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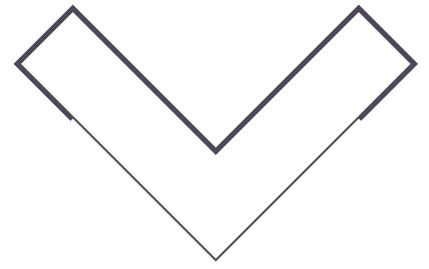
DAKAR

STUDIES

OF INFORMAL PASSENGER TRANSPORT REFORMS IN SUB-SAHARAN AFRICA

The minibus renewal and professionalization process:
a combined approach to modernize paratransit services





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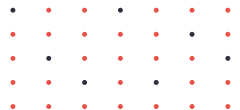
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This report was prepared by a team led by Fatima Arroyo-Arroyo, Senior Urban Transport Specialist at the World Bank and Urban Transport and Mobility (UTM) pillar co-leader for the SSATP Fourth Development Plan, and Antoine Chevre, Senior Urban Transport Specialist at the French Agency for Development (AFD). In collaboration with SSATP and in the framework of MobiliseYourCity partnership, the AFD appointed Transitec to prepare this study. The team of Transitec authors included Pablo Salazar Ferro, Julien Allaire, and Marion Hoyez. The background section was prepared by Gaële Lesteven and Thomas Quillerier. The report was prepared under the overall guidance of Mustapha Benmaamar, Program Manager of SSATP, and Ibou Diouf, Practice Manager at the World Bank. The team is grateful for all the comments received from Simon Saddier and Kaori Niina at the World Bank/SSATP, and from Lise Breuil, Suzanne Spooner and Anne Chaussavoine at AFD. Gail Jennings edited the report. The preparation of this study was funded by the AFD.

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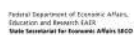


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ABBREVIATIONS

| | |
|----------|--|
| AFTU | Urban Transport Funding Association |
| BRT | Bus Rapid Transit |
| CAPTRANS | Centre d'Appui à la Professionnalisation des Transports |
| CETUD | Dakar Urban Transport Executive Board |
| DDD | Dakar Dem Dikk (public transport operators) |
| FDTU | Urban Transport Development Fund |
| FPE | Fund for Economic Promotion |
| GIE | Economic Interest Group (Groupements d'Intérêt Economique) |
| MITTD | Ministry of Infrastructure and Transport |
| PAMU | Urban Mobility Improvement Project (Projet d'Amélioration de la Mobilité Urbaine) |
| PTA | Public Transport Authority |
| PTB | Petit Train de Banlieue (PTB) – a suburban train service |
| SGBS | General Society of Senegalese Banks |
| SNCS | National railway company of Senegal |
| SSATP | Sub-Saharan Africa Transport Program |
| SOTRAC | Transport Company of Cape Verde |
| TER | Train Express Régional (suburban rail) |

DEFINITIONS

| | |
|------------------------|---|
| Paratransit operators: | The enterprise responsible for providing public transport services. Operators can be large companies or single person companies, the latter being more typical of paratransit services. |
| Owners: | Individuals owning one or more vehicles used in the public transport supply. |
| Drivers: | Individuals responsible for driving public transport vehicles and providing services. Drivers do not necessarily need to be formal employees of a company, as they can enter into verbal agreements with owners in some cases. In other cases, the driver of a vehicle may be also its owner. |

ABSTRACT

'The minibus renewal and professionalization process: a combined approach to modernize paratransit services in Dakar, Senegal', is one of eight case studies part of a series titled 'Studies of Informal Passenger Transport Reforms in Sub-Saharan Africa'. This report presents a case study of Dakar until 2022.

The Senegalese capital was the first city in West Africa to engage in paratransit fleet-renewal programs, starting in the early 2000s – a process that is still ongoing. By 2000, more than 82% of daily motorized trips in Dakar were made by public transport, including formal and fully informal (paratransit) modes. The fragmentation of paratransit, and the slow collapse of formal, institutional public transport companies, were seen as a sign for the government to lead ambitious reform.

In 1997, a transport authority CETUD (Dakar Urban Transport Executive Board) had been created, and one of its first projects was the Urban Mobility Improvement Program, which included a fleet-renewal program. The Program facilitated access to otherwise unattainable credit for private operators, to support the complete renewal of Cars Rapides and Ndiaga Ndiaye fleets by 2019. To kickstart

the process, the Urban Transport Funding Association (AFTU) was set up in 2001. The first renewal phase was repeated twice between 2008 and 2016.

Fifteen years later the AFTU system is the central element of the public transport network in Dakar. The financing scheme has made it possible for operators to purchase new vehicles and access loans previously denied them. The success of the program has resulted in its exportation to other cities in Senegal. It is frequently regarded as a best practice for Sub-Saharan African region in reforming the paratransit sector. In later phases of the reform, a revolving fund was used instead of international donor funds, and partnerships were created with local banks to finance reform.

Overall, major positive outcomes are improved public transport quality and safety of service, reductions in travel time, and improved air quality. Operating speeds have increased, with AFTU services reaching approximately 16 km/h. With a bus restructuring network project on the horizon, AFTU routes will be reorganized to best suit the forthcoming new projects. In the end, there should be an integrated, hierarchical network serving the variety of travel markets found in Dakar.

EXECUTIVE SUMMARY

'The minibus renewal and professionalization process: a combined approach to modernize paratransit services in Dakar, Senegal', is one of eight case studies part of a series titled 'Studies of Informal Passenger Transport Reforms in Sub-Saharan Africa'. This report presents a case study of Dakar until 2022.

The Senegalese capital was the first city in West Africa to engage in paratransit fleet-renewal programs, starting in the early 2000s – a process that is still ongoing. This document comprehensively describes the reform process and results, introducing previously unpublished data and proposing an analysis of the outcomes for the main stakeholders.

CONTEXT

By 2000, more than 82% of daily motorized trips in Dakar were made by public transport, including formal and fully informal (paratransit) modes. Transport authorities had long acknowledged the urgent need for change in the sector. Efforts to regulate Cars Rapides and later Ndiaga Ndiaye had been unsuccessful, while government attempts to renew the Cars Rapides fleet also did not bring about the expected results. Formal bus and rail services had ceased functioning.

Besides being highly fragmented and unregulated, the paratransit sector exhibited other characteristics that warranted reform. Complementarity was

non-existent, making competition for customers 'in the market' and 'on the street' a dangerous, unsafe characteristic of the system. Vehicles were old and dilapidated. Furthermore, as fares were maintained at an excessively low level, operators had difficulty making ends meet, and financing for fleet renewal was unattainable.

This fragmentation, and the slow collapse of formal, institutional public transport companies, were seen as a sign for the government to lead ambitious reform.

REFORM PROCESSES

In 1997, a transport authority CETUD (Dakar Urban Transport Executive Board) had been created, under the ministries of Transport and Finance. Its purpose was to implement and monitor urban transport policy, particularly in terms of organizing and regulating public transport to improve operations.

One of CETUD's first projects was the Urban Mobility Improvement Program, which included infrastructure projects, and the renewal of the bus fleet, to modernize urban transport and professionalize paratransit operators. The Program facilitated access to otherwise unattainable credit for private operators, to support the complete renewal of Cars Rapides and Ndiaga Ndiaye fleets by 2019. To kickstart the process, the Urban Transport Funding Association (AFTU) was set up in 2001.

To participate in the renewal scheme, operators were required to form or join Economic Interest Groups (Groupements d'Intérêt Economique, or GIEs), which would be responsible for the repayment of the loan. Ownership of vehicles remained with the individual operators (within the GIEs). Only operators with valid licenses were eligible. Further, owners/operators who participated had to surrender their licenses and prove that their vehicle(s) had been taken out of the system as part of a scrapping program. A premium of \$5 000 US would be given to owners for each vehicle scrapped.

The first phase was repeated twice between 2008 and 2016. The later phases incorporated new conditions, based on the lessons learnt from the first experience. It was during the third phase, in 2015, that CETUD, together with the operators, set up a division within AFTU for route regulation and operational assistance.

CHALLENGES

From the outset of the renewal and reform program, acceptance of required levels of service has been weak point for AFTU. Second, third and subsequent phases have not changed the picture. A second challenge is the span of service or operating hours and the low level of service in the evening and night. Fares for operators under the AFTU network are fixed by CETUD, but often these have been deemed unrealistic by the operators, and have to be raised in order for operators to remain solvent.

Pilot projects have attempted to replicate the minibus renewal model among Clandos, this has proven more complex and less successful.

CONCLUSION

The AFTU system has, in 15 years, become the central element of the public transport network in Dakar. These numbers far surpass those of Cars Rapides (21%), Ndiaga Ndiaye (9%) and Dakar Dem Dikk (8.5%) services. At present, the 14 GIEs of the AFTU network operate over a total network of 2,800 km in the Dakar region. Operational costs have remained low, and profitability has been achieved.

The financing scheme has made it possible for operators to purchase new vehicles and access loans previously denied them. The success of the program has resulted in its exportation to other cities in Senegal (Saint Louis, Mbour, Louga or Thiès). It is frequently regarded as a best practice for Sub-Saharan African region in reforming the paratransit sector.

Notably, in later phases of the reform, a revolving fund was used instead of international donor funds, and partnerships were created with local banks to finance reform. CETUD's training and sensitization activities contributed to the creation and consolidation of more than 1,250 formal, professional jobs. Social welfare benefits have effectively been extended to public transport workers.

Overall, however, major positive outcomes are improved public transport quality and safety of service, reductions in travel time, and improved air quality. Operating speeds have increased, with AFTU services reaching approximately 16 km/h. With a bus restructuring network project on the horizon, AFTU routes will be reorganized to best suit the forthcoming new projects. In the end, there should be an integrated, hierarchical network serving the variety of travel markets found in Dakar.



1. INTRODUCTION

1.1. Background

Senegal has an estimated population of 15.8 million inhabitants, out of which more than 3.5 million live in the metropolitan area of Dakar. Located on the Cap Vert peninsula, Dakar is a coastal port city. The city has a growth rate of almost twice that of the national level (2.2%). This rapid urban growth creates pressure on local authorities, which are unable to provide adequate public services (water, electricity, waste management, transport, etc.) to the population. The absence of land policies and economic development is responsible for unmanaged urban sprawl, which further limits access to public services. The city has expanded eastwards from the peninsula, with the fasted growing satellite towns located 15 to 20 km from the city centre. The funnel-like shape of the city makes mobility difficult for the inhabitants of these peripheral neighborhoods. It is estimated that there are approximately 100,000 new inhabitants in Dakar each year.

1.1.1. Geographic context

Senegal is a Sub-Saharan country located in the Sahel of West Africa. It covers an area of 196,712 km² (ANSD, 2019). As with most countries in Sub-Saharan Africa, Senegal is a predominantly rural country, although urbanization has progressed rapidly since independence in 1960. From 2010 to 2015, the urban growth rate was 3.6%. In 2016, the urban growth rate was 16% (Stucki, Allaire and Berland, 2018). The population is mainly concentrated

in the coastal regions and the regions bordering Gambia and Guinea-Bissau (ANSD, 2021).

The Dakar urban agglomeration covers 547 km², i.e., 0.3% of the country's total surface area. 23% of the population of Senegal is concentrated in this area. The population density was 5,704 inhabitants per km² according to the 2013 Census (ANSD, 2013b). Dakar is growing west to east, from the Cap Vert peninsula eastward towards the mainland (Sakho, 2002; Ndiaye, 2015). Senegal's administrative, financial, and government activities and services are concentrated in Dakar's central business district (CBD) at the western, sea-side end of the peninsula, known as 'le Plateau'. Rural areas still predominate at the eastern periphery of the agglomeration ((JICA, 2016.) Workplace concentrations are far from residences (Sakho, 2014). In 2000, 60% of the Dakar region's working population had their workplace in Dakar. Fifteen years later this proportion remains at 58% (Diaz Olvera, Plat and Pochet, 2016). The associated topographical constraints of a hilly, relatively narrow peninsula limit the number of transport corridors and thus make daily travel difficult.

1.1.2. Demographic, economic, and social context

As in the rest of Sub-Saharan Africa, the informal sector is a large and essential part of the overall economy

in Senegal. Excluding agriculture, the informal sector accounted for 11% of the GDP in 2011; it is the main sector of employment, including more than half of the economically active population (ANSD, 2013a). Within the informal sector, the transport sector (particularly paratransit) and the construction industry are the main employers (ANSD, 2013a).

In 2018, Senegal was in the top ten African countries in terms of gross domestic product (GDP) growth (OECD, 2019) (OECD, 2019). With a nominal GDP of 13,900 billion FCFA (~21.2 billion EUR) in 2019, and annual GDP growth of 5.2%,¹ Senegal is one of the major emerging economies in Sub-Saharan Africa. While more than 50% of the population works in the agricultural sector (for 14.6% of total GDP),² in 2017 the Senegalese economy was mainly driven by the tertiary sector, which represents 61.5% of total GDP (Gassama and Sylla, 2018).

Senegal's economy is driven largely by its capital region, the Dakar region. Tertiary services and flows of goods are mainly concentrated in the capital region. The GDP of the Dakar region was estimated at 3,295 billion FCFA in 2013 (~ 4.5 billion EUR), accounting for almost half of national GDP (JICA, 2016).

1.1.3. Political context

Senegal, formerly the French West Africa Colony, was established in 1960 as a republic, upon independence from France. Dakar was retained as the capital city. The current constitution (the Fourth) was

promulgated in 2001 and later revised in 2016. Senegal is a multi-ethnic country with French as the official language. The Republic is a multiparty democracy with a single legislative chamber (the National Assembly). Former President Léopold Sédar Senghor was responsible for the reintroduction of a multiparty political system, which sets Senegal apart from many neighboring countries. The current president was elected in 2012 as a member of the liberal Parti Démocratique Sénégalais (PDS).

Dakar is the seat of government, as well as the economic and commercial hub of Senegal. It is also the largest city in population and in economic terms and one of the largest in sub-Saharan Africa. The current mayor elected in 2018 representing the Alliance des forces de progress, a broadly socialist party.³

1.1.4. Administrative divisions and institutional authorities

The country is divided into 14 administrative regions, including the Dakar region (Figure 1). The Dakar region has a governor, with four departments headed by prefects (Dakar, Guédiawaye, Pikine, and Rufisque (Figure 2). The responsibilities devolved to local (department) authorities include environmental management as well as land-use planning and development (e.g., parking) (Diallo, 2014). Transport responsibility remains at the national level, but decentralization legislation does not clarify these potential overlaps (Stucki, Allaire and Berland, 2018).

1. Source: https://satisfaction.ansd.sn/index.php?option=com_content&view=article&id=589:2020-03-30-08-26-41&catid=56:depeches&Itemid=264, retrieved March 15, 2021

2. Source: <https://www.tresor.economie.gouv.fr/Pays/SN/indicateurs-et-conjoncture>, retrieved March 15, 2021

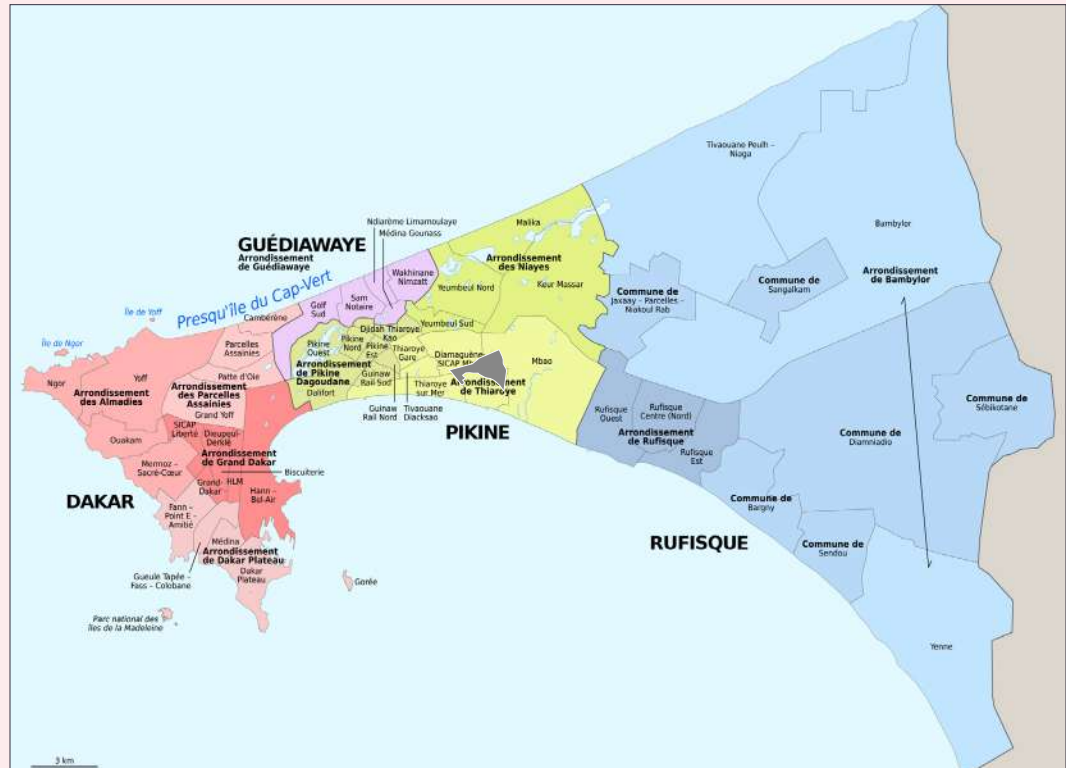
3. Source: <http://www.servicepublic.gouv.sn/>, retrieved March 23, 2021

Figure 1: Administrative divisions of Senegal



Source: Wikimedia Commons

Figure 2: Administrative division of the Dakar region



Source: Wikimedia Commons



2. THE **BEFORE** SITUATION

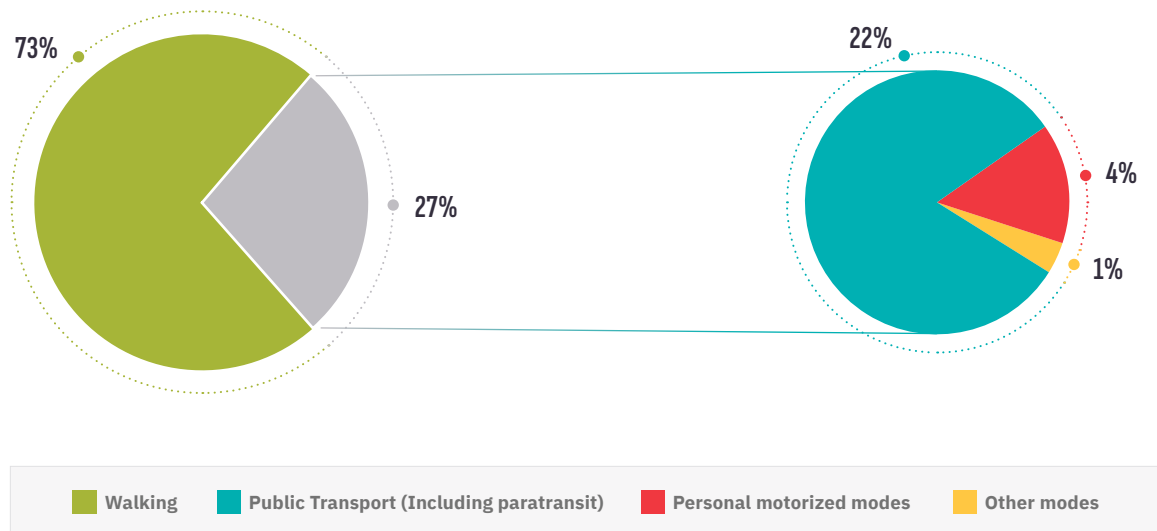
(BEFORE 2000)

2.1. Reasons for change

By 2000, more than 82% of daily motorized trips⁴ in Dakar were made by public transport, including formal and fully informal modes. Formal services were provided by SOTRAC⁵ – later replaced by Dakar Dem Dikk (DDD) buses⁶ – some licensed taxi⁷ operators, and the urban passenger transport service Petit Train de Banlieue (PTB) (recently defunct). Informal paratransit services were provided by Cars Rapides, Ndiaga Ndiaye, and Clandos (illegal collective taxis). Clandos are shared

taxis often operating without licenses and more likely than not providing short-distance services using old vehicles without any particular colour or characteristic that separates them from private vehicles. Clandos are tolerated but no real regulation exists for them. Fleets were growing in number (reaching two thirds of the public transport vehicle fleet) (Diaz Olvera, Plat and Pochet, 2016) and the quality of service and passenger satisfaction was worsening.

Figure 3: Modal shares in 2000 (Diaz Olvera et al. 2016)



4. Based on the number of total trips between Monday and Friday for inhabitants 14 and older. Walking represented 72.9% of all trips, public transport modes accounted for 22.4% of all trips, personal motorized vehicles accounted for 4.3% of all trips, the remaining 0.5% corresponded to other modes (Diaz Olvera et al. 2016)
5. Société des Transports du Cap Vert
6. Dakar Dem Dikk was created in December 2000; it officially started providing services in 2001
7. In such taxis, the user negotiates the price in advance with the driver (who might also be the owner). Vehicles are yellow and black, and must show their license number

Transport authorities had already acknowledged the urgent need for change in the sector. Dakar's overall mobility system had been showing signs of dysfunctionality in the previous decade. Efforts to regulate Cars Rapides (microbuses seating approximately 15-20 passengers), and later Ndiaga Ndiaye (minibuses seating approximately 30 passengers), had been unsuccessful, while government attempts to renew the Cars Rapides fleet, in 1976 and in 1981, also did not bring about the expected results.

The fleet of Cars Rapides was on average 20 years old, and had become outdated, unroadworthy, and unsafe. Poor maintenance resulted in low-quality, unreliable service and the growing congestion reduced travel speeds. Operators were barely able to cover their direct operating costs with the relatively low, competitively set fares, let alone able to ensure proper maintenance or fleet renewal. This resulted in a progressive decline in the number of vehicles in operation.

The informal sector was also highly disorganized, with intense competition on the street causing operating disruptions. In addition, the sector was fragmented, with roughly 1,300 operators for more than 2,500 vehicles. 95% of the operators had fewer than four vehicles in service.

Further, the state-owned bus company, SOTRAC, had found itself in serious trouble during a period of national economic and financial structural adjustment in the early 1990s. Operating with largely unregulated, untaxed competitors, SOTRAC was financially weak. It could not expand as

an alternative to rapidly growing informal services, as operational costs were not covered by farebox revenues. This led to the company declaring bankruptcy and ultimately disappearing in 1998.

Lastly, the suburban rail service PTB, created in 1987, was unable to play the mainstay role that was anticipated for it. A study conducted by TRACTEBEL found that its annual losses were more than an unaffordable 108 billion CFA (\$200 million US), and at the end of its service its modal share was marginal, at below 1%.

2.2. The institutional context

The pre-reform urban transport institutional framework constituted (i) a central role for the national government in decision-making on all aspects of local transport, (ii) fragmented responsibilities among various agencies, and (iii) a lack of coordination among other stakeholders. No single government entity had complete control of the sector, making effective reform difficult if not impossible.

In 1993, an initial solution was presented. The Government of Senegal set up a Public Transport Coordination Committee consisting of public and private stakeholders (state, local authorities, transport operators with valid licenses, and drivers), with the goal of first defining applicable urban transport policies and action plans, and then implementing them. This committee was chaired by the Director for Road Transport and the Director for Technical Services of the Urban Authority of Dakar. One of the first achievements of this committee was the drafting of the Transport Sector Policy Paper of September 26, 1996, which stressed the need for a Dakar Region Public Transport Authority.

To implement this Policy Paper, in March 1997 an urban transport coordination agency called the Dakar Urban Transport Executive Board (CETUD⁸) was created. CETUD was set up as a Public Establishment with a Professional

Approach⁹ under ministries of Transport and the Ministry of Finance, with (i) a decision-making Plenary Assembly comprising 19 members representing urban transport professionals, national and local authorities, private companies, operators, and user associations, and (ii) a President, with an administrative and executive role.

As per the Law No. 97-01 of March 10, 1997, CETUD was now responsible for the implementation and monitoring of Urban Transport Sector Policy in the Dakar region. The objective of the Policy was to organize and regulate public transport to improve operations from both operator and the user perspectives. CETUD's functions included:

- deciding on the routes to be served and their operational parameters;
- signing agreements with certified transport operators and managing the execution of the contracts;
- making proposals to the relevant authorities with respect to fare setting;
- identifying potential constraints and determining related financial compensation;
- initiating and leading public transport studies, training, and communications for the Dakar region;

8. Conseil Exécutif des Transports Urbains de Dakar

9. CETUD is a public entity under the umbrella of the Ministry of Transport and, at the beginning, was to 'employ' individual consultants with the intention of gradually building-up capacities (thus the 'professional approach' in the title). The name remained once it became a fully-fledged transport authority

- ensuring coordination of the various modes of transport, including recommending a revenue-sharing scheme for potential fare integration;
- identifying infrastructure, traffic management, and road safety improvements;
- identifying improvements for the vehicular fleet in terms of noise, air pollution, and overall quality;
- advising government on any urban project (e.g., roadways) that might impact public transport.

In some cases, CETUD also is mandated to act as an intermediary body between the Senegal National Government and international donors.

Despite its name, CETUD does not have any executive function and cannot control or influence the issuing of licenses or allocate compensation to operators without the consent of both the Ministry of Transport and the Ministry of Finance. The Ministry of Infrastructure and Transport (MITTD)¹⁰ remains the national authority responsible for urban transport in Senegal. MITTD defines the broad sector strategy and ensures its implementation by the various agencies, funds, and operators acting under its supervision (the infrastructure implementation agency AGEROUTE, CETUD, government-owned operators, etc.). MITTD also issues licenses to transport operators and is responsible for the quality of infrastructure and services.

2.3. Operations

2.3.1. Formal, government-owned (institutional) operators

Dakar Dem Dikk (DDD), created in 2000 after the liquidation of the previous institutional operator SOTRAC,¹¹ operates under a 15-year agreement with CETUD within the purview of MITTD. DDD had a fleet of approximately 300 buses (CETUD, 2009). According to Diaz et al (Diaz Olvera, Plat and Pochet, 2016), SOTRAC and then DDD had an average workday demand share of roughly 7.5% (individuals 14 and older) of public transport trips in the region.

Petit Train de Banlieue (PTB) is the railway operator in charge of urban passenger transport between Dakar and its suburbs, along a 27 km stretch. Created in 1987, it was initially called 'Petit Train Bleu' but was renamed in 2003 when Petit Train de Banlieue – a public limited company held by the state – took over from SNCS (Railway Company of Senegal) (which had operated PTB). Although PTB is technically bankrupt, it remains in existence but non-functioning.

10. Ministère des Infrastructures, des Transports Terrestres et du Désenclavement

11. Société des Transports du Cap Vert

Figure 4: Old Dakar Dem Dikk (DDD) vehicle

Source: plusnetwork.wordpress.com

2.3.2. Informal public transport (paratransit)

Ndiaga Ndiaye, Cars Rapides, and Clandos

Most of the public transport supply in Dakar comprised privately operated micro- and minibuses called Cars Rapides and Ndiaga Ndiaye. These modes expanded rapidly to fill the gaps in terms of coverage and capacity left by SOTRAC/DDD, and as a response to growing demand. Most of the micro- and minibuses are derelict (some of them are more than 40 years old) and unroadworthy. Cars Rapides and Ndiaga Ndiaye services are provided by both licensed¹² and unlicensed vehicles operating indistinctively. In 2000, Cars Rapides and Ndiaga Ndiaye were responsible for 54% and 38% respectively of public transport demand.¹³

Informal collective taxi operators called Clandos developed in lower-density areas where public transport was not available. Initially they provided short-distance services in peripheral areas, but later also in more developed urban neighborhoods.

Ndiaga Ndiaye, Cars Rapides, and Clandos serve different user markets and thus have different operating strategies. In general, Ndiaga Ndiaye operate on longer, 'regional' routes, Cars Rapides on slower, more urban routes, and Clandos on the shortest routes, essentially serving only local, neighborhood trips. Clandos' mode share is approximately 19% of total public transport demand.¹⁴

Ndiaga Ndiaye's operating model is 'fill-and-go', only departing terminals ('ranks') when they have reached a load determined by the driver. Barring exceptional cases, all passengers are seated during the trip. Drivers will seldom stop along the way. If they do stop, it will only be to drop off passengers close to a terminal rank. Once the vehicle has reached the terminal rank, it will once again queue, wait for passengers, and depart in the opposite direction.

Cars Rapides also rely on a 'fill-and-go' operating model, but a more flexible one. Depending on the probability of finding passengers on the way, the driver can decide to depart with a half-full vehicle or,

12. Licenses were linked to vehicles; to have one, operators had to show a valid insurance and a certificate indicating technical roadworthiness, and on top of that owners were required to pay 15,000 FCFA. There was no cap on the quantity of licenses and no indication of time-based validity

13. For users 14 and older, between Monday and Friday (Diaz Olvera et al. 2016)4/12/2023 8:32:00 PM

14. For users 14 and older, between Monday and Friday (Diaz Olvera et al. 2016)

Figure 5: Ndiaga Ndiaye (top) and Cars Rapide (bottom)

Source: Transitec

in some cases, an almost empty one. The driver will then opt for the most profitable itinerary between departure and arrival points, considering expected ridership and operating speed. Cars Rapides will often stop along the route to pick up passengers, sometimes exceeding the vehicles' capacity. It is common to see users standing on the bumpers during peak-hours. Before reform, Cars Rapides and Ndiaga Ndiaye operators were the driving force behind route definition. They would propose a route and get it approved

by MITTD, which would subsequently deliver a license valid for a year. The level of regulation was rather minimal, with no constraints on frequencies, the number of vehicles per route, or the defined span of (time in) service. There was no cap on the number of licenses issued in general or for any route. The operator, most often the owner, would pay a 'revenue stamp' of 15,000 CFA (approximately 23 EUR), and would need to show proof that the vehicle used was adequately insured and roadworthy (a 'carte grise').

The unlicensed and unregulated Clandos had two different operating strategies, both using the 'fill-and-go' approach. In the first strategy, the vehicle departs from a recognized stop (referred to as a 'garage,' which can simply be an intersection) and drives to a second 'garage' without stopping in between. Once arriving at the latter 'garage,' the vehicle queues again to return to its initial 'garage.' In the second system, one or more users can define an arrival point and negotiate the fare with the driver. The driver is then permitted to fill to capacity either at the 'garage' or during its trip to the destination point.

2.3.3. Farebox revenue

Before reform, farebox revenues were the sole source of income for paratransit operators. In a standard operating approach, the user pays the fare to the driver/conductor. With the revenue collected, the driver/conductor would pay for fuel, small repairs, and bribes. With the remaining amount, the driver would pay a weekly or monthly rent (also called a 'target') to the owner of the vehicle. Owners and drivers are not bound by any contract.

Figure 6: Route allocation and licensing model (before reform)

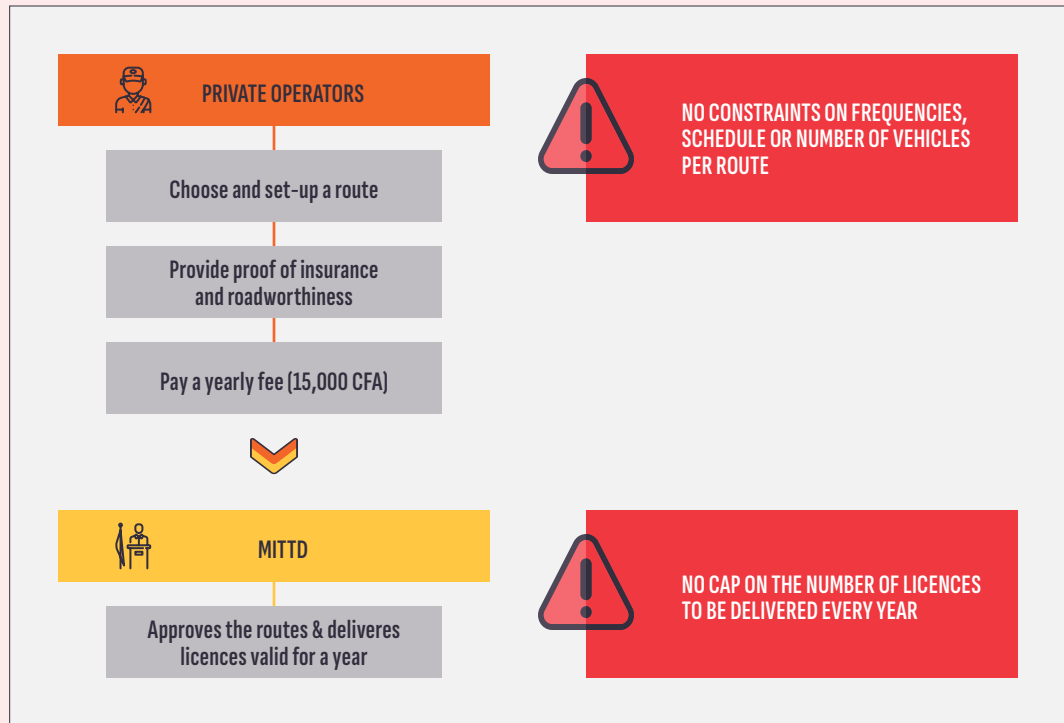
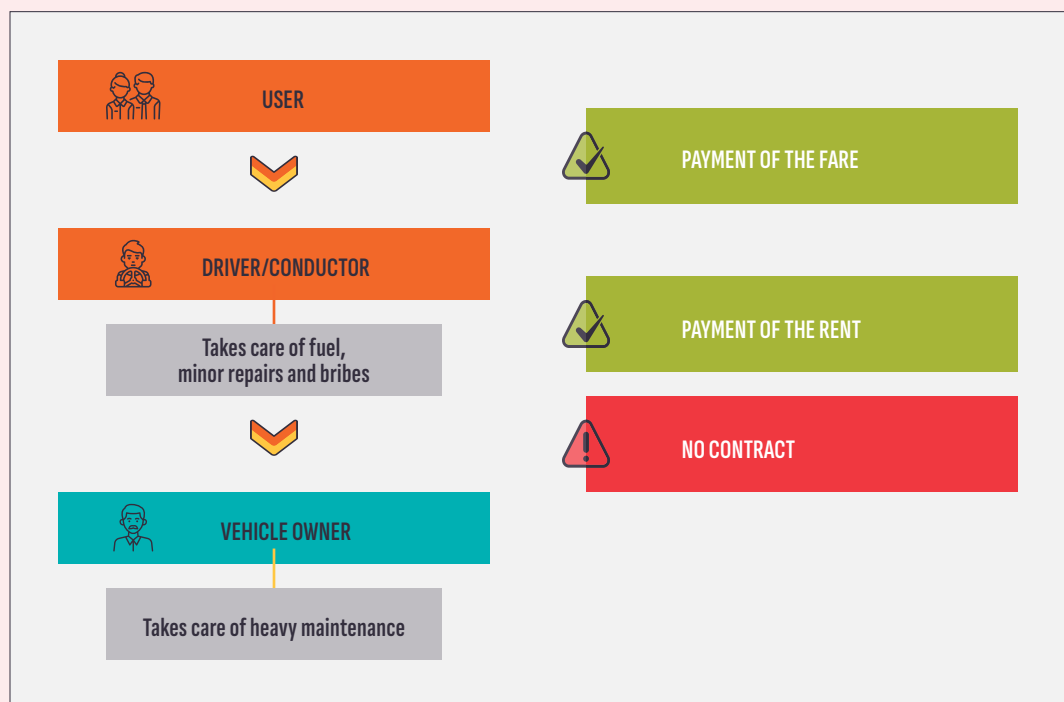


Figure 7: Business model (before reform)



2.4. The need for reform

Besides being highly fragmented and unregulated, the paratransit sector exhibited other characteristics that warranted reform. Complementarity was non-existent, making competition for customers ‘in the market’ and ‘on the street’ a dangerous, unsafe characteristic of the system. Vehicles were old and dilapidated. Furthermore, as fares were maintained at an excessively low level,¹⁵ operators had difficulty making ends meet, and financing for fleet renewal was unattainable.

The traditional banking system had proven inefficient in dealing with informal public transport operators. No opportunities were available to borrow funds for fleet-renewal. Financial guarantees were hard to come by for individual operators or owners who rely on daily incomes and fail to make provision for the long term. For all these

reasons, the need for fleet renewal and professionalization of the sector was a prerequisite for improving urban mobility in Dakar. The fragmentation of the industry, the growing on-street competition among the various operators,¹⁶ and the slow collapse of formal, institutional public transport companies, were seen as a sign for the government and for CETUD to lead ambitious reform.

The table below presents a synthetic analysis of several variants that defined the previous paratransit system. In general, Cars Rapides and Ndiaga Ndiaye were licensed, unplanned and unregulated services; Clandos were unlicensed, unplanned, and unregulated services (with a higher level of informality, compared to the former).

15. Increased fares would leave many users outside the system. Fares depend on the route; longer routes were more expensive. Fares thus fluctuated between 100 FCFA and 200 FCFA or higher for Ndiaga Ndiayes

16. Whilst operator associations existed (mainly grouping drivers), they were highly fragmented and were comparatively less present than in other cities in the region

Table 1: Distribution of responsibilities before reform

| | BEFORE situation |
|---|--|
| [1] NETWORK CHARACTERISTICS | |
| Route definition | Institutional stakeholders did not have control over routes. Higher capacity paratransit services (Ndiaga Ndiaye and Cars Rapides) would ply historical routes and pioneer new ones; authorities would issue licenses for them. Clandos were tolerated but not regulated. Route definition was the result of an informal agreement between the taxi and rank operators. |
| Stop location | Other than terminals, there were no formal stop locations; Cars Rapides would stop anywhere during their itinerary to board or alight passengers after being hailed. |
| Terminal station management | Terminal stations for Cars Rapides and Ndiaga Ndiaye were, for the most part, located on private, undeveloped land. There were terminal structures in the central area with authorities tolerating the private sector actors, taxi and minibuss associations, that built and managed them. The terminal workforce was composed of drivers and collectors, sometimes acting as ‘callers’, as well as supervisors, loaders, and vendors – each terminal being essentially managed by the respective operator(s). |
| Service hours | Each individual driver set in-service hours to achieve their respective revenue target. Drivers operated until the target was achieved, resulting in long, limited supervision working hours uncoordinated with other drivers. |
| [2] OPERATIONAL CHARACTERISTICS | |
| Frequencies | No defined fixed frequencies or schedules. |
| Fare setting | While authorities sought to maintain low, affordable fares, operators would often segment routes to increase actual fares for longer trips beyond what was allowed. Clandos set their own fares. Ndiaga Ndiaye and DDD had an average fare of 175 to 200 CFA, 100 CFA for Cars Rapides, 174 CFA for Clandos. Fares increased with the distance. (600CFA = ~\$1US in 2015). Taxis were much most expensive (1,400 CFA for a 30-min trip). In 2015, transport expenses represented 12% of income for the lowest income (20% of households) (CETUD, 2015a) |
| Ticketing system | No ticketing system was in place. |
| Vehicle fleet size | No minimum vehicle quantities for each operator were defined. This resulted in a highly fragmented sector where owners had small fleets. |
| Vehicle specifications | No vehicle specifications were defined. However, Ndiaga Ndiaye and Cars Rapides each used only a few vehicle models. |
| [3] WORKING CONDITIONS | |
| Relationship driver/owner and business model | Varied. Some drivers (about 20% of them) had formal contracts with owners; others did not (only verbal agreements, if that), or were recruited and paid daily. In all cases, the owner fixed a daily revenue ‘target’ which corresponded to a rental cost for the vehicle. The rest of the revenue was used to pay salaries, fuel, and basic maintenance. |
| Social safeguards | Sector workers did not have social safeguards. |
| Driving behavior | Aggressive driving behavior reflected often fierce and even violent competition on the street for passengers. |



3. REFORM

(2003-2016)

3.1. Preparation (2000-2003)

One of the first projects undertaken by CETUD was the Urban Mobility Improvement Program (PAMU¹⁷), financed by the World Bank and the Nordic Development Fund. The program consisted of four components, including infrastructure projects, and the renewal of the bus fleet, to modernize urban transport and professionalize paratransit operators. The Program facilitated access to otherwise unattainable credit for private operators, to support the complete renewal of Cars Rapides and Ndiaga Ndiaye fleets by 2019. Until this process, there were essentially no opportunities to access such credit for operators.

To kickstart the process, the Urban Transport Funding Association (AFTU¹⁸), an independent non-profit organization, was set up in 2001. It included operators and representatives from the Ministry of Transport, the Ministry of Finance, and CETUD. At the end of 2002, paratransit operators were still reluctant to take part in the program, but eventually, after informal and formal negotiations, CETUD was able to convince them to support it.

In 2005, the World Bank approved a loan of \$15.9 million US (roughly 8 billion CFA). The loan was intended to cover 75% of total renewal costs, to be complemented by an initial contribution from the operators. The price of the vehicles was to be denominated in CFA (CFA being tied to

Euro); the foreign-exchange risk was meant to be borne by the national authorities and the vehicle providers.

3.1.1. Vehicle manufacture and assembly

After vehicle specifications for fleet renewal had been developed, in September 2003 a tender was launched by Senegal's National Government. The tender had two main conditions: after-sales maintenance would be ensured by the Senegal State, and vehicles would have warranties up to five years or 200,000 km.

The tender was won by the Indian manufacturer Tata International, which offered 505 buses for 22 million CFA (\$50,000 US) per unit, including taxes. This was around half of what the second bidder had quoted (\$95,000 US per vehicle).

Ownership arrangements did not change as private individuals were still able to own individual vehicles or small fleets. This has been maintained throughout all renewal phases.

The Tata vehicles were to be assembled by Senbus, a newly created company. Five percent of Senbus shares were owned by the Government and 95% by Senegalese investors (the Financial Intervention Corporation¹⁹). At its assembly site in Thiès, Senbus would be able to produce

17. *Projet d'Amélioration de la Mobilité Urbaine*

18. *Association de Financement des Professionnels du Transport urbain de Dakar*

19. *Société d'Intervention Financière (SIFI)*

up to 3,000 vehicles a year. Participants in the vehicle renewal scheme would be obliged to use Senbus to perform needed maintenance for a minimum of five years.

3.1.2. Institutional arrangements

During the same period, the Government of Senegal passed two important laws that set the basis for ongoing and future fleet renewal programs:

Law No. 2003-04 of May 27, 2003, pertaining to the organization of the road transport sector defined a framework for the development of the sector and provided legal backing to the distribution of competencies defined in the Transport Sector Policy Paper of 1996 (MITTD,

1996). For instance, the development of Urban Transport Plans is officially the responsibility of local authorities.

Law No. 2003-20 of July 23, 2003, established the Urban Transport Development Fund (FDTU),²⁰ to secure funds to pay for urban transport operations and the running costs of CETUD. This fund was already mentioned in the law that created CETUD in 1997, but Law No. 2003-20 defined specific management and operating rules with the intention of promoting a better allocation of resources and clarifying funding issues. The fund was supposed to receive contributions from the state, local authorities, and the private sector – most notably from insurance companies – but in reality, it rarely received non-state funding.

3.2. First renewal phase (2003-2008)

3.2.1. Economic Interest Groups (GIE)

To participate in the renewal scheme, operators were required to form or join Economic Interest Groups (Groupements d'Intérêt Economique, or GIEs). A GIE had to include at least two partners, with unlimited and joint liability, which means that partners are jointly responsible for the GIE's obligations to third parties. Taxes would be paid separately by each partner, who would be able to choose between corporate tax or income tax.

GIEs would be responsible for the repayment of the loan, although the ownership of vehicles remained with the individual operators (within the GIEs). Only operators with valid licenses were eligible, effectively leaving out a substantial number of operators of Cars Rapides and Ndiaga Ndiaye that had been operating illegally.

Further, owners/operators who participated had to surrender their licenses and prove that their vehicle(s) had been taken out of the system as part of a scrapping program.

A premium of \$5,000 US would be given to owners for each vehicle scrapped.

In total, 14 GIEs were set up, consolidating about 900 operators with 2,000 vehicles (Stucki, Allaire and Berland, 2018). AFTU represented the various GIEs during the negotiations with CETUD and Tata International. Out of the 14 GIEs, nine took part in the first phase of the program.

3.2.2. Route design and concession contracts

Initially, CETUD was responsible for defining routes, leading negotiations with the AFTU and signing agreements with GIEs. GIEs would have exclusive rights to operate on their assigned routes. Owners belonging to one GIE could operate only those routes assigned to that respective GIE, but from the second renewal phase on, some routes could be shared among two or three GIEs.

CETUD established 18 formal bus routes where the renewed fleet was to operate, including four new ones serving new, outer areas of the region.

In November 2003, the first concession contracts were signed between CETUD and the GIEs, setting the overall service parameters (e.g., vehicle capacity, concession duration, area of operation, agreed to routes, obligation to share financial and operational data, etc.) as well as terms of reference (vehicle specifications, authorized stops, ticketing system, applicable fares, schedules, frequency of services etc.). In parallel, AFTU and GIEs signed membership agreements for AFTU to represent GIEs in technical committees with CETUD and facilitate the purchase and rental of new vehicles (taking out loans and acting as guarantor) – see Figure 8.

These contracts specified the minimum number of buses in the pool to be operated as well as the fares to be charged. The contract also stated the conditions for fare revision and the payment of compensation (i.e., subsidies) in case operating revenue was insufficient to cover costs. The concession contract did not specify required levels of service in terms of the number of vehicles, or the operating hours (span of service) or frequencies, by route. CETUD could not reach an agreement with the GIEs on that aspect and the draft contracts prepared annexures that were never included in the actual contract. There was, however, an ‘unofficial agreement’ that routes would have a five-minute headway during peak hours, and a 10-minute headway the rest of the time. As these requirements were inconsistent with the available number of vehicles, the levels of service requirements were seldom met.

3.2.3. Financial conditions

Each operator was bound to contribute 25% of the total amount to be paid for bus purchases as a deposit. The program did not impose a solvability guarantee for the operators, but AFTU established a mutual guarantee fund to cover potential payment defaults – a percentage of the repayment being allocated to this fund. In addition, vehicles had to be insured against fire and theft, but not against any other losses.

Upon delivery, CETUD and AFTU would together pay 100% of the vehicles’ cost. GIEs would then be required to pay back the 75% paid by CETUD over time. Reimbursement commenced during the third month of operations, allowing the newly formed GIE to adapt to the new conditions. Conditions remained stable throughout the various renewal phases.

Still, very few operators were able or willing to bring the expected contribution. Consequently, special measures were taken to borrow the missing amount through national development banks, and subsequently through Mectrans (a savings and credit mutual for transport operators in the Dakar region, see below).

3.2.4. Technical assistance to operators

The need for technical assistance to strengthen the capacity of the operators and help them comply with the concession agreements became clear immediately. To help, AFTU was supported by a local accounting and financial management firm to manage the project. CETUD initially conducted operator and crew member training, and an International Development Association (IDA)²¹ loan financed technical support for the GIEs in operational control and monitoring. After March 2008, AFTU and the GIEs were required to fund necessary technical support services on their own, which would impact operator membership fees and ultimately result in staff reductions.

3.2.5. Alternative ways of funding operator contributions

Paying the 25% contribution up-front as their share of the cost of bus acquisitions had proven difficult for the operators. Even those who were able to pay refused to do so as an act of 'solidarity' towards others. This almost scuttled the project. The issue was addressed in two phases.

For the first batch of 105 vehicles, the General Society of Senegalese Banks (SGBS)²² agreed to make a loan partially guaranteed by an escrow account of 180 million CFA, resulting from the revenue of the scrapping mechanism. In theory, operators would be required to physically scrap one vehicle to receive a new one, thus not allowing them to transfer vehicles to other operators not participating in the scheme. These funds were borrowed from a national development bank. However, the arrangement was deemed unsatisfactory, as it exposed public authorities to unreasonable risk.

Therefore, in a second phase (2006-2007), Mectrans (a savings and credit mutual for transport operators in the Dakar region) was created to support operators involved in the program. This fund works like a savings and credit mechanism which receives deposits from its members and provides credit to them. To cover the individual operator contributions, Mectrans received a loan from the Fund for Economic Promotion (FPE)²³ – a national development bank. This loan is partially guaranteed by the mutual guarantee funds and by an escrow account receiving the revenue from the scrapping of the second and third batch of vehicles.

3.2.6. Results

One of the limitations of this first program was the poor maintenance of the vehicles after the five-years manufacturer-maintenance arrangements ended. Consequently, the buses deteriorated

21. The IDA is a World Bank structure that aims to reduce poverty by providing zero to low-interest loans and grants for programs that boost economic growth, reduce inequalities, and improve people's living conditions

22. Société Générale de Banques du Sénégal

23. Fonds de Promotion Economique

rapidly, resulting in a lower level of service in terms of frequencies, reliability, and comfort. Professionalization and training were also insufficient to ensure acceptable levels of service.

On the other hand, initial analysis of the renewed fleet's financial situation indicated that it was positive overall. The loan repayment rate was as high as 99% (Gaye,

2016). Further, operators seem to have been able to maintain profitability, even including vehicle loan reimbursement costs in the calculations.

The table below depicts the situation after the first phase, where reimbursement costs accounted for roughly 32% of total operations costs, exceeded only by fuel (41%) (Kumar and Diou, 2010).

Table 2: Expenses and revenue²⁴ of minibus operators under the AFTU network (first phase)

| | Amount (in million CFA/year) | |
|-----------------------|------------------------------|-----|
| EXPENSES | | |
| Fuel | 8.4 | 41% |
| Personnel | 2.9 | 14% |
| Maintenance | 2.6 | 13% |
| Reimbursements | 6.5 | 32% |
| Total | 20.4 | |
| REVENUE | | |
| Farebox | 21.6 | |
| RESULTS | +1.2 | |

24.

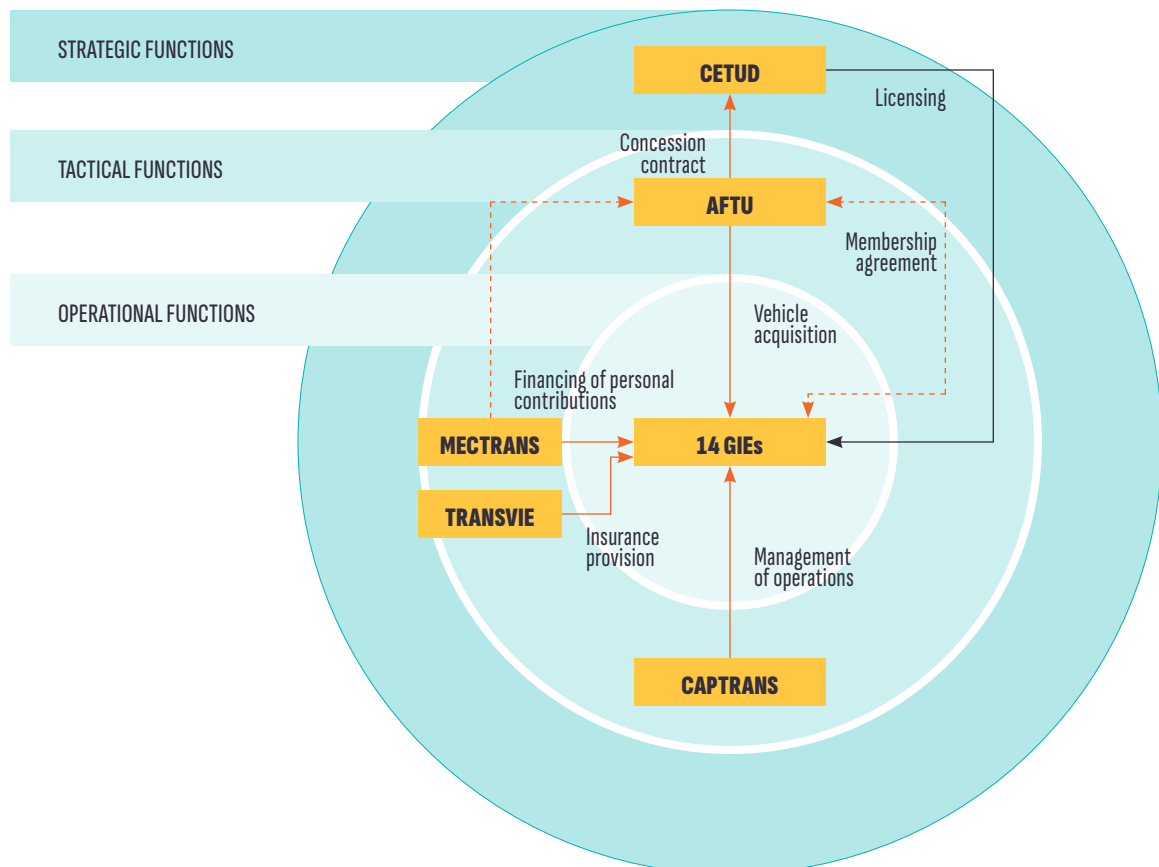
Depreciation costs are not included

3.3. Second and third renewal phases (2008-2016)

The first phase was repeated twice between 2008 and 2016 (between 2008 and 2010, and between 2013 and 2016). The later phases incorporated new conditions, based on the lessons learnt from the first experience. A similar approach was adopted in terms of financial scheme, with a transfer mechanism to the operators, and AFTU playing the role of financial lessor. The terms and conditions

applied were also similar (personal contribution from the operators, concession contract with CETUD, commitment from operators etc.). The major differences resided in (i) the funding source and mechanism, and (ii) the institutional set-up. Impaxis Capital, a private company, played the role of ‘arranger’ by leading the negotiation with the investors and the bank sector and by providing financial advice.

Figure 8: AFTU support organizations



AFTU also restructured itself around three new sub-organizations:

- Mectrans – the mutual savings and credit supporting transport operators in bus acquisitions (personal contribution);
- TransVie – a mutual worker health insurance that provides 90% coverage in hospitals and 70% coverage in health centres (and which might evolve to include a pension scheme);
- Captrans – a non-profit organization (Support Centre for Transport Professionalization) funded through compulsory annual membership fees paid by the GIEs on each bus. Captrans was intended to provide route regulation and operational assistance to the GIEs, but in these early stages did not fully take on the responsibilities initially set out for it.

3.3.1. Second phase (2008-2010)

402 King Long minibuses were purchased as part of the second phase. The necessary 6.8 billion CFA was loaned to Senegal by US bank Exim Bank, and subsequently transferred to AFTU at an interest rate of 8%. During this reform phase, not as many operators repaid the loans, but the 91% repayment rate (compared to the earlier 99% rate) was still acceptable.

Importantly, the second phase of the renewal program was not subject to the condition that vehicles be assembled by Senbus, as an agreement had been reached with manufacturer King Long instead. Senbus nevertheless remained active in the sector.

3.3.2 Third phase (2013-2016)

700 TATA minibuses were purchased during the third reform phase, made possible thanks to the repayment completed by the operators under the first and second phases, and converted into revolving funds with the State's permission. These funds were used as a guarantee for AFTU to raise commercial debt from local banks. The bank loan of 13.5 billion CFA was granted by BRM (Regional Market Bank) for five years, at a 9% interest rate, based on a guaranteed deposit of 5 billion CFA (from the revolving fund), without sovereign guarantee. Disbursements were based on a tripartite signing by CETUD, AFTU, and the Ministry of Finance (which approved the disbursement).

It was during this phase, in 2015, that CETUD, together with the operators, set up a division within AFTU for route regulation and operational assistance called Captrans (Support Centre for Transport Professionalization) in an attempt to better organize the GIEs. The main objective

Figure 9: Minibus AFTU: TATA, first phase (top) and King Long, second phase (bottom)



Source: Transitec

Table 3: Summary of renewal phases

| Renewal phases and dates | First phase (2005-2008) | Second phase (2008-2010) | Third phase (2013-2016) |
|-----------------------------------|---|---|---------------------------------------|
| Number of vehicles | 505 | 406 | 700 |
| Vehicle type | TATA 613 | King Long | 700 TATA LP 913 300 TATA Marcopolo |
| Funding source | World Bank (IDA) | Exim Bank | BRM |
| Type of guarantee | Mutual guarantee fund (AFTU) + escrow account | Mutual guarantee fund (AFTU) + escrow account | Revolving fund |
| Funding amount | 7.9 billion CFA | 6.8 billion CFA | 1.5 billion CFA |
| Beneficiary | Senegal National Government | Senegal National Government | AFTU |
| Mode of transfer to the operators | 5-year leasing by AFTU | 5-year leasing by AFTU | 5-year leasing by AFTU |
| Interest rate | 8% | 8% | 9% |
| Loan repayment rate | 99% | 91% | 95% |

was to fill the gap left by GIEs in their management of operations. Since then, Captrans has been supporting operators in staff and route management.

3.3.3 The status of the 14 GIEs

Overall, the renewal scheme introduced about 1,950 new vehicles, replacing old Cars Rapides and Ndiaga Ndiaye. Once the ongoing fourth phase is completed, the number of AFTU buses managed by 14 GIEs will reach 2,250.

There are substantial differences among GIEs in terms of size. Some hold a larger number of vehicles while others are noticeably smaller. The current distribution in terms of fleet size is as follows (Fall, 2021):

- Nine GIEs operate about 36% of the fleet;
- Three GIEs operate about 33% of the fleet;
- Two GIEs operate about 30% of the fleet.

The initial phase of the renewal scheme was structured in such a way that each route was uniquely assigned for operation to one GIE. However, from the second phase owners seeking to sell their vehicles were not obliged to sell within their GIE, as licenses are linked to the vehicle and not directly to the GIE; thus the objective of assigning routes to a single GIE did not hold up. Individual operators purchasing existing vehicles could not switch GIEs and participate in two or more GIEs.

Consequently, the vehicles sold would effectively be switched to the new owner's GIE, thus creating routes operated by more than a single GIE. At the same time, the routes operated by two or more GIEs have only a single GIE officially in charge – in the eyes of CETUD; thus, if a dispute arises, Captrans is meant to inform CETUD of this problem, as in theory, Captrans is responsible for the regulation of supply and demand on each route.

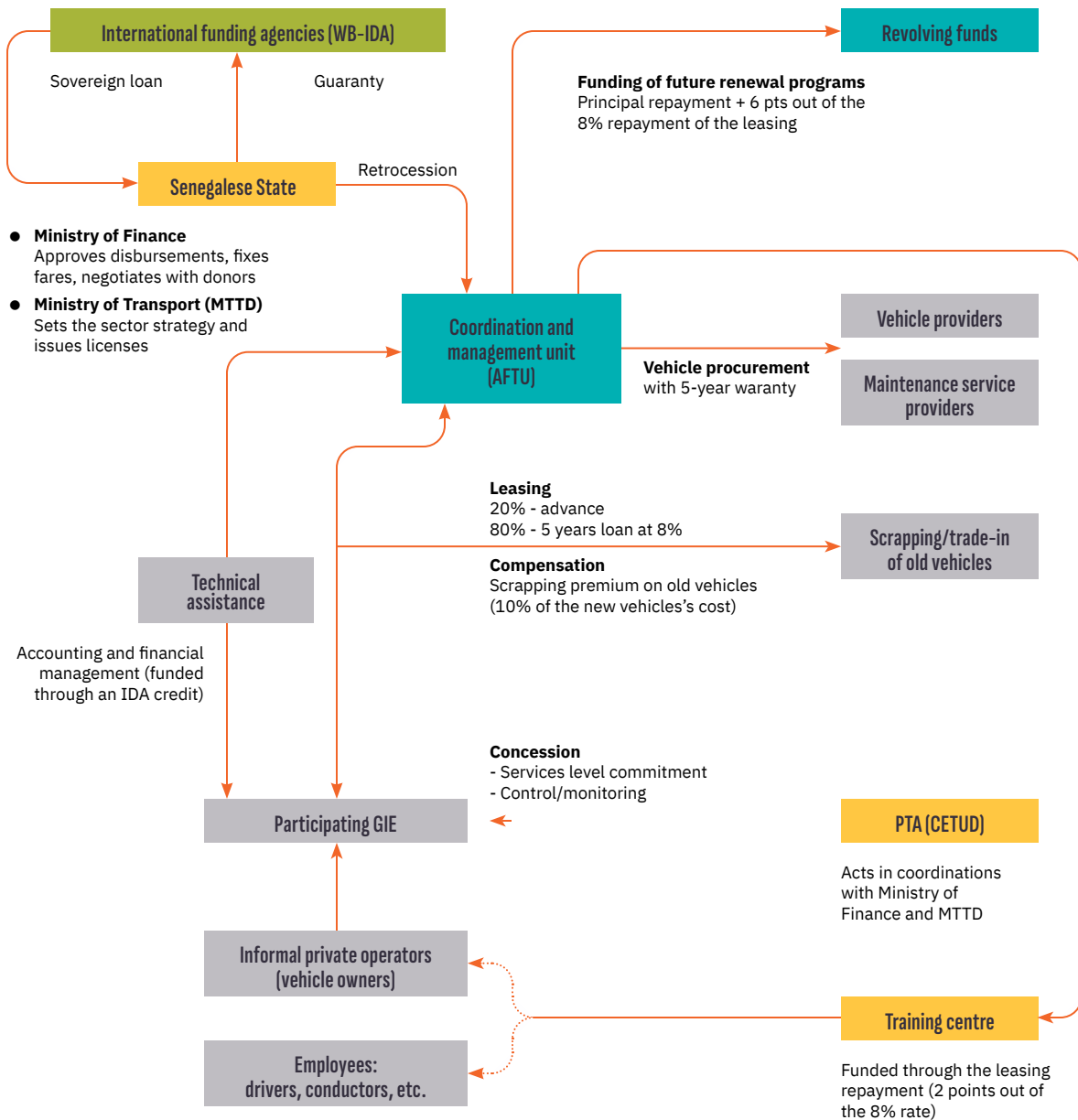
In general, owners still have fewer vehicles than they did before the renewal phases, and this situation is reflected in the above distribution. This distribution has already raised questions, as it is expected that due to organizational and financial viability, the number of GIEs is likely to be reduced from the current 14 to less than 10. Indeed, the operations of the smallest GIEs (with less than 10 vehicles) remain poorly managed and do not have the capacity to cope with CETUD's requirements in terms of reporting (quarterly operating plan, annual progress report etc.). Therefore, CETUD wishes them to join larger GIEs with sufficient managerial capabilities.

Another issue is the working conditions for drivers. Professionalization efforts should have ideally improved conditions by providing more formal, legally binding relationships between drivers and owners. However, only limited steps have been taken in this regard. Currently, there are three types of arrangements:

- drivers who have a formal contract with the owner (about 20%);
- drivers who have entered into an informal contract (verbal) with the owner; and
- informal day workers who are paid daily under a revenue target system.

Moreover, the appetite of owners and drivers for formal contracts can vary. In many cases, historical owner-driver duos remained, and historical contract agreements were unchanged. Some drivers would prefer the flexibility of daily agreements, while others would prefer the financial security of a contract. In both cases, the target system remains.

Figure 10: Current scheme for fleet renewal



3.4. Meeting reform objectives

The table below depicts what has changed in the Dakar system, as the move from Cars Rapides and Ndiaga Ndiaye towards AFTU services is still ongoing. Ultimately,

while regarded as successful overall, the AFTU services are not yet fully planned, structured, and regulated, although they are fully licensed.

Table 4: Distribution of responsibilities after reform

| Analysis element | BEFORE | Initial reform objectives | AFTER |
|---|--|---|--|
| [1] Network, Service offer | | | |
| Route definition | Lead by paratransit operators | Negotiation between AFTU and CETUD | Negotiation between a Government agency (CETUD) and existing informal/paratransit operators has now produced a more structured network. With more changes looming, it is likely that more structure will be implemented. |
| Stop location | Non-existent | Identification and implementation of formal stops throughout the city | Stops along AFTU routes have been implemented and they are visible in most areas of Dakar. While there are some minor problems, improvement has been noted. |
| Service periods/ operating hours | Non-defined, dependent on daily results for individual operators | Negotiations ongoing among stakeholders | Fixed service periods have effectively been implemented and are usually well respected. However, discussion continues regarding the need to implement them in places where Cars Rapides and Ndiaga Ndiaye still operate. |
| Frequencies | Non-existent | Scheduled frequencies to be implemented | Despite various attempts, the AFTU network lacks formal frequencies/schedules, which is one of the lingering operations challenges post reform. |
| [2] Operations | | | |
| Terminal station management | Privately managed | Limited change | Improvement of terminal station management has been hampered by the control private operators maintain over sites. Main stations have effectively become managed by authorities. |
| Fare setting | Set by authorities | Set by authorities | Fares are set by authorities, but operators have increasingly found ways to bend rules and agreements (e.g., partitioning a single route into two or more) to increase them. |
| Ticketing system | Non-existent | Undefined | Operators have recently pushed for a better ticketing approach, most likely to be smartcard-based, which would improve transparency. However, the ticketing system remains cash-based in most cases, with paper tickets delivered by a portable and electronic ticketing machine (Transpay) handled by collectors. |
| Vehicle quantities, ownership | Undefined | Corporatization without changes in ownership | No minimum fleet sizes defined; ownership seldom changed, with most owners maintaining fleets of one-three vehicles; however, the GIEs have been effective in bundling operators into larger fleets. |
| Vehicle specifications | Undefined | Defined by authorities | Vehicle specification requirements have usually been well-received by operators. Questions pertaining to the useful life of cheaper vehicles and older vehicle maintenance requirements remain. |
| [3] Working conditions | | | |
| Salaries | Informally set | Formalization of contracts between owners and drivers | Progress has been made, but more effort is needed as most owners and drivers still use verbal work agreements with daily consent to operate vehicles. |
| Social safeguards | Non-existent | Introduction of social safeguards | TransVie has been a positive outcome of the reform program. |
| Driving behavior | Dangerous and unpredictable | Limited measurable change | Driving behavior has not significantly changed, as drivers still operate vehicles based on daily consent; thus, the 'penny wars' have largely remained. |



4. THE **AFTER** SITUATION

(FROM 2016 ONWARD)

4.1. Achievements

4.1.1. The AFTU network

The AFTU system has, in 15 years, risen to become the central element of the public transport network in Dakar. Based on the most recent data, AFTU services carried 34% of daily public transport trips, or 725,000 passengers per day. These numbers far surpass those of Cars Rapides (21%), Ndiaga Ndiaye (9%) and Dakar Dem Dikk (8.5%) services.²⁵ At present, the 14 GIEs of the AFTU network operate over a total network of 2,800 km in the Dakar region. The network includes 64 routes serving the entire Dakar agglomeration, with many routes longer than 25 km. Most of the routes depart or arrive in the city centre in a radial pattern. Stops have been

formalized, and are identified by more than 1,420 permanent signs (Modau Diaw, 2018).

Major positive outcomes are improved public transport quality and safety of service, reductions in travel time, and improved air quality. Commercial speeds have increased, with AFTU services reaching approximately 16 km/h (INGEROP, 2019). While a clear hierarchy of modes is still difficult to discern, AFTU buses are, by this account, the current backbone of the system. Bus Rapid Transit (BRT) and Train Express Régional (TER) suburban rail systems are being implemented and will provide an additional higher performance and capacity system layer.

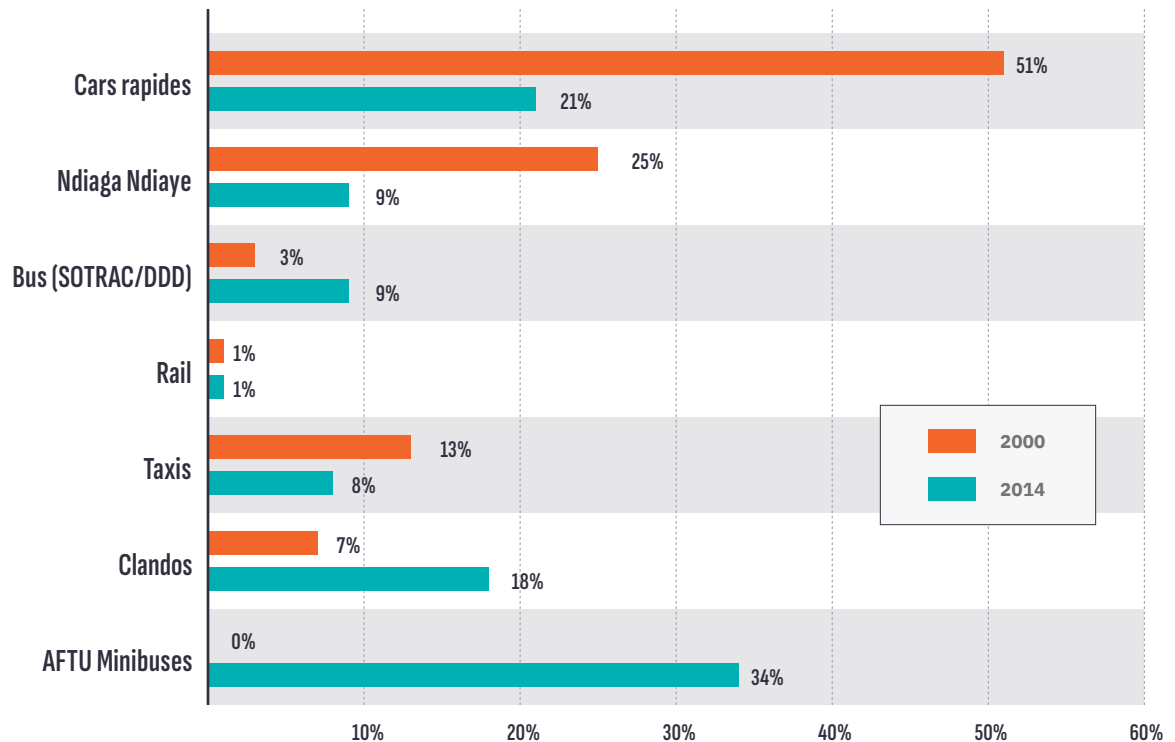
With a bus restructuring network project on the horizon,²⁶ AFTU routes will be reorganized to best suit the forthcoming TER and BRT projects. The new routes will not only serve as 'feeder' services to extend the reach of the higher performance and capacity modes, but will also provide access and mobility for travelers who cannot or will not use TER or BRT. In the end, there should be an integrated, hierarchical network serving the variety of travel markets found in Dakar.

Figure 11: New signage identifying AFTU bus stops (Modau Diaw, 2018)



25. Cars Rapides, Ndiaga Ndiaye, and DDKs do still operate in Dakar, and in some cases their routes overlap with AFTU's routes on main roads. AFTU's routes are intended to be exclusively operated by AFTU vehicles

26. The study is still on-going. Final structure and design of the network is not available yet

Figure 12: Modal share of public transport modes in 2000 and 2014 (CETUD, 2015b)

4.1.2. More efficient and effective business model

Analysis of AFTU's financial results suggests that operational costs have remained low, and that profitability has been achieved. Fuel and administrative costs are the highest budget items in a distribution of operational costs among four main categories (fuels, salaries or payments made to drivers, administrative costs, and maintenance and repairs).

(Note that loan reimbursement costs are not included in the table as they are in Table 2: Expenses and revenue of minibus

operators under the AFTU network (first phase).²⁷ However, they are lower than before as loan terms are much better).

The AFTU business model has proven to be attractive for operators. Profitability can be as high as 30% per annum, when not considering a vehicle's life cycle. If the life cycle is set at five years – a duration that is likely an underestimation for newer, more robust vehicles – profitability increases, reaching 10% per annum (Transitec-Amarante, 2018).

27.

Reimbursement costs were uneven amongst surveyed operators. While first-wave operators had completed payment, second- and third-wave operators were still reimbursing loans, each wave with different amounts

Figure 13: AFTU network, 2018 (Modau Diaw, 2018)

4.1.3. Financing

The financing scheme has made it possible for operators to purchase new vehicles and access loans previously denied them. Though some might question the choice of relatively low-cost vehicles, vehicle specifications were adapted to Dakar's operating and economic environment. This allowed fleet renewal in a relatively short period of time. It also helped stakeholders keep pace with reform and avoid being overwhelmed by overly expensive rolling stock. Almost all operators have successfully repaid vehicle loans.

The success of the program has resulted in its exportation to other cities in Senegal (Saint Louis, Mbour, Louga or Thiès). It is frequently regarded as a best practice for Sub-Saharan African region in reforming the paratransit sector.

Notably, in later phases of the reform, a revolving fund was used instead of international donor funds, and partnerships were created with local banks to finance reform.

4.1.4. Professionalization and consolidation of operators

No service frequency or headways were established in the contracts, but operators have generally adhered to route itineraries and stop locations; nevertheless, there have been challenges implementing the level of service agreements. It proven difficult to induce owner/operators to provide services during periods of time – and at frequencies and on routes – where revenue would not cover all expenses.

Table 5: Costs and revenue for AFTU buses (Transitec-Amarante, 2018)

| | Amount (in 1,000 CFA/month) | |
|--|-----------------------------|-----|
| EXPENSES | | |
| Fuel | 820 | 55% |
| Personnel (salaries or payments made) | 200 | 13% |
| Maintenance and repairs | 220 | 15% |
| Administrative costs | 260 | 17% |
| Total | 1,500 | |
| REVENUE | | |
| Farebox | 2,400 | |
| RESULTS | +900 | |

On the positive side, CETUD's training and sensitization activities for operators, drivers, conductors, and supporting staff (controllers, callers, etc.) contributed to the creation and consolidation of more than 1,250 formal, professional jobs. Further capacity building for professionalization will be required for GIEs. In the meantime, efforts have had positive outcomes as the initial 14 GIEs are still operating well.

4.1.5. GIEs are still stable in second and third phases

Whether by choice or by government intervention, GIEs have remained relatively stable throughout the program. The number has been capped at 14, even where not all operators participated in earlier phases. As previous phases began showing positive outcomes, more operators were inclined to participate and accept the concessions requested by local authorities.

The existence of GIEs effectively reduced the number of players involved in negotiations. By representing groups of operators and labor (owners, drivers, collectors, supervisors etc.), the painful and risky exercise of negotiating with hundreds of stakeholders has been eliminated. This is one of the reasons why CETUD decided to limit the number of GIEs to the existing 14 created in the early 2000s.

The three-sided partnership between CETUD, AFTU, and the GIEs has also proven to be broadly successful. Operating conditions have improved, even if there is still room for improvement. Contracting approaches have brought about more transparent relationships between, most notably, GIEs and CETUD, while avoiding some of the previous paratransit-based system characteristics (i.e., route definition, stopping locations, hours of service, fares, etc.).

4.1.6. A powerful Public Transport Authority

CETUD is funded through the Consolidated Investment Budget (BCI), the Urban Transport Development Fund (FDTU), resources allocated to the State by development partners, and by licensing fees and grants (AFTU).

The renewal project is CETUD's first widely successful program and, as a result, it strengthened CETUD's position in Dakar's institutional landscape. CETUD is now one of the prime correspondents for international donors and partners, especially pertaining to road-based systems. Since its creation, and aside from the initial PAMU project, CETUD has been involved in the following key projects in the region:

- Development of the strategic Urban Transport Plan for the Dakar Metropolitan Area (PDUD) 2008-2025 (CETUD, 2009). The PDUD is a planning and programming document that defines the objectives to be achieved and the action to be undertaken to support the movement of people and goods in the urban area in a sustainable manner;
- Launch of the Urban Mobility Improvement Project (PATMUR), which started in 2010, funded by the World Bank. One of the components of the financing was designed to strengthen, among others, CETUD, AFTU, Dakar Dem Dikk, the PTB, and Mectrans. The program also made it possible to finance preliminary planning studies for the upcoming BRT project;
- Development of a Dakar Urban Mobility Policy (LPDU) (CETUD, 2015b);
- Launch of the ongoing BRT project, and concurrent restructuring of the public transport network.

4.2. Issues and challenges

4.2.1. Lagging reforms

Some reforms have not been fully implemented. This is the case with the Dakar Urban Mobility Charter which had set a broad transport vision for the agglomeration. In 2006, the main transport stakeholders (state, local authorities, private players, and user associations) had signed the 'Dakar Urban Mobility Charter', which defined a framework for partnership, consultation, implementation, and monitoring of urban mobility improvements for the Dakar region. It also created a monitoring committee to ensure that commitments by the various parties were met, and that planned mobility improvements were actually implemented. The main objective was to put in place a mechanism to ensure coordination and communication among public and private stakeholders in implementing a common mobility vision.

In practice, this Charter has never really been implemented. It represents a missed opportunity for defining a common vision for mobility and thus a way forward, and changes and actions to implement that vision through reform.

4.2.2. Scheduling and frequencies

From the outset of the renewal and reform program, acceptance of required levels of service, i.e., frequencies and scheduling, has been weak point for AFTU. During the first phase, discussions became so tense that the topic was left out of various agreements between CETUD and GIEs. Later, amendments and annexes continued

to be rejected by reformed operators.

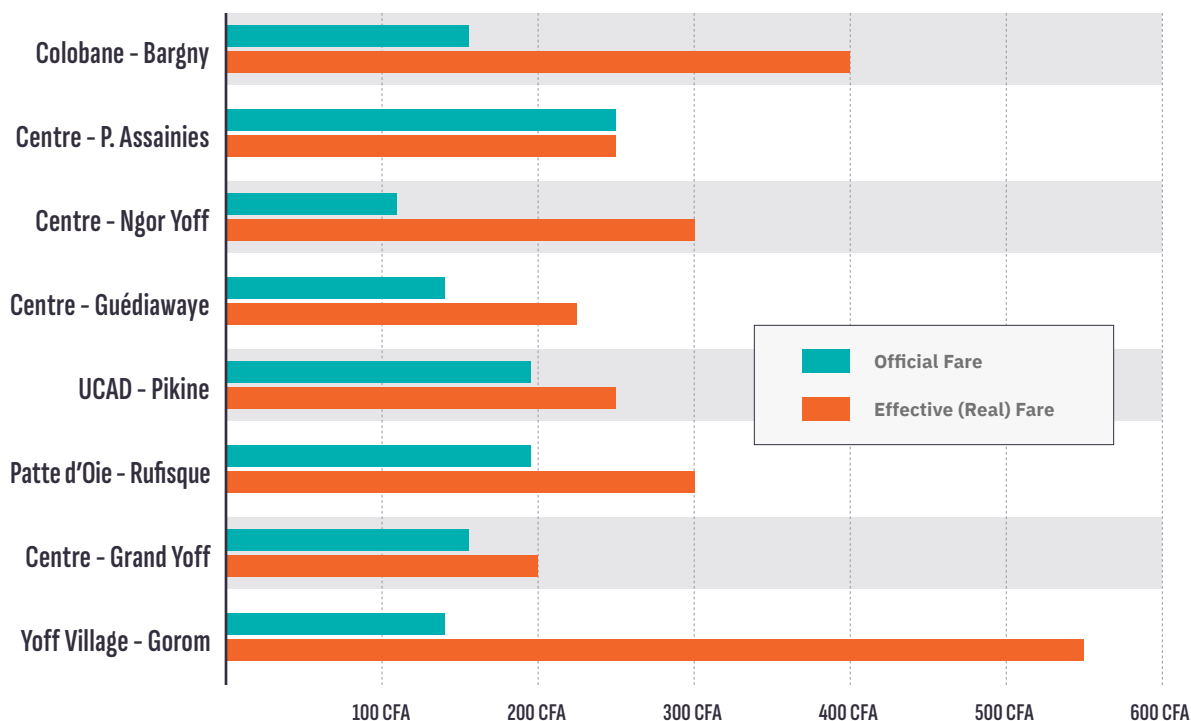
Second, third and subsequent phases have not changed the picture: AFTU services still vary excessively among GEIs and operator in terms of operating hours, frequencies, and scheduling. The overall quality of service has been hampered by this problem, with some of the characteristics of paratransit-based services resurfacing.

A second, albeit less publicized problem, is the span of service or operating hours and the low level of service in the evening and night. Mobility studies in Dakar show that users make most of their trips during the daytime. However, a significant number of trips are made during the night, when structured public transport modes (DDD, AFTU, PTB) are no longer available (the service ends at 9pm). Service continuity is ensured by Cars Rapides and Ndiaga Ndiaye. This absence of night service has makes it unfeasible for the authorities to progressively replace incumbent modes everywhere.

The lack of government operating and maintenance subsidies, and mechanisms for revenue sharing among owner/operators to allow cross-subsidization, hinders the ability of authorities to induce owner/operators to provide services when and where they might lose money.

4.2.3. Non-compliance with official fares

Fares for operators under the AFTU network are fixed by CETUD, under Decree No. 2009-20 of January 22, 2009. However, these fares – often based on politics not economics – have been

Figure 14: AFTU-implemented fares compared against official fares (Modau Diaw, 2018)

deemed unrealistic by the operators, and have to be raised in order for operators to remain solvent (depending on the section of the route and type of service offered). The operators' strategy to gain more revenue is to divide routes into 'segments', making users pay the legally required fare for the full length of the route even if they travel only one segment. This increases the overall fare for their entire origin to destination trip, and is neither transparent to users nor consistent with the regulation.

As shown in the graph above, some fare increases are as high as 230% of the official tariffs. In some cases (Yoff Village-Gorom, for instance), official fares are not even available.

4.2.4. Paratransit services continue to operate

Despite the several renewal programs that intended to replace the fleet of old Cars Rapides and Ndiaga Ndiaye, these services remain an attractive mode of public transport for Dakar commuters. Their flexibility, low fares (official fares – see Figure 14), and long operating hours make them one of the preferred modes of public transport.²⁸ Some of the remaining paratransit modes lack the minimum requirements to participate in the renewal program, as most do not have valid licenses. By design, the complete sector renewal will only occur when all of these vehicles withdraw from the system.

28.

From 2015 data, mean fare for AFTU services was estimated at 162 CFA, while mean fares for Cars Rapides and Ndiaga Ndiaye were approximately 150 CFA. DDD is the cheapest option when using mean fares at 144 CFA. However, this does not take into account travelled distances, where AFTU buses have the longest itineraries

4.2.5. Vehicle maintenance

The involvement of Senbus in the maintenance of the vehicles has also proven challenging. Operators have raised the issue of the inaccessibility and high cost of imported spare parts, causing long delays for vehicle repairs. Consequently, some of the operators are forced to engage unlicensed maintenance shops that might not necessarily provide satisfactory services. Buses bought to date have deteriorated in only five years and, in the worst cases, renewed vehicles appear as unroadworthy as older Cars Rapides and Ndiaga Ndiaye.

4.2.6. Clandos

Pilot projects have attempted to replicate the minibus renewal model in the shared taxi sector. This has proven more complex and less successful. In 2015, 20 eight-seater vehicles – with room for luggage – were introduced in Keur Massar and Rufisque, but no Clandos were withdrawn from the system in the process. In 2016, 100 more vehicles were introduced into the system, but no operating licenses were awarded. The new eight-seater vehicles were restricted in terms of their areas of operation, unable to freely move between various locations.

As they are more flexible, and free from any regulated restrictions (services are unlicensed), Clandos attract part of the demand and often serve last-mile connectivity to/from higher order services or shorter distance trips in their entirety. Four- to five-seater vehicles are particularly adept at meeting this type of demand. Increasing the size of the vehicle and

having fewer vehicles is likely to erode the sector's advantages. Projects have introduced larger vehicles (often referred to by their brand's name, 'Tata Magic') that operate in peripheral areas, especially in the eastern part of Dakar (Rufisque), with only mixed results.

4.2.7. Restructuring Captrans

Captrans' role and governance within AFTU needs to be clarified, and more operators would have to join to make it sustainable. Captrans is meant to support all GIEs, and assist in controlling and supervising operations in general. In CETUD's vision, Captrans was to play a central role in the system, taking on the following responsibilities:

- Operations supervision for GIEs: as most GIEs have failed to fully respond to the CETUD's expectations in this regard, Captrans would take on reporting responsibilities for each GIE;
- Manage a future data platform: here, AFTU service data would be stored to serve as a basis for supervision of operations and preparation of summary reports. In the medium to long term, a farebox collector would transfer operational data to Captrans as well as amounts pertaining to vehicle reimbursements. GIEs would later collect the respective agreed to amounts.

Captrans was not meant to have direct links with CETUD, or with individual operators and drivers, but instead to provide support within AFTU (in the same way that Mectrans and TransVie do).

Table 6: Summary of reform outcomes

| Affected parties | Positive outcomes | Neutral outcomes | Negative outcomes | Comments |
|---------------------------------|--|---|--|--|
| Institutions | GIE creation enabled a more organized, regulatable sector; Strengthened CETUD | | | <p>There is a reduced number of private counterparts in negotiation efforts.</p> <p>The possibility of introducing new regulations was confirmed (notwithstanding room for improvement).</p> <p>There is an increased number of operators under the CETUD's supervision and regulation (move away from the largely unplanned former model).</p> |
| Public transport users | | Fares still fluctuate depending on choices made by drivers to segment routes and trips. | | <p>System understandability increased for users gained with clearer information on more well-defined itineraries being publicly available.</p> <p>Fares were kept relatively low by political fiat, thus theoretically affordable by most travelers.</p> |
| Operators | <p>Access to financing for new vehicles</p> <p>Access to health insurance and to a savings structure</p> | | | <p>Owners were able to serve new routes and have better relationships with authorities, namely CETUD. On the flip side, they were required to respond to organizational and other regulatory demands from AFTU/ CETUD.</p> <p>Vehicle were renewed with limited or no restrictions on operations.</p> <p>Operators, in general, gained access to technical support and capacity-building.</p> <p>Owners acquired the opportunity to better control farebox revenue.</p> <p>Operators, in general, gained access to a savings structure (Mectrans) and health insurance (Transvie).</p> |
| Public transport drivers | Improvement of relationships between owners and drivers | | <p>The number of formal owner-driver contracts did not meet expectations.</p> <p>Loss of employment opportunities in operations.</p> | Working conditions were only slightly improved. |



5. CONCLUSION

5.1. Winners and losers from reform

Broadly the public transport reform in Dakar benefited owners/operators and, to a lesser degree, public authorities. As presented in Table 6: Summary of reform outcomes, owners/operators had little or no negative outcomes when participating in the reform. Those that were first to take part in the formation of the GIEs (i.e., the initial renewal phase) garnered more positive outcomes than those in subsequent phases, as authorities were more lenient when both parties faced unknown circumstances. In later phases, authorities understood and learned from earlier experiences and, thus, were able to impose higher levels of regulation (though with questionable results).

It is likely that fare collectors (i.e., conductors) and workers holding jobs not directly related to daily operations (vehicle repairs, for instance) lost employment opportunities. Insufficient opportunity to transform or adapt were provided during the reform process.

The strategy for paratransit operators did, in the main, pay off. Reform has been accepted by previous 'informal' owners/operators and consolidation/corporatization efforts have managed, so far, to produce viable GIEs.

Two positive outcomes are key. Firstly, the fleet renewal objective, barring the ongoing phase, has been achieved. The number of Cars Rapides and Ndiaga Ndiaye is lower, and their mode shares and ridership keep dropping in favor of AFTU services.

Second, with the creation of TransVie, social welfare benefits have effectively been extended to public transport workers.

Unfortunately, regulation of the level of service for the new system, a critical feature for users, has been a weak spot. Fixed frequencies/headways and schedules are still not adhered to, and there have been issues with the way in which routes are assigned to individual GIEs.

The chosen strategy was to create an incentive for operators to corporatize, yet it lacks a disincentive for the keeping the status-quo. Indeed, from the onset, participation has been voluntary, as no operator is forced to participate or join a GIE.

This has resulted in operators avoiding what they perceived as risk, even though most risk would be transferred to institutional stakeholders, most notably in terms of financing.

5.2. Way forward

With the latest renewal phases coming to an end, several elements merit advancement.

First, concession contracts need to be strengthened, with more precise obligations regarding maintenance – including a definition of the frequency of roadworthiness tests, and of the quality of vehicle interior and exterior, cleanliness). The bus restructuring process requires adhering to stricter operational constraints.

The renewal of the vehicle fleet contributes to the improvement of air quality in the city. However, emissions are not part of the compulsory checks conducted during the roadworthiness tests, despite the availability of the measuring tools. Senegal's limited refining capacity affects the fuel quality, together with the absence of any commitment regarding the reduction of sulphur in petroleum. Moreover, the Government has recently increased the age limit for imported vehicles from five to eight years (Decree No. 2012-444), to facilitate vehicle ownership for households. The creation of the Air Quality Management Agency (CGQA)²⁹ by CETUD, dedicated to the monitoring of air pollution indicators in Dakar, is certainly a positive move towards a better consideration of public health issues.

Ticketing systems also represent an opportunity going forward. A smartcard-based model would increase transparency and traceability for GIEs in terms of farebox revenues,³⁰ and help set the foundation for fare integration. Furthermore, a renewed fare policy – where route distances and patronage are considered variables in the definition of fares – could help avoid competition from remaining informal modes.

With a transparent, automatic, and formal revenue-sharing scheme, it would be easier to induce owners/operators to agree to frequency and operating hours requirements. Pooling revenue from less profitable times and routes with more profitable ones would be an incentive for operators to undertake the former while guaranteeing them net profits from the latter. The ability and willingness of the government to provide financial incentives for undertaking less profitable 'social' services would also help.

Finally, the professional capacity of GIEs to bid for and enter into contracts with authorities and to monitor and manage the services provided also needs to be improved. Capacity building programs that were originally part of the earlier reform phases need to be resurrected, strengthened, and included as ongoing government activities.

29. Centre de Gestion de la Qualité de l'Air

30. Some owners estimate that improved ticketing systems can increase revenues by as much as 40% (source: Transitec – Amarante, 2018).

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