Passenger Transport known as "Chapa 100".
Diploma Ministerial n.º.16/94, de 2 de Março	Introduces the issuance of "permit's.
Diploma Ministerial n.º. 35/05, de 26 de Janeiro	Introduces the review of fines in the Car Transport Regulation;
Despacho Ministerial de 15 de Março de 2001	Introduces the prohibition of night circulation of intercity passenger transport.
Resolução n.º 15/AM/2009, de Dezembro,	Public Urban Passenger Transport Posture approved.
Resolução n.º 79/AM/2017, de 23 de Agosto	Approves the revision of the Posture on Urban Collective Passenger Transport.
Decreto n.º 11/2009, de 29 de Agosto	Approves the new Car Transport Regulation.
Decreto n.º 38/2010, de 15 de Setembro	Creates the Transport and Communications Development Fund (FTC)
Resolução da Assembleia Municipal de Maputo, de 17 de Março de 2011	Creates the Municipal Passenger Road Transport Company (EMTPM, EP)
Resolução n.º 56/2011, de 27 de Julho	Creates the Municipal Public Transport Company of Matola (ETM)
Resolução n.º 85/AMVB/2017, de 03 de Novembro	Creates the Public Transport Company of Boane.
Decreto n.º 85/2017, de 29 de Dezembro	Creates the Maputo Metropolitan Transport Agency.

