TECHNICAL NOTE II. Maputo Bus Cooperatives – Context and the way ahead

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0. Executive summary

The population of Greater Maputo increased by 60 percent between 2007 and 2017, from 1.9 million to 3.1 million and is expected to increase to almost 4.0 million by 2035. The growing population has placed increasing pressure on municipal infrastructure, including transport services. Over the years, with a gradual decline in the state provided services, the private minibuses have emerged as the main form of motorized transport. However, the financial crisis in 2016 led to the elimination of fuel and bread subsidies, which seriously impacted the financial viability of informal bus operators. As a result, services deteriorated and private operators further compromised on service quality which led to overcrowding, poor maintenance and increase in accidents. In addition, "illegal" transport gained ground among people struggling to get to jobs and perform daily functions, resulting in an increase in unregulated supply, further contributing to congestion, accidents, and worsening pollution.

In the face of declining urban mobility, the Government took three actions: a) the President promised procurement of 1,000 buses as capital subsidy to operators to augment the supply of good quality buses in an otherwise capital starved business; b) the new buses were to be made available only to the Associations of minibuses who were willing to form into Cooperatives and develop the capacity to operate large bus services. The strategy was expected to formalize the activity of informal operators and introduce effectiveness and efficiency in the system of urban public transport; and c) the Government established Maputo Metropolitan Transport Agency (AMT) in 2018 as a regional body responsible for the management of passengers' collective public transport in the region.

Subsequently, the Ministry of Finance provided funds for purchase of 100 buses, channeled through the National Transport and Communications Fund (FTC). The buses were only to be made available to chapas who formed into cooperatives, willing to operate large buses on a contractual basis along specific corridors under perrformance monitoring. In total, 10 Cooperatives were formed. The buses were leased to the cooperatives as an "operating lease" with monthly payments over a 5-year period, after which the ownership was to be transferred to the Cooperatives. The buses were subsidized and only about 30% of the capital cost was expected to be recovered.

The cooperatives have been formed from the existing chapa associations, though some of the individual members continue to maintain membership of one or more chapa associations while operating buses under the cooperative. Operating arrangements vary by cooperative, but typically, bus vehicles are operated by individual members or 'Bus Managers', who are responsible for fuelling and maintaining the vehicle, collecting the revenue from operations, and employing the driver and collector. The bus manager has a contractual arrangement with the cooperative, to operate the vehicle, make the required regular contribution to the cooperative to support the vehicle repayments and cooperative functions. Operating hours varies by route, but 18-20 hours operating days (pre-COVID) were typical, with operations sometimes commencing at 4-5am and operating sometimes until midnight. These hours have been shortened due to COVID, with operations ceasing at 8pm or 8.30pm to meet the 9pm curfew. The daily operated kms varies by route also, with estimates ranging from 180-360km per day.

Contractually, most operators tend to allocate bus to a specific route, as determined by AMT. Bus routes are determined by AMT in close engagement with FEMATRO and the cooperative. The contractual arrangements between the government (either through FCT or AMT) and the private operator have evolved since the first fleet of 50 vehicles were allocated. Most recent contracts were signed between AMT and the President of the Cooperative. A separate sub-contract is set up between co-operative and bus manager. The fare collections are channelled to an AMT account.

All route contracts are net-cost contracts with no subsidy for operations beyond the preferential repayment terms of the vehicle financing agreement (with the full repayment of the 60 instalments covering as little as 30% of the vehicle value).

The formation of Cooperatives is a step in the right direct but the structure, operating and service performance, and financial arrangements do not contribute to establishment of a sustainable arrangement. Some of the key challenges faced in the execution of the contract are:

- Vehicle repayments are not being made at the specified level and therefore FCT is facing high levels of delinquency in terms of the vehicle financing
- Bus operators are not meeting the operational requirements as set out within the contract
- The FCT is not always meeting their responsibilities in ensuring vehicle maintenance is conducted according to contract
- The cooperatives currently lack professional management, viability is marginal, they are dependent on subsidized buses, and have not yet developed the capability to access finance for bus purchase. The current contracts do not have defined KPIs or associated target values/thresholds that establish required service/quality levels and/or that clearly define trigger points for penalties.

- Controlled tariffs are set below the requirement for financial viability, leading to a structural non-viability of the sector and inability to generate or repay funds for investment
- At the institutional level, the Maputo Metropolitan Transport Agency does not have the financial or human capacity to monitor the performance of cooperatives and enforce contractual requirements.

Much of the identified shortcomings in the contractual performance are reflective of the individualized business model which continues to be adopted by the cooperatives. Whilst the contractual requirements of participation in the government bus scheme have forced the formation of cooperatives, the evolution in contractual arrangements has yet not been able to enforce the collectivization of operations.

The paper lays down the critical requirements for effective transitioning to a corporate structure, focused on: a) critical to have a competent, strong and well-resourced regulatory body; b) need to graduate from atomized single-owner operations to collective ownership structure, professionally managed and following corporate business practices; c) need to put in place a performance monitoring regime; d) need to set the fare structure to ensure financial viability of bus operations in a regulated environment; e) allocate risks to the public and private sectors where they are most able to address those risks.

1. Background

Across cities in sub-Saharan Africa, "informal" public transport or "paratransit" is the main means of personal transportation. The informal public transport sector provides irreplaceable and usually affordable mobility and access, particularly for the poor. It is also a significant source of employment, particularly for migrants from rural areas without the skills or connections to get other jobs. The paratransit operations in most cities have grown by filling the niche left by the collapse of colonial era scheduled bus and rail services. In most cases, the informal public transport sector has become established due to the inability of the formal sector to provide the scale and quality of services needed by the people, resulting from: a) deregulation of public transport in the 90s following the Economic Structural Adjustment Program (ESAP); b) inability of the supply to keep pace with rapid and sustained expansion of the urban area and population; c) decline in formal transport services due to internal financial crises brought on by politically constrained fares, rising fuel prices, and declining subsidies; d) inability of large buses to serve local trips on narrow unpaved roads in the outlying areas. In addition, capacity of public sector to regulate supply and enforce licensing regime is weak, barriers to market entry are low resulting in the dominance of paratransit industry in the urban public transport landscape.

In Maputo, minibuses have emerged as the main form of motorized transport, with a gradual decline in state provided services. As of 2013, the share of minibuses (also known as chapas)[1] was about 61 percent, the balance being accounted by municipal bus operations (16 percent), private cars (18 percent) and others (5 percent, by rail and taxi).[2] In addition, common forms of informal public transport are My Loves[3] and rickshaw taxis (known as "txopelas") though their numbers are unknown.

Operating and business practices. Chapas are formal regulated public transport, operating under a route license issued by the relevant municipality. The license is specific to the vehicle rather than the operator and a replacement of the vehicle requires reapplication for the license. The individual operator makes an application to the Municipality with the required documentation, among other things specifying the route on which the applicant wishes to operate. The Municipality could propose an alternative route or technically, it could also refuse to renew a license, but this has not happened in practice. The Association, to which the operator belongs, has a significant role in route development and

[1] *Chapas* is the collective term used by the people of Mozambique for privately operated vans and minibuses, mostly 15-seater but some 26-seater vehicles.

[2] Comprehensive Urban Transport Master Plan for the Greater Maputo Final Report Volume 3, JICA (March 2014)

[3] "*Myloves*" are open-backed vans and small trucks in which passengers are carried in the rear, sitting on the side panels or stand on the open interior. They get their name from the need for passengers to frequently grab on to other passengers to stay upright or to avoid falling out of the vehicle. Since earlier this year, the Maputo Municipal Council has banned the use of pick-up trucks and similar open vehicles for passenger transport, to contain the impact of Covid-19 pandemic. They were always illegal, but authorities choose to ignore them early on as they were filling a critical supply gap during busy times in crowded neighborhoods. However, they continue to circulate on some roads, especially during rush hours in the city center.

as 'gatekeeper' for applicants[4]. In practice, the applicant is expected to have a letter from the Association associated with the route for which (s)he is applying, and Associations can "propose" routes. Given the recommendation/referral of the Association, the Municipality will grant a 12-month license, subject to production of roadworthiness certification. However, given the scarcity of vehicle supply, Municipality will issue license to most applicants and there is no upper limit.

Whilst the majority of chapa operators form part of associations, operations are conducted wholly on an individualized basis, with vehicles purchased and managed by individual owners rather than by the associations. The owner-drivers are rare and most vehicles are either rented to 'self-employed' drivers for a daily fee or employ a driver for daily operation. In the former case, the the driver (with a fare collector) takes all the revenue, pays the daily vehicle charge, fuel and other expenses, and then keeps whatever is left over as the day's wage. Under either scenario, the arrangements are typically informal, lacking any contractual relationship between the owner and driver. In addition to the driver, a fee collector will be taken on to collect fares. The collector will typically be employed by the vehicle operator (ie., owner) or in some cases selected by the driver.

Minibuses operate on defined routes, from terminal to terminal via specified points, operating on a "fill and go" basis, without specified schedules. Vehicles are invariably 10 years old on arrival, inspected by the municipality on first registration, though there are no subsequent quality or roadworthiness inspections.

While the minibuses have served an important purpose in providing mobility to people on a daily basis and employment to a vast number of migrant population, they have also been a cause of substantive negative externalities (congestion, pollution, poor safety and security). (Please see Table 1 for the positive and negative impact of the paratransit services).

Table 1 Characteristics of Informal Public Transportation Services

	User	Government	Operator/Driver	Society
Positive	• Ubiquitous, on-demand service. • Affordable, especially for low-income populations. • Routes can be adaptable to users' needs. • Practical option for people to get around because of shorter headways and often fewer transfers, although not the most comfortable service.	• Satisfy the transportation needs of the citizens, especially in places where the government does not have the technical, financial, and/or institutional capacity. • Do not require government subsidies and are good at managing fare evasion. • Create informal jobs in and around the transportation sector. • Informal transportation vehicles can serve as cultural icons that reflect the city's vibrant nature.	OPERATORS • Do not require large capital investment and can be profitable. • Foster entrepreneurial spirit and a sense of community. DRIVERS • Even though it is informal employment, the income earned is more than minimum wage.	• Form of cultural expression • Creates jobs • Reward entrepreneurial spirit • Enable private sector

[4] On paper, the Association is the "interlocutor" on behalf of the applicant, acceptable to the Municipality as the applicant's representative.

Negative	• Quality of service is poor: users experience overcrowding, and physical and sexual harassment. • Drivers often do not follow traffic regulations and jeopardize users' safety. • Unreliable, as drivers often practice "fill-and-go" approach, and users might be charged twice if they transfer. • Lack personal safety and security, especially for women and children. • Generally poor accessibility for people with disabilities. • Digitized/mapped, informal systems are often incomprehensible to users, and especially to visitors	• Create negative externalities: old vehicles cause pollution, road safety issues, fragmented ownership, and lack of accountability. • Difficult to monitor, regulate, and enforce standards. • Chaotic images of informal vehicles on congested roads do not conjure up the notion of a "modern" city.	OPERATORS • Might lack financial capacity to upgrade and improve the limited service. OPERATORS/DRIVERS • Extortion is rampant and can threaten the lives of operators/ drivers. • Potential barriers to women entering the market as operators or drivers. DRIVERS • Long working hours, sometimes without formal contracts. • Intense "in-the-market" competition • Exploitation often emerges.	• Pollution • Accidents • GHG emissions • Congestion

Decline in urban mobility. The population of Greater Maputo increased by 60 percent between 2007 and 2017, from 1.9 million to 3.1 million[5], and is expected to increase to almost 4.0 million by 2035. Currently, jobs are mainly concentrated in the city of Maputo with housing growing on the outskirts of the cities of Maputo, Matola and Marracuene. Demographic growth has also been accompanied by rising household income and an exponential motorization growth, especially of private vehicle fleet, making it even more difficult for public transit to serve the growing market.

The financial crisis in 2016 led to the elimination of fuel and bread subsidies. The public transport sector, being a significant beneficiary of fuel subsidies (with fuel accounting for 50% of total cost), was hit hard and faced a serious crisis. The tariffs for *chapas* and buses were increased by 28% and 33% respectively, but that it was not enough to offset the increase in fuel price and withdrawal of the subsidies. As a result, there was a "shock effect" from the significant real increases in both the tariff for the user and in the cost base for producers. The chapa operators, who were already constrained by low tariffs found it even more difficult to remain financially viable.

As a result, two things happened. One, in the face of rising costs and declining revenues, private operators compromise on service quality and compete aggressively on the street for customers. This leads to overcrowding, poorer maintenance and increases in accidents. Second, "illegal" transport gains ground among people struggling to get to jobs and perform daily functions. This results in increased, unregulated supply, contributing to congestion, accidents, and worsening pollution.

In the face of declining urban mobility, the Government undertook three actions:

a) First, the President announced in 2016 that 1,000 buses would be purchased and allocated throughout the country. The capital subsidy was intended to replace the operating subsidy;

[5] Population of AMM is calculated as the aggregated of Maputo, Matola, Boane and Marracuene and based on the 2007 and 2017 census.

b) Second, the buses were to be made available only to the Associations of minibuses who were willing to form Cooperatives and develop capacity to operate large bus services.

c) The Government established Maputo Metropolitan Transport Agency (AMT) in 2018 as a regional institution with jurisdiction over the municipalities and districts of Maputo Metropolitan area. The objective was to conduct strategic management of the institution's resources, infrastructure and related equipment, for the operation of passengers' collective public transport in the region.

Following the background to emergence of the paratransit sector and the Governments motivation to introduce reforms, section II discusses rationale for creation of Cooperatives, the specific incentives provided by the Government, and the operating, contractual and tendering arrangements. Section III examines the performance of Cooperatives, followed by a discussion of the way forward in Section IV. Key conclusions are summarized in Section V.

2. Formation of Cooperatives

The purchase of buses by the State is one of the strategies often pursued to augment the supply of good quality buses in an otherwise capital starved business. It is common across cities in sub-Saharan Africa for Governments to improve public transport and resuscitate declining state-owned enterprises by providing capital and even operating subsidies in the face of the negatives of informal transport noted above and in response to popular demand. Similar examples exist across Dakar, Accra, Lagos, Harare. What is unique about Maputo effort is that the buses were expected to be used as a catalyst to bring about broader reforms in service and operating environment in the informal sector. The strategy was expected to formalize the activity of informal operators and introduce effectiveness and efficiency in the system of urban public transport.

Arrangements for Bus Financing. Vehicle financing was organized through two main strands:

- Ministry of Finance provided funds for some of the bus purchases. This was channeled through the National Transport and Communications Fund (FTC).
- FTC took loans from Moza Bank for 100 buses. This was a normal loan between FTC and Moza Bank, in which the debt servicing obligations fall on FTC. The Cooperatives are not party to the loan and have no obligations or commitments in relation to it. The contracts between FTC and the Cooperatives are independent of this loan. There is only an indirect link, insofar as any failures to pay on the part of the Cooperatives leaves FTC having to make up the shortfall.

The Cooperatives received indirect subsidy by having access to government-financed buses, in which the monthly payments that they make are estimated to be about 30% of the true cost of the vehicle financing and the vehicle maintenance is included in the package. [6]

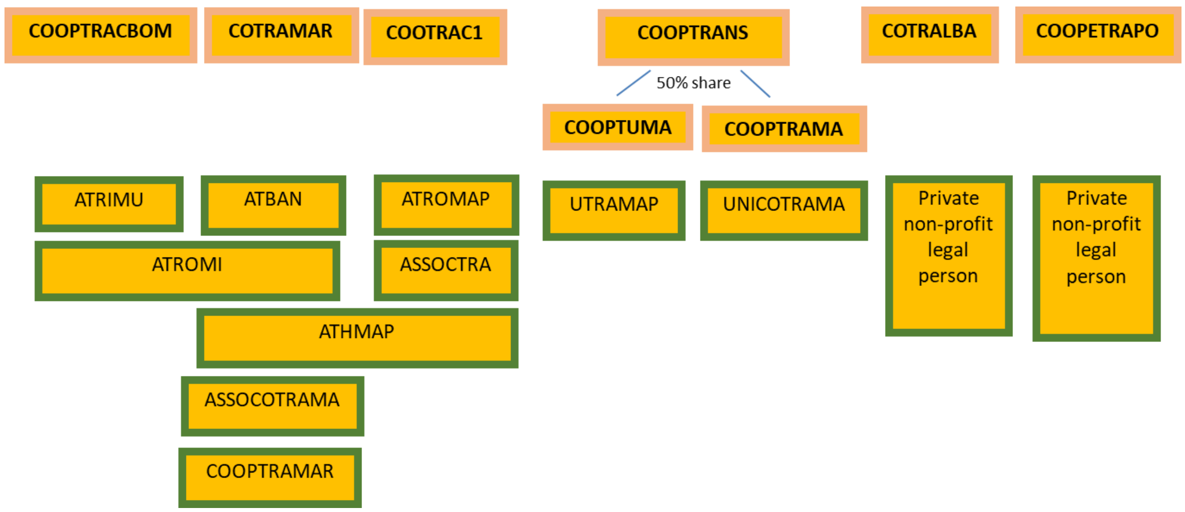
[6] Under the FTC contact, routine maintenance is covered by the government and delivered by authorized garages, conducted monthly. The bus manager is responsible for ad-hoc repair or maintenance outside of this regular servicing.

Key features of bus financing:

- Only the Cooperatives that switched to large bus services benefited from the scheme. There was no corresponding scheme for minibus or midibus vehicles, nor was there any form of financial support or support available for minibus operators and owners. Willing associations of minibuses (*chapas*) formed Cooperatives that would develop the capacity to operate large-bus services. In total, 10 Cooperatives were formed.
- The Cooperatives were allocated Corridors on which they would operate large-bus services. These corridors are the primary arteries of Maputo Metropolitan area, connecting the suburban areas of Maputo (including Katembe across the river), Matola, Boane and Marracuene to central Maputo at Baixa and Museu.
- The Cooperatives would withdraw their minibus (chapa) operations from these routes (this has only partly been done, many of the Cooperative members continue to ply minibuses)
- FTC organized the purchase of buses, which were made available to the Cooperatives under contracts, to operate on the designated corridor routes
- FTC established maintenance contracts with the agents of the bus suppliers or with other capable vehicle servicing firms. The maintenance firms provide scheduled servicing and repairing, while the Cooperatives deal with daily service (fuel, wash) and light maintenance.
- The Cooperatives make monthly payments to FTC for the buses, as contribution to both the capital and the maintenance cost, and also the insurance
    - In practice, the payment is set at about 30% of the true cost
    - This form of subsidization was a direct replacement for the fuel subsidies
    - FTC, on behalf of Government, meets the balance payment
- For the Cooperatives, it is structured as an "operating lease", in which they make periodic payments for the use of serviced buses.
    - Ownership remains with the leasing entity.
    - At the end of the agreed period (5 years—60 payments), there is an option to transfer vehicle ownership to the Cooperatives, if they have fulfilled their payment schedule

Design of Cooperatives Structure. The co-operatives have generally been formed from the existing chapa associations. Figure 1 sets out the shareholding structure of the co-operatives, showing the relationship between existing chapa associations and the new co-operatives. Ten cooperatives were established. The industry structure, as presented above, is complex and interconnected, with various overlaps and inter-relationships between the associations and co-operatives. This extends also to the individual members of the cooperatives, many of whom continue to maintain membership of one or more chapa associations while operating buses under the cooperative.

Figure 1: Co-operate shareholding structure



Operating Arrangements. Operating arrangements vary by cooperative, but typically, bus vehicles are operated by individual members or 'Bus Managers'. Bus managers generally have up to about 5 vehicles to manage. The bus manager is usually responsible for employing the driver and collector, although there is an example of direct employment via the cooperative (COOTRAC-1). The bus manager is responsible for fuelling and maintaining the vehicle and collecting the revenue from operations. From this, a proportion of revenue is paid to the cooperative to cover the vehicle financing and cooperative administration functions. The bus manager has a contractual arrangement with the cooperative, to operate the vehicle, make the required regular contribution to the cooperative to support the vehicle repayments and cooperative functions.

The operating practice is that every day the managers deliver their vehicles with full tanks to the drivers, who must return them in the same conditions, based on the "revenue of the day" (this methodology is part of the operation of all cooperatives). In fact, in almost all cooperatives, the daily income is calculated after discounting the vehicle's fuel and other expenses (meals and small repairs). Therefore, each bus manager is responsible for his own vehicles, and it is his responsibility to hire his employees, namely, collectors and drivers, four for each of the vehicles, as well as the maintenance of the buses. In most cases the management of members' income and expenses is not "centralized", but individual. That is, the management of a particular cooperative is not really aware of the financial movements made by its members. The managers are not obliged to declare monthly income. They have an alternative way to hypothesize how much each one is collecting. The practice of the crew diverting money daily continues to be a common practice, just as in the case of informal operators.

Operating hours varies by route, but 18-20 hours operating days (pre-COVID) were typical, with operations sometimes commencing at 4-5am and operating sometimes until midnight. These hours have been shortened due to COVID, with operations ceasing at 8pm or 8.30pm to meet the 9pm curfew. The daily operated kms varies by route also, with estimates ranging from 180-360km per day. The shortened operating period has reduced operator kms, with one co-operative reporting that a typical 6-8 round trips in pre-covid times has reduced to 5-6 round trips in COVID times.

In all the cooperatives, the managers have a bank account, and only the common contributions are forwarded to the communal account, in addition to the monthly bills for the amortization of the vehicles.

Contractual and tendering arrangements. Practically all operators tend to allocate bus to a specific route[7]. Bus routes are determined by AMT in close engagement with FEMATRO[8] and the cooperative. Successful tenders are closely linked to the presence of particular associations on the new bus routes – ie., the incumbent chapa operator associations formed into new cooperatives to tender to operate buses along the existing route and were ultimately successful in maintaining their presence on the route. Some cooperatives tendered for routes outside their usual area of operation and there were cases where these bids were successful. However, these successful 'out-of-area' bids were later disqualified due to subsequent appeals made by the cooperatives with prevailing operations in the area who lost the tender. The government ruled in their favour and overturned the tender decision.

Upon winning the tender for operations on a route, the cooperative receives the vehicles allocated to the route. The contractual arrangements between the government (either through FCT or AMT) and the private operator have evolved since the first fleet of 50 vehicles were allocated to COOTRAC 1 in 2016, labelled the Mk1, Mk2, and Mk3 contracts (Figure 2).

The initial **contracts (MK1**) were signed between FTC and representatives of the cooperatives winning the tendering for allocation of the buses and the route. However, while the buses were allocated to the cooperatives, they were managed and operated by individual members of the cooperatives, referred to as 'beneficiaries' or 'bus manager'. Therefore, contractual performance was dependent on how well the bus managers managed their obligations, which were not contractually bound. The managers employed their own bus drivers and collectors and paid them independently like in the chapa industry. Under this contract model, bus manager/beneficiary deposited the monthly instalment for the bus in FTC's account by giving deposit slip to Cooperative to be sent to FTC.

This led to evolution of **the MK2 contract**, which was a tripartite agreement between FTC, Cooperatives, and the bus managers. This made it contractually possible for the managers to be held accountable to the terms of the contract.

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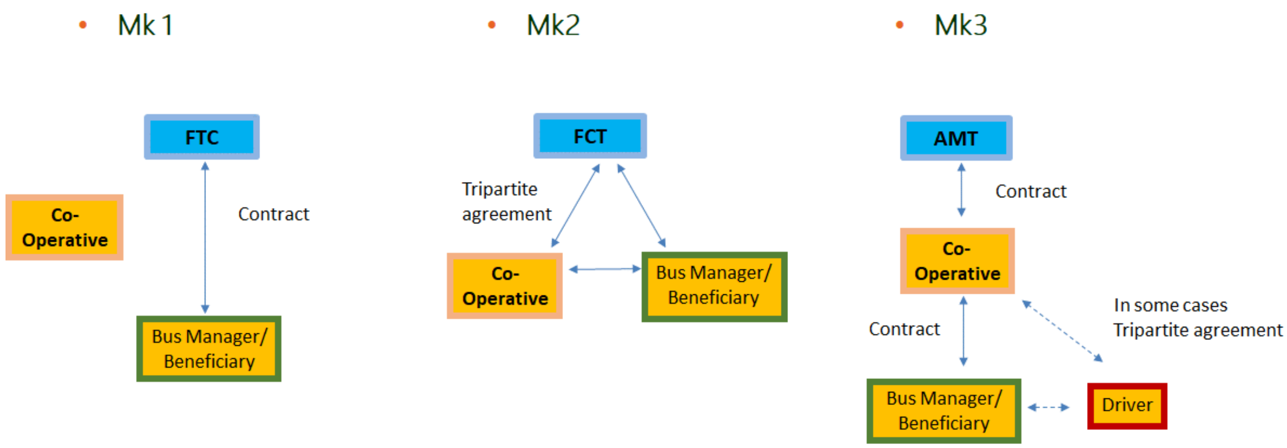
[7] In the case of CORALBA, this happens on 10 of its 28 buses. These work one week on one route and another week on another, always the same. It seems to be an internal strategy to balance among managers more profitable routes with less profitable routes.

[8] **FEMATRO** is the nationwide umbrella organization for passenger transport, freight and taxi operators representing the interest of all associations. Established in 2003, FEMATRO represents a single point of liaison between the Government and the many chapa associations and also the bus operating cooperatives, acting as a representative and advocate for operator interests and in some cases mediating in disputes between individual chapa associations.

In 2018, AMT was established with the responsibility for management of passengers' collective public transport in the Maputo metropolitan region. **MK3 contracts** evolved between AMT and the President of the Cooperative. A separate sub-contract was set up between co-operative and bus manager (and driver in some cases).[9] The key difference between MK3 and MK2 contract was that:

- A recognition of AMTs powers to regulate and supervise services provided by the cooperative
- A channelling of daily net bus income to an AMT account.

Figure 2: Contractual arrangements within co-operative



The evolution in contractual arrangements has been in response to shortcomings in the performance of the bus managers to meet the requirements of the contract, including the meeting the regular lease payments on the vehicles, maintaining the vehicles and contributing to the co-operative overheads. Inclusion of sub-contracts between the co-operative, bus manager, and in some cases also the driver, again was aimed at addressing performance shortcomings and ensuring responsibilities of the various parties were met.

The various contractual arrangements have been established upon each phase of distribution of vehicles. Therefore, it is typical that within a cooperative, various types of contracts are in effect for vehicles of different vintages, increasing the operating complexities within the co-operative.

Business model. As mentioned earlier, the provision of the bus and the associated responsibilities of the Cooperative (monthly payment for 60 months, care of the vehicle) and transfer of ownership of the vehicles if the 60 months are paid. The operational obligations, including to operate only on the assigned route, as per agreed schedule/frequency, by suitably qualified drivers, in compliance with traffic law, accept installation of AFCS, ITS and other equipment and protect same. Unlike the case of chapa operations, where driver collects the fare, in the Cooperative model, the driver receives a fixed monthly salary. The fare is collected by the Cooperative representatives who pays salaries, fuel and all the other expenses. At the end of the month, the Cooperative pays vehicle financing fee plus any other periodic obligations. Each Cooperative establishes its own management and supervisory structure. The main

[9] Of the 400 buses in operation, 163 hold contracts with AMT as opposed to FCT

control is at the terminals, there is also some on-route supervision to ensure drivers do not engage in trip-cutting, off-route running, etc.

All route contracts are net-cost contracts with no subsidy for operations beyond the preferential repayment terms of the vehicle financing agreement (with the full repayment of the 60 instalments covering as little as 40% of the vehicle value).

3. Evaluation of the cooperative model

The formation of Cooperatives is a step in the right direct but the structure, operating and service performance and financial arrangements do not contribute to establishment of a sustainable arrangement.

Fundamentally, the affiliation to a certain cooperative was a mecahnism of the operators in the chapa associations to access bus financing. While the Cooperatives are set up as legal entities, they share some characteristics with the chapa operations. The informal ways of acting is identical to the informal sector, such as the absence of work contracts, or failure to follow strict schedules. The operating culture continues to be individualistic and the potential benefits from a collective ownership of assets and sharing of responsibilities has not been realized. The continued operation of buses as individual units, with bus managers/beneficiaries seeking returns on individual units, rather than the cooperative and its members seeking a shared return from the collective fleet of vehicles

There is no common methodology of action for all the operators who are part of the cooperatives. It was a way the different operators found to face a demand placed by the Government, in its continuous efforts to reorganize the transportation activity, and their action doesn't show great differences in relation to the action of the informal ones.

Although the cooperatives have a Board of Directors elected by the member-owners, with elements to answer in specific areas, it does not have executive power, which can go against the interests and visions of the vehicle owners. For example, although they have a traffic officer, it is the managers/owners who hire the operations inspectors, not the cooperative.

The Cooperatives currently lack professional management, viability is marginal, they are dependent on subsidized buses, and they have not yet developed the capability to access finance for bus purchase. The current contracts do not have defined KPIs or associated target values/thresholds that establish required service/quality levels and/or that clearly define trigger points for penalties. There appears to be some vagueness about the specific value of the monetary penalties that can be applied. Cooperatives have not yet transitioned to integrated corporate entities with methods and scale that can achieve good quality at optimized cost, while also still lacking experience and capacity of large bus operations. While the Contract asserts that AMT has the competence to regulate and manage the services under Ministerial Decree 85.2017 of 29th December 2017, they lack the capacity for effective and regular monitoring. They are unable to apply sanctions and penalties as set out in the contract, including the potential withdrawal of the buses from non-performing co-operatives.

Some of the key challenges faced in the execution of the contract are:

- Vehicle repayments are not being made at the specified level and therefore FCT is facing high levels of delinquency in terms of the vehicle financing
- Bus operators are not meeting the operational requirements as set out within the contract
- The FCT is not always meeting their responsibilities in ensuring vehicle maintenance is conducted according to contract

Failure to channel net operating revenues to the payment of vehicle instalments due to a lack of transparency in vehicle revenues and operating costs from on the part of the cooperative and of FCT/AMT. This leads to a lack of understanding as to whether default in repayment is reflective of financial performance or lack of will by the beneficiary. Shortfall in instalment payments also compromises FCT abilities to fund the necessary maintenance.

Controlled tariffs are set below the economic tariff level, leading to a structural non-viability of the sector and inability to generate or repay funds for investment. Dependency on subsidy for their basic cashflow to remain in operation (subsidized buses for Cooperatives, cash subsidy for EMTPM) that is not underpinned by a committed long-term policy. This leaves them vulnerable to any change in approach. Discussions with the operators suggest that they were not consulted in the choice of vehicles. The vehicles were acquired without there being a representative of the brand in the country to guarantee the supply of spare parts. The vehicles were mandated to be maintained at Government specified facilities, which often increased the maintenance cost.

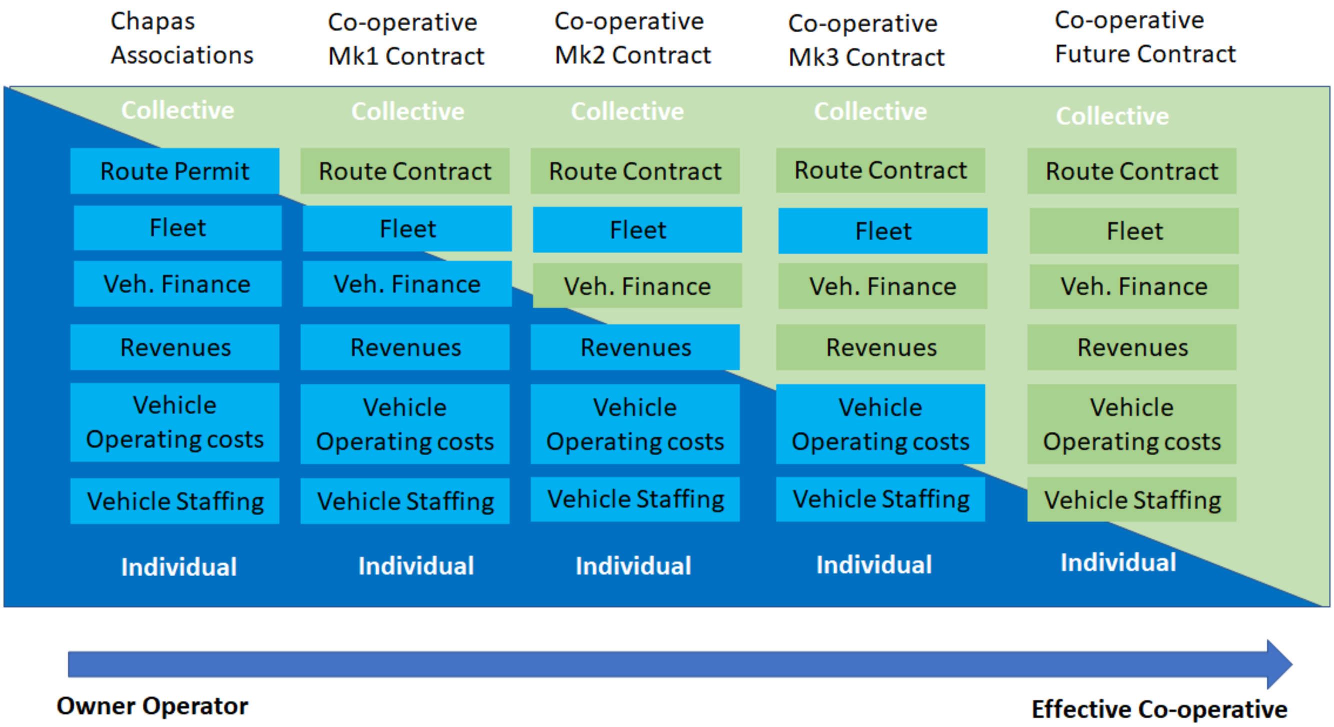
Much of the identified shortcomings in the contractual performance are reflective of the individualized business model which continues to be adopted by the co-operatives. Whilst the contractual requirements of participation in the government bus scheme have forced the formation of cooperatives, the evolution in contractual arrangements has as yet not been able to enforce the collectivisation of operations. The figure 3 shows how the allocation of responsibility has evolved under the various contractual arrangements, from the starting point of the licensed chapa operations.

The **MK1 Contract** reflects individualistic ownership of vehicles, financial arrangements, revenue collection, and employment of drivers and support staff, just as in the case of owner-operator model of chapa associations.

The MK2 Contract includes the beneficiary/bus manager within the tripartite contract, whilst seeking to address the lack of accountability but did not achieve a move to collectivised operation, beyond transfer of the responsibility for channelling vehicle financing payments to FTC.

The **MK3 contract** reverts to a direct contractual relationship between government (via AMT) and the co-operative, placing the accountability back with the co-operative. However, this has again not achieved collectivisation of operations, as the co-operative then has sub-contract with vehicle managers rather than taking full responsibility of operations. However, as reflected in the contractual performance, cooperatives are not meeting contractual obligations and with the continuation of individualized operation, there remains scope for the transfer of responsibility and blame to individual members.

Figure 3: Evolution from Individualised Operation to Effective Co-Operative Operation



4. The way ahead

The experience with bus financing

The ownership continues to be fragmented, the Cooperatives currently lack professional management, viability is marginal, they are dependent on subsidized buses, and they have not yet developed the capability to access finance for bus purchase. Cooperatives have not yet transitioned to integrated corporate entities with methods and scale that can achieve good quality at optimized cost, while also still lacking experience and capacity of large bus operations.

The procurement of buses as a form of capital subsidy has also not been able to meet the intended purpose. The "owners" are finding it difficult to make the lease payments at current fares and not satisfied at the choice of vehicles or the maintenance arrangements. As a result, direct provision of vehicles to select operators may have resulted in compromising efficient delivery. Dependency on subsidy for basic cashflow to remain in operation (subsidized buses for Cooperatives) that is not underpinned by a committed long-term policy leaves the operators vulnerable to any change in approach. For an efficient market to emerge, it is critical to:

- Impose the costs of vehicles directly on the operators so that there is high incentive to maintain and make provision for replacement
- Not to discriminate unfairly among operators in the competition for route contracts
- Contribute to long-term development of the commercial market

Critical elements of bus financing

The informal transport sector is characterized by a lack of the collateral required to securitize any finance needed for fleet acquisition, and its inability to provide a credible business plan. As a result, an argument is often made that it is critical for the public sector to provide the initial seed money to introduce supply of good quality buses and provide confidence in the market by demonstrating a business case. For this to happen, a viable bus financing scheme needs to be structured such that it gives access to lower interest rates, provides security to financiers, and addresses the problem of deposit affordability for the operators. In the event of direct procurement by the public sector, to be leased to the private operator, it is critical to ensure that:

- There is a strong business case based on life-cycle cost, demand structure and prevalent fare;
- There is a strong regulatory capacity in the public sector to set standards and monitor performance
- Operations is the responsibility of the private sector
- The arrangements for bus maintenance are clearly identified
- The potential operators are consulted on the bus specifications and other details
- Depot, terminals, stations, and other basic infrastructure requirements for smooth flow of buses are provided for.

Making the choice of a Contract Structure[10].

There are three options:

a) Cost-plus contract. The contractor is paid for actual costs that are incurred plus a management fee. The government assumes the risk of higher-than-anticipated expenses and lower-than-anticipated passenger revenues.

b) Gross-cost contract. Under gross-cost contracts, cost risk accrues to the contract operator. The contractor agrees to be paid a fixed cost rate. The government continues to assume all risks associated with passenger revenues.

c) Net-cost contract, involves a shift of the most risks to the contractor. The operator provides a specified service for a specified period and retains all revenue. The authority pays a subsidy to the operator if the bus services in an area are unprofitable. If the services are profitable, the

[10] When an authority issues a contract for the operation of one specified route or a specified group of routes, it's described as a route contract.

authority pays the operator a royalty. Under a net-cost contract the operator has to forecast both his costs and his revenues.

Risk Allocation Service Contracting Options

	Cost-Plus	Gross Cost	Net Cost
Operations, maintenance, capital costs	**G**	**C**	**C**
Passenger and other revenue	**G**	**G**	**C**
Relative financial cost to Government	**High**	**Low**	**Medium**

G: Government **C: Contractor**

A cost-plus contract involves the most risk to the public authority. The main advantage compared to the other contract approaches is that the government retains decision-making authority related to passengers and revenues, including fares and service levels. However, there are several disadvantages. The operator has little incentive to control costs or increase revenues. This often means that cost-plus contracts are the most costly contracting option for the public authority. Also, this contract approach requires significant oversight. The public authority must audit the legitimacy of the operator's costs and monitor the proper collection of fares.

The main advantage of gross cost contract approach compared to the others is that the operator has an incentive to control costs. This often means that gross-cost contracts are the least costly contracting option for the public authority. Revenue risk is allocated to the public sector which must be responsible for fare policy and many other factors (e.g., regulating competition) that impact revenues. The major disadvantage is this contract approach requires significant monitoring and oversight to assure service quantity and quality. The public authority must audit the legitimacy of the operator's costs and monitor the proper collection of fares irrespective of who does it.

The main advantage of net-cost contract approach is that the operator has incentives to control costs and increase passenger revenues. The main disadvantage is that the authority may have to pay more for a net-cost rather than a gross-cost contract since the operator usually makes very conservative estimates of revenue to reduce his financial risk. The authority's ability to make essential changes to the network are restricted if they adversely affect the revenue of pre-existing net cost contracts. There is a possibility of encouraging on-street competition for passengers on streets where more than one company operates. Also, strong public oversight of service quality is needed because the operator can reduce costs by providing low-quality service.

Currently the Cooperatives in Maputo are issued a net cost contract. The Cooperatives are not provided any operating subsidies, but capital subsidies are provided in the form of reduced cost of buses. The fares are fixed and below the cost required for full cost recovery. The operators have difficulty in estimating demand because: a) severe and worsening traffic congestion which has not been mitigated in any way by bus priority measures; b) poor road condition and drainage issues impede efficient operations and increases cost of operations; c) competition from unauthorized/illegal operators reduces revenues; d) lower tariff encourages overloading which might aid short-term cashflows but impacts the lifespan and reliability of the vehicles.

As a result, the introduction of net cost contracts in the route contracts for bus cooperatives is fraught with problems. Net cost contracts are particularly vulnerable to the failure to adjust fares to account for inflation and to the impact of interlopers. If the tariffs are set at a rate below the economic return, the sector is not viable and cannot generate the funds for capital investment or debt servicing.

Figure 4: Selecting a Contract Structure Option Involves Allocating Risk

Regulated fare in an environment of competition in the market for passengers creates unsafe driving behavior, as drivers compete for passengers. The practice followed combines the worst of both worlds – On the one hand, fares are regulated for the cooperatives without the benefit of protection against competition from the informal sector. On the other hand, in a controlled fare structure, the informal sector competes for passengers on the street, creating an unsafe environment and compromising passenger safety. The Cooperative buses have to compete with privately operated mini-buses, taxis and shared taxis, while also respecting the lower fares and social obligations. In the absence of exclusivity or infrastructure improvements (road quality, stations, depot facilities) the cooperatives are not able to recover their operating costs.

The fare levels remain low and the decision to raise fares is always very political. Fares have not increased in many years which has affected the bus financial situation in two ways: a) the failure to keep pace with cost inflation makes it difficult for the Cooperatives to continue providing for adequate maintenance of capital assets such as the vehicle fleet; and b) it is difficult for the riding public to accept sudden large fare increases after many years at the same fare unless accompanied by visible, substantial concurrent improvements in service quality. Planned gradual increase every year is a far more politically acceptable approach.

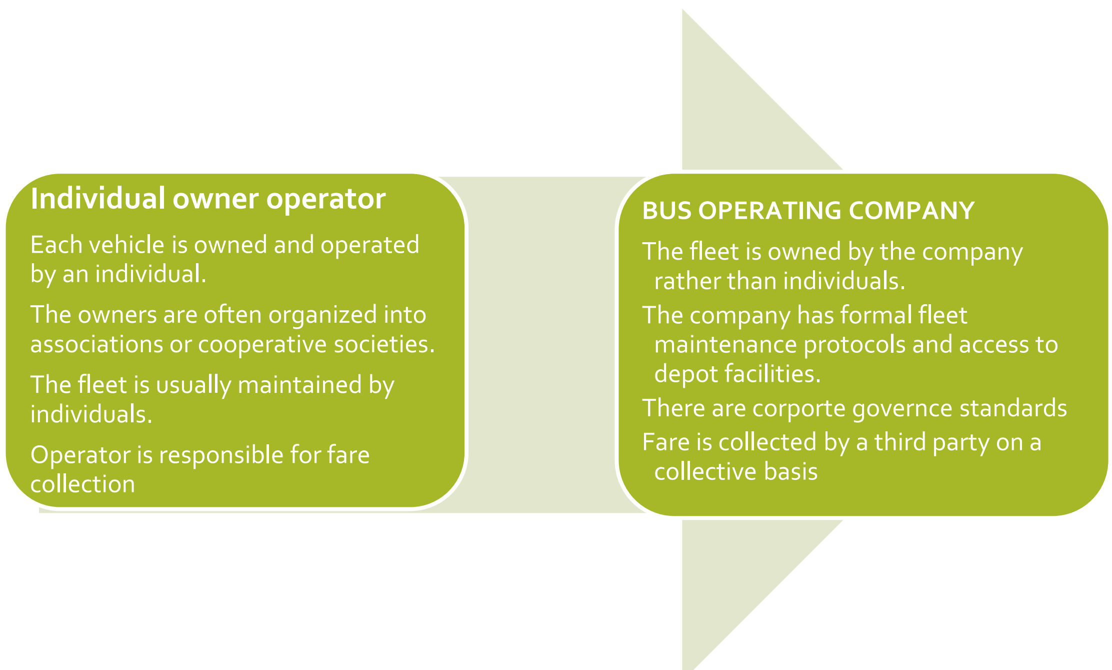
Transitioning to a Corporate Structure

The critical requirements for transitioning to a corporate structure is to graduate from atomized single-owner operations to collective ownership structure, professionally managed and follow corporate business practices.

Dispersed ownership as adopted in the Cooperative structure in the transformation of public transport operations in Maputo is not conducive to efficient delivery. It is characterized by lack of the collateral required to securitize any finance needed for fleet acquisition, and its inability to provide a credible business plan. Financial institutions respond to this situation by securing the loan against the value of the vehicle and charging an interest-rate premium in recognition of the risk being taken. The problems of securing a loan against the value of a vehicle are two-fold. Firstly, the residual value of a vehicle (whether measured in a second-hand market, or by its net earning potential) initially declines much faster than conventional straight-line depreciation over its useful life would predict. Secondly, the outstanding balance on a loan based on equal monthly payments over its duration (as is standard practice) declines relatively slowly in the early part of that period. That would make it very difficult for the atomized business to access suitable private financing arrangements.

The ownership continues to be fragmented, the Cooperatives currently lack professional management, viability is marginal, they are dependent on subsidized buses, and they have not yet developed the capability to access finance for bus purchase. Cooperatives have not yet transitioned to integrated corporate entities with methods and scale that can achieve good quality at optimized cost, while also still lacking experience and management of large bus operations. The holders of route contracts are not collective bodies capable of entering into a contract for the provision of transport services. That introduces the possibility that all the members of the collective could provide joint and several securities for the loan, and thus spread the repayment risk inherent in a single applicant.

Figure 5: Transformation from individual operator to Corporate/Company structure



The need for contract monitoring.

A key function of the regulator is to be able to contract and intervene at the appropriate level if the contract is not being performed according to specifications. The contracts manager needs to put in place a performance monitoring regime, consisting of:

- Self-reporting by the operator of the actual service outputs, deviation from specified service, timekeeping, and other information as specified in the contract
- Observations and measurements of the actual service technical performance—this would involve verifying operator's reporting by sampling

- Subjective assessment of quality, through expert assessment and user opinions. Customer opinion needs to be evaluated on several parameters:
    - User satisfaction
    - Reliability
    - Information
    - Comfort
    - Staff behavior
    - Safety and security
    - Social image
    - Value for money
    - Contract manager Loyalty

Contract manager will need to cover the following:

- Receiving and inspecting reports of performance from operators
- Monitoring the performance of the operators according to indicators set out in the contract
- Organizing user surveys
- Calculation of payments due to each operator in each period
- Establish payments channels and organize payments on time
- Reconciliation of payments on an annual basis
- Communications to the operator including notices, changes to the contracted work, reporting, warnings, and formal correspondence
- Need to establish a Contracts Data Base to assist in the administration.

The obligations.

The franchise contracts impose obligations on both the franchising authority and the franchisee. The benefits of the syste3m only accrue if those contracts are honored and the obligations met. The achievement of that objective depends on the quality of the contract, which must cover all relevant issues of the franchised service, be realistic, etc. The transport authority needs to monitor:

- The obligations to provide a specified amount of service
- The obligation to meet specified service quality obligations
- The obligation to provide relevant information in a timely manner

The franchising authority needs to revise fares or contract payments periodically to be consistent with the cost of living index.

Franchise contracts will need to specify the routes, frequencies, and schedules to be operated.

Route Service Contract

The basis for regulating a bus company lies in an operating contract, a legally binding agreement between the regulator and a formal bus operating company. The operating contract defines the service to be delivered by the bus operator, the quantity of service, the geographic distribution of the service, the method of payment for the service, and any incentives and penalties.

Outline of a simplified route contract

Preliminary

1. Definition of the parties to the contract
2. The contract purpose (including route definition, schedules and fares)
3. References to other laws, regulations and resolutions governing the operations of the services
4. Duration of the contract
5. Specific terms of service to be provided (frequency, vehicle type, hours of service, maintenance requirements etc)

Obligations of the Franchisee

1. Obligations to properly discharge functions specified in the contract
2. Restrictions on sub-contracting or assignment of the contract to third parties
3. Obligations to make payments to the authority for the franchise

Rights of the Franchisee

1. Rights to apply for variation of the franchise
2. Right to cease operations if conditions are unsafe
3. Right to protection from unfair competition (this should include protection against unlicensed operators)

Obligations of the Authority

1. Obligations to authorize fares stipulated in the tender
2. Obligations to make payments as specified in the contract
3. Obligations to notify the franchise holder of any proposed decisions of the Authority which might affect the viability of the contract
4. Obligations to modify fare schedules or contract payment terms

Rights of the Authority

1. Right to monitor performance

5. Concluding comments

The purchase of buses by the State is one of the strategies often pursued to augment the supply of good quality buses in an otherwise capital starved business. It is common across cities in sub-Saharan Africa for Governments to improve public transport and resuscitate declining state-owned enterprises by providing capital and even operating subsidies in the face of the negatives of informal transport noted above and in response to popular demand. Similar examples exist across Dakar, Accra, Lagos, and Harare. What is unique about Maputo effort is that the buses were expected to be used as a catalyst to bring about broader reforms in service and operating environment in the informal sector. The strategy was expected to formalize the activity of informal operators and introduce effectiveness and efficiency in the system of urban public transport.

The formation of cooperatives is a step in the right direct but the structure, operating and service performance and financial arrangements do not contribute to establishment of a sustainable arrangement. Fundamentally, the affiliation to a certain cooperative was a mecahnism of the operators in the chapa associations to access bus financing. While the cooperatives are set up as legal entities, they share some characteristics with the chapa operations. The cooperative continue to work in informal ways similar to the informal sector, such as the absence of work contracts, or failure to follow strict schedules. The operating culture continues to be individualistic and the potential benefits from a collective ownership of assets and sharing of responsibilities has not been realized. The continued operation of buses as individual units, with bus managers/beneficiaries seeking returns on individual units, rather than the cooperative and its members seeking a shared return from the collective fleet of vehicles does not bode well for sustained operations. There is no common methodology of action for all the operators who are part of the cooperatives.

Box 1. Key lessons learnt from the Maputo experience in the formation of cooperatives

Lesson 1. Need for a strong and well-resourced regulatory body. While the AMT has the mandate to regulate and manage the cooperative bus services, they lack the capacity for effective and regular monitoring. They are unable to apply sanctions and penalties as set out in the contract, including the potential withdrawal of the buses from non-performing cooperatives.

Lesson 2. The potential operators should be a part of the team to determine vehicle specifications and down stream maintenance arrangements. Discussions with the operators suggest that they were not consulted in the choice of vehicles in the early stages. The vehicles were acquired without there being a representative of the supplier in the country to guarantee the supply of spare parts. Bus specifications should be defined by the bus operating entities that will actually be the users of the vehicles and who are expected to provide finances. Direct involvement of the operator would allow control over post-supply relationship with the vendor and its maintenance agent. Under the current arrangements, the vehicles were mandated to be maintained at Government specified facilities, which often increased the maintenance cost for the operators.

Lesson 3. The business plan, including the vehicle price, fare structure, nature of demand and operating conditions must be sufficiently robust based on empirical data to ensure financial viability of the bus renewal scheme. The operators in Maputo are finding it difficult to make the lease payments for government financed buses at current fares and are not satisfied at the choice of vehicles or the maintenance arrangements. As a result, payments are getting delayed and the scope of private financing for vehicle procurement is getting diminished. A strong business plan, laying down the framework for financial viability of the bus system would encourage the private sector and commercial banks to lend for vehicle procurement.

Lesson 4. Cities dependent on informal public transport need to undertake a huge transition to formalize and professionalize their public transport industry. It is crucial to include reform elements that motivate operators to become willing partners, while also equipping them to run better businesses. A strong capacity building program is essential for operators to better understand how their current businesses could become part of an upgraded public transport system. The aim of the capacity building program will be to equip the newly formed operating companies to have the technical, management and operational skills required, especially in the areas of finance and governance, operations, scheduling and management.

Lesson 5. It is critical to establish cooperatives as integrated corporate entities under professional management and work ethics. In the current framework, while the cooperatives are set up as legal collective entities, they share operating characteristics with the chapa operations. They lack professional mangement and continue to operate like the informal public transport sector, such as the absence of work contracts, daily wages to drivers, and failure to follow strict schedules. The operating culture continues to be individualistic and the potential benefits from a collective ownership of assets and sharing of responsibilities has not been realized. The buses continue to be operated as individual units with bus managers responsible for fare collections, rather than the cooperative and its members seeking a shared return from the collective fleet of vehicles. This makes it difficult to provide the collateral required to securitize any finance needed for fleet acquisition and increases the risks to the financial institutions.

Lesson 6. Allocate risks between public and private sectors where they are most able to address them. In the past decade, Governments in developed and developing countries are looking at PPP arrangements to address the financing gap in filling the infrastructure gap. However, it is important to ensure that the risks are allocated between the public and private sectors with the means to address them. For example, in public transport, government is in better position to take the demand risk, while the private sector is better positioned to take on the operating risks.

The need for improvement (often referred to as "reform") is even more important today. The first obvious reason is the impact of the world-wide pandemic on mobility in general, particularly on informal public transport. Pre-pandemic informal public transport providers were barely surviving. To expect them to reduce revenue by lowering capacity through social distancing and absorbing the extra operating/maintenance costs of protecting personnel and customers is untenable. Decline in revenue and the additional costs of maintaining basic hygiene is driving private operators from the market. Second, the availability of advanced communications and information technologies (e.g., smart phones, electronic fare payment....) in the every-day marketplace has the potential to bring about significant changes in business and operating practices of informal transport. These provide the tools needed to change the type and quality of "paratransit" services, how they are provided and the financial health of the sector.