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2014

American University in
Cairo

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[Towards reforming the regulatory and policy environment of the microbus system in the Greater Cairo Metropolitan Area]

Over the last 2 decades the shared taxi, or microbus, has become the most important mode of transportation in the Greater Cairo, one of the world's most congested cities. In a city with a largely ineffective public transit system, minibuses have become the city's lifeline, meeting the demand for low cost, fast and timely transport. Incredibly, their development and operation has been mostly unplanned, informal and illegal, causing many to question their place in future plans to revamp the city's ailing transport system. This study will focus on a detailed stakeholder analysis of the two key players in the microbus transport mode, the government planners and the microbus operators, giving insight into economic, political and social dimensions of the mode in general. More specifically, the study will examine their preferences on potential policy and regulatory reforms inspired by successful international experience in dealing with para-transit, for specific priority routes where Bus Rapid Transit lines are planned to be implemented.

Towards reforming the regulatory and policy environment of the microbus system in the Greater Cairo Metropolitan Area



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Chapter 1: Introduction:

In October 2012, dozens of microbus drivers besieged the Cairo Governorate headquarters using about 50 minibuses to block the street in front of the building. The protests caused traffic jams in a number of important streets and squares in Cairo, generating massive backups across the capital. The drivers were accusing the traffic police and Ministry of Interior of fabricating traffic tickets to collect fines and pass them on to high-ranking officers. They also protested against ongoing fuel shortages, called for the establishment of an independent union for drivers, and demanded the state organize formal microbus stations.

Greater Cairo, one of the world's mega-cities with a population of more than 17 million, has seen many protests like these over the past few years, which have often brought the city to a halt. This is not just because of immensely disruptive traffic jams caused by Microbus drivers blocking main roads and squares as described above. Filling the gaps left by a largely ineffective mass transit system, over the years, these small, run-down minibuses with 14 seats and usually more people in them, have become the most important mode of transport as measured by daily trips in this congested city. According to the latest estimate by the Japan International Cooperation Agency (JICA) study team in 2011, the microbus system accounted for 52.3% of daily trips in Cairo, compared to just 16.6% on Cairo's metro system. When microbus drivers go on strike, a significant portion of the lower and lower middle working class cannot function. Moreover, as minibuses operations, informal and unplanned, have taken up this important role in transporting the city's crucial working class, they have created their fair share of complications for Cairo's government officials, transport planners, international consulting agencies, and traffic enforcers, the public bus system, private vehicle owners, and street walking pedestrians. In the face of the

city's rapidly increasing congestion, waning road safety, deteriorating traffic situation, and rising number of private vehicles, it is not clear where and how best to accommodate minibuses in the city's future transport plans.

Research problem definition:

The Situation of Traffic in Greater Cairo

The state of transport in Greater Cairo is rapidly deteriorating and is one of the most important areas in need of reform to improve Cairo's quality of life and business environment. A recent World Bank report outlined several reasons why transport reform is so important (World Bank, 2006):

1. Significant Economic cost of traffic congestion levels. Cairo's congestion levels are among the worst in the world, according to a recent World Bank report, the Cairo Traffic Congestion Study, which estimated the "annual costs of the congestion in Cairo to be up to EGP50 billion, or US\$8.0 billion. That represents up to 4% of Egypt's Gross Domestic Product (GDP), which is four times the usual estimate of one percent of GDP as the cost of congestion in comparable large cities."¹ Of these costs EGP13-14 billion are direct costs of congestion, excess fuel, for which half is paid by users (retail price of fuel) and the other half is largely additional costs to the Government (fuel subsidies); with smaller

¹ http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2012/08/14/000112742_20120814112100/Rendred/PDF/718450ESW0Whit0ing0Annexes00PUBLIC0.pdf

amounts attributed to unreliability cost, CO2 emissions costs, and indirect costs (World Bank, 2010)

2. Disastrous commuting time scenario: If no transport reforms are put in place, daily average commuting times by car are expected to go up from 34 Minutes in 2001 to 200 Minutes in 2015. (no comparable figures for public transport available) (Ahmed Mosa, 2012).
3. Poor public passenger transport system: Cairo is greatly lacking public transport infrastructure. World Bank benchmark indicators such as the number of kilometers of metro line per million of the population and the number of buses per million population are much lower than other megacities (see figures 2.1 and 2.2). In addition to being insufficient, the public bus system and the metro are also overcrowded and of deteriorating quality due to inadequate maintenance.

Figure 2.1 KM of metro lines divided by million inhabitants in the city

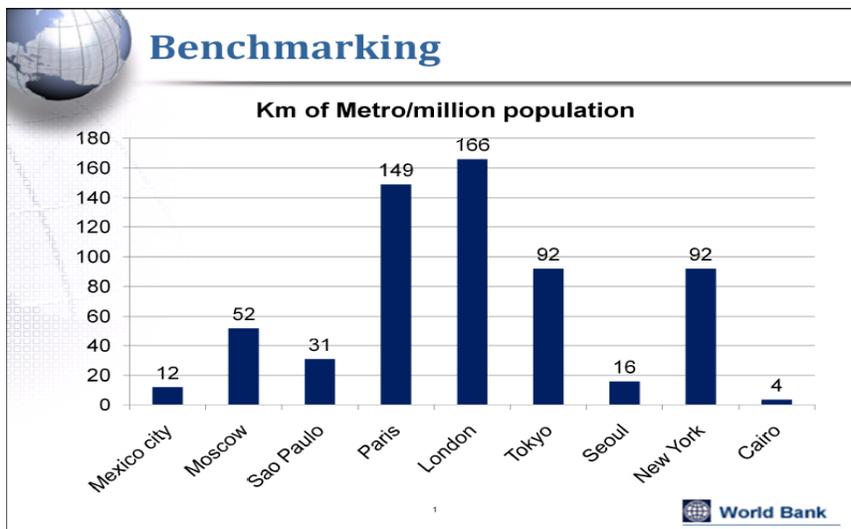
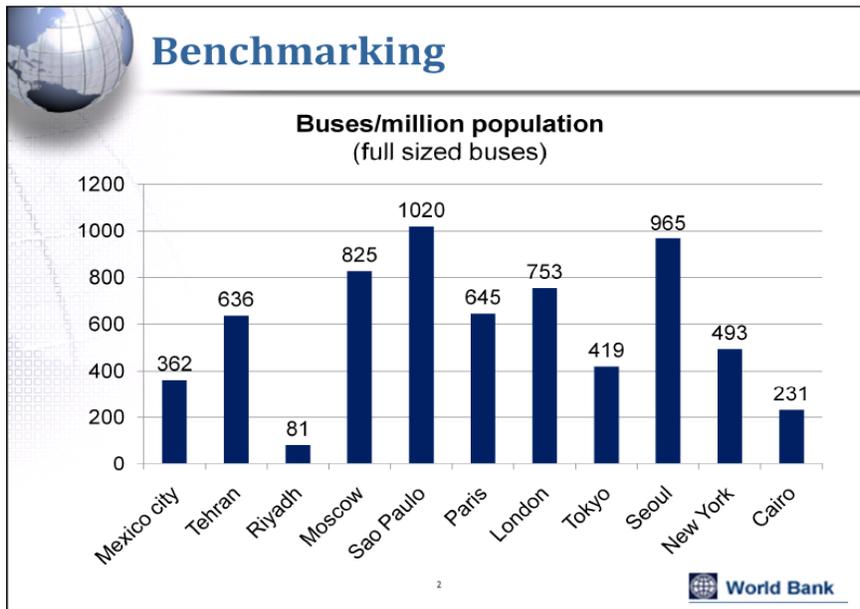


Figure 2.2 Number of full size buses divided by million inhabitants in the city



needs full citation (world

bank, year)

4. Substantial informal areas: 60% of Cairo's residents live in informal areas with little or no transport infrastructure to support them (GTZ, 2009).
5. A high accident rate: The road transport death rate in Cairo is very high. At least 1,000 citizens die each year in motor vehicle accidents, more than half of them pedestrians, and over 4,000 are injured. This is an indicator of the other factors mentioned above such as poor public passenger transport system.
6. Institutional weaknesses and fragmentation: Cairo suffers from highly fragmented, largely uncoordinated and inadequately staffed institutions to deal with urban transport problems of this magnitude.
7. Inadequate financial arrangements: Overlaying all of the above problems are inadequate financial arrangements leading to under investment in transport facilities, especially in public transport capacity which suffers major shortages; inadequate cost recovery and

consequent excessive subsidies for urban transport public; highly subsidized pricing of gasoline and diesel fuels which favor less efficient private transportation (private cars and small taxis); and little participation of formal private sector in financing and/or managing urban transportation infrastructure and services (World bank, 2010, p5)

Suffering from all these difficulties, the traffic situation in Greater Cairo is in dire need of immediate, medium term and long term reforms in a variety of different areas. While the scope of this study will focus on alternative solutions to these challenges, including current government plans for reform and management of the new planned transport reforms in BRT and light rail . The main area of focus will be on the most important and relied upon mode of transport in the city, the microbus, and possibilities for its incorporation into government plans on these routes.

The Crucial-but-problematic role of Microbuses in Greater Cairo

Although extensive research has been conducted on the state of transport in Greater Cairo, there has been a dearth of research on the vital role informal transport (para-transit) and particularly microbuses play in the city's transportation infrastructure. This is especially true when it comes to reforms in public administration or policy. While the importance of the microbus(shared-taxi) as the major mode of transport in a city with such enormous traffic problems cannot be disputed (see figure 1.1), the government has mostly looked the other way when it comes to applying any form of management or control over this mode. Possibly due to the fact that microbuses are privately operated, informal and problematic, consultancies by the World Bank, Japan and the UN, the main agencies informing, the government's strategies, plans and technical assistance in

the past have continuously overlooked this phenomenon and neglected them in their prioritizations for reform.

Figure 1.3 Modal split of Public transport in Greater Cairo:

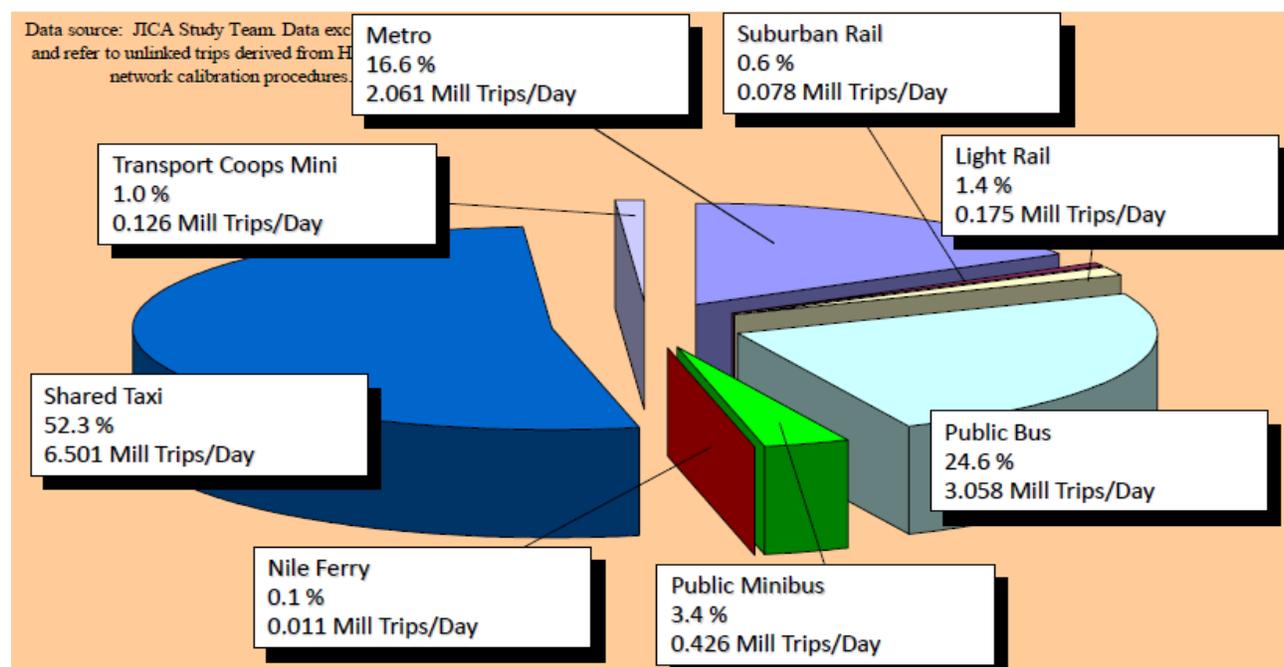


Figure 1.3 Source (JICA, 2001)

Unlike private taxi cars, most microbus drivers do not have licenses. Microbuses require a route license but, since it does not have to be displayed, enforcement is almost impossible. Since February 1999 no new microbus licenses have been issued. In 2006, there were 20,000 licensed microbuses in the Greater Cairo region but more than 80,000 were believed to be operating (World Bank 2006 pg. 22). According to Ministry of Transport officials (see section 6) there have been know recent surveys or censuses to find the actual number of microbuses operating in Greater Cairo.

Nevertheless, ongoing microbus driver strikes, similar to the one described in the introduction, are not the only reason why more government oversight, control and management may be needed to address this issue. A UNDP report on the situation of transport in Cairo cites the following as problems regarding the microbus issue (UNDP 2010):

- “They operate in unorganized manner without a comprehensive view or plan;
- The shared taxi network covers all of Greater Cairo, and in many precincts duplicates, and competes with, formal bus services. They often run parallel to CTA buses and other public modes, thus taking away passengers from the formal public operator, rather than integrating with these modes;
- They often disrupt traffic by stopping short or slowing at curbs to collect/drop passengers thus causing congestion for other motorists;
- Shared taxi operations tend to be fiercely competitive, as there are few barriers to entry and single-bus ownership is prevalent. As a result of this competitive pressure, drivers often pay little regard to traffic conditions, safety or other vehicles in the competition for passengers.
- As an example, they commonly cut all the way of traffic stream from the leftmost side of the road to its rightmost side, which increases the potential (exposure) of accidents, to collect/drop passengers;
- Some shared taxis operate outside of the established regulatory framework and without proper vehicle or driver licensing;
- Their capacity to carry passengers is considerably lower than those of the bigger buses or, in particular, metro thereby contributing to congestion; and

- In average, poor technical condition of the vehicles contributing significantly to air pollution and high-energy consumption.”

Implementation of BRT and potential challenges for planners and microbus operators

In an effort to decrease congestion and improve public transport systems, the local government and the Ministry of Transport in Cairo is now planning to introduce BRT to different priority routes in the city. While the government has historically avoided any confrontation or attempt at control of microbus operations, they are aware, as international experience demonstrates that these developments may present a direct challenge to the currently existing monopolization of these routes by microbus operators. Microbus operators may consider the new competition from the new transport modes as unfriendly, forcing them to ramp up their competitive nature, decreasing safety and increasing congestion. If the government prevents them from operating on these routes, they may organize strikes or protests. All of this may severely jeopardize the success of, what the government views, is a crucial pilot phase to their project. On the other hand, a better option may be to make them complement the BRT routes, which would reduce their impact on traffic. This is also an acknowledgement of microbuses as a formal public means of transport. The operators may welcome the new modes and individually decide to support them by providing transport to and from the official terminals. There may be no harm in them just being left alone to compete with the new modes with no considerable increase in congestion or safety violations.

The chosen study area for this study will be on a particular route chosen by the Ministry of Transport to be a new Bus Rapid Transit Route which connects New Cairo to Nasr City. This

route extends from Al Azhar University in Nasr City to the American University in Cairo in New Cairo. New Cairo, one of the 2 major satellite cities built over the last 2 decades, is crucial to the cities plans for expansion.

New Cairo, one the major satellite cities build to in the government's new expansion plans to accommodate for Cairo's increasing population and congestion, was established in 2000. The total area of the city is 70 thousand acres which include areas designated for Residential, services, industrial, tourism, recreation and educational purposes. The total number of housing units is 187 thousand of which 34 thousand implemented by New Urban Communities Authority and 153 thousand were implemented by the private sector. The current population is 1.2million inhabitants but the target expected to be reached in 5 year is 6 million inhabitants (NUCA, 2013). The main drive for the current plans for public transport provision, hence BRT, is to ensure the realization of this expansion.

The rationale for the selection of this route is that it is the first route where the government plans to implement BRT plans due to the perceived advantage and benefits in terms of implementation and expected demand. It is also expected to act as a pilot route for the implementation of BRT and the interaction with paratransit. The route links Cairo city with one of its major satellites which is expected to grow significantly in terms of population in the coming few years. Also, an important aspect is that a large part of the route is supplied by informal paratransit. The last stop in the route, adjacent to 2 universities, Future University and the American University in Cairo, is a well-organized informal microbus stop.

Chapter 2: Research questions and methodology:

As the Ministry of Transport, who are coordinating the BRT and paratransit reform effort, considers various options in dealing with the operators, various questions arise. Can the microbus operators on these routes be left alone or should they be regulated? Can they be incorporated into the new system or should they be left alone? This study will present an analysis of the Microbus industry's structure and networks on a chosen route and how these systems may pose obstacles to, but also opportunities for, transport reform in the Greater Cairo Metropolitan Area. This will be done through a literature review of reforms from the wealth of relevant international experience in paratransit reforms in Africa and Latin America. Relevant policy options will be extracted from these experiences. This is followed by a study of the microbus industry's operations on a specific urban route where the government is planning to introduce BRT as an attempt at urban transit reform. **This study will focus on an analysis of the two key players in the microbus transport mode, the government planners and the microbus operators, giving insight into economic, political and social dimensions of the mode in general. More specifically, the study will examine their preferences on potential policy and regulatory reforms inspired by successful international experience in dealing with paratransit, for specific priority routes where BRT routes are planned to be implemented.**

The main research question is this: **What do the main stakeholders view as the best regulatory and policy options for reforming and shifting the unplanned and exceedingly challenging microbus transport mode into a viable, sustainable and efficient mode of transport, and whether it can complement current government plans to introduce BRT to the GCMA.**

To answer this question several more specific research questions must be addressed for the GCMA.

1. What are the current plans for introducing BRT?
2. What is the current situation of the Microbus system in terms of intended government's management, operations and regulations in general and more specifically on these routes?
3. What are the international examples decision makers in the GCMA can draw on in terms of Microbus system reform, particularly the case of paratransit reform for the implementation of BRT?
4. What are the viable, short, medium and long term policy options that can lead to a more efficient microbus system within current plans for reform for these routes?
5. What are the preferences/agendas of (1) government planners and (2) microbus operators on potential policy and regulatory reforms inspired by successful international experience in dealing with para-transit, for specific priority routes where BRT are planned to be implemented?

Methodology

Secondary sources used for this study will include previous research and studies produced by international consulting agencies in coordination with the Egyptian government. These sources will be relied on to prepare situation analysis and background data for the study. Other secondary data includes a literature review which will be compiled via a desk review of 1) international consulting agencies literature on CGMA transport situation 2) international case studies of 3 cities in Latin America and Africa in dealing with the microbus transport sector when implementing BRT routes.

As for the primary data, this will be collected through interviews and focus groups. The research did not include a survey of ridership as well as operators, although it is perceived to be the customary methodology for this type of study, due to time, funding and legal constraints. This would be recommended for future research.

1. Interviews with Government officials

These officials will be chosen based on their knowledge of the plans for this particular route and the government's new BRT schemes in general. Also since much of the information regarding the current regulatory policies and plans regarding minibuses specifically in this route is still in the planning phase, officials with this particular knowledge at the Ministry of Transport, the Cairo Governorate and other experts have been nominated to participate in the interview and focus groups by the Director for the Transportation Center of Excellence at the Ministry of Transport who is also a reader to this thesis. The format of these semi-structured interviews is that these officials would be first briefed about the various reform options they have in dealing with local paratransit, and the relative successes and failures for each reform based on the international experience. They would be asked how they view the current paratransit operators with regards to structure, organization and importance to the public and then would be asked to share their preferences and rationale for these preferences on how to deal with Microbus operators.

2. Focus groups with Microbus Drivers

Microbus operators currently operating in the chosen route will be approached to engage in a focus group. These will be chosen with help from the Ministry of Transport in coordination with

the municipality and traffic authorities. The microbus operators would be approached at designated microbus stops in Road 90 in New Cairo and the 10th District in Nasser City, one the major microbus stops in Nasr City, the start and end points of the route based on discussions with representatives of the ministry of transport.

As previously discussed in the outline, the main focus of the study will be to extract relevant policy scenarios from the international experience and gauge preferences for these policies for both government planners and microbus drivers. After regulatory, management, organizational, infrastructural or any other reforms are selected; interviews will be conducted with Ministry of Transport officials to determine their preferences with regards to different types of reforms. The main preferences will then be shared in focus groups with Microbus drivers. These focus groups will involve a presentation and discussion on the different policies and models of reforms based on the government planners' preferences, followed by a discussion (4-5 hours total).

In the following section the literature review will attempt to find the relevant questions, aspects and gaps in the literature on the transport sector in GCMA and the international experience on paratransit reforms for BRT implementation. The lessons learned and findings from this section will be used to set the framework for the study of preferences of the government planners and paratransit operators. The findings will inform the formulation of the questionnaires used for the interviews and focus groups for government officials and Microbus operators.

The rationale of choosing Bogota, Mexico City and Cape Town for the case studies is based on how well they fit the current situation in the GCMA. In the case of Cape Town and Mexico City, public transport provision has to keep up with the rapid and unplanned urban growth which is

characteristic of Cairo. The 3 cities, like Cairo, suffer from urban difficulties of overpopulation, crowding and congestion in varying degrees and have large informal settlements. In these 3 cities, paratransit typically addresses this continuously developing segment of the public transport market and has over the years become a primary mode of transport with increasing dependence from local populations. There is also significant research and data on these three cities regarding paratransit approaches, integration and formalization. Bogota is considered the most successful and model example for BRT schemes, as most BRT schemes in Asia, South American and Africa are based on it. Cape Town's difficulties in integrating the local paratransit sector make it an ideal case study to and may give vital insights for the engagement process. Mexico City and Cape Town also reveal the importance of the political context (World Cup in South Africa, and Election of Left Wing government in Mexico) in the way the approaches are made and the level of success of the process.

Chapter 3: Literature Review

Literature on CGMA transport situation:

The main source of literature on the situation, management and potential reforms of the transport sector in the GCMA comes from reports produced by international consulting agencies in cooperation with the Egyptian government. The Japanese for example have conducted and funded a considerable amount of research through the Japanese International Cooperation Agency (JICA) on transport in Egypt since first funding the National Road Master Plan in 1993

and the National Railway Master Plan in 1996. They later funded the Misr National Transport Strategy or MiNTS in 2009 to come up with “a comprehensive and multi-modal Republic-wide transport study, addresses the entirety of Egypt with emphasis on major national and international transport corridors (MiNTS 2011).” The plan outlines an integrated, multi-modal transport master plan extending over a staged planning horizon to year 2027.

More specific to the research focus area, in 2001, JICA funded The Cairo Regional Area Transportation Study (CREATS) designed to promote adoption of approaches to mitigate urban transport problems and contribute to the sustainable development foreseen in the Greater Cairo Region Master Plan up till 2022. One of the main goals was to conduct a feasibility study for the priority projects identified under the Master plan in the second phase of the project in 2003. The feasible projects identified as solutions included proposed metro lines, institutional reforms of Cairo Transport Authority, bus rapid transit schemes, segregated bus lanes and super-tram, and light rail transport options as alternative solutions to Cairo’s transport problems. Although the document, throughout its phases, assessed the feasibility and funding options of these projects, little attention was given to the informal sector, namely minibuses, as requiring any institutional reforms or development projects.

The one main paragraph dedicated to minibuses, designated “shared taxis” in the study, claims that minibuses are “a considerable challenge in operational, administrative and political terms.” While preferring that this sector not be curtailed or eliminated, the report states that the goal is “to more effectively harness the considerable potential of this important mode and minimize its most obvious challenges” The study recommends “some sort of licensing system” and adjusting the routes away from main corridors to complement and not compete with higher order modes,

like bus rapid transit and light rail modes, which the study prioritizes. This “area franchising system” discussed above to control microbus routes is proposed as a recommendation but the details and final development of this plan seems to have been scrapped in later phases of the project.

The UNDP launched a Sustainable Transport Project for Egypt in 2009 in partnership with the Ministry of State for Environmental Affairs, focusing partly on the development of new, integrated transport services for Greater Cairo and its satellite cities on the basis of public-private partnerships. The background document prepared for the project gives detailed insights into the situation, operation, advantages and disadvantages of the microbus transport sector. Its recommendations however, also focus on “high quality public transport” including metro lines and high-class public bus services to take the place of minibuses and private vehicles. The study however does recognize microbus operators as a risk:

“There is also a risk of the strong negative reaction of some stakeholder groups towards the new measures promoted such as the operators of the private shared taxi [minibuses] towards the introduction of new public transport means or, especially in the field of transport demand management, a possible negative reaction of at least a part of the general public towards the new measures introduced. In that respect, it needs to be recognized from the very beginning that some negative reactions rising from conflicting interests of different stakeholder groups are unavoidable and may pose additional challenges for the implementation of project activities. (UNDP, 2009)”

The third major contributor to the transport reform literature in Cairo is the World Bank (WB).

In addition to important benchmarking documents, cited above, which convey Cairo’s dire

transport situation comparing to other cities, the World Bank drafted the Cairo Traffic

Congestion Study in 2010, which highlights the direct financial burden the government incurs as

a result of congestion in Cairo. More specific to transport sector reform, the WB proposed an

urban transport strategy for Greater Cairo in 2006. Among the selected priority actions and investments, which were similar to the UNDP and JICA reports, the World Bank Urban & Transport Unit, focus on institutional capacity building, toll express ways, reforming traffic enforcement and developing traffic management systems, in addition to new bus, tram and metro lines. While the study does mention minibuses as having a role, this role is also not emphasized in the recommendations and proposed strategies.

As shown in this section, there is a considerable gap of research and policy recommendations in the literature addressing the microbus transport sector as part of the GCMA's future transport designs. This may be due to the problematic nature of dealing with this phenomenon. But ignoring it, as highlighted in the UNDP report may be too much of a risk given the ever growing popularity and importance of this mode of transport. In order to fill this gap, deeper research is needed into the main stakeholders of the issue and more analysis is needed to come up with viable policy solutions that do not neglect Cairo's main transport modes, which this research offers.

International Case Studies in para-transit reform for BRT in Latin America and Africa

In order to identify possible policy and regulatory solutions for GCMA's challenges regarding the implementation of BRT it is necessary to look at the international experience of paratransit reform. The following section explores 3 such case studies paying particular attention to the specific context and setting of formal and paratransit existing transit operations before the implementation of BRT lines. Next the methods and approaches, as outlined in the previous

section, will be explained for each case including the approaches and methods of integration or organization of existing formal and particularly paratransit activities as well as the level of success of these approaches and integration schemes. In this section, the analysis of the international experience of informal transport reforms will build on a framework by Corvero (2000) which surveys several experiences with informal transport reforms in developing countries in Asia, Africa and Latin America and outlines available policy reforms for planners dealing with informal transport. In this analysis, the focus will be on 2 main areas (1) management and organizational options; (2) regulatory reforms (Corvero, 2000, p 163). The approach in terms of how participatory and inclusive the reforms were and the perceived successes and failures of the reforms will also be examined.

Bogota, Columbia

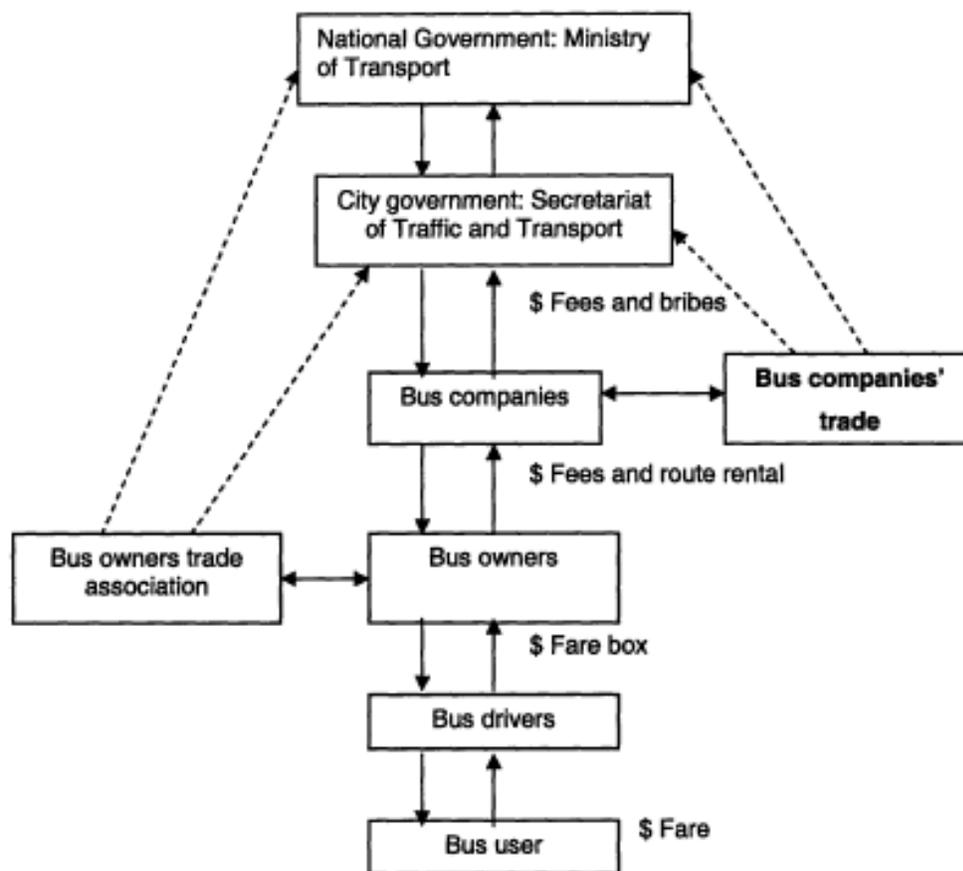
Context and setting:

Bogotá is the capital and most important city in Colombia. It covers an area of 1,737 km² and has a density of 3,717 inhabitants per km. Approximately 6.5 million inhabitants reside in the metropolitan area. The main modes of transport in Bogota were mainly buses 55.7% and private vehicle amounted to only 14.9%. Suffering from severe transport problems due to population growth, rapid increase in poverty, and car use, in 1999, Bogotá started a radical approach to transport actively promoting, “car-free days, bicycle schemes, pedestrian and public space improvements, peak hour car restrictions, and other measures” in addition to the BRT routes which are the subject of this study (World Bank, TransMilenio, Bogotá, 2003, pg. 2).

Before this approach started, in 1998, public transport provision was led by 65 bus companies operating in the city. These operators would request the city government to assign routes to them, after which individual vehicles' owners could provide services on these routes in exchange for a membership fee. The system led to fierce competition to obtain the rights for the most profitable routes since the bus companies' primary form of income was these fees. "Bus owners derived their income from the fares collected from passengers and paid their drivers per passenger carried, encouraging strong competition for passengers (or a so-called "penny war") from within the then fleet of close to 21,000 vehicles" (Schalekamp, D Mfinanga, P Wilkinson, and R Behrens, 2009 pg. 12).

The existing bus system comprised a wide range of bus types and services (see figure 6.1). According to the World Bank study, paratransit buses made up a very large part of the bus fleet, estimated at 30%-50%. "Informal Paratransit operators were sometimes also illegal as they duplicated license plate and vehicle documentation as a way of avoiding government controls and not paying motor vehicle taxes. This system resulted in some of the largest bus flows and congestion in the world during rush hours. The old, poorly maintained diesel and gasoline bus fleet caused air pollution and noise problems." (World Bank, TransMilenio, Bogotá, 2003, pg. 2).

Figure 6.1. Relationship between City government, bus companies, owners, drivers and users in Bogota, 1997.



Source: Ardila-Gómez, Arturo. Transit Planning in Curitiba and Bogota. Roles in Interaction, Risk, and Change. MIT, 1997.

Planners and Plans:

Enrique Peñalosa, whose main goal during his stint as mayor from 1998-2001 was to reform the public transport system of the city, was the champion and main man behind the idea of TransMilenio, the company that ran the BRT operators in Bogota. The Pealosa administration passed in the City Council its development plan dubbed "For the Bogota that we want" in June of 1998. Mass improvements in public transport became a political imperative, and the mayor adopted an enlightened policy with the objectives (i) to improve bus service quality to

passengers, (ii) to improve the environment by reducing bus-caused emissions, and (iii) above all, to develop a more civilized city (World Bank, 2003, p3).

The plan was to build an adapted version of Curitiba's famed BRT system with high-capacity buses, designed for transporting people using exclusive busways (Ardila-Gomez, 2004, p328).

Thus, the foundation of the TransMilenio bus mass transit was laid. “The TransMilenio system is an integrated bus rapid transit system, using busways, stations and terminals adapted for large-capacity buses, and fare integrated operations with smaller buses on the outskirts of the city (World Bank, TransMilenio, Bogotá, 2003, pg. 4).” The first phase of the system was implemented between 1999 and 2002, with operations starting in December 2006. TransMilenio is fully integrated between trunk and feeder buses, which meant that passengers paid one ticket for the BRT bus and any other (feeder) supporting buses until they reached their destination. Passengers paid a flat fare of about US\$0.42 as of December 2003, no matter if they use the feeder system or not (World Bank, TransMilenio, Bogotá, 2003, pg. 4).”

2. Infrastructure government provided



3. Private Management of Operation



Source: World Bank, 2003

Methods and approaches in dealing with existing informal and formal transport sectors:

Management and organizational aspects

“Besides seeking to improve public transport services for passengers, the introduction of Transmilénio is, at the strategic level, an attempt by the city government to formalize public transport from the paratransit sphere to counteract the destructive competition between associations and individual operators” (Schalekamp, 2009, pg11).

“TransMilenio S.A. is a company owned by the city government. Its responsibilities are, to plan and ensure service delivery, to control compliance of operators’ performance with the contract, to manage the system’s maintenance, and to plan improvements and expansions (World Bank, TransMilenio, Bogotá, 2003, pg. 11)”.

Bus companies are not responsible for the actual provision of bus services; they are merely intermediaries between the bus owners and the government. For bus owners, the main requirement

was that the companies have access to routes that have a high volume of passengers and a high turnover which meant more revenue for them. According to Ardila Gomez (2004), the large number of bus owners and the fact that a large number were informal paratransit operators made it difficult for the government to talk to them. As a result, some bus owners created Associations of Small Bus Owners, Apetrans, to help them gain leverage in policymaking. Given these institutional arrangements, the bus drivers become critical actors in the provision of public transportation services in Bogota (Ardila-Gomez, 2004, p326).

Regulatory reform

According to Adrilla Gomez, Mayor Peñalosa was convinced by experiences in other Latin American countries that the private sector should own and operate the Transmilenio buses and include local operators in the project. The example of Quito, where the government opened new routes for government operated electric buses, did not cover operational costs and the army's tanks had had to intervene to crush a strike by the bus owners who did not want to let the new system open (Adrilla Gomez, 2004, pg. 347). To prevent this scenario, the city government actively sought the participation and collaboration of the existing transport companies and operators in the new system.

The initiative faced many problems in dealing with the available companies and operators.

The first problem was that “the existing bus companies were reluctant to sign up because they did not have the capital with which to buy the new articulated (longer) buses, did not like the centralized fare-collection system and worried about the obligation on them to renew the fleet on a regular basis (Gilbert, 2008, pg. 449).”. The Apetrans, on the other hand, put pressure on the local government to include owners and operators in the reform process and were mainly worried that the new

BRT scheme could replace old buses. They both had to be convinced that the rewards would be sufficient to compensate them for the risks that they would face in transforming the nature of their business. To solve these issues the planners came up with several provisions to maximize the chances that the existing bus companies and even the bus owners would become the concessionaires of TransMilenio:

1. Existing operators should be majority shareholders in bidding conditions for the services on the three first lines (World Bank, TransMilenio, Bogotá, 2003, pg. 14).
2. TransMilenio would contract bus services taking into account experience in operating buses in Bogota the bidding process giving local bus companies and operators and upper hand over foreign investors.
3. Prohibiting TransMilenio from directly operating buses and instead contracting out the services with the private sector preventing it from becoming a state-owned monopoly (Adrilla Gomez, 2004, pg. 344).
4. The bill included provisions that insure prompt payment to the concessionaires while insuring proper management of fees by TransMillenio (Adrilla Gomez, 2004, pg. 344).
5. Planners allowed the use of 1,500 of the existing buses to serve the feeder routes (Ardila-Gomez, 2004, p369). Working under strict controls defined in the concession contracts, associations of local transport companies associated with national and international investors owned the buses, hired drivers and maintenance personnel. “They operated both main and feeder buses. Service concessions were awarded following an open and competitive bidding process. Payments to bus operators are based on (i) the number of route kilometers produced by each trunk line operator and (ii) the number of passengers

carried by the feeder buses. No minimum revenue guarantee existed (World Bank, TransMilenio, Bogotá – Page 11).”

6. One of the motives for setting up Transmilenio was to reduce the stock of old buses operating on the streets of Bogotá. “TransMilenio planners estimated that the first three busways would displace 5000 old buses. The bus owners were therefore the ones excluded and most affected by TransMilenio. Planners proposed that for each new articulated bus, the concessionaires would have to purchase and destroy 2.7 old buses. For the second phase, TransMilenio is requiring operators to scrap about 7.7 old buses per new articulated bus. The operator buying the old bus has to make sure that it has both an operating and an owner’s license, that the owner does not owe fines or taxes to the city and that the bus has not been stolen or cloned making it very hard for informal operators to take advantage of the new system and giving them incentives to formalize. Showing proof of the destruction of the old buses would be a requisite for the city to allow a concessionaire to start operating a new articulated bus. This mechanism compensated 1,318 bus owners for the removal and complete destruction of their old bus (Ardila-Gomez, 2004, p326).”

According to the World Bank, (2003), “through this approach, the initial resistance from existing private bus and paratransit operators was overcome. Paratransit operators were forced to formalize their operations or be left out of the new process. Once one company convinced some of the others to collectively bid for a Transmilénio concession, the others were soon to follow. In the end all but four of the 65 bus companies available in Bogota at the time, merged into four

bidding groups. Once the concession contracts were signed, in effect guaranteeing cash flow to the operators, it simplified access to finance facilities for the new vehicles (World Bank, TransMilenio, Bogotá, 2003 Pg. 14).”

Political will, process of engagement and level of success

Some of the key lessons learned from the Bogota Experience are mainly in the way the reform was promoted and implemented politically and socially:

1. The creation of a single agency (TransMilenio S.A.) with powers to plan, design, implement and regulate the new rapid bus system instead of the old, unplanned, unregulated polluting bus system was a fundamental reason for its successful introduction and lead to overcoming many institutional problems of implementing the system.
2. The system could only have been achieved through strong political will. The mayor was a major force behind the reform process. Planning and implementation were strongly linked together bringing about technical, political and financial realism, among others (Arturo Ardila-Gomez, 2004 p358).
3. Finally, the planning process benefited from “a continuous interaction among actors that generated further feedback for all parties involved and that continuously shaped the project. In all, TransMilenio planners held more than 300 meetings with the community, bus drivers and companies (Arturo Ardila-Gomez, 2004 pg.358).

Mexico City, Mexico

Context and Setting

The Mexico City metropolitan area has a population of 21.2 million people, making Mexico City the most populous metropolitan area in the Western Hemisphere (Worldpopulationreview, 2013). Mexico City is also one of the most crowded metropolises in the world, and transportation network is at the root of its critical air pollution problem, accounting for 43% of Carbon Dioxide emissions in the Mexico City Metropolitan Area. (Bell, 2011, pg. 4). According to Bell, citing Setravi (Secretary of Transport and Roadways) the government body which manages transport in Mexico City, during the 80s and the 90s, there was a decrease in the use of higher capacity buses and the subway to low capacity transport such as shared taxis, passenger vans, and (minibuses) run by private operators known as “concesionistas” (Ibid pg. 5). The modal split for Mexico City metropolitan area in the 2000 was as follows: 55% of daily trips were provided by small capacity buses and the private transport companies running them, 16% via private car, 14% were on the metro and, and 9% via high capacity buses and 1% on the tram. With private vehicles and high capacity buses decreasing from 25% and 42% in 1984 respectively to 16% and 9%, privately run minibuses, called peseros, with a carrying capacity of 22 people emerged as the main mode of transport in the city in the 90s (Ibid, pg. 5).

As government controlled services in the 80s and 90s deteriorated, the gap was filled by informal operators owning and operating small-scale informal vehicles without permits. These were entrepreneurs, who often owned only one or two minibuses each (Flores-Dewey and Chris Zegras, 2013, pg.4) According to Dewey and Zegras. Although these small scale operators

provided a public transport alternative, being “politically and financially convenient, the outcome increased congestion, pollution and accident rates, and significantly weakened the government’s capacity to plan and regulate the city’s public transportation service (Ibid, pg.5).” When in 1995 the government tried to regain control by allowing only 10 companies to operate in the city, this plan ultimately failed.

“By the early 2000s, authorities in Mexico City had to deal with 106 independent organizations representing individual owners of 22,850 minibuses, 2,271 buses and 3,094 vans. In contrast, the government-run RTP operated 1,400 buses. Because of the private operators’ growing political power and the lack of feasible alternatives, the government lost much of its regulatory control over the system (Ibid).”

Planners and Plans:

The idea for the Metrobus started with Minister of Environmental Affairs of Mexico City, Claudia Sheimbaum. She managed to secure funding from the World Bank and the Shell Foundation for air quality improvement interventions. By potentially substituting old, lower capacity vehicles with new, cleaner, high capacity buses, a new Bus Rapid Transit seemed like a possible intervention where these funds could be used. The environmental benefits of the BRT project decreased emissions in the city by 80,000 tons of CO₂ on a yearly basis, (Bell, 2011, pg. 5).

Mayor Andrés Manuel López Obrador formed an exploratory committee, chaired by Sheimbaum, which studied legal and institutional options for the new service, prepared a financial model and business case, and evaluated possible pilot corridors. The potential for

reductions in transportation-related carbon emissions qualified the project for GEF funding, with the Secretary of Environment of the Federal District as its implementing agency. The project received further funding from the Governments of the Federal District and Estado de México, as well as the Japanese government. With funding available, the committee drafted the project based on the model of *Transmilenio*, and settled on the creation of a new public agency, *Metrobus*. Metrobús operated along three defined corridors, using high-capacity bus rapid transit (BRT) vehicles buses are able to transport up to 160 or 240 passengers. Metrobús transports up to 650,000 passengers daily on its three existing lines Metrobús. In 2011, the cost of a Metrobús ticket was 5 Mexican pesos; free transfers to other transit modes were not included. The first route chosen in 2005 was the *Avenida de los Insurgentes*, due to political and financial reasons. According to Flores-Dewey and Zegras, the main reason why the planning team picked this route was that, since implementation entailed integrating as many incumbent operators as possible into the new system, the route had a very workable and limited number of 2 transport organizations competing for the route, one run by the government and one other private operator which would need to be convinced to operate in the new system. This meant that the city government would have to pay less per operator than the other alternative high capacity options with a larger number of feuding private transport organizations and also this would be more politically feasible since the negotiations would also be easier with just one (Flores-Dewey and Zegras, 2013, pg.9).

Table 8.1. Timeline of events leading to the opening of Metrobús in Mexico City

Date	Event
1968	Line 1 of Mexico City's Metro (subway) systems enters service
1974	First bus rapid transit (BRT) line enters service in Curitiba, Brazil, thanks to the work of planner and mayor Jaime Lerner, who pioneered the BRT concept.
1990s	Lee Schipper and Claudia Sheinbaum meet, collaborate academically at UC Berkeley.
1998-2000	Bogotá's TransMilenio BRT system is constructed and enters service, during the mayoral term of Enrique Peñalosa
December 2000	Claudia Sheinbaum is appointed as Secretary of Environment of the Federal District by Andrés Manuel López Obrador, after his election as <i>jefe de gobierno</i> of Mexico City
January 2001	Lee Schipper visits Mexico City, proposes idea of a BRT corridor to Secretary of Environment Sheinbaum.
2002	The Global Environment Facility (GEF) and World Bank provide grant funding for the "Introduction of Climate Friendly Measures in Transport" project. With funding through the Secretary of Environment of the Federal District, planning begins for the development of a bus rapid transit system in Mexico City, later to be known as Metrobús.
July 2005	Metrobús Line 1 opens along the north-south Avenida Insurgentes.
December 2008	Metrobús Line 2 opens along the east-west Eje 4 Sur
November 2009	Metrobús is awarded the Roy Family Award for Environmental Partnership from Harvard University

Source: (Bell, 2011, pg3)

Methods and approaches in dealing with existing informal and formal transport sectors:

Management and organizational aspects

Metrobus was created as a decentralized public agency and was responsible for planning, administering, and regulating the BRT corridors in Mexico City. It oversees coordination of private transit companies that operate the Metrobus lines. It is a public-private partnership with government oversight. The main management idea was to re-organize private transit

concessions, which once operated with government approval but no official set of operative guidelines, into modern business companies along planned routes that meet the demand characteristics necessary to support BRT. Metrobús managed the different private entities involved in providing daily service, maintained road infrastructure, and also to plan for construction of future corridors ((Bell, 2011, pg. 5).

Regulatory reform

To participate in the BRT system, existing operators had to agree to the cancellation of their individual concession titles and route authorizations. With support of government advisors, these operators would join to create a new firm, with shares distributed according to their number of buses. The new firm would acquire a loan to purchase new buses suited for BRT operations, providing a 20% down-payment of the cost. The government would grant this new firm a concession title to operate BRT services in that corridor (Ibid, pg. 8)”. For unconvinced operators, SETRAVI would offer relocation to a similar route elsewhere in the city and financed the operation by launching a vehicle (scrapping) substitution program. The investment was categorized into 2 parts. The government provided a \$100,000 Mexican subsidy per scrapped vehicle and the rest of the 20% down payment to the bus manufacturer was to be paid by the operators (ibid). Infrastructure, such as stations and terminals, would be built and formally owned by the government. (ibid). Finally, “the new firm would be paid a price per kilometer sufficient to cover operating costs plus a monthly stipend to each partner, equaling their previous earnings in that particular corridor.” This guaranteed each stockholder a payment independent of the firm’s profitability (ibid). Bus operators, contracted by *Metrobus*, would be paid a fixed amount per serviced kilometer, with fares collected by a third party and deposited into a trust fund, which

would distribute revenues according to all the stakeholders while not relying on government subsidies. (Ibid).” SETRAVI was negotiating with Ruta 2, which operated on the first planned route of Avenida de los Insurgentes, one of the largest bus operator organizations in Mexico City.

Political will, process of engagement and level of success

The first problem facing the planning committee of the Metobus was to decide whether to go through with a competitive tendering process which allowed equal rights to foreign or private sector operators outside the existing operators as in other cases. They eventually decided not to, based on social, legal and political grounds. The minibuses provided services at reasonable prices, with no public subsidy, while providing livelihood for thousands, so it was hard for the local government to handle the situation without assurances to convince the operators. Flores-Dewey and Zegras put it this way, “how could a government of the political left justify imposing a system that would concentrate rather than redistribute wealth? How would it deal with the thousands of people likely to be affected, particularly after “tolerating” them for so long? (Flores-Dewey and Zegras, 2013, pg.5)”

Another problem was that these individual operators were licensed to operate on this route through concession titles and any tendering process would imply voiding current permits and authorizations, raising the risk of legal battles with available operators holding formal and informal rights over the routes (Ibid, pg.7).” Finally “a forceful strategy posed a political problem. As Mexico became more democratic with more contested elections, bus operator organizations grew

more independent and powerful relative to city governments. Their support, quite important for elections, led to political alliances hard to reconcile with forceful reforms. Beyond electoral calculation, city governance was at stake.” They assert government officials’ fear of the city being immediately paralyzed due to the power of operators guilds which could inflict “severe economic and political damage to the city (Ibid).”

The choice of the planning committee and the consultants working on the project to take the more participatory route was based on these factors, and in the end, a transition plan was devised that would lead to “least resistance” from the operators making sure that “project technical specifications and financial models were continuously adjusted to ensure that participation in the BRT would not entail financial losses for individual operators (Ibid).” For Flores-Dewey and Zegras, this choice ultimately led to the successful launch and implantation of the project although it did impact the project’s sustainability. According to their interviews with government officials, the indirect subsidy incurred due to the initial financial deal with the operators to keep them happy, increased operating costs and made it more difficult to increase the number of buses on routes and open new ones.

Cape Town, South Africa:

Context and setting:

Metropolitan Cape Town, with a population of more than 3.4 million and a local economy estimated to produce output of about R40 billion in 2007, 11% of the country's GDP, is one of the most important cities in South Africa (City of Cape Town (CoCT), 2009). It is considered to be comparatively well-endowed with transport infrastructure and public transport services by the standards of many cities in Africa (Wilkinson, 2010, pg86). The City of Cape Town’s current

transport system consists of an extensive road network of 8 500 km, which carries growing numbers of public and private vehicles. Traffic volumes have been growing steadily over the last decade, at approximately 3% per annum. The road network carries about 90 Million vehicle kilometres of travel, annually. A public transport system – that carries approximately 1,1 million passenger (per day?) trips, on rail, buses and minibus-taxis.

Table: 9.1: Metropolitan Cape Town: Key Transport System Characteristics

Mode characteristic	Statistic
Metropolitan road network (freeway, arterial and main routes)	approx. 2,235 km
Local road network	approx. 7,513 km
Number of private vehicles	600,000
Car ownership per 1,000 population	200
Bus fleet	1,318
Number of bus routes (subsidised or not)	1,545
Rail rolling stock (number of operational train sets)	78
Total length of rail track	581 km
Number of rail stations	119
Minibus-taxi fleet	7,467
Number of minibus-taxi owners	6,359
Metered (sedan) taxi fleet	567
Modal split: home to work (a.m. peak period) (%private : public : non-motorised)	46 : 42 : 12
Modal split: public transport modes (%rail : bus : minibus-taxi)	54 : 17 : 29

Source: CoCT, 2008

In Cape Town in 2008, Public transport made up only 43% of trips and 12% of trips were non-motorized. The modal split for public transport modes as seen in Table 9.1 is 54% rail, 17% bus and 29% minibus taxi. Minibuses (mostly 15 seaters) are operated by owners of single vehicles and privately owned small fleets with many owners belonging to taxi associations. The current fleet size is estimated at over 10,000 within the province, of which 7,467 vehicles operate within the City of Cape Town (Western Cape Government, 2011). In the decade leading up to the major transport reforms which led to the implementation of BRT, the city suffered from increased congestion, a rise in vehicle emissions and concerns about decreasing road safety (CocT, 2008).

Planners and Plans:

In South Africa, the call for BRT came at a national level. The incentive to improve public transport was heightened in 2006, both in terms of planning and funding, coinciding with the announcement of South Africa as the host country for the 2010 FIFA World Cup. The same year witnessed the release of the National Land Transport Strategic Framework (NLTsf) 2006-2011, in which the World Cup was recognized as a critical catalyst for passenger transport development (Wilkinson, 2010, pg.91). The NLTsf was followed by the national Strategy to Accelerate Public Transport Implementation and the Public Transport Strategy. These were translated into Integrated Rapid Public Transport Networks (IRPTNs) plans which proposed new large-scale multi-modal public transport networks, with phased implementation of BRT trunk and motorized and non motorised feeder systems, which supplement existing core rail corridors and incorporate existing formal and informal road-based operations (Schalekamp and Behrens, 2010, pg. 373). The proposed plans based on management and operational model of the

Transmilénio BRT system in Bogotá, Columbia, which also relied on the formalization of paratransit operations.

The first phase of these IRPTNs, as detailed in the Public Transport Action Plan focused on Johannesburg, Cape Town and the Nelson Mandela Bay Metropole urban centers and contributed towards 2010 World Cup transport commitments. In Cape Town, the mayor tasked a team of local and international consultants and specialists to produce a plan to build a new fleet of modern buses on main routes running in dedicated lanes which would replace existing scheduled buses and unscheduled minibuses. To them, according to Schalekamp and Behrens (2013) this “separation would resolve conflicts with general traffic for road space, and the replacement of all road-based services with a unified, contracted and uniformly liveried bus fleet would neutralize inter and intra-modal competition for passengers on the street (Schalekamp and Behrens, 2013, pg. 186)”. However, the transition from paratransit operations to full-scale BRT services in Cape Town, as in main South American cities proved problematic in terms of the engagement process between national and local governments and existing informal mini-bus taxi operators in South Africa (Schalekamp and Behrens, 2010, pg. 373).

Methods and approaches in dealing with existing informal and formal transport sectors:

Management and organizational aspects

Before the launch of Cape Town’s MyCiTi plan in 2007 and the starter phases of BRT were inaugurated in 2009 and 2011, the national government, supported the creation of a hierarchical representative structure within the paratransit sector to make it easier for engagement between government and paratransit at a national level, in, 2001, leading to

the establishment of the South African National Taxi Council (SANTACO), as well as subsidiary provincial councils elected from within the paratransit industry. The government required the council to support operator associations' applications, thus beginning the formalization process (Ibid, pg. 373).

The MyCiTi plan envisaged that BRT services would replace all existing road-based services in the long run. The City initially proposed that two vehicle operating companies for existing formal and informal minibuses be established to provide all services in the starter phase. In the South, one company would operate feeder routes in the central city and an airport shuttle service, while the other entity would operate feeder routes in the phase area's northern sector. Both companies would bear the responsibility for operating the main route linking the northern and southern clusters of feeder routes (Schalekamp, and Behrenst, 2013, pg. 186)". Existing bus and paratransit operators in the two sectors will be required to form amalgamated companies to tender for trunk or feeder contracts.

Regulatory reform

The MyCiti program established principles to guide the restructuring of ownership and competition regulation. Road-based operators active on routes affected by the IRPTNs were to be given the opportunity to become the operators of the new services, and would be contracted to operate these services over a number of years (Schalekamp, and Behrenst, 2013, pg. 185). The first round of operating contracts would be negotiated with operators, while in the later phases of the program operations would be put out to tender. In addition, it was envisaged that existing paratransit minibus-taxis and formal bus operators would merge to hold joint ownership of the

vehicle operating companies. Until the eventual completion of the reform program, paratransit, formal buses and BRT would operate side-by-side (Ibid). Paratransit operating permissions would not be cancelled prior to their expiration, except in the case of operator misconduct until the end of the program's duration in 2016. Until that time paratransit operators have a strong position in terms of transitional negotiations affecting the withdrawal of their existing operating licenses. Eventually, existing operators would have to withdraw their existing services, the operating permissions for these services would be cancelled, and the paratransit vehicle would be surrendered to the municipality (Ibid).

Schalekamp, and Behrenst, (2013) summarize the financing scheme for taxi recapitalization as follows: "For each existing vehicle surrendered to the municipality the owner is offered compensation to the value of around ZAR 55,000 (\$USD 7000), equivalent to what that owner could get for scrapping a vehicle under a pre-existing national paratransit recapitalization scheme. The owner then exchanges this sum for an equity stake in the operating company, or has the option of leaving the paratransit sector entirely and taking this amount as a cash pay-out".

These operator companies would be responsible for vehicle procurement and maintenance, and would be reimbursed on the basis of vehicle kilometers travelled. IRT would make use of a smart card fare collection system. Fares will be handled by a central collection agency and then channeled to a trust fund entity from which operators will receive their revenue, all under the oversight of a public management organization incorporated in the municipality (Schalekamp, Mfinanga, Wilkinson, and Behrens, 2010, pg.7)

Political will, process of engagement and level of success

The main challenge faced by the Cape Town local government in implementing the MyCiti program was convincing the already existing formal and paratransit operators to agree to the formalizing options and to be included in the BRT plans. Cape Town city planners, as in many other South African cities opted to deal directly with local operator associations operating on particular routes where they would be directly affected due to the implementation of BRT rather than the National Councils like Santaco. Once the local government completed the planning phase, the sphere of engagement was broadened to include town hall meetings and summits where the plans were explained and feedback taken from the local paratransit operators on the routes.

There were three main causes, according to (Schalekamp and Behrens, 2010, pg. 373), which led to substantial opposition by the paratransit sector. Firstly, the failure of the government to complete the transformation of existing paratransit operators into business entities that would be able to tender for public service contracts. Of the 80,000 vehicles targeted for replacement between 2006 and 2010 an estimated 80% of the national fleet, by October 2009 only 28,318 vehicles had been scrapped. This failure led to the fragmented ownership structures in the paratransit sector and their representative organizations it was difficult to establish a common basis around which to engage operators. According to (Schalekamp and Behrens, in 2010, there were around 6400 owners with an estimated 7500 licensed vehicles operating on 565 routes in Cape Town, and the total paratransit fleet was estimated at 12,500 vehicles if unlicensed operations are factored. Furthermore, 100 operator associations are competing for control of routes within the city.

Second, the local planners had to, in addition to managing the implementation of the new BRT programs, also manage the paratransit corporatization in order to create feasible contracting entities. They could not quell paratransit sector doubts about the lack of institutional capacity and competency to manage large-scale transformation, and have furthermore revealed strong opposition from the paratransit sector. In Cape Town, a number of the town hall meetings and summits were disrupted by disgruntled operators. These were associations whose members were not to be included in first phase BRT operations or groupings aligned to the National Taxi Alliance (NTA), a rival organization to SANTACO that is thought to primarily represent unlicensed operators. Since the final quarter of 2008 Cape Town, Johannesburg and the Nelson Mandela Bay Metropole have experienced multiple protests by paratransit operators objecting to BRT implementation. Operators were worried that there would be a reduction in the number of employment opportunities, that their income would be diminished, and that they would be marginalized as shareholders in operating companies that are yet to be established. This ultimately led to significant delays and challenges in the BRT process which exposed the scale of internal instability and factionalism in the paratransit sector and that the city governments have been unprepared for the level of resistance offered by paratransit to the proposal (Ibid pg.377).

Lessons learned and analysis

The experiences in these 3 cities raise many questions regarding the proposed implementation of BRT in GCMA and the integration of the paratransit sector into these plans. There are some parallels in the experiences but also some differences which could be summarized in 4 main points:

1. Preparatory process

The similar preparatory processes in Bogota and Mexico City are dependent on the already existing context, particularly of paratransit operators in the cities. 65 transport companies in Bogota and RUTA organizations in Mexico City made it easier for the government to attempt the formalization process. In Cape Town, however, due to the fragmented nature of ownership and large number of associations and owners of paratransit and formal existing operators this was more difficult and led to delays in the process.

The more locally focused and participatory nature at the beginning of the projects in Bogota and Mexico city also differ from the Cape Town experience in that they allowed for a more tailor-made approach, launching companies to operate transport on particular routes. In South Africa, the call for BRT came at a national level to prepare for the World Cup and although each city in South Africa was responsible for formulating its own BRT plans these plans did not require paratransit operator acceptance as in Bogota and in Mexico City and relied on a more comprehensive push for immediate reform rather than a well thought out lengthy political and social negotiation process. The way in which the Cape Town MiCity plan envisaged a BRT initiation in 2 major areas in the North and South with 2 different companies operating at once, may have been too ambitious, particularly given the short time frame for implementation. A more realistic scenario should be considered for the GCMA case.

The experience in Mexico City with GEF and World Bank funds being channeled into the project as a pollution and environment related cause was one of the main causes of success and the possibility of applying for similar funds should be examined for the GCMA case. This of

course is based on the premise that the new less polluting form of transport would replace the old poorly maintained buses, having significant impact on air pollution and public health.

2. Scenarios of formalizing the paratransit system and engaging microbus drivers/owners into the BRT project

In all 3 cases companies were created to formalize existing paratransit and incorporate them into a city-wide plan. However, as described above in the case of Mexico City and Bogota, the formalization process was based on agreement with the operators involving the scrapping of their vehicles and the cancelation of their route licenses, and including them as shareholders as part of companies in the new BRT operations. In South Africa, on the other hand, the Cape Town plan was to allow paratransit operators to operate as feeder mechanisms also as part of companies that operated BRT routes. The main difference here is that the process in Mexico City and Bogota was more inclusionary and participatory and planners in those cities managed to convince the operators that being included in the new structure was better for them. This came at a great cost in the case of Mexico, in the form of an operating and start-up subsidy, but it is the only way the project would have worked from the start.

3. Set of regulations organizing the operation of the selected scenario

All 3 scenarios incorporated the same regulatory structure when it came to dealing with Microbus operators. Existing operators would be majority shareholders in bidding conditions for the services on the first routes, the company created to operate the BRT routes contracting bus services taking into account experience in operating buses in the city in the bidding process giving local bus companies and operators an upper hand over foreign investors. Existing buses

would serve the feeder routes (Mexico City, Bogota) or would operate along existing BRT until the BRT project was complete as in the case of Cape Town. The new operators would work under strict controls defined in the concession contracts. Payments to bus operators were based on (i) the number of route kilometers produced by each trunk line operator and (ii) the number of passengers carried by the feeder buses. When BRT routes were operational the existing operators would have to withdraw their existing services, the operating permissions for these services would be cancelled, and the paratransit vehicle would be surrendered to the municipality. Since this scenario is the most common regulatory structure, not only for these 3 examples but for many others in Asia and Africa (Schalekamp, Mfinanga, Wilkinson, and Behrens, 2010) this structure should be considered for the GCMA case.

Table 3.1: Summary of findings			
Process	Bogota	Mexico City	Cape Town
Preparatory Process	<ul style="list-style-type: none"> • Successful Political lobbying by Mayor • Participatory • included 300 meetings with operators and community 	<ul style="list-style-type: none"> • Led by Ministry of Environment • Applied for GEF funds • Participatory • Made effort to convince operators that change was better for them • Subsidized operations for benefit of operators 	<ul style="list-style-type: none"> • National effort to prepare for World Cup • problematic in terms of the engagement process between national and local governments and existing informal mini-bus taxi operators • Not participatory enough, did not convince operators
Management and organizational aspects	<ul style="list-style-type: none"> • Full integration/scraping and buying new articulated buses • Transmillenio/Private sector company • to plan/ ensure service delivery • control compliance of operators' performance with 	<ul style="list-style-type: none"> • Full integration/scraping and buying new articulated buses • Metrobus/decentralized public agency responsible for planning, administering, and regulating the BRT corridors • . It oversees coordination of private transit companies that 	<ul style="list-style-type: none"> • The MyCiTi plan envisaged that BRT services would replace all existing road-based services in the long run. • The City proposed that two vehicle operating companies for existing formal and

	<p>the contract</p> <ul style="list-style-type: none"> • manage the system's maintenance • plan improvements and expansions 	<p>operate the Metrobus lines.</p> <ul style="list-style-type: none"> • It is a public-private partnership with government oversight. • re-organize private transit concessions into modern business companies along planned routes that meet the demand characteristics necessary to support BRT. • Metrobús managed the different private entities involved in providing daily service, maintained road infrastructure, and also to plan for construction of future corridors 	<p>informal minibuses be established to provide all services in the starter phase.</p> <ul style="list-style-type: none"> • In the South, one company would operate feeder routes in the central city and an airport shuttle service, while the other entity would operate feeder routes in the phase area's northern sector. • Both companies would bear the responsibility for operating the main route linking the northern and southern clusters of feeder routes • Existing bus and paratransit operators in the two sectors will be required to form amalgamated companies to tender for trunk or feeder contracts.
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Regulatory reforms	<ul style="list-style-type: none"> • Operators worked under strict controls defined in the concession contracts • Payments to bus operators are based on (i) the number of route kilometers produced by each trunk line operator and (ii) the number of passengers carried by the feeder buses. 	<ul style="list-style-type: none"> • To participate in the BRT system, existing operators had to agree to the cancellation of their individual concession titles and route authorizations. • With support of government advisors, these operators would join to create a new firm, with shares distributed according to their number of buses. • The new firm would acquire a loan to purchase new buses suited for BRT operations, providing a 20% down-payment of the cost. • The government would grant this new firm a concession title to operate BRT services in that corridor • For unconvinced operators, SETRAVI would offer relocation to a similar route 	<ul style="list-style-type: none"> • Road-based operators active on routes affected by the IRPTNs were to be given the opportunity to become the operators of the new services, and would be contracted to operate these services over a number of years • The first round of operating contracts would be negotiated with operators, while in the later phases of the program operations would be put out to tender. • existing paratransit minibus-taxis and formal bus operators would merge to hold joint ownership of the vehicle operating companies. • Until the eventual completion of the reform program, paratransit, formal buses and BRT would operate side-by-
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		<p>elsewhere in the city and financed the operation by launching a vehicle (scrapping) substitution program.</p>	<p>side (Ibid).</p> <ul style="list-style-type: none"> Existing operators would eventually have to withdraw their existing services, the operating permissions for these services would be cancelled, and the paratransit vehicle would be surrendered to the municipality (Ibid).
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Chapter 4: Government Plans for BRT and preferences in dealing with informal Microbus Operators in the GCMA (Nasr City- New Cairo Route):

This section is based on interviews with Dr. Ahmed Mosa, Director of the Center for Planning and Excellence at the Ministry of Transport, Dr. Sayed Metwaly, Executive Director of the Greater Cairo Transport Regulatory Authority and finally, a focus group with Ahmed Ashraf, and Amr Khalil, Senior transport planning team and GIS expert Islam Mohamed at the Ministry of Transport. The section will be organized into the main topics with summaries of the responses under each section.

Problems caused by the microbus phenomenon from a transport planning perspective

The informal and unplanned nature of the microbus transport mode causes problems for the government in addition to causing congestion. According to MOT officials, one of the major problems the government has with the microbus transport sector, from a planning perspective, is that the real effect they have on transport in the city is not known. The ministry does not know how many minibuses there are and how much they contribute. They do know that these operators create jobs for themselves and that they are part of the informal economy and provide an important service, but according to ministry officials there have not been enough studies to measure their affect the economy or the transport sector. The three main problems caused by the minibuses are pollution, congestion and safety. Many of the vehicles are not subject to environmental controls, they run on polluting diesel, they are old and they don't perform regular

maintenance. Microbuses are one of the main polluting modes of transport in Cairo (Ahmed Mosa, Personal Communication, November 20, 2014).

They add that the main problems are not for the microbus passengers but for the government “Their informal disorganized nature is unsafe and causes congestion because of irregular stops which create bottlenecks. They sometimes make irregular stops occupying 2 to 3 lanes into the street or on the sides of entrance ramps up bridges, causing massive traffic blocks (Sayed Metwaly, Personal Communication, November 20, 2014)..

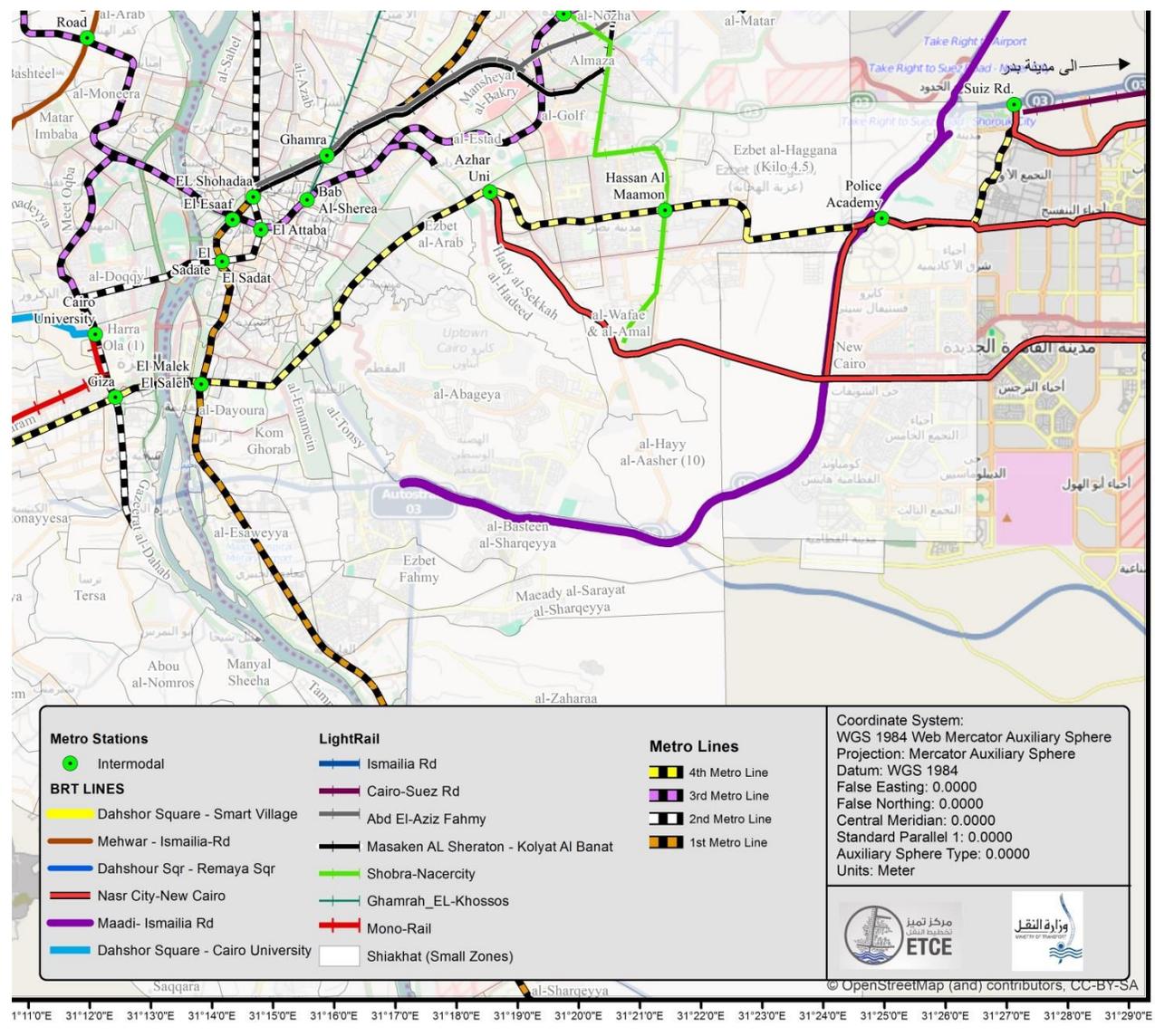
Benefits of the Microbus from a transport planning perspective

According to the ministry officials, people choose the microbus as their mode of transport because their prices are flexible and they offer almost “door to door” transport. In addition they are available at any location at any time. In transport planning terms, , the average citizen needs a mode of transport where the walking distance to and from departure and destination points when boarding and exiting does not exceed 400 meters. Even though the best options in the market in terms of price competitiveness is the bus operated by the Cairo Transport Authority, these buses are always overloaded and have maximum capacity and do not offer the flexibility of the informal microbuses. The microbus fare is for 2-3 pounds which is the second best option in terms of price but it is more flexible. Normal buses operate on a strict schedules and stops but the microbus seems convenient for people because it can stop anywhere. “This has become engrained in Egyptian’s culture, Egyptians don’t have the culture to get off at stops, and they want to get off at their destinations.” Sayed Metwaly, Personal Communication, November 20, 2014).

Current plans for BRT in GCMA, What is the most important route? What is the rationale behind building the route?

The current BRT plans include 10 routes. Implementation and prioritization of these routes will be ranked in terms of importance and feasibility. The main two routes are the Nasr City- New Cairo route and the Giza- 6th October routes. The rationale for picking these routes is that they link Cairo to the new urban satellite communities which are the main area for Cairo's expansion plans. There is justified demand and availability of physical infrastructure in terms of roads capacity and width that are practical for bus dedicated lanes. These new communities are expected to undergo accelerated urbanization and therefore increase transport demand on these routes. In addition there are 2 new main modes of transport, which is the metro line 3 and 4 which will be part of the plans in this area. The BRT is expected to service these lines (see Figure 7.1). The chosen focus of this study is the red BRT line indicated to the left of the diagram. It starts at Azhar University in Nasr City and ends at the American University in Cairo in New Cairo. The tendering process to select the private sector company that is supposed to manage the route is supposed to start in March 2015. Six Months after that, the design phase will begin, which will take another six months followed by 1.5 years for construction and implementation (Ahmed Mosa, Personal Communication, November 20, 2014)

Figure 7.1 Cairo Urban Transport Master Plan



Source: Center for Transport Planning, Ministry of Transport

Current government plans for regulation and management of the microbus transport mode

According to the MOT officials, the current situation regarding the microbus operations, particularly as the main form of public transport in the city is unsustainable. He predicts that Microbuses will have a problem maintaining their current prices in the near future. As the subsidy on diesel and gas is removed, which is one of the main goals of the transport reform plans, the prices of trips in this mode will no doubt increase as they have recently done and will become less affordable making it a less viable option. After the government increased the price of diesel to LE1.80 per liter, a 64 percent increase from the previous price of LE1.10, the fares of microbuses increased to 2.5-3 LE instead of 1.5LE to 2 LE before the price hike. There must be an alternative soon and the operators will have to submit to government control and coordination so they can be allowed to operate as part of the new system. In addition to this, as the security situation gets better, and alternative options in public transport are made available, there will have to be stricter enforcement (Ahmed Mosa, Personal Communication, November 20, 2014).

There is a short term strategy and a medium to long term strategy for dealing with microbuses, according to the MOT team. The government's short term plan is to integrate them and compete with them at the same time. In the current situation microbus operators purchase their licenses to operate on a specific route, but are allowed to work anywhere. This would be controlled. The medium to long term strategy involves scrapping (which has been going on since 1999), and renewal or redirecting them out of main routes and into other routes or organizing them into

feeder systems. As the government begins to implement the public transport master plan and integrating them into this network, the regulatory and planning authority would have more say in organizing minibuses. The medium term plan could be to regulate the age of vehicles, whereas any vehicle more than 5 years old would not be given licenses. After that these vehicles could be limited to work in zones where public transport is unavailable. This could be determined according to quality and capacity of ridership so the low capacity minibus would be moved to less major routes, maybe in informal areas.

MOT officials blame the current monitoring systems for the current lack of enforcement and stress the need for an operating center which would regulate and coordinate all traffic in Cairo. One such entity is already being considered, the Greater Cairo regulatory authority, which would be a planning and technical unit as well as an operating agency and would coordinate with both the MOT as well as the Greater Cairo Transport Authority; however its inception has been held back due to bureaucratic and struggles with other government entities over jurisdiction.

With regards to the minibus transport mode, the use of technology to track variables like speed and ridership is the only way to aggregate reliable data to base their plans on. This includes a GIS map with data on ridership, number of minibuses, the age of these minibuses and trip information. The MOT officials interviewed both believe that the MOT must work with Cairo Governorate, which is the government office mandated to build minibus stops, to create bypasses and off street terminals, where possible, preventing the minibuses from stopping in the middle of the road, in close coordination with the Ministry of Transport. “This must be done first by the government before we even think of approaching the minibuses. It is not their fault” (Sayed Metwally, Personal Communication, November 20, 2014).

Preferences in dealing with Microbus drivers on selected route:

Management options:

For the focus route, the MOT has planned a diverse range of pre-feasibility studies which will include a study of informal public transport on the routes and how to integrate minibuses as a feeder system. One of the most important observations was that this route, the first BRT route, should be considered a pilot route for both the BRT idea and the microbus reforms. The company that the ministry is launching would manage the BRT route and the microbus transport mode in parallel. The company would be owned by different stakeholders with a private operator. The government officials interviewed did not agree with the option to accept the current structure and operation of the minibuses on this chosen route as they are, and believe they must be integrated into the formal system. It was also not an option to prevent them from operating on this route at all. Organizing the operators into a company is one solution that can be considered. The MOT officials said that the operators should be given incentives to join these companies such as health care, social security and set salaries. The number of the minibuses allowed to operate in a company on the route would be limited to already currently operating with permits, if more are needed a bidding process could be introduced. There was also an option considered where they would not gain a fixed salary but they would be allowed to work on the route if they follow certain regulations and quality standards.

The MOT officials were skeptical about the option of organizing the minibuses into COOPs as they viewed the South Africa experience in creating COOPs as a potential hindrance to the BRT

plans, noting that this could lead to violence between the operators fighting over leadership of the COOPs or even if they managed to get along, they would no doubt stand against BRT plans to serve the interests of the operators in terms of profits and market share. Ahmed Ashraf, Amr Khalil and Islam Mohamed, the planning team at the MOT, however, preferred the option of encouraging them to organize a small route based syndicates for them to lobby for their cause politically and manage their benefits.

The option of preventing the current operators from access to the route was also rejected. The planning team at the MOT gave the following reasons: 1) there is no current alternative, 2) if these operators are prevented from operating on these routes they would lose their licenses and their jobs, we would have to create new jobs for those people, or they would be displaced to other routes which would not solve the problem or create new problems and 3) they would protest and it would look bad politically. They explained that operators and drivers, live on the money they make day to day. If they stay at home for a day or more or if they are in an accident their family might not have sufficient food. This can be a major incentive for them in the suggested company option, since in this case they would receive a set salary as well as social insurance.

Regulatory options

The government is also planning to regulate operators in terms of vehicle stops, curbside behavior and disruptive driving behavior. The current action of licensing them based on routes without any regulations was not an option for them. The most interesting option was the organization into feeder routes and making arrangements with operators based on enforcement of

rules and standards, mainly concerning areas of operations, curbside behavior, vehicle specifications, and labor practices. A plan would be devised for the route including building new stops for minibuses on the route which would prevent them from using BRT routes and creating congestion at the stops. Traffic demand options like signaling and proper intersection planning would also be revised for the route. Stops would be monitored regularly to ensure that the operators adhere to these regulations.

Finally, according to the MOT planning team, there are necessary reforms in terms of enforcement, particularly in the traffic authority, and the municipalities. The enforcement is sometimes corrupt and the implementation of routes in terms of infrastructure and quality specifications is lacking. They believe that the current Cairo Traffic authority and the governorate and municipality transport authorities are incapable of performing and implementing the necessary traffic demand management on these routes. If the BRT routes are to succeed, or the minibuses are to be integrated willingly, the capacity of these government offices must be developed. “They have no training or education about enforcing the traffic laws and there is no accountability for bribes and coercion. There must be training for all levels in the Ministry of Interior. For infrastructural improvements, there should be a central authority planning transport in Cairo to plan and set standards and specifications for this work. Without this implementation will never be a success,” (Ahmed Ashraf, personal communication, 10th December 2014).

Engagement options:

The possibility of including minibus drivers in the planning phase was refused by the MOT team. For them the best option would be to be transparent and share the plans with them when

the plan is ready (Ahmed Mosa, Personal Communication, November 20, 2014). Mosa and the planning team at the MOT plan to make the research leading up to implementation as participatory as possible. “We have to talk to them and our plans must include their extensive knowledge about these routes, we should get their feedback about where the best stops are for the routes” (Amr Khalil, Personal Communication, November 20, 2014).

The officials said that the new rules and regulations should be encouraged by convincing the operators that stopping is cheaper for them. The MOT team suggested, for example, that the operators be told that stopping irregularly uses up the brakes and extra petrol and that at the stop, the customer would come to them. They could be convinced by being shown calculations about how much they would save if they would follow these rules. The MOT planners stressed an approach of “encouragement before punishment.” The encouragement would be followed by enforcement. We can give them encouragement in the form of discounts and free licensing, fees and tax breaks. After building the stops, stopping only at the designated terminals would be included in licensing regulations, and penalties could be used to upgrade these stops.

Due to the lack of data and information surrounding the operations of minibuses in the GCMA, and due to the problems they cause in terms of congestion, safety and pollution concerns, it seems that the MOT will reject any plans to maintain the status quo when it comes to minibus information gathering, regulations and enforcement. It is also clear the planners at the MOT realize the extent of the challenge they face in planning for short, medium and long term solutions to this issue and are prepared to address the situation with more extensive preparation in terms of research and outreach and engage in reforms in a more participatory and systematic approach. They understand the perspective of the drivers and are aware of the risks that can be

associated with any radical changes or severe enforcement on microbus formalization or regulation without having the necessary alternatives in place. They are also aware of the necessity of a truly convincing approach, particularly with licensed operators, recognizing the government's role in stamping out corruption and the current harassment of the operators and the lack of planning and coordination in terms of building and regulating microbus routes and stops. The MOT planners agreed to the formation of a company to operate the BRT route, including the microbus operators, they believe that the approach in terms of regulation and enforcement should be measured and coordinated. This approach should no doubt be built on feedback from the operators and microbus owners themselves. The upcoming chapter attempts to provide insights into the views and perspectives from microbus operators operating on the study route.

Table 4.1: Summary of Findings	
Reform Process	MOT team views
Management options	<ul style="list-style-type: none"> • One of the most important observations was that this route, the first BRT route, should be considered a pilot route for both the BRT idea and the microbus reforms. • Ministry is suggesting a public company which would manage the BRT route and the microbus transport mode in parallel. • The company would be owned by different stakeholders with a private sector tendered operator. • The government officials interviewed did not agree with the option to accept the current structure and operation of the microbuses on this chosen route as they are, and believe they must be integrated into the formal system. • It was also not an option to prevent them from operating on this route at all. Organizing the operators into a company is one solution that can be considered. • The MOT officials said that the operators should be given incentives to join these companies such as health care, social security and set salaries. • The number of the microbuses allowed to operate in a company on the route would be limited to already

	<p>currently operating with permits, if more are needed a bidding process could be introduced.</p> <ul style="list-style-type: none"> • There was also an option considered where they would not gain a fixed salary but they would be allowed to work on the route if they follow certain regulations and quality standards. • The MOT officials were skeptical about the option of organizing the minibuses into COOPs as they viewed the South Africa experience in creating COOPs as a potential hindrance to the BRT plans, noting that this could lead to violence between the operators fighting over leadership of the COOPs or even if they managed to get along, they would no doubt stand against BRT plans to serve the interests of the operators in terms of profits and market share. • The option of preventing the current operators from access to the route was also rejected. The planning team at the MOT gave the following reasons: 1) there is no current alternative, 2) if these operators are prevented from operating on these routes they would lose their licenses and their jobs
Regulatory options	<ul style="list-style-type: none"> • The government is also planning to regulate operators in terms of vehicle stops, curbside behavior and disruptive driving behavior. • The current action of licensing them based on routes without any regulations was not an option for them. • The most interesting option was the organization into feeder routes and making arrangements with operators based on enforcement of rules and standards, mainly concerning areas of operations, curbside behavior, vehicle specifications, and labor practices.

	<ul style="list-style-type: none"> • A plan would be devised for the route including building new stops for minibuses on the route which would prevent them from using BRT routes and creating congestion at the stops. • Traffic demand options like signaling and proper intersection planning would also be revised for the route. Stops would be monitored regularly to ensure that the operators adhere to these regulations.
Engagement options	<ul style="list-style-type: none"> • The possibility of including microbus drivers in the planning phase was refused by the MOT team. • For them the best option would be to be transparent and share the plans with operators when the plan is ready • The MOT planners stressed an approach of “encouragement before punishment.” The encouragement would be followed by enforcement. We can give them encouragement in the form of discounts and free licensing, fees and tax breaks. After building the stops, stopping only at the designated terminals would be included in licensing regulations, and penalties could be used to upgrade these stops. • Due to the lack of data and information surrounding the operations of minibuses in the GCMA, and due to the problems they cause in terms of congestion, safety and pollution concerns, MOT will reject any plans to maintain the status quo when it comes to microbus information gathering, regulations and enforcement. • MOT realize the extent of the challenge they face in planning for short, medium and long term solutions to this issue and are prepared to address the situation with more extensive preparation in terms of research

	<p>and outreach and engage in reforms in a more participatory and systematic approach.</p> <ul style="list-style-type: none">• They understand the perspective of the drivers and are aware of the risks that can be associated with any radical changes or severe enforcement on microbus formalization or regulation without having the necessary alternatives in place.• They are also aware of the necessity of a truly convincing approach, particularly with licensed operators, recognizing the government's role in stamping out corruption and the current harassment of the operators and the lack of planning and coordination in terms of building and regulating microbus routes and stops.
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Chapter 5: Preferences of Microbus operators regarding integration into BRT route

This section is based on focus groups carried out with 6 microbus drivers and 3 microbus owners operating on the selected route. The owners are also drivers as they drive their own vehicles. Most of them sometimes also operate as feeder routes throughout New Cairo. The section is organized into several topics which were the main topics for the interview questions (see annex 2).

Organizational dynamics in the microbus industry on focus route

- The microbus drivers in the focus group mostly started working in the area since the early 90s. They claim that they are the ones who transported the workers who built the new compounds of El Rehab, the youth housing projects, the policy academy and many other New Cairo landmarks. They began by transporting workers on pickup trucks.
- Most of them now operate vehicles owned by family members. The owner gives the driver 25% of the revenues. “If we make 100 LE a day we take 25 LE from it,” said one driver. “We get the vehicle from the owner with a full tank and return it with a full tank.” The drivers use on average 50 LE of fuel a day. They make on average 40-50LE a shift. They work on two shifts from 7am to 12pm or from 12pm to 9pm. For each shift they make 100-150LE so on average in a day the revenue can be 250LE.

- They sometimes do 2 shifts a day and are allowed to purchase food as that is deducted from the revenues of the owner. The maintenance costs are shared by the owners and drivers.
- The route license is from the 10th District in Nasr City to the End of road 90 is 36Km. If there are no customers in road 90 there then they go to the Youth Housing Project in the 1st district or other areas inside New Cairo city to pick up customers. On their licenses, it says that they are allowed to operate on a route that includes the areas 10th Settlement, the beginning of Road 90, Future Academy and AUC, the youth housing, and the German University in Cairo.

Regulatory Structure, Licensing and Permits:

- The operators get their licenses of the Microbus from the “Microbus Planning Office”, the governorate office responsible for planning and organizing the microbus routes. Representatives from this office collect 5LE from each bus in the 10th District terminal. They also collect 530 LE licensing fees for the route every 3 months. They give the drivers a license card with all the possible areas where they can operate on the route. The drivers seemed really aware of their boundaries and limitations when it comes to following licensed routes and stops. “They have the right to take our licenses if we are operating outside of our routes.” Say the interviewed drivers.
- The focus group operators all have licenses as described above so they can be all considered formal. As stated in Chapter 2, the government has stopped issuing new route licenses from 1999 in a scrapping and renewal program. In order to get access to a

route one must purchase any old vehicle, register it in their name, and the old vehicle is scrapped and the old (plate number) from any route around Cairo is replaced by a new route from the Microbus Planning Office at the governorate. Old plates are sold, starting at around 60000 LE.

- Most of the vehicles are up to 5 years old. The oldest vehicle belonging to one of the drivers in the group was made in 2004.
- Surprisingly, these operators are only informal when it comes to where they stop for boarding and offloading passengers. For example, one driver said that the stop in front of Future University, on road 90, is especially problematic since they mostly transport students, from and to the university, and at peak times at the beginning and end of classes, they have nowhere to stop and there are too many cars parked in the service road so they always get tickets and their licenses confiscated.
- In order to acquire these licenses, they are required to undertake official vehicle maintenance checks, where according to them; bribes are paid to get the license.
- According to one of the drivers, even though they have to pay for an old vehicle to use its plates and for the installments on their new vehicles “it is still better than being unemployed.” When asked whether this was a good investment they all said they didn’t really have any option. The owners said that they make enough money every day to pay for food and household payments. “I bought my bus 2 years ago and I still paying installments, I make only a little money off it every month,” said one of the owners.

Main Problems for operators in the current system:

According to all the operators, their biggest problem is lack of respect, “from the government, passengers, from everybody.” They admit that there are some drivers who are criminals (20-30%) and drug addicts but claim that the media has destroyed their image.

One driver gives this response:

“Even though some of us, maybe some of us are on drugs or have a criminal record, even if someone went to prison, he has now been punished for his crime. But he can’t get a job. There is no institution private sector or public sector that could employ him because he is a convict. After a convict gets out of prison, he was punished for his crimes but you must put him on the right path to work. The culture of society is a problem. You can’t treat all of us the same, we are ‘Saeidy’ (Upper Egyptian) and some of us have gone to university. We are proud of what we are doing. But people treat us as a nuisance”.

However, not everyone treats them badly. They claim they have some very good relationships with some students and workers who are regulars on their route. Once people get to know them, they say, their relationship with passengers becomes much better. All in all, the government treats them much worse. One driver gives this account of being mistreated by the traffic police.

“We are not treated like people. I am 50 years old and sometimes the officer next to our stop talks to us like we are small children saying “Irken 3ala gamb yalla” (park to the side boy). He claims that he gives them tickets for no reason even if they have permits and licenses. Any crack in the windshield, due to a pebble flying into it, (which is very common in Cairo highways) any

bends or breaks in the headlights or taillights and these drivers are given tickets. They know these tickets are totally legal but they feel it is deliberate harassment rather than actual enforcement of the law. Anything wrong with their buses, their licenses get taken away and they are fined 250LE, and are also subjected to maintenance check. They feel this is too much. Even though these operators are totally legal and have all appropriate licenses, they say they constantly get fined for illegal stops, disrupting traffic and other penalties which can reach up to 1200 LE. By far the worst thing for them, a topic that raised anger levels considerably when conducting the focus group, is that the government is totally ignoring the private, totally illegal Suzuki Microbuses which are overcrowding the terminals and the intersections with them competing for passengers on their route. These are private Suzuki vehicles that seat 6 people, they pay no licensing fees of any kind and they are now all over Cairo. In all the informal stops on the focus route, there are 3 Suzuki buses for each microbus. They claim that the Suzuki operators pay weekly regular bribes to the traffic police. They apparently always have fights with them.

They also claim the problem with irregular stops, which is the most common fine they have to bear, is not their fault. One driver explains:

“What causes the problem of congestion and irregular stops is simple, when 1 or 2 people want to get off the bus, they ask to get off immediately. They don't want to get off at the stop; they want to get off right in front of university or work. Even if it's 50 meters from the informal stop, the customer gets off wherever he wants to I can't tell him no. In order not to get a ticket, I am authorized only to stop in the first lane adjacent to the curb. Even if there is already a first row of cars parked then I have to stop immediately in the second row because the customer asked me to and I have to let him off.”

For these drivers, there is only one formal terminal which is the 10th district stop in Nasr City. This is originally a bus station. They all agreed that it would be better for them all to have official terminals or stops at regular intervals where customers can gather and get on and off. But for them it is really a matter of culture of the passengers. “Even if there is an informal terminal where we usually stop, there are always some people trying to get on a bit earlier in the road so they can get on first.”

Preference of Microbus operators on BRT route organization

Management options:

- The owners have no problem with either option in management. They agreed to the option where a company could buy their buses and operate them and they can be a stakeholder in this new company. Or they could remain private as they are but under the control of a new management authority and new rules from the government as long as those roles are organized better than the current situation and ensure adequate revenues for them. Getting into an agreement with the government is mainly agreeable to them because of the better treatment feel they would be getting.
- They also feel that a company would guarantee them income every month which they say is a lot more secure. The main benefits to them are: there is a secure payment; there would be incentives like social welfare, fixed working times, rest times, and an organized system where if they follow the rules they will be treated fairly. When asked about the whether there would be a problem in getting a monthly salary instead of a daily salary,

which is a common case in these types of transitions, they said that they have no problem with this. But they thought they need a while to get accustomed to the situation. Also they suggested that maybe the salary could be twice a month until they got used to it. They also said they urge government to designate stops to board and offload passengers.

- The owners were skeptical about the government managing the maintenance and upkeep of their vehicles citing the deteriorated condition of the CTA run buses. They would only agree to being managed into a company only if the management company is private. After asking for 300LE a day which is what they usually make on good days, they agreed that there could be a research period where the government could monitor them in terms of km travelled or revenues in order to reach a fair deal on maintenance and fuel costs.
- They refused completely the idea of forming a syndicate or coop. They said that this would lead to fights for control and they do not trust this system. “There should be a third party between us. We have many disputes already it will be hard to elect a leadership. If you are getting drivers to work with you, the problem will always be with the management.”

Regulatory options

- The drivers would agree to any option that involves them getting the equivalent of 25% of revenues, if it is less than that they need to be compensated by benefits. Social security is also very interesting to them.

- Both owners and drivers would never agree to only working on feeder routes. They are already licensed to operate on this route from Nasr City to New Cairo. They would like to work parallel to the BRT not as only a feeder system. They said they would also refuse any scrapping or renewal plans.
- Finally the drivers and owners were really optimistic about being included in the research part of the route; they believe they could really be of use in determining the best locations for terminals and spots.
- Most importantly the owners agreed to be monitored by the MOT for research about trip patterns, ridership, maintenance fees and trip patterns before finally agreeing on their fare share of revenues when integrated into the proposed company.

All in all, the operators seemed surprisingly forthcoming and accepting of the proposed reforms. The focus group shed light on interesting information that was not widely discussed in the previous literature. The fact that the operators are clearly formal having proper route licenses is uncommon around Cairo. Another interesting discovery, is the fact that the smaller capacity Suzuki buses are allowed to compete with them if they pay an illegal bribe to the traffic police. Furthermore, according to their testimonies, these licensed operators may be subjected to harassment in the form of severe interpretation of the law when it comes to fines and tickets from the traffic police, particularly when it comes to irregular or illegal stops. This is where the informal nature of this transport mode is created and it is by no means a matter of choice but a matter of necessity. The Cairo local government does not build stops for them, but gives them licenses to operate on routes, then fines them when they

stop on these routes. This confirms MOT planners' acknowledgement of corruption and need for better enforcement in the system and the necessity for reforms in this area.

As for the planning and management of the BRT routes, a company seems like the most viable option judging from reactions of the operators. The drivers would not expect much less than the 25% they get now but are prepared to negotiate if social, health and job security are insured, which should no doubt be the case. Finally, the drivers would consider being monitored for a few months to determine a fair share or return from joining the company. But they are skeptical on government capacity to manage their vehicles in terms of maintenance and upkeep so they would prefer any deal that would allow them to maintain ownership over their vehicles.

Table 5.1: Summary of findings	
Reform Process	Microbus operator views(drivers and owners)
Management options	<ul style="list-style-type: none"> • The owners have no problem with either option in management. They agreed to the option where a company could buy their buses and operate them and they can be a stakeholder in this new company. • Or they could remain private as they are but under the control of a new management authority and new rules from the government • They also feel that a company would guarantee them income every month which they say is a lot more secure. • The owners were skeptical about the government managing the maintenance and upkeep of their vehicles citing the deteriorated condition of the CTA run buses. • After asking for 300LE a day which is what they usually make on good days, the owners agreed that there could be a research period where the government could monitor them in terms of km travelled or revenues in order to reach a fair deal on maintenance and fuel costs. • They refused completely the idea of forming

	<p>a syndicate or coop. They said that this would lead to fights for control and they do not trust this system.</p>
Regulatory options	<ul style="list-style-type: none"> • The drivers would agree to any option that involves them getting the equivalent of 25% of revenues, if it is less than that they need to be compensated by benefits. Social security is also very interesting to them. • Both owners and drivers would never agree to only working on feeder routes. They are already licensed to operate on this route from Nasr City to New Cairo. They would like to work parallel to the BRT not as only a feeder system. They said they would also refuse any scrapping or renewal plans. • Finally the drivers and owners were really optimistic about being included in the research part of the route; they believe they could really be of use in determining the best locations for terminals and spots. • Most importantly the owners agreed to be monitored by the MOT for research about trip patterns, ridership, maintenance fees and trip patterns before finally agreeing on their fare share of revenues when integrated into the proposed company.

Chapter 6: Policy Recommendations based on International Experience and MOT and microbus operators' preferences

Drawing on the experiences of Bogota, Mexico City and Cape Town with regards to approaches, and strategies in dealing with the paratransit sector when implementing BRT routes, and building on the preferences of MOT officials and microbus operators identified in chapters 6 and 7, this section identifies policy options for reform on the focus route specifically and in the GCMA in general.

Scenarios of formalizing the paratransit system and incorporating microbus drivers/owners into the BRT project

Out of the possible management scenarios discussed above and in the international experience, there are 4 different approaches in dealing with formalization of paratransit modes.

Policy Option 1:

The first option is to ban microbus operators completely from BRT routes. Microbus operators would be directed to other routes or act as feeder mechanisms that would serve the main BRT route and would not be allowed to operate on their current routes. This would also mean that their current licensing and permits would have to be cancelled and the MOT would have to negotiate with operators to convince them to accept operating on other routes.

Implications:

- This may cause overcrowding in other routes if all operators are redirected there
- MOT officials have to, as in the case of Mexico City, be mindful of the social and political impacts of the change. Since, as in Mexico, and as corroborated by the interviews of both MOT officials and microbus operators, most of the current operators on the planned routes have licenses to be on these routes, the current situation must be handled delicately or the MOT would rise political and social backlash. The political leadership in Mexico would not risk enraging the operators by putting operators at risk of unemployment or any disruption to their daily revenues caused by the reform.
- Operators who already have licenses to operate on this route would not accept being relegated to feeder mechanisms and may retaliate via protests and strikes ultimately jeopardizing the success of the reform as in the case of Cape Town.
- This can be an option for the Suzuki, unlicensed microbus which are known to operate illegally.

Policy Option 2:

The second option is comprehensive BRT implementation and paratransit assimilation, and as described by Schalekamp and Behrens (2010), this involves the comprehensive formalization and assimilation into contracted public transport operations. This would mean that after the tendering process is complete and a company is selected to manage the BRT pilot route, it would also manage, own and control the parallel microbus routes or feeder routes and include the microbus operators as part of the company as is the case in the 3 case studies.

Implications:

- Given the responses from the microbus operators and the preference of the MOT planning team, this option would not be feasible since it involves scrapping and renewal of the microbus fleet operating on the route or relegating the current fleet to a feeder system owned by the government.
- It would be too costly to scrap or purchase the vehicles and may jeopardize the whole project as in the case in Mexico City. The vehicles operating are mostly new vehicles and they are an integral part of the transportation network in this area.
- This option was rejected by the microbus drivers and owners

Policy Option 3:

Another option would be to allow the operators to compete with the BRT route, with minimal regulations. Cervero (2001) describes this as a policy of ‘recognition’, as opposed to ‘regulation.

Implications:

- This option should also be rejected as Schalekamp and Behrens (2010), explain, in cities with high unemployment, as in the case in Cairo, this option usually does not solve problems of congestion and road safety because it leads to extreme competition.
- Covero asserts that this option which also may involve informal operators reacting to increased competition of a new mode of transport by organizing and forming associations for greater financial gain rather than the interests of the general public leading to “price

fixing and collusion due to increased competition from low priced, subsidized, public transport. (Corvero,2001)”

- This option has not been successful in the international experience “Ibid”.

Policy Option 4: (Recommended)

The MOT should adopt the “Stepped implementation program” outlined by Browning (2001) and which Schalekamp and Behrens (2010) comprises subsequent steps spread over a number of years. In the first step in the process government would support the operators on the pilot route to form operating companies with professional management, the costs of which would be met by an interim management contract, in this case with the tendered company. This way this company would only manage the vehicle fleet and drivers organizing their operations and the vehicles remain the property of the initial owners. The company would also offer incentives such as social security and insurance and strict guidelines on operations. The revenues and profits, and trip patterns would be monitored by the government but not controlled by the company. The next step would be to let the company manage the fares and salary distribution, based on the data collected in the first phase, independently, offering fixed salaries and incentives to the operators. This requires a greater amount of trust that will probably have to be earned. The last step would be allowing the company full ownership of the fleet where the minibuses previous operating on parallel routes to the BRT can slowly be redirected to feeder routes as the BRT project progresses (Browning, 2001, pg. 7).

Justification for MOT adopting Policy option 4:

- The main advantage in this case is that if the scheme not being a success, the owners could revert back to their prior mode of operation.
- This would probably be more appealing to the owners on the pilot route given the evident skepticism in their responses towards the maintenance and upkeep of their vehicles.
- The risk of retaliation from the operators is greatly diminished as it is more gradual and gives them more time to adapt.
- It would give the MOT planners more data and info on microbus operations and revenues.

Preparatory process

In Bogota, prior to the start of Transmillenio plan, operators were already organized into 65 companies with rights to operate on main routes. In Mexico City there were already existing Ruta associations operating on those routes. This made it easier for the negotiation process in those cities. Paratransit operators would have to join into already existing formal structures. In Cape Town, however, the fragmented nature of ownership and the large number of associations operating on the proposed routes, and the lack of a proper approach to the transition and formalization process made it difficult for city planners to negotiate deals, hence the continuous protests and resistance to the change. As the fragmented nature of ownership in Cairo is similar to that in Cape town, there is no doubt that in order for the plans in Cairo to be successful, the planners in Cairo will have to find out more about current paratransit and formal operators on the proposed BRT routes, before proceeding with the formalization process.

Before and throughout the tendering and planning phase of the BRT project, the government should work on, researching, data collection and studies on paratransit on the pilot route, including possible infrastructural improvements such as bypasses, terminals and stops for minibuses in parallel to the BRT designs. There are 2 options for the preparatory process discussed with government officials and evident in the international experience with regards to whether or not to include microbus operators in this preparatory process:

Policy option 1:

The MOT would plan and lay out the basis of the proposed route without prior consultation with the microbus operators. After the plan is developed, the operators would be informed about the new plan and execution and enforcement would begin. This option was the option of choice for most of the MOT team. While the MOT officials did emphasize the need for more research about minibuses and other available forms of transport on these routes they were skeptical of a more participatory approach, as they believed the microbus operators would only oppose the change.

Implications:

- As in the case of Cape Town, if the plans are shared only as the execution phase is about to begin, this may lead to protests and a negative social reaction.

Policy option 2:(Recommended)

Before and throughout the tendering and planning phase of the BRT project, the government would work on, researching, data collection and studies on paratransit on the pilot route, with a participatory process including microbus operator preferences in possible infrastructural

improvements such as bypasses, terminals and stops for minibuses in parallel to the BRT designs.

Justification for option 2:

The examples in Bogota, Mexico City and Cape Town have shown that approaching paratransit early in the planning process can make it easier for them to accept the changes. This should include measurements of revenues and trip patterns for the minibuses via new technologies to calculate fair and agreeable terms for the contracts and determining where to best locate stops and terminals for passenger boarding and offloading.

Set of regulations organizing the operation of the recommended “ stepped approach”

The MOT should champion the reform effort with support from, the Ministry of Environment, GEF and World Bank funds as in the case of Mexico City. Finding the appropriate funding will be crucial to the reform process and the MOT may be able to better convince funders like GEF and World Bank if they are able to reduced emissions by gradually phasing out minibuses with a participatory approach that is acceptable to the operators. The following are the recommended prerequisite regulations if the government is to successfully adopt the recommended scenario of a gradual stepped approach.

- 1) The MOT should promote the creation of a Greater Cairo Transport Regulatory Authority body that would coordinate between the MOT, the traffic police, the Cairo transport Authority , the Cairo governorate, the private sector company operating BRT routes and

any other government or private sector entity involving traffic in the city, as suggested in Chapter 4. This is to prevent the current disjointed and poorly planned practices which lead to greater congestion and traffic problems around the city and to insure the most effective control and management for the success of the BRT plans. Regulations on microbus operators should include enforcement of rules and standards, mainly concerning areas of operations, safety, vehicle specifications and labor practices.

- 2) Formalization in this way may resolve problems of corruption and police harassment and also help improve government and passenger attitudes towards the operators, but this should be in addition to reforming corrupt police and traffic enforcement agencies as well as training them on transport demand management and proper enforcement on these routes. Enforcement entities should be made aware of new regulations described in the point above. This should be a prerequisite for BRT and new microbus operations.
- 3) As for interventions for infrastructure & system improvement, there should no doubt be a planned and coordinated effort in building and managing off street terminals for major microbus stops. According to Corvero (2000) terminals are important to manage and accelerate customer boarding and transfers and decrease vehicles from surface streets during periods of slack demand. Terminal development needs to be matched with on-site traffic management and enforcement to ensure efficient loading and unloading. The company tendered to operate the route should spend on capital construction but also on operation, management, and maintenance. The terminals could also be good locations for on-site commercial and retail outlets which could also generate income as they would benefit from the traffic created by passengers in the new terminals.

- 4) Rather than a tough, aggressive enforcement and penalties, which are often abused in as seen in the responses of the operators, it is better to for the MOT to incentivize positive behavior through discounts on licensing, taxes and insurance. Training and education, for traffic enforcement personnel and for operators about traffic rules, safe driving practices, and vehicle maintenance are important to insure proper enforcement and compliance from operators.
- 5) Finally, collection of fares and tariffs should be coordinated by the new company. The company would be responsible for vehicle procurement and maintenance, and would be reimbursed on the basis of vehicle kilometers travelled. The BRT route and the microbus operators could make use of a smart card fare collection system. Fares will be handled by a central collection agency and then channeled to a trust fund entity from which operators would receive their revenue, all under the oversight of the newly formed Cairo Transport Regulatory Authority or the Cairo governorate until this entity is initiated.

Chapter 7: Conclusion

With the tendering process for the company to manage the new BRT route in New Cairo starting a few months away in March 2015, the MOT should now begin planning for the project with a sound and well planned, participatory, preparatory process. This should include microbus operator's preferences and adequate research conducted to arrive at fair benefits and revenues for both microbus operators and the private firm. As shown in the international experience described above, a stepped - gradual approach to microbus incorporation, a coordinated effort to convince operators to be included in the new reform, with sufficient training and education of enforcement stakeholders, and proper implementation infrastructure and management could lead to a

successful implementation of the upcoming pilot phase. If this is successful this can later be scaled up and franchised to other routes around GCMA significantly improving traffic congestion, safety of passengers and health and environmental concerns in the city.

The thesis showed the relative overlap between the difficulties and challenges evident in the three case study cities and the case of the GCMA. The preferences and responses of MOT planners and microbus drivers and owners also showed very clear parallels and similar views of the situation which is a positive indicator on the possible success of the upcoming BRT scheme. Nevertheless, formalization will no doubt be a difficult task that would require among many other things, sound planning, accurate research and efficient implementation. As shown in this study, it is politically and socially crucial, not only to include paratransit in the city's transport reform plans, but to also benefit from the experience and know-how of this vital transport sector. Investigations included in this thesis about the microbus operators', financial systems, regulations, practices, treatment and preferences have shed light on a previously ignored topic in urban planning and informal economy literature. The policy recommendations build on this, as well as 3 in depth case studies of paratransit integration experiences from Latin America and Africa that are extremely relevant to the GCMA case.

Arriving at this conclusion based on an examination of microbus operator and MOT official preferences does have limitations in terms of scope and depth. As discussed in the methodology section, passenger preferences could have been included in the analysis as well as a larger representative number of operators. In the literature review, more cases in Asia could be explored to draw parallels with the GCMA case. These were limited due to time and funding constraints associated with a Master's thesis however this does leave room for further research in

the future. The scope of the study was limited to the first pilot phase of the BRT lines but the other lines should also be studied as well.

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Annex 1: Interview questions for City planners (preliminary)

1. Name of person:

Organization:

Date:

Place:

Role of Organization:

2. What are benefits of the Microbus transport mode in GCMA? What are costs?
3. What are the current government plans for regulation and management of the microbus transport mode?
4. What are the current plans for BRT in GCMA, What is the most important route? What is the rationale behind building the route?
5. What are your views on the following options with regards to your plan in dealing with Microbus drivers on these routes?

Management options:

- Maintaining current status
- Setting up company to oversee BRT route
- Organizing microbus operators into COOP for particular route

Regulatory options

- Acceptance- Maintaining current status
- Recognition- accepting current status in addition to formalization through registration with no criteria or barriers to market entry.
- Regulation- Feeder routes arrangements with operators based on enforcement of rules and standards, mainly concerning permissible hours and areas of operations, curbside behavior, vehicle specifications, and labor practices
- Regulation -Fare payment and contracting for main routes based on enforcement of rules and standards, mainly concerning permissible hours and areas of operations, curbside behavior, vehicle specifications, and labor practices
- Prohibition from operation on routes

Financing options

- Scrapping and financing schemes (similar to White Taxi scheme)
- Vehicle Conversion to natural gas

Engagement options

- Participatory- including operators/ associations/ companies in decision making and planning
- Transparent, informing operators before BRT route is implemented, gauging reactions and response
- Top down approach- informing operators once BRT is initiated.

Annex 2: Microbus Operator Questions (preliminary)

1. Name of person:

Route:

Date:

Place:

1. Do you own your own vehicle or lease it?
2. Do you work independently or for someone else?
3. Are you part of an association/cooperative? Describe.
4. Registration. Do you have a license' or registration to provide the service? How is the vehicle registered?
5. What do you think are the main problems you face as operators? Police Corruption, Competition, work hours?
6. Do you think you make enough to earn a living? Are you satisfied doing what you do?
7. What do you think of the concerns of your riders in terms of **Safety? Traffic Congestion? Pollution?**
8. What do you think your riders like about your mode of transport?
9. Are you aware of BRT routes and their benefits? (presentation and explanation of BRT routes)
10. Now let's discuss different types of reforms which the government is planning for your route (Presentation of different reforms)
11. What do you think is the best option for you regarding
 - Regulation (Feeder or competitors)

- Management (coops or companies)
- Financing(Scrapping or switching to natural gas)

12. Do you think it would be feasible to set up an association, COOP or group of operators who can represent the other drivers on this route?