

複写：可 (制限なし・学内のみ) / 不可

※ 年 月 日以降許諾する

リポジトリ： 公開 / 非公開

Doctoral dissertation

**Social interference in Dakar informal
transport and its implications in urban
transport policies**

PAPA ELIMANE FAYE

2013

観光科学 1454

Papa Elimane Faye

氏名 Papa Elimane FAYE

Tokyo Metropolitan University
School of Urban Environmental Sciences
Department of tourism sciences

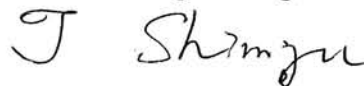
**Social interference in Dakar informal transport and its
implications in urban transport policies**

Thesis submitted to
School of Urban Environmental Sciences
Of Tokyo Metropolitan University
For the degree of **Doctor of Tourism Science**

By Papa Elimane FAYE

DISSERATION READING COMMITTEE

Tetsuo SHIMIZU, Professor, Doctor of Engineering: Principal Adviser



Takashi KOSAKI, Professor, Doctor of Agriculture



Susumu KAWAHARA, Associate Professor, Ph.D. of Engineering



Kahoruko YAMAMOTO, Associate Professor, Ph.D. Sociology



March 2013

首都大学東京 博士（観光科学）

学位論文（過程博士）

論文名

ダカールの非正規公共交通事業に対する
社会的干渉の実態と都市交通政策への示唆

著者

Papa Elimane FAYE （パパ エリマン ファイ）

審査担当者

主査

清水 哲夫

委員

小崎 隆

委員

川原 晋

委員

水本 美子

2013年3月

首都大学東京 都市環境科学研究科観光科学領域教授会

Tokyo Metropolitan University
School of Urban Environmental Sciences
Department of tourism sciences

**Social interference in Dakar informal transport and its
implications in urban transport policies**

Doctoral thesis

In Partial Fulfilment of the Requirements
For the degree of **Philosophiae Doctor (PhD)**
In Tourism Sciences of Tokyo Metropolitan University

By

Papa Elimane FAYE

Committee in Charge:

Principal Dissertation Adviser: Tetsuo SHIMIZU, Professor/ Doctor of Engineering

Field: Transport Planning, Transport Engineering, Tourism Planning

Co-Adviser: Takashi KOSAKI, Professor/ Doctor of Agriculture

Field: Terrestrial Ecosystems Management, Ecotourism, Environmental Education

Co-Adviser: Susumu KAWAHARA, Associate Professor/ Ph.D. of Engineering

Field: Urban planning & design, community-based development and tourism

Co-Adviser: Kahoruko YAMAMOTO, Associate Professor/Ph.D. Sociology

Field: Urban Sociology, Community Study, Migrant Study

PREFACE

This thesis is the result of my first four years as a researcher in Tourism sciences. Nonetheless my socioanthropological background helping, I was always interested in the study of mobility and especially in urban mobility. This makes me to migrate from field to field, University to University, faculty to faculty and department to department. After the department of sociology in Cheikh Anta Diop University where I have got a master in sociology, my first stage in Tokyo Metropolitan University was the department of urban studies for 6 months under the supervision of Associate Prof. Kahoruko YAMAMOTO, urban sociologist (many thanks to her by the way). I spent 6 months under the supervision of Prof. Tetsuo AKIYAMA, Transport planner, 6 months under the supervision of Prof. Hideki AZUMA, town planner and Dr Itsuky YOSHIDA, public transport policy before joining the lab of Tetsuo SHIMIZU, civil and transport engineer, all in department of Tourism.

This multidisciplinary environment makes me more flexible and adaptative; I earn new skills from all these supervisors that will be very helpful in my academic career. I would like to give thanks to all this professors.

The department of Tourism sciences I belong to is very unique system regarding its gathered fields of research and study; it puts a stress on urban, environment and regional planning rather than Hotel management or Hospitality. This original way of studying "Tourism" gives a new approach in this field that is not yet fully recognized by the academic community.

I think the Tourism industrie or economics of Tourism (which can study Hotel, hospitaly and travel management) should be included in the wide field of Tourism sciences, here is the relevance of this gait. So, Department of Tourism sciences in Tokyo Metropolitan University is divided into three major units: Nature-based Tourism Unit which observes the Terrestrial ecosystems management, Ecotourism, Environmental soil science, Rural tourism and rurality based-tourism, resource management and its sustainable system, Tropical biology, Nature resource conservation; Culture-based Tourism Unit which observes town planning, Transport planning, Transport engineering, tourism planning, urban planning & design, Community-based development and tourism, public transport policy; Tourism policy and Tourism information Unit which observes Tourism policy, tourism informatics, special information science for tourism, geographical information science.

This originality of studying tourism is quite interesting and should raise a big debate in the real field or study object of Tourism science. I pride myself to do part of academic background in such a department. Therefore, there is a sense to write my thesis on transport mater (management and social conflict) in this department.

Papa Elimane FAYE

ACKNOWLEDGEMENT

Oh yes! I make it after over a quarter in my life; the time to be doctor is coming and I feel very happy to close the part of my life and enthusiastic to open a new one (may be still in the academic world). Anyway, I get to know people and receive too much supports of all kind.

This thesis would have been much more difficult to write had it not for the assistance of number of people in primary, my supervisor Prof. Tetsuo SHIMIZU. I wish to thank the following people for their help at various stages of the process: sub-supervisors Associate Prof. Kahoruko YAMAMOTO, Prof. Takashi KOSAKI, Associate Prof. Susumu KAWAHARA. I would like to address the same acknowledgements to Prof. Hideki Azuma, Associate Prof. Itsuky YOSHIDA, Prof AKIYAMA, Takayuki ARIMA and Yu Okamura. I thank them for their interest and support.

I would like also to give thanks to the Japanese Government and the MOMBUKAGAKUSHO program and department of Tourism Sciences of Tokyo Metropolitan University. I wish to thank the TMU International Center and School office of Faculty of Urban Environmental Sciences; I especially selected the name of Yamada for her helps and availability first as a faculty school office officer and as an international center officer.

I do not forget my friends, my labmates, my family members (My mother Khady DIENG, sisters, brothers, Aunts, uncles and cousins) and . . . especially my wife Madam Oumy Ndiaye FAYE for her ongoing support and understanding, she permanently involved herself in these three years project.

DEDICATIONS

*I dedicate this thesis to my parents Khady and Badara.
They, more than anyone else, have been the best role models I could have hoped for.
To my wife Oumy, I will always love you
To my son Papa Badara (Badara-kun)
Long may you run!*

TABLE OF CONTENTS

preface	4
acknowledgement	5
dedications	6
Table of Contents	7
List of Figures, illustrations, maps, etc.	10
List of tables	13
RÉsumÉ (FRENCH ABSTRACT)	14
abstract	16
Chapter 1. Introduction	19
1.1 Presentation of study area profile.....	22
1.2 Background of study	24
1.3 Statement of the problem	25
1.4 Research questions	30
1.5 Hypotheses	30
1.6 Purpose of the study.....	31
1.7 Significance of the study.....	31
1.8 Assumptions, limitations and scope (Delimitation).....	32
1.9 Dissertation road map	34
1.10 Thesis structure	35
Chapter 2. Literature review	36
2.1 Literature Review.....	36
2.1.1 Urban transport in developing country	36
2.1.2 Informal transport and operating methods	40
2.1.3 Regulatory approaches and formalization.....	45
2.1.4 Expected contribution: Relation between informal organization and Transport policy	46
2.2 Definition of Used concepts	47
2.2.1 Urban mobility and Urban mobility practices.....	47
Chapter 3. Data collection and analysis: Approach and Methodology	53
3.1 Empirical approach	53
3.1.1 Complementary study approaches: hypothetico-deductive, hypothetico-inductive and observational-inductive.	53
3.1.2 Data tracking: The main field of research.....	55
3.1.3 The secondary field of study: Owners, Operators, and Administrators.	58
3.2 Difficulties and Problem with household travel survey in developing countries	59

3.2.1	Main difficulty during the household travel survey	59	
3.2.2	Issues of transportation research in developing country	61	
Chapter 4. objective description of urban transport use and weight of informal system in Dakar Urban Mobility			63
4.1	Description of urban transport use	63	
4.1.1	AFTU minibus, the new car rapid or the upheaval of hierarchy.....	67	
4.1.2	Dakar Dem Dikk (DDD) bus company and its operational characteristics ...	72	
4.2	Informal transport sector and its components	77	
4.2.1	Car rapid and Njaga Njai and their operating methods.....	78	
4.2.2	Informal transportation distributions and facility's accessibility.....	86	
Chapter 5. Dakar urban transport accessibility and urban mobility policy: inconsistency and ambivalence			90
5.1	Service supply characteristics of the formal public transportation	90	
5.1.1	Accessibility of mass transit and analysis of independency	97	
5.1.2	Getting to the destination and available transport mode.....	109	
5.2	Infrastructures and transport facility problems	112	
5.3	Paradox and ambivalence of public transport dependency: the non-choice phenomenon.	113	
5.3.1	Non-choice phenomenon	113	
5.3.2	Paradox and ambivalence in Dakar public transport.....	117	
5.4	Network coverage and inconsistency of policy: the people of roads.....	124	
Chapter 6. Mesosociological analysis of informal transport sector and expression of social powers.....			137
6.1	Social interactions in Dakar Informal transport Organization: development of Social power.....	137	
6.1.1	Educational level in informal public transport workers	137	
6.1.2	Organizational forms and level of control	140	
6.1.3	Expression and development of social power	149	
6.1.4	Social power vs political weakness: Inside Mutations and/or transfer of social power	158	
6.2	Interrelationship between actors	161	
6.2.1	The operating environment and Interrelation.....	161	
6.2.2	Discussion on Dakar informal transport' social issues: the external relationship.....	166	
Chapter 7. conventional car rapid model as a sustainable urban transport option: element of car rapid phenomenon rethinking.....			172
7.1	AFTU Scenario and Transition problem.....	172	
7.2	Rethinking car rapid as a centerpiece of sustainable urban transit in Dakar	174	
7.3	Alternative Model	179	
7.4	Relevance of the proposed model	182	

7.5 Political option for sustainable car rapid system.....	184
Chapter 8. conclusion and recommendation.....	188
8.1 Contribution	190
8.1.1 Application of this approach	191
8.2 Recommendation.....	192
8.3 Further work.....	193
References	194
Appendix A. Some selected testimonies on car rapid experience for foreigners.....	200
Appendix B. Questionnaires.....	203
Appendix C. free interview and focus group	204
Appendix D. excerpt from interview transcript	208
Index	213

LIST OF FIGURES, ILLUSTRATIONS, MAPS, ETC.

Figure 1: Map of Islamic brotherhoods in Senegal	20	
Figure 2: Location of Dakar metropolitan Area	22	
Figure 3: Population of Prefectures	Figure 4: Residence type	23
Figure 5: Study objects	24	
Figure 6: Former public transprt structure	Figure 7: Current public transport structure	25
Figure 8: Regulation matrix	28	
Figure 9: Government scenario willingness	29	
Figure 10: Research design	34	
Figure 11: Jeepney (Manilla, Phillippines)	Figure 12: car rapid (Dakar, Senegal)	41
Figure 13 : Minibus-taxi displaying the required decals (South Africa)	45	
Figure 14: Literature review table	46	
Figure 15: Area of Study	57	
Figure 16:Transport modes in Dakar	63	
Figure 17: Walking time before finding a minibus	69	
Figure 18:Waiting time to get AFTU	70	
Figure 19:AFTU user's satisfaction	71	
Figure 20: Time to DDD bus stop	73	
Figure 21:Waiting time for DDD	74	
Figure 22: Average travel time for DDD users	75	
Figure 23: DDD customer perception	76	
Figure 24 : Njaga Njai with Apprentis on the back	Figure 25: car rapid with Apprentis on the back	78
Figure 26 : Example of Muslim religious leaders on Car rapid	82	
Figure 27: Walking time to get informal transport	86	
Figure 28: Informal transport users' perception	87	
Figure 29: Socio-demographic charachteristics of travellers	90	
Figure 30: Travel frequency by location	92	
Figure 31: Travel frequency by professional status	93	
Figure 32:Transport problem by type of settlement	94	
Figure 33: Mode choice factors	95	

Figure 34: Expenditures on Public Transport	96
Figure 35: Neighborhoods and facilities	98
Figure 36: Waiting time at transit stop	101
Figure 37: Car ownership	103
Figure 38: Household access to public transport	104
Figure 39: Accessibility to P. T. by income	105
Figure 40: Map of car rapid and Njaga Njai lines	107
Figure 41: Origin-Destination trends	110
Figure 42: Road condition 1 Figure 43: Road condition 2	113
Figure 44: Traffic in banish P. T. area Figure 45 Modes sharing roads with people 121	121
Figure 46: Number of daily trip per person	122
Figure 47: Map of congested area	124
Figure 48: Map of car rapid and Njaga Njai network	125
Figure 49: Representation of public transport network in Dakar city edge	126
Figure 50: Traffic on Route des Niayes Figure 51: Traffic on Corniche	126
Figure 52: Mode distribution by video record data	130
Figure 53: Video Record location and specification	131
Figure 54: Map defining people of road	132
Figure 55: Car rapide smoking on traffic jam Figure 56: Pollution map	134
Figure 57: School origin of informal transport workers	138
Figure 58: Educational level of public transport workers	139
Figure 59: The main religious brotherhood	140
Figure 60: Religious commitment of informal transport operators	141
Figure 61: Figure according to activity involvement in religious group	142
Figure 62: Labor movement membership	143
Figure 63: Union resistance/obedience	144
Figure 64: Horse-drawn carts replacing P. T. modes during a strike	146
Figure 65: Influence of groups	147
Figure 66: Religious power expression	149
Figure 67: customer satisfaction in AFTU service	151
Figure 68: Expression of social power	153
Figure 69: Relation based on business	162
Figure 70: Conflictive relation	164

Figure 71: Complementary relation165
Figure 72: Inside relationship of Dakar informal transport166
Figure 73: Transition plan and encountered problems172
Figure 74: Car rapid for Jeepney example175
Figure 75: Opinion share on car rapid perception178
Figure 76: Conventional proposed model180
Figure 77: The ideal scenario181
Figure 78: Car rapid seats configuration183
Figure 79: Possible political option of the model184
Figure 80: Sociopolitical approach frame190
Figure 81: Nature of relationship inside informal transport organization191
Figure 82: Interaction of power191

LIST OF TABLES

Table 1: Paved roads in selected African cities, compared with developing-world average.....	38
Table 2: Daily trips by public transport mode, 2003.....	65
Table 3: Main transportation mode	67
Table 4: Data on Dakar Dem Dikk operation in 2003	72
Table 5: user's Perception comparison of Dakar urban transport modes	89
Table 6: Comparison of time-use in waiting urban transport modes	100
Table 7: Modal share in Dakar before 2005.....	106
Table 8: Origin-Destination	109
Table 9: Comparing DDD, PTB, AFTU, Car R. N.N business structures	156
Table 10: Staisfaction scale of daily payment.....	163
Table 11: Relationship of behavior and urban transport.....	170
Table 12: Elements of comparison car rapid and Jeepney representation	176
Table 13: Most often used concepts to define car rapid by interviewees	177
Table 14: Comparison of the futures models	182

RÉSUMÉ (FRENCH ABSTRACT)

Cette recherche porte sur l'organisation du transport informel et son implication sur les politiques de transport à Dakar. En effet, le transport informel, organisé autour du système des Cars rapides et Ndiaga Ndiaye à Dakar, est exploité par beaucoup d'acteurs qui sont parfois des individuels, des groupes ou bien même des associations parmi lesquels on peut identifier des groupes religieux représentés par ceux qu'on appelle communément *Marabout* au Sénégal. La problématique soulevée par cette thèse est formulée en ces termes: quelles sont les implications entre les politiques de mobilité urbaine à Dakar et les aspects socio-politiques dans le secteur du transport informel? Ce document a pour but de vérifier ou de répondre à trois éléments: la difficile transition de l'informel au formel, le rôle des interférences sociales dans les politiques de transport urbain à Dakar, les processus de décision et la situation actuelle de la mobilité urbaine.

Divisée en 8 chapitres y compris l'introduction et la conclusion, cette thèse présente une approche sociologique et une autre dite des sciences politiques qui sont fusionnées pour mieux comprendre les interactions sociales au sein du transport informel, les processus de décision dans les politiques de mobilité, les relations entre travailleurs et tenants de pouvoir, les conflits entre les pouvoirs eux-même et les comportements politiques des décideurs. Ainsi donc, au delà de cette contribution académique, cette thèse pose pour la première fois le débat sur l'opportunité de faire disparaître les cars rapides dans le secteur du transport urbain à Dakar ou du moins sur la pertinence de leur maintien, leur protection, leur régularisation et leur modernisation.

La revue de la littérature existante montre que beaucoup de recherches ont porté sur le management des transports urbains et leurs aspects politiques dans la problématique du transport public. Elles ont eu d'importants résultats, qui du reste, sont intéressants mais il est toujours difficile de comprendre pourquoi les systèmes de transport urbain dans les pays en développement et particulièrement en Afrique ont toujours eu du mal à s'envoler. Cette problématique n'est pas résolue parcequ'il n'y a presque pas d'étude portant sur l'organisation des transports et ainsi donc pas d'explication sur les échecs répétés des gouvernements dans leur processus de formalisation et de régularisation des transports informels dans leur monde. Ce champ ou ce sujet inexploré et inexploité est donc l'objet principale de cette thèse.

Ainsi donc, 4 chapitres s'articulent autour de l'analyse des résultats. En effet dès l'entame du chapitre 4, nous avons constaté un bouleversement dans la hiérarchie du transport permettant ainsi à AFTU (nom donné aux nouveaux minibus de marque *Tata* et *king Long*) de deviner ou d'être sur le point de devenir le principal mode de transport des Dakaïois. Cependant, le transport informel est toujours entrain de jouer son rôle; en effet, les Cars rapides introduits dans le transport urbain à Dakar depuis 1947 présentent un aspect plutôt symbolique et culturel. puisqu'ils apparaissent comme une représentation réelle de la société, qu'il n'est un simple mode de transport.

Au chapitre 5, les résultats révèlent certaines disparités dans l'utilisation des moyens de transport; la structure de l'accessibilité aux modes de transport retire toute forme de liberté et d'indépendance dans la décision de voyages. En effet, les usagers des transports publics prennent juste les moyens de transport qu'ils ont en face d'eux. En outre, il n'existe aucun lien entre le renouvellement des infrastructures et les besoins de mobilité de la population. En conséquence, il apparaît une contradiction importante entre l'orientation des voyages et le plan officiel de mobilité.

Dans le chapitre 6, nous constatons que le secteur du transport public global se caractérise désormais par trois catégories de personnes: ceux qui ont été initiés à l'école laïque, ceux qui ont reçu une éducation islamique, et ceux qui n'ont reçu aucune sorte d'enseignement reconnu. Ainsi, ces trois catégories sont organisées en deux visions principales: ceux qui optent pour l'affiliation à des lobbies religieux et ceux qui optent pour les syndicats. Par conséquent, les confréries religieuses sont encore influentes sur l'organisation des transports. Cette influence longuement identifiée dans le secteur n'a donc pas changé, mais la structure du pouvoir social et religieux dans ce secteur du transport informel a été complètement redéfinie.

Quant au chapitre 7, il apparaît un réel problème lié au remplacement des cars rapides par AFTU. Les données de notre enquête ont constaté et confirmé une sérieuse résistance de certains exploitants de Cars Rapides. L'option que l'Etat a prise de structurer l'entreprise sur la base d'associations, d'opérateurs ou de propriétaires plutôt qu'un élément de structure standard d'entreprise pose le problème de la faiblesse politique alors qu'une place est accordée à la religion si l'on en croit les résultats de notre recherche qui révèlent que les associations sont parfois parrainées par un groupe religieux et nous avons même identifié une association AFTU appartenant à un groupe religieux. En outre, d'un point de vue macrosociologique, les cars rapides sont considérés comme une identité culturelle du système urbain dakarois par des personnes vivant à Dakar et des étrangers.

Ainsi, puisque nous avons déterminé que chaque personne s'approprie et se lie à certains avantages sociaux du Car Rapide tel que la configuration des sièges, le symbole qu'il représente en raison de son histoire et de son espace social, nous avons consacré la fin de ce chapitre à un modèle alternatif au scénario de transport urbain existant et qui ne répond pas encore à la volonté du gouvernement, ainsi donc, nous pensons que le meilleur scénario pour un transport urbain durable à Dakar est l'amélioration du système Car rapide

Cette thèse propose de repenser le phénomène Car rapide et de l'améliorer au lieu de le retirer du système de transport urbain à Dakar. La pertinence de cette structure est l'absence totale d'influence socio-religieuse et le contrôle complet du système de transport par l'Etat. Le scénario proposé place les Cars Rapides au même niveau que DDD et PTB, et l'option proposée pour la structure de l'entreprise est la forme parapublique pour un système durable de car rapide moderne afin de restaurer un pouvoir public fort dans le domaine des transports que le gouvernement devrait avoir et de supprimer complètement l'ingérence sociale.

ABSTRACT

This thesis focuses on informal transport organization and its implications on urban transport policy. In fact informal transport in Senegal is operated by individual and groups or associations among which we can identify some religious leaders known as *Marabout*. The issue that the thesis addresses is the implication between Dakar urban mobility policy and socio-political aspects of informal transport. This thesis aims to address three elements: the difficult transition of Car Rapid and Njaga Njai (informal and current main urban transport systems) operators from informal to formal, the role of social interference in urban transport policy and the urban mobility situation.

The thesis consists of 8 chapters including Introduction and Conclusion. Chapter 2 is the literature review; scholars focused on several aspects of urban transport and the political aspect of public transport issues but it is still difficult to know why urban transport in developing countries and especially in Africa has encountered problems. This issue is so far not addressed because of lack of study focusing on the link between inside of transport organization and informal transport regularization. These unexplored subjects are the main target of this thesis.

As for Methodology in Chapter 3, survey, observation interview and focus group have been done to collect several and detailed information; first of all, we conducted among Dakar urban population a household travel survey. Answers were collected from 1030 people. Interviews and focus groups were also conducted with public transport actors. Observation and digital video record involved a camera and a video recorder to track and observe person's movements across some public roads. As for the reasoning method (analytical), sociological approach and political sciences approach were combined into socio-political approach to better understanding on social interaction inside informal transport sector. Therefore, besides that academic contribution, this thesis poses for the first time the debate on whether Car Rapid should be withdrawn from Dakar or whether it should be protected, regulated and modernized.

Results start with description of urban transport use, weight of informal system and review of government objective and direction in Chapter 4. Findings reveal some upheaval of hierarchy providing AFTU (the new minibuses that are supposed to replace car rapid) as becoming the main urban transport mode in Dakar. However, informal transport is still playing its role. Indeed Cars Rapids, introduced in Dakar since 1847 is more symbolic and

cultural as it is a real representative of Dakar urban society. We also found users' perception of Car Rapid/Njaga Njai and AFTU as a threat of government objective and orientation

In Chapter 5, we focus on inconsistency and ambivalence between demand structure and supply as a social problem. Results reveal some disparities in transport use; accessibility pattern to transit modes withdraws the freedom and independency in travel decision. Also, there is no link between infrastructures renewal and population mobility needs. As a consequence, it appears an important inconsistency between nature of travel and official mobility plan. The key-finding concept here is *People of Road* in reference of social exclusion and user's categorization of urban roads. This chapter reveals some mismatch of people desire and government option in term of minibus selection. Providing better service was the aim of the government.

Chapter 6 deals with the development of social power and its expression: the effect of religious power. Findings are: school origin and educational background are factors of social power development. The global public transport sector is now characterized by those who opt for attachment to religious lobbies, those who opt for union labor attachment and those who do not have any related group of pressure. Consequently, religious brotherhoods are still influencing the transport organization but the structure of the power has been completely changed. Impact on actor's relationship, both in micro and macro sociological point of view, creates dependency of all actors on *Marabout* this explains why they get means to maintain political influence.

In Chapter 7, we speak about limitation of AFTU model and possibility of an improved, modernized and conventional Car Rapid. Findings state that a real problem of transition from Car Rapid to AFTU appears. The option of having association of owners' structure instead of a standard business structure poses the problem of political weakness while a place is given to the religious leaders. In the meanwhile, since we found that each person links himself to some social benefit of Car Rapid such as its seat configuration, the symbol it represents due to its history, its social space, we devoted the end of this chapter to an alternative model of existing urban transport scenario that does not meet yet the government willingness, we think that the best scenario for a sustainable urban transport in Dakar is the enhancement of Car Rapid. This thesis suggests rethinking the Car Rapid phenomenon and enhancing it instead of removing it from Dakar urban transport. The relevance of this structure is the total absence of religious influence and the full control of transport system by government. The aim of this proposal is providing better service and strengthens political power or reduces social interference. The proposed scenario places Car Rapid in the same

level with DDD (bus service) and PTB (railway service), and in that level, road categorization, social exclusion and imbalance will be reduced while chosen business structure option can be *Parastatal* form to give a strong political power that the government should have and to completely remove the social interference.

CHAPTER 1. INTRODUCTION

Transport problem is now an important concern for the entire world. It is an important element in both urban and rural development. Sustainability in urban structure has a deep link with transport situation in cities. Population movement is growing up and access to public transport in the developing world is tenuous. Mobility in third world cities is marred by the stark unavailability of reliable public transport and the population growth.

Nevertheless, a well-organized transport structure helps to clean an economical space and improves quality of life. It provides mobility of people and goods, and influences patterns of growth and access to land. A good transportation system affects public policy concerns like air quality, environmental resource consumption, social equity, land use, urban growth, economic development, safety, and security. It enhances also the tourism activity and destination in the city.

So it's clear that transportation system has deep links with other societal problems. Thus it is important to develop strategies for operating, managing, maintaining, and financing the new transportation system to advance the area's long-term goals.

Senegal, as much countries of the world, knows all the forms of transport that exists: roads, railroads, sea and the airspace. In an urban point of view, earth transport does not give the decoration we find in the big world cities but can be subdivided into two main categories with an important road network and a small railway way space. This means in the urban transport system in Dakar, road way seems to be overexploited while the rail system is weakly used due to the weakness of operation space.

This can explain why in Dakar, there are many problems of accessibility and mobility, the distribution of employment and the commercial activities do not correspond with the distribution of the population. The heart of economic life is located in the district called "Plateau", at the end of the peninsula. This generates important daily traffic from the residential areas to the business centre.

The access level of the urban services in the city is intrinsically linked to the geographical mobility of the users. The spatial configuration of Dakar is such as if the places of residences are dispatched in diverse places, the big urban services, workplaces and the main part of the administration are concentrated in the down town.

As result, transportation in Dakar is in crisis since years with a lot of time spent on traffic congestion which means loss of productive hours, the physical injuries to travelers or other users due to accident, the noise and air pollution; also this situation weakens Dakar as a transit and tourist destination since public transport is weak and urban mobility gets more and more difficult.

Decision-makers seem to have difficulties to implement a suitable transport policy; so multiple options were chosen, infrastructures seem to be favored rather than transportation mode and traffic organization. So, we are interested in those difficulties for decision-maker to come over

transportation crisis in Dakar. The central phenomenon of this thesis is about informal urban transport and their political and social implications.

Social phenomenon is important in Dakar informal transport due to the deep commitment of Senegalese people in religious issue, and the deep implication of religious leader in transport organization and exploitation.

Map of Islamic Brotherhoods in Senegal

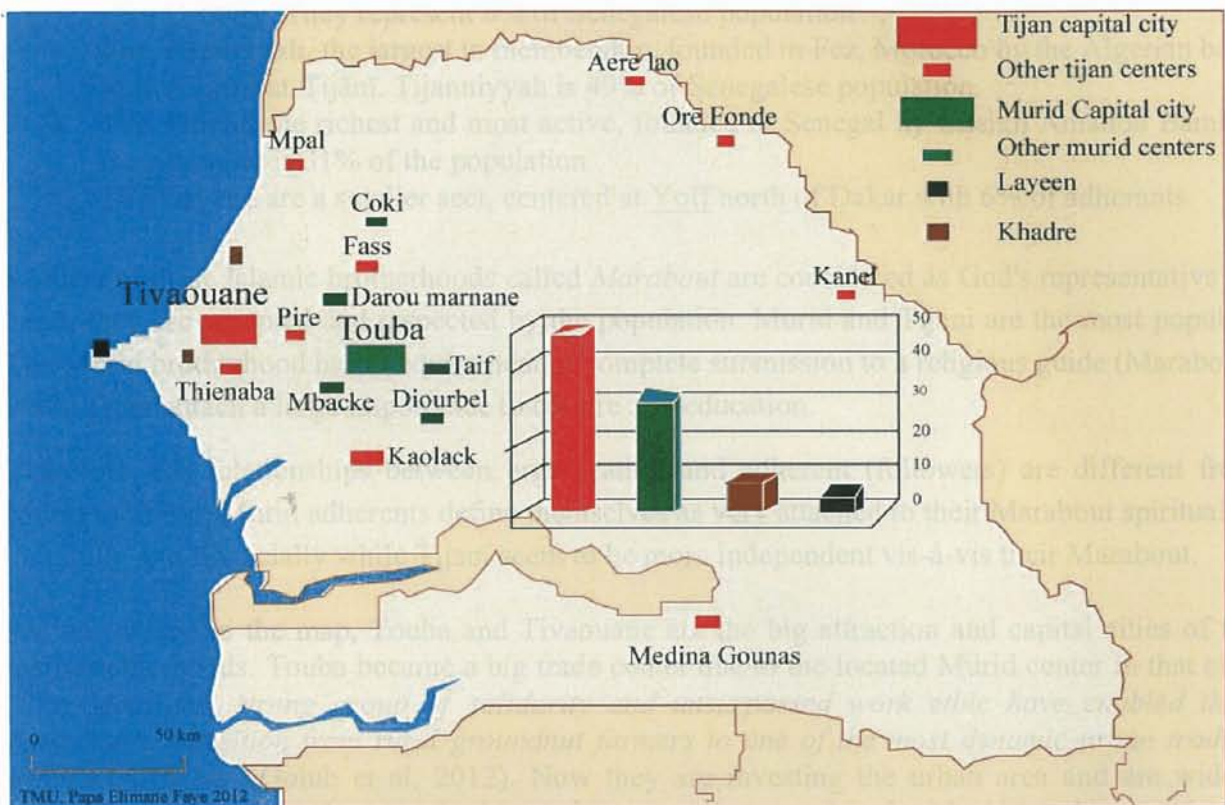


Figure 1: Map of Islamic brotherhoods in Senegal¹

Religion in Senegal is important and almost all Senegalese people believe in something. According to the DPS report 2007, Senegal counts 95% of Muslims, 3% of Indigenous beliefs and 2% of Christian. We can argue that almost all people are Muslim. At the same time it is difficult to find non-religious in Senegal, it is also difficult to find a non-Muslim in the country; all others religious being only 5%.

¹ Sources: Papa Elimane FAYE, TMU 2012

A Muslim is an adherent of the monotheistic Abrahamic Religion called Islam based on the Qur'an¹ which is considered as the verbatim word of God as revealed to Prophet Muhammad². "Muslims believe that God is eternal, transcendent, absolutely one (the doctrine of tawhid, or strict or simple monotheism), and incomparable"³; "Muslim" is an Arabic word meaning "one who submits to God".

Muslims in Senegal are divided into various active organizations that can also be found in many other parts of Africa and the Islamic world. The four largest are:

- The **Xaadir (Qādiriyya)**, the oldest, originally founded in Baghdad (Iraq) by the Sufi mystic Abdul Qādir al-Jilānī in the 12th Century, now pan-Islamic, spread to Senegal in the 18th Century. They represent 8% of Senegalese population
- The **Tijaniyyah**, the largest in membership, founded in Fez, Morocco by the Algerian born Sīdī 'Aḥmad at-Tijānī. Tijaniyyah is 49% of Senegalese population.
- The **Murid**, the richest and most active, founded in Senegal by Cheikh Amadou Bamba; their number is 31% of the population
- The **Layene** are a smaller sect, centered at Yoff north of Dakar with 6% of adherants

Leaders of these Islamic brotherhoods called *Marabout* are considered as God's representative on earth; they are accepted and respected by the population. Murid and Tijani are the most popular. The Murid brotherhood has a requirement of complete submission to a religious guide (Marabout) while Tijānī attach a large importance to culture and education.

Therefore, the relationships between organization and adherent (followers) are different from Murid to Tijani; Murid adherents define themselves as very attached to their Marabout spiritually, culturally and financially while Tijani seem to be more independent vis-à-vis their Marabout.

As we can see in the map, Touba and Tivaouane are the big attraction and capital cities of the main brotherhoods. Touba became a big trade center due to the located Murid center in that city; "The Mourides' strong group of solidarity and unsurpassed work ethic have enabled their remarkable transition from rural groundnut farmers to one of the most dynamic urban trading groups in Africa" (Golub et al, 2012). Now they are investing the urban area and are widely identified in the informal sector. In this study, we are interested in the Murid involvement in the informal transportation sector and their role.

¹ The Quran (English pronunciation: Kur-ahn) is the central religious text of Islam

² Muhammad is the Islamic religion revelator and expansionist, accepted by Muslims throughout the world as the last of the prophets of God

³ thefreedictionary.com

1.1 PRESENTATION OF STUDY AREA PROFILE

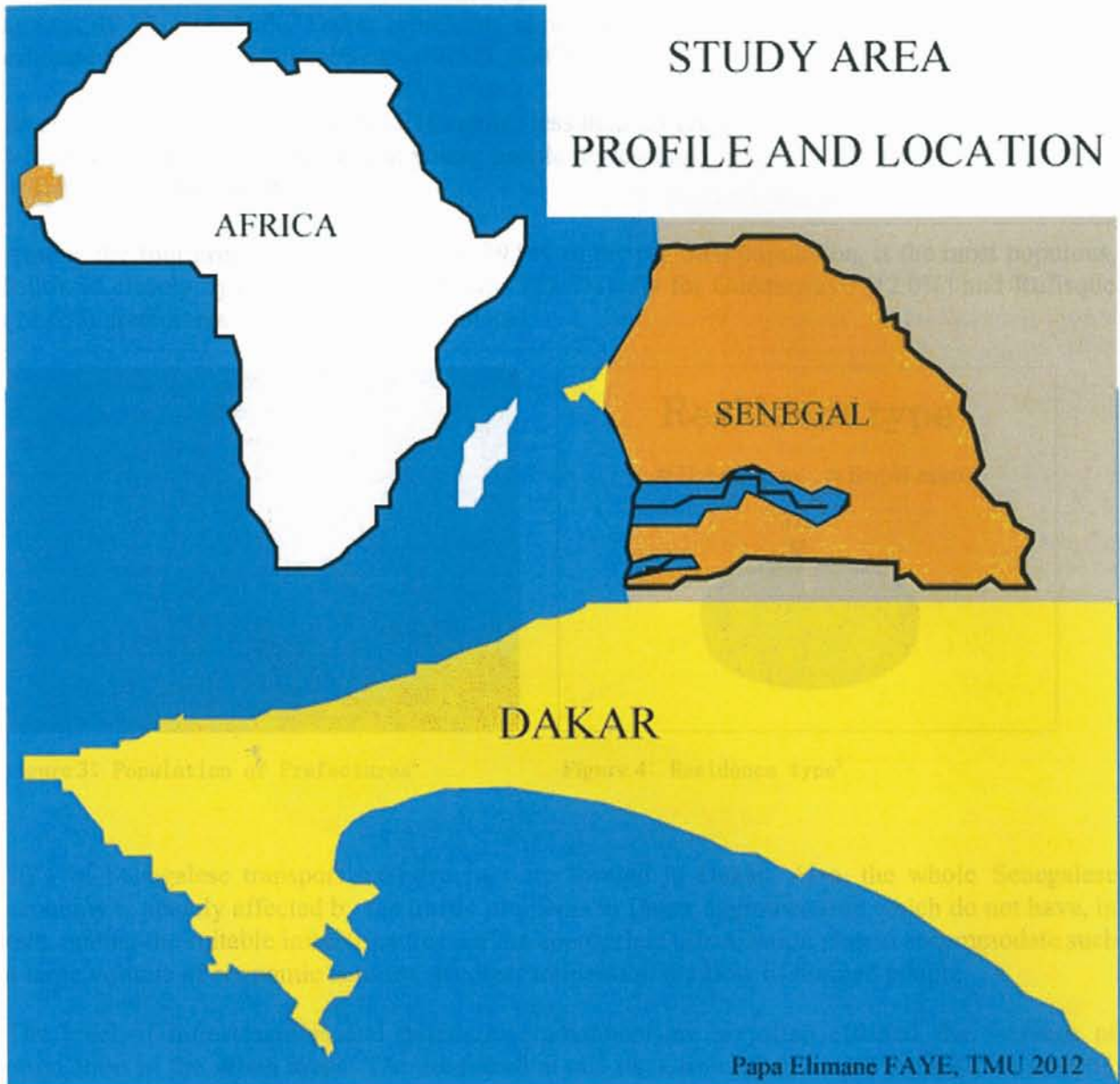


Figure 2: Location of Dakar metropolitan Area¹

Dakar is the capital and largest city of Senegal in terms of population; it is positioning on the western edge of Africa and is located in the Cap Vert Peninsula. The metropolitan area covers a surface of 550 km², or 0.28% of the national territory. It is bounded in the east part by Thies region and in Northern, West and South parts, by the Atlantic Ocean².

¹ Sources: Papa Elimane FAYE, TMU 2012

² Situation Economique et sociale de la region de Dakar de l'annee 2007/SRD de Dakar

Dakar is divided into 4 prefectures: Dakar, Pikine, Guediawaye and Rufisque with a population, for the entire region, estimated in 2007 to 2,428,155 inhabitants, organized into 50.1% of male against 49.9% of female. Dakar represents almost one quarter (21.4%) of the total population, estimated at 11,360,985 inhabitants (SRSD, 2007).

Its population is still young with 45.1% aging less than 20 years old, 72.6% of the population are less than 35 years. This means that young people represent more than two thirds of the population in Dakar metropolitan area.

Among the four prefectures, Dakar, with 39.9% of the regional population, is the most populous, followed closely by the prefecture of Pikine (35.5%). As for Guédiawaye (12.0%) and Rufisque (12.6%) prefectures, they are not so populated.

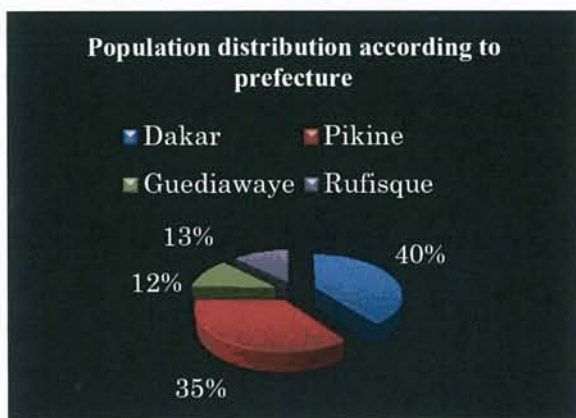


Figure 3: Population of Prefectures¹

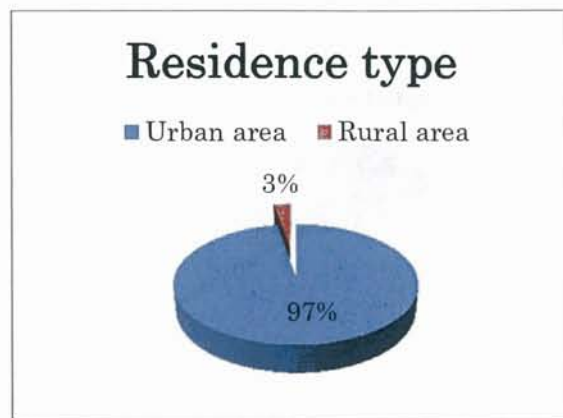


Figure 4: Residence type²

80% of Senegalese transport infrastructure are located in Dakar. Also, the whole Senegalese economy is heavily affected by the traffic problems in Dakar agglomeration which do not have, in fact, neither the suitable infrastructures nor the appropriate urbanization plan to accommodate such a large volume of economic activity, needless to mention the flow of drained people.

The level of infrastructures and population movement are so often affected the increase of population in the urban areas. The urbanization rate rises from 88.4% in 1976 to 97.2% in 2007. With such a rate of urbanization, Dakar remains the most urbanized region of the country. This brings the urban mobility difficult; population gets daily real difficulty to commute.

In 2007, Dakar counts 80% of Senegalese motorized transport fleet; this locates 23 693 transport fleets in Dakar while the national fleet is 29 725. The regional bureau of land transport registers an average of 65 vehicles per day and private vehicles represent 66.49% of the fleet in Dakar.

¹ Sources: SRSD, 2007

² *ibid*

In Dakar Metropolitan area, urban transport is provided by bus company "Dikk Dakar Dem" (DDD), the mini-bus "AFTU", the city bus "car rapids" and "Njaga Njai" and urban taxis. Urban transport company DDD has a fleet of 408 vehicles in 17 lines; its network coverage is 987 stops. Its commercial speed is 18km / h. Fare vary between US \$0.30\$ to US\$ 0.55. 2077 urban taxis are listed in Dakar Metropolitan area while intercity taxis are numbered to 64. (SRSD, 2007)

Railway traffic in Dakar is provided by the "Petit Train Bleu" (PTB) with 16 stops. In 2007, 3,550,317 passengers have been commuted by PTB from Dakar to the suburbs or vice versa. Its commercial speed is 25 km/h for an operational line of 27 km.

1.2 BACKGROUND OF STUDY

This study is focusing on three elements: Informal transport organization, urban transport policy and the relationship between them. The figure 5 (below) shows the various points I am interested in for this study and how I will organize my research.

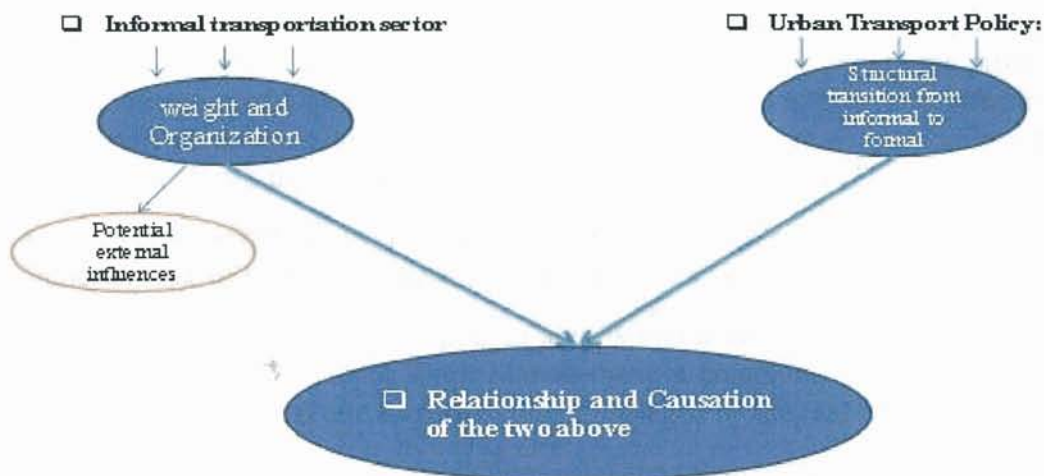


Figure 5: Study objects

In fact informal transport in Senegal is operated by several actors both individual and group or association. In this light, we are interested in the weight¹ of each actor since the interplay of actors reveals some social weight² of this kind of transport organization. There are some potential external influences that we want to identify; external influences mean something out of the system that can make some change to the system.

In this study, we observed actors inside the system known as workers and their business organizations and the labor unions that legally bargain with government on behalf of workers. The interesting point of the unionism in Dakar informal transport is that instead of bargaining with employers on behalf of workers, they deal with the government on behalf of workers. This is very

¹ Here weight means scale, measure, level of power

² Social weight here can be defined as attenuation that transport organization causes in social interaction between transport and communities. In global, social weight is the power and impact of social interaction on other elements

special while we know that all the labor unions seek to ensure that laborers are fairly compensated for the work that they provide their employers.

The second point of this study is the urban transport policy. Indeed, the Senegalese government has defined several transport policies to enhance the urban mobility in Dakar. Numbers of initiatives have been taken such as transport infrastructure renewals and urban transport fleet renewals. However, the same problems of transport still lead the Dakar urban system. We are interested in this policy of transport and the decision making process that leads these policies

The third object of this thesis is the relation between the two first points; is the informal transport sector affected the urban transport policy or it is the opposite? In short what interested me here are the relation and the causation of the informal transport organization and the transport policy.

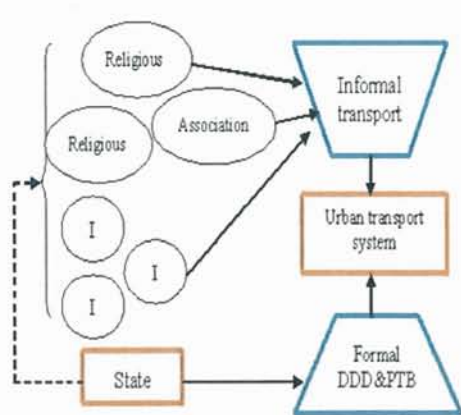
1.3 STATEMENT OF THE PROBLEM

According to the study on Dakar urban economy, 80% of Senegalese transport infrastructures are concentrated in Dakar. Also, the economic situation strongly undergoes the problems of traffic in the Agglomeration of Dakar which has, in fact, neither the appropriate infrastructures, nor the suitable plan of urbanization to accommodate such a volume of economic activities, without mentioning the flows of populations.

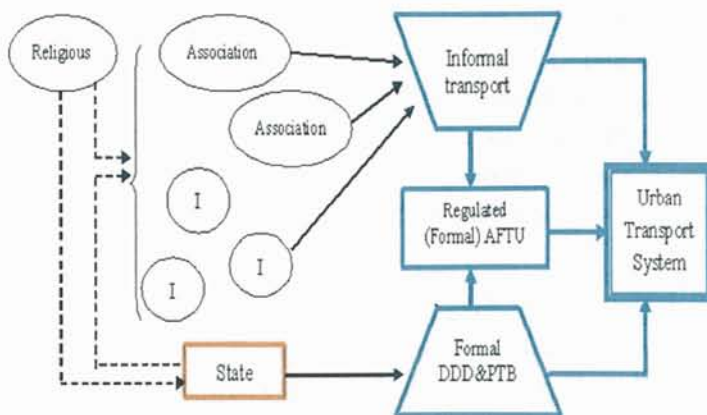
In Dakar, population uses several mode of transportation to ensure their mobility. We can notice an important use of road while there are few maritime and railway use.

The network level in Dakar metropolitan area is 960 kilometers including a classified roadway system managed by the Public Work Management, a communal network managed by the local government agencies and one roadway system managed by the real estate companies

In addition to this road network which dominates the urban transport, a railway line of 26.6 km, and a bus system constitute the main urban transport modes in Dakar agglomeration.



*I = Individual *Informal transport: Car rapid & Njaga Njai



*I = Individual *Informal transport: Car rapid & Njaga Njai

Figure 6: Former public transport structure

Figure 7: Current public transport structure

Figure 6 and figure 7 show the urban transport situation in Dakar. Indeed, Dakar is for long time dominated by the road transport with somewhat overuse of public buses and mini buses. The urban transport knows several phases of transformation or evolution but in recent history, we noticed two important phases. The first is what we call Former Public Transport structure. In fact, urban transport in Dakar was organized before 2000 mainly under the domination of informal sector. In this period, there was no formal public transport, the formal bus system (SOTRAC) went bankrupt and the train was not operating at all. This situation being complicated for population mobility and the economic situation of Dakar metropolitan area, government decided to create a new company of bus system to solve the mobility problem, it was in 2001 when Dakar Dem Dikk (DDD) was created.

This makes the urban transport into two different systems: an informal system and a formal one. The informal transport dominated the whole urban transport with two main transport modes known under car rapid and Njaga Njai. Since they are informal, their number remains unknown but is estimated between 2500 to 3000 devices and their average age is 20 years old.

In the meanwhile, the formal transport was organized under two companies PTB (Petit Train de Banlieue), a train system that serves Dakar and its suburb and DDD that counts a so limited fleet of 408 vehicles divided into 17 lines with a covering network of 987 stops. The train system (PTB) with 16 stops has only one line, 11 engines and 36 cars.

To observe the figure 6, I know then transport in Dakar is organized under the informal and formal system. This last one is operated by the government while the informal sector presents so many players. Usually, transit modes in this sector are operated by individuals, association or religious group. Most important owners were counted in the religious group and especially in Murid brotherhood¹. Other owners are individuals and operated by themselves or a hired person. And association gathered some people for some economic interest.

The religious group dominates the transport exploitation in the former structure mentioned by figure 6; the state was not able to solve the transport problem in the capital city and it called for operation. The big problem was the lack of rules and text in this traffic operation. The law of transport was imposed by the view of religious group and workers mainly from those religious organizations. As a consequence, transportation system offers a disorganized atmosphere, unfair competition between them and big dysfunction with untrained and unprofessional workers. There was almost no sanction because of the status of operators. Maintenance of transit mode was never confirmed and fleet was old.

This situation also could not solve the problem of transit in Dakar; congestion became daily problems while number of accidents increased severely. Transport service became difficult for population with some initiatives of workers while the whole system was out of controlled. On this period, formal transport (both PTB and DDD) could not carry more than 4% of the travelers per day due to the limited number of fleet and the inaccessible fare system.

¹ Senegalese Islam is composed by different Groups or schools called Brotherhood; Murid is part of them

Consequently, the government decided to take control of transport. It fixed 3 objectives; the first is to renew the old fleet of informal sector, the second to regulate the system, bringing it from informal to formal, the third is to improve the service (urban mobility). This program is supported by PAMU (Programme d'Amelioration de la Mobilite Urbaine).

In figure 8, the current situation of Dakar urban transport can be read; the renewal of the fleet is going on but the problem still remains since transport system is still dominated by the informal sector. However, this government action makes some change in the transport sector since the new system introduced by the government is based on the grouping of car rapid and Njaga Njai's former operators and new fleet is introduced. The government willingness was to remove all car rapid and Njaga Njai in the benefit of new minibuses. This option is called AFTU which gathered now 14 GIEs (association) grouped from the former owners and operators of the informal sector.

As a consequence, the structure is completely changed since there are not individuals in the operation of AFTU (the new minibuses) and the fleet are renewed since vehicles are new. This system is also formal with some level of regulation but the government still missed to meet its willingness; figure 8 displays a new structure with the informal transport, the formal AFTU and the Bus and train system. This means car rapid and Njaga Njai are still part of Dakar urban transport and officially, they continue to dominate the urban transport.

I noticed then, government does not meet yet its objectives since the informal transport is still dominated the urban system, the fleet still old and the service still bad. So what we got after the new government policy is an urban transport of 3 parts: an informal sector with Car rapid and Njaga Njai, a private formal sector with AFTU and a public formal sector with DDD and PTB.

The religious groups are not anymore operating in the informal sector which suffered from a performance problem; they preferred investing the intercity transport sector with the development of Car Serign-bi¹, another informal system. Therefore, car rapid and Njaga Njai are mostly operated by individual and some association. As it is shown in figure 8, even if religious groups are mostly retired from operating in the urban informal transport, they still have some relation with workers and operators. Sometime, they have strong influence in their action and behavior.

As for the public authority embodied by the state, they also keep some relation with the religious groups in the management of urban transport. This gives to the religious group some power and we can notice in the new AFTU system, since the same operators are gathered and among the 14 associations, there are some belonging or closed to the religious group, then religious presence is still identified. This is also why government still needs the religious power to manage the urban transport system with its 3 components in Dakar. The regulation is still ongoing but the state seems to be very slow in the implementation

¹ A new system of informal intercity transport imposed by the religious leaders, car serign-bi is Senegalese language (Wolof) which means literally the bus of the *Marabout* (Religious leaders)

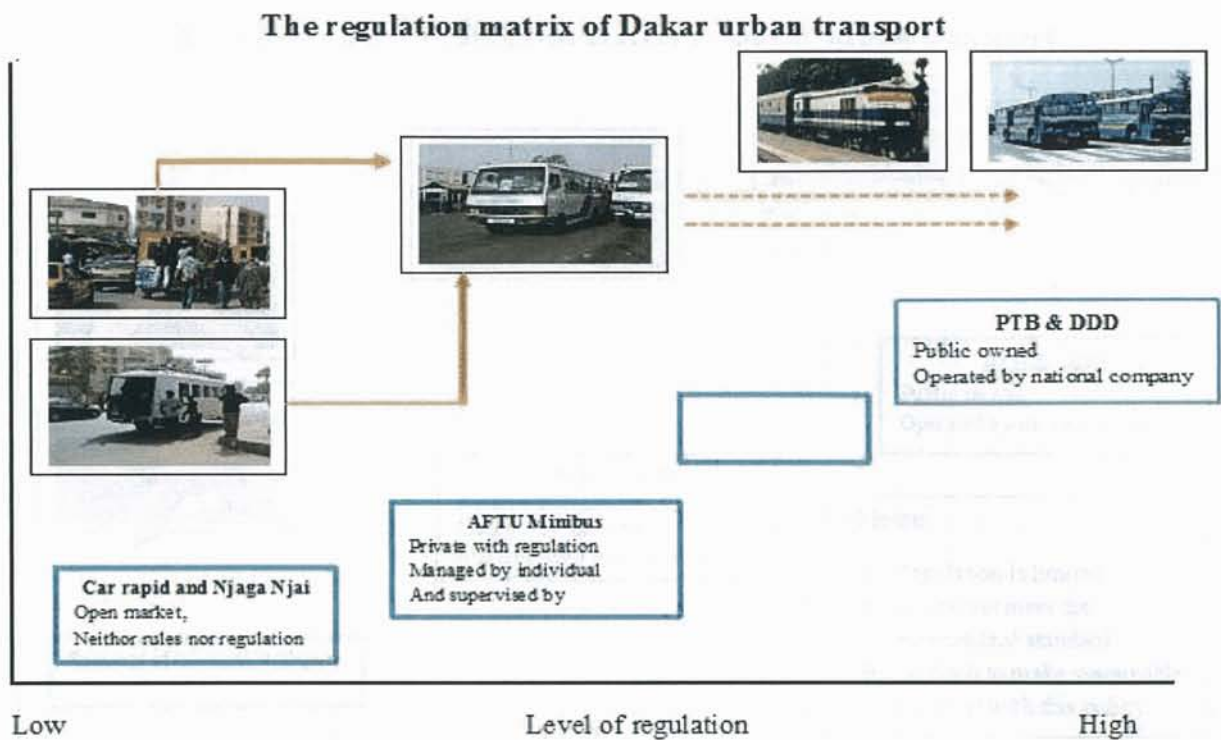


Figure 8: Regulation matrix

Currently the regulation of urban transport is what we can see in the figure 8; the regulation level displayed by this figure puts car rapid and Njaga Njai in the low part; this means these informal transport devices are not regulated at all. They operate in an open market and do not follow any rule. Orange arrows from car rapid and Njaga Njai to AFTU minibus explain the regulation pattern of Dakar urban transport; in fact, AFTU minibus should replace Car Rapid and Njaga Njai as suggested by figure 9 (see page 27) where Car rapid and/or Njaga Njai will be completely removed from the system.

The high level in this regulation is PTB and DDD, they are public owned and are operated by the government. The business structure is a national company. High level of regulation means somewhat a structure that meets the international standard of a business structure where everything will be done based on text and rules.

In the middle and lightly closed to the low level, we have AFTU minibus. The business style is interesting and specific with the grouping of owners to operate so that the system is managed by individual under the supervision of Association. However, it is a private formal company which is quite different to car rapid and njaga Njai system. The differences in the business structure are influencing the operating methods of each of them and we can expect that the operating methods of AFTU are close to the informal operation.

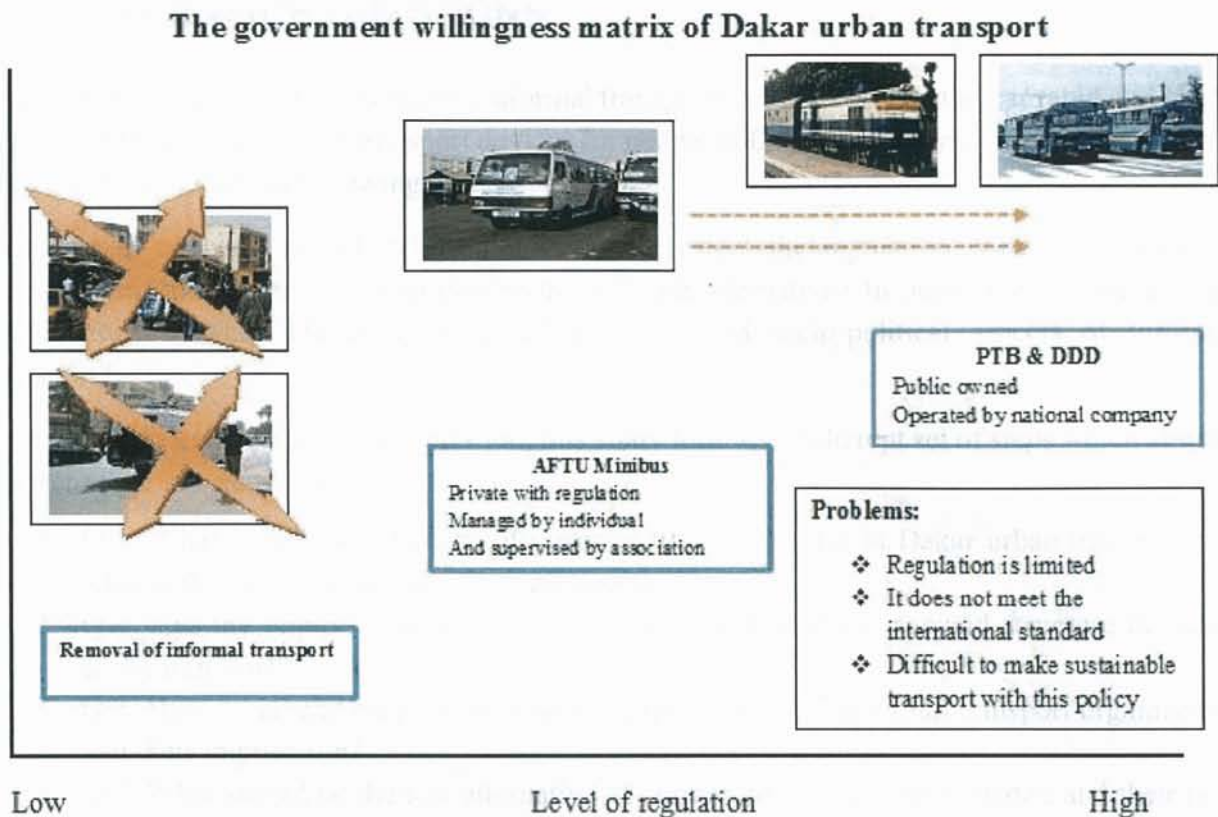


Figure 9: Government scenario willingness

Hence, the government willingness is to get an urban transport system of two components, with in one side, AFTU as a private formal company and the other side, PTB and DDD as public formal companies. They all will be regulated and organized so that transport service can be reliable, the fleet completely renewed and the urban mobility enhanced because it will be also controlled.

First observation shows that this structure is difficult to realize and state still has problem to make this transition. AFTU system was introduced in Dakar urban transit since 2004 and 8 years later, this structure represented in figure 9 is not achieved. The fact is AFTU devices are getting dilapidated after only 8 years operation, the car rapid is still here and the regulation remains a problem; indeed, government ask a deposit of 1,500 000 CFA (3000 USD) to the operator, take off his car rapid or Njaga njai before giving a new AFTU mode, however transition is still difficult.

We were wondering why this transition is difficult. The problem paused by this thesis is beyond this difficult transition, the operating methods of AFTU, its sustainability and the removal of car rapid phenomenon. Another important problem is the social involvement in this AFTU system and we already noticed in the informal system.

1.4 RESEARCH QUESTIONS

Anyway we notice that transition from Informal transport to formal is difficult; car rapid and Njaga Njai continue to be preferred transport devices for people in Dakar urban area. In that way, we state the research question as following:

Does social control¹ in Dakar Informal Transport affect the regulation policy and transport development, if so how and what can be the relevant alternative? In other words, what are the implications between Dakar urban mobility policy and socio-political aspects of Informal transport?

In an attempt to answer this main question, this study follows a coherent set of steps which aims to answer some sub-questions:

1. Q 1. What is the current place of informal transport sector in Dakar urban transport and what is the government objective and direction?
2. Q 2. Has the policy of urban mobility improvement met the demand structure in Dakar urban transport?
3. Q 3. How social and religious powers are expressed inside informal transport organization and their implication?
4. Q 4. What should be the real alternative of current urban transport structure and their pros and cons?

1.5 HYPOTHESES

- H1. Informal transport and especially Car Rapid is still the main urban transport mode in Dakar due to its cheapness, availability, flexibility and some socio-cultural aspects
- H2. The existing urban mobility pattern related to the informal transportation weight lays out an inconsistency between transport policy orientation and habits of population mobility
- H3. Religious and social power get strength related to the lack of education and the Islamic school background profitable to the religious actors, the general educational background profitable to labor union and such a relationship between socio-political actors develops tension that plagues the improvement of urban transport policy
- H4. If AFTU and the current situation are based on social interference management then a sustainable and conventional car rapid model is the best alternative

¹ Social control refers to some societal mechanisms or processes that allow individual and group behaviour to lead and make rule of a given society or social group. In a sociological view, there are two basics forms of social control: Informal means of control and formal means of social control. In this thesis, we are speaking about the informal means of control.

1.6 PURPOSE OF THE STUDY

According to the developed research question, three elements will be discussed in this thesis: the difficult transition from informal to formal, the role of social interferences in urban transport policy and decision making process and the urban mobility situation. In detail, the present study is designed to examine:

- The impact of social interference in urban mobility transport policy and a development of an alternatives views for a sustainable transport structure
- The role of informal transport organization in the problem of transition from Car rapid to AFTU.
- The urban mobility pattern through demand and supply side and their links with mobility policy
- It also aims to suggest an alternative model through car rapid to improve urban transport sustainability while keeping the cultural identity of the mode

1.7 SIGNIFICANCE OF THE STUDY

This study proposes another approach to understand and solve transport problem; we argue that transport is first of all a set of policy so that studying transport requires some knowledge about the undersurface reality as politics, social etc.

These aspects are usually located in underdeveloped and developing countries and can be real threats of transport development. It causes some problems to decision makers when they intend to develop new transport policy in some countries.

Even if the problem is known in several countries, there are no enough scholars focusing on the specific problem of social aspects in transport organization and their potential implication in transport policy. Studies used to focus on the informal aspects of transport and their inefficiency; usually, studies from economists and engineers so often suggest to remove such a transport system without considering the social aspects.

This makes an important lack of study addressing the social issues of urban transport in poor country in their specific context instead of following the developed countries manners. Concerns are not the same, situation are quite different as well as economical condition. We are not, in this study, defending the informal transport sector, we even suggest its removal but we are showing the importance to not remove the identity that covers it.

This study gives the possibility to examine the effects of socio-political factors in transport development (third world?) in Dakar urban system: social control and religious influence. It brings

the sociological approach of transport and the political bargain by observing the expression of Powers (social and politic) in the process of transport policy.

It also examines the role of culture and identity in urban transport. This means efficiency of urban transport is not limited to its economic benefits or reliability and level service. There is also some external aspect that people consider as important, this depends on countries and in Senegal, car rapid is playing such a role, it is one of the most visible Dakar urban identity.

This thesis poses for the first time the debate on whether Car rapid should be withdrawn from Dakar or whether it should be protected, regulated and modernized. It poses the car rapide rethinking issue for sustainable transport policy.

Limitation of knowledge was that car rapides dominate the urban transport in Dakar. This research presents car rapides as more than a transport device, it is a social phenomenon so that when Senegalese started moving around by this transit mode, they “*transferred what they were doing at home to the car rapid*”¹.

1.8 ASSUMPTIONS, LIMITATIONS AND SCOPE (DELIMITATION)

This research observed the Dakar urban transport situation in its social, political and cultural aspects; it speaks about one important phenomenon and omitted completely the other important aspects that involve all the researches in the field of transportation as economy, geography, engineering etc.

Consequently, this research does not offer a key solution for efficient urban transport; it does not offer the solution for quality of service or transport reliability. Since it does not discuss the profitability of transport as used to do economists or efficiency as used to do engineers, it may be difficult to convince the decision-makers about its feasibility and realization.

The point of departure for this study was to know the role of religious phenomenon and social movement² (which are very important in Senegal) in urban transport policy. After achieving this goal and admitted that religious and social group constitute some power that may trouble some political power in the transport policy, we also find the alternative framework of a suitable urban transport in Dakar without exploring the feasibility and profitability.

The findings of the study can be summarized as follows:

- ❖ Even if Religious power seems to be weakened due to their retirement from operating and the emergence of labor union in informal transport, in reality, it continues to be the most important actor in the urban transport system

¹ One interviewee’s opinion

² Social movement means here a labor movements that work for control of the work place

- ❖ The social issues are identified in several structures of AFTU policy and regulation such as the business structure, operating methods, identity and the funding problem of people, these social interferences are directly affecting the operating methods and reflected badly to the urban mobility.
- ❖ The social organization maintain unprofessional the urban transport by promoting the religious, political and familial affinities instead of trained and professional workers
- ❖ AFTU minibuses earn popularity in Dakar urban transport due to their reliability but most of travelers express their preference on car rapid due to the seats configuration and availability funding.
- ❖ Even if they widely approved the fleet renewal and the improvement of transportation service, people want the fleet to be modernized as car rapid mode instead of AFTU device to keep the cultural and social identity that car rapid offers to Dakar urban system.
- ❖ The proposed Car rapid Model displays more features for sustainable urban transportation than the AFTU option which sustainability was disproved by this study.

From results of the research, we are suggested to not remove the phenomenon of car rapid; we should rethink it. This is the interesting point that should be more explored in the next studies; rethinking means some concept development, some comparisons, etc. this should stand on an interdisciplinary view to realize this idea. So the big issue that this thesis pauses is how to protect, rethink and modernize car rapid phenomenon in Dakar. This important question could not be solving in this thesis; it was not the goal of the study.

1.9 DISSERTATION ROAD MAP

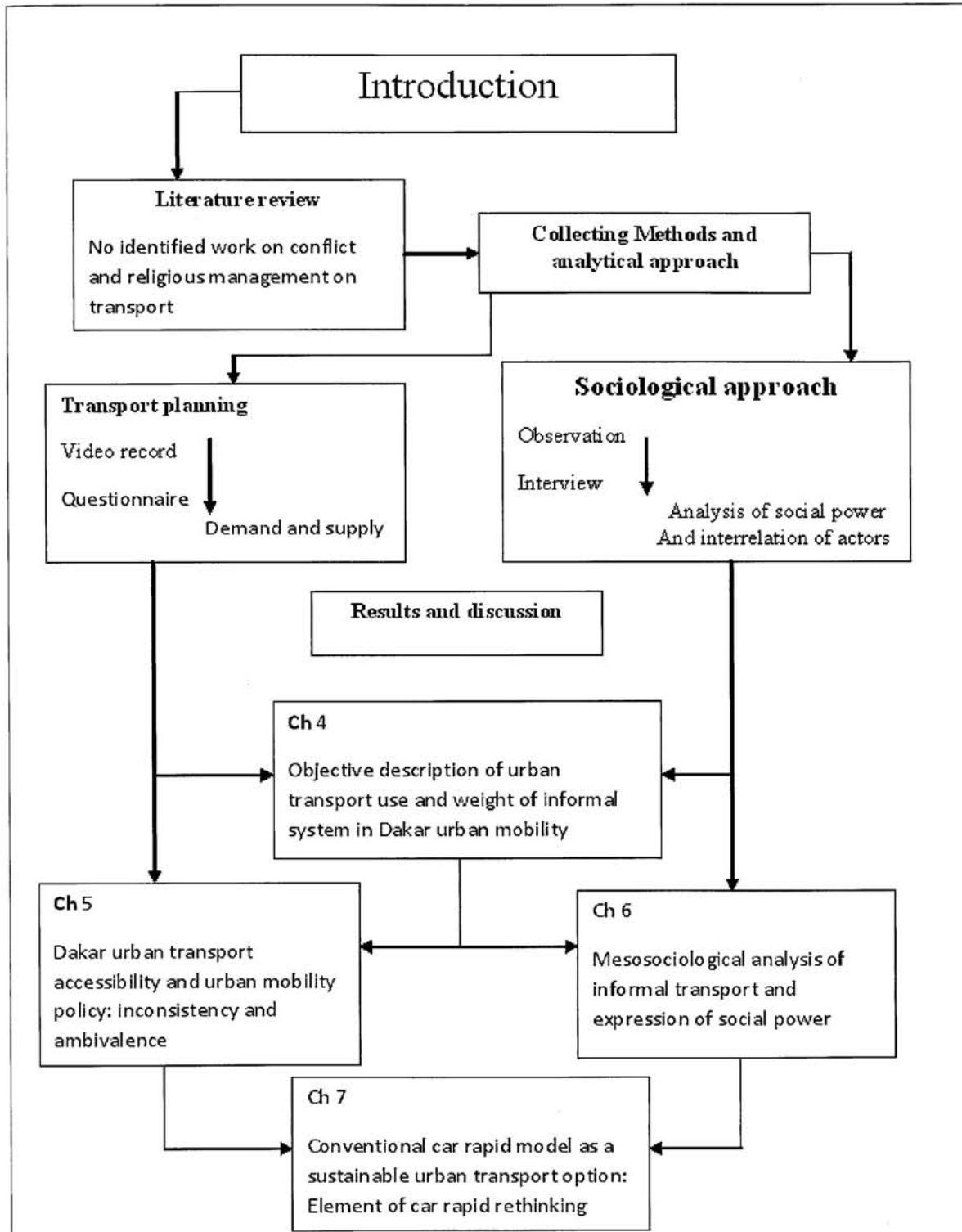


Figure 10: Research design

1.10 THESIS STRUCTURE

This thesis is structured in the following way: first, a contextual background is presented in the introduction to provide an overview of the area of study and the object that we are going to deal with in this research. This part that also defines the problem, hypothesis, goal of study is the Chapter 1 whose title is Introduction.

In the Chapter 2 the existing studies and the Literature review are analyzed to better understand and explain the position of our study. From there, we emphasized the specificity of our research; indeed, few scientific research are done on Dakar urban transport while there is almost no study about the inside organization of informal sector and its external impact.

Chapter 3 titled Data collection and analysis focused on approach and methodology I use to get data and to confirm my analysis. The used approach was a complementary process that involves quantitative and qualitative methods in the data collecting phase.

The next parts of this thesis were the results and discussion parts:

The first point is the Chapter 4 which makes an objective description of urban transport and weight or role of informal system in Dakar urban mobility. In this chapter we used descriptive statistical analysis to get the profile of travelers and their mobility pattern. This approach is a sociological analysis.

Chapter 5 gives the Analysis of Dakar urban transport accessibility and urban mobility policy. This chapter reveals some disparities and inconsistency of urban transport among travelers in Dakar and explains the preeminence of informal transport use by the inaccessibility of people to the formal transport service. This is shown by the upheaval of transportation hierarchy with the emergence of AFTU minibuses. It also reveals some inconsistency and ambivalence in Dakar urban transport.

Chapter 6 makes some Mesosociological analysis of informal transport sector and expression of social powers. This chapter tried to understand the expression of social, religious and political power inside informal transport organizations. The working conditions were described.

Chapter 7 provide an analysis of willingness to change the urban mobility structure by the government and limitation of AFTU modal; it reveals an existence of some social blocking factors leading to the difficult transition from formal to informal. It presents a new scenario of car rapid phenomenon rethinking for a sustainable urban transport option; it proposes an alternative model.

Chapter 8 was the conclusion of this study with some opened debate about role of car rapid phenomenon rethinking and the right option to make it conventional and sustainable.

CHAPTER 2. LITERATURE REVIEW

This chapter provide the theoretical background of this research. It deals with topics related to general facts about the informal transport and its operating methods, actors and technology of informal transport, urban transport policy, etc.

2.1 LITERATURE REVIEW

2.1.1 Urban transport in developing country

Urban Transport systems in many developing cities face major problems due to the important growth of urban population, private vehicle ownership, congestion, and the fragility of public transportation systems (World Bank, 2011). It is known that problems in urban transport have bad impact in households, businesses, and the urban community at large.

Many papers focused on urban transportation in third world and authors developed various subject as it is the case of **Lawrence Tseu** (2006) who argued that the most important element is to consider in the 3rd world developing transportation the private car dependency as his paper highlights “*why people like cars in the first place and examine how this habit has become a culture.*” The city of Kuching (Malaysia) was chosen for his study, author explores “*the versatility of transport*” in developing countries highlighting the complexity of transport. Using a sociological approach, author argued that cars usage became a habits and a culture in developing countries. This paper speak about too many things, with only 23 pages, author try to explain the transition from *rickshaw days to the urban traffic congestion* and a society absorbed by a “*car fetishism*”. It also linked the demand of private car with the land use policy; the paper highlights as well bureaucracy and government institutions, aided by responsible for urban traffic congestion.

This paper seems to be too short for all the aspects that author wants to focus on. Anyway, the urban transport was in this paper treated only partially; author spoke more about sociology and culture than the urban transport itself, paper emphasis the social and cultural aspect of car dependency and its impact in urban transport. Some similarities between Kuching and Dakar were found about the link between land use policy and private cars demand. Indeed, organization of Dakar urban system suggest some disparities in neighborhoods increasing the private cars use in some area while others struggle with urban transport accessibility.

Since no two cities are alike in Africa, **Tatenda Chenjerai Mbara** (2002) suggests in his paper, it will be difficult to answer how African cities manage their urban transport. In his paper, he mentions that there are some common methods on a number of areas. The points raised by the author are Lack of a policy framework, Inadequate Enforcement and Weak Management, Inappropriate Institutional Setup and Human Resource Requirements, Inappropriate funding arrangements, Failure to Create an Enabling Environment for Public Transport. So **Mbara** argued that in many African countries, there is no national policy framework within which the urban transport sector can be addressed.

He also discussed that the smooth flow of traffic is compounded by the competition that exists for road space with vendors and street traders. Such practices have been observed in a number of North West African countries. Street traders and other informal workers occupy both spaces designed for pedestrian and vehicular traffic. However, if the author saw the urban frame everywhere, that is not so for the management; he said that "*the management of municipal service sectors including transport vary from one country to another*". As evidence he argued that while in many countries, urban local authorities are now autonomous, there are some where service sectors are handled directly from Central Government.

Other aspects addressed by the author **Mbara** is the economical point of urban transport in Africa, he explained in the paper that in some countries funds for capital and recurrent expenses for transport infrastructure are disbursed through Central Government. Licenses, road levies and related taxes paid by road users are treated as general tax revenue and allocations made as part of the annual budgetary process. Clearly, vital infrastructures such as roads are therefore being managed as a social service and not as part of the market economy.

He concluded his analysis by identifying corollaries of this bad way of urban transport management, according to author **Mbara**, most cities are congested with a general deterioration in the state of environment, inadequate and deteriorating road infrastructure, high levels of accidents and inadequate public transport supply inter alia.

This paper is interesting as it poses the important point of urban transport management in Africa; the author, a Zimbabwe citizen, explain the big transportation problems common to almost all African cities in 13 pages. An important thing that author **Mbara** omitted is to explain why there is this problem of urban transport management everywhere in Africa? Is there any common explanation? These questions did not find answer in the paper of **Mbara** as well as in the **Tseu's** one. Both papers are focusing on urban transport with an emphasis for **Tseu** to the social aspect while **Mbara** was interested in economical and institutional aspects. No one has spoken about the technical problem of urban transport in third world.

Many scholarly articles of this kind are addressing the social and/or economical problem of urban transport in Africa. Researcher focused more on management of transport in developing country and the lack of policy than the technical aspects of urban transport. This means urban transport in the 3rd world is a social phenomenon before being a technical mater.

Nevertheless, **Ajay Kumar and Fanny Barrett** (2008) in their report focused on a technical problem in urban transport, they speak about congestion in Africa using 14 cities profile and analyzing their congestion and urban transport framework. Getting to work is increasingly difficult in Africa's sprawling commercial capitals, in large part because of the tidal wave of minibuses and motorcycles that have arrived to take the place of faltering public bus services. At the start, they have showed a major problem, it is the management of the roads and urban structure in Africa. So they think that the reasons behind the dysfunctional state of urban transport are not difficult to discern; Weak, fragmented, and underfunded authorities have been unable to maintain existing services or to plan for expansion. Then come back the problem of management and policy in 3rd world urban transport and especially in Africa.

One other important element defended by **Kumar** and **Barret** authors and this thesis also would speak about is a transportation authority that can align African urban transport in the range of international standard. That is the reason they argued that the way forward is as clear as the problem itself: Africa's cities must move quickly toward the model of the metropolitan transport authority used in successful cities around the globe to coordinate planning, regulation, licensing, inspections, monitoring, and enforcement. As the previous authors already red, **Kumar** and **Barret** accepted that the 14 cities share some common characteristics: a growing urban population inadequately served by the transport system, declining standards of public transport, overlaps and conflicts among the agencies responsible for planning and implementing transport solutions, massive growth in the use of minibus services, growing dependence on private transport (cars and motorcycles), inadequate and deteriorating transport infrastructure, and poor facilities for nonmotorized transport (walking and bicycling).

Half of the sampling is compared here in the table below where authors examine the roads infrastructures in Africa, where they are paved and where they are not paved. As an important element of urban transport, the level of quality of roads can reveal the level of quality of urban transport. Thus, in view of this table, we can understand the urban transport problem in Africa with few limited paved roads compared to the developing world average.

Table 1: Paved roads in selected African cities, compared with developing-world average

City	Paved roads (m per 1000 pop.)
Abidjan	346
Conakry	174
Dakar	467
Dar es Salaam	150
Kampala	225
Kinshasa	63
Lagos	400
Average, sample	318
Average, developing world	1000

Source: Stuck in traffic: urban transport in Africa

Paved roads are just one-third of the average for cities in the developing world (table 1). The cities show up less than half of their roads paved, making them substandard and reducing accessibility for buses in densely populated neighborhoods and outlying areas. So **Kumar** and **Barret** listed some problems as limited capacity, deteriorating pavement while service lanes are absent, and street lighting is minimal. According to authors, these listed problems reduce vehicle speeds, sapping the productivity of the bus fleet and increasing the use of informal transport.

With this report, authors explain the congestion problem in Africa and the similarities of the problem in 14 African cities. They speak about transport congestion in African countries and raise the problem of management and institutional efficiency. As the others, this paper shows the importance of policy and management in African urban transport problem. The common point of these papers is they are speaking about urban transport in third world without speaking about the

informal sector which leads the urban transport everywhere in the developing cities in the 3rd world.

Kumar and **Barret** did as the first authors not speak about the reason why there is a lack of management and policy orientation; they speak about policy and orientation problem, management problem but they do never explain why this happens?

The 2008 Trans-Africa Consortium report focused on history and development in African public transport; according to this report, the history of public transport development in Sub-Saharan Africa varies from one country to another. However, to date it is a sector which remains poorly organised across the continent. Many companies were created in various countries, even several times in the same country, but the vast majority of them have failed. Report emphasizes on technical maintenance issues that represent an important share of the difficulties of public transport companies and main source of their failures.

Therefore, the most important element focused in this report is the history of public transport; so from colonial times until today, many companies have been created for transport management in Senegal and particularly in Dakar. In the meanwhile, some informal minibuses or “cars rapides” were already operating in the suburban areas alongside this formal company, which was unable to cope with the total city area demand. From this report, we learn that the lack of well-organized transport combined with continued urbanization worsened the conditions of transport in urban areas, particularly in Dakar.

The Senegalese State therefore “*started to restructure the sector, leading to the creation of a coordinating body for urban transport in Dakar, the Executive Council of Urban Transport in Dakar (CETUD) in March 1997*”. In December 2000, Dakar Dem Dikk, a private public transport company, was also established taking over the assets of the former SOTRAC. Nevertheless, after a decade, the transport modal split in Dakar is still largely dominated by walking, used by 71% of the population, ahead of public transport with a 22% share.

This paper explains largely the history of public transport in Africa. In a kind of unique approach, usually, report, paper and others scientific articles speak more about technical aspects of public transport or the social and economical aspects. Speaking about the history of public transport means speaking about its evolution but at view of this report, political history of transport were more emphasized than the technical problem through its evolution. After reading the report, it will be difficult to know the technical problems that transportation encountered during its evolution.

Compared to other papers, subjects and approaches are completely different; but the lack is the same, they do not focus on inside organization of transport problem and they do not explain why there is problem in transport and what the nature of the problem is. This issue is not addressed by any of the paper we have read. Even if the subjects are different, the evolution of transport reported by IUPT (2008) did not explain the reason of fail and the relation between the politics and the social organization of transport. Other aspect omitted by this history report is the informal transport sector.

Eduardo Alcantara Vasconcellos (1997) prefers to research about the Urban Transport Crisis in Developing Countries; as findings, he linked the urban development process and the increasing commodification of social relations. His case study being Brasilia, he argued that “*changes in the nature of social relations have increased the share of commodified activities, especially for higher income groups (e.g., private education, private medical care and leisure)*” so according to the author, this has a consequence because, he said that the deep economic and social differences that are constantly being generated translate into deep differences with respect to access to transportation and activities in urban spaces.

Anyway, this time author focused on public transportation its accessibility and urban space; it is then less about management or transportation economic. However, in this paper, author Vasconcellos speak about informal transport in the developing world where “*unemployment levels can be high and the informal job market can play a major role, posing two burdens on transportation policies*”. He identified several issues that urban transport in developing countries is facing and among them, there is the political issue which derives from failure of the political system, which does not ensure democratic representation of the conflicting interests of social groups and classes in the formulation and implementation of transportation and traffic policies.

There is also the institutional issue understood by the author Vasconcellos author under the relationship between to the power to command and control transportation and traffic policies, and to the level of decentralization that would ensure the best results. **Social** issues relate to several inequities in transportation and traffic conditions. The first kind of inequity is unequal accessibility to transport. In its analysis, author classified other issues that are technical ones, the technological, environmental, operational, and economic. This study had widely examined the whole urban transport issues so it wider than the others cited previously.

In conclusion, we can understand the trends of urban transport in the third world with these selected studies. Globally few studies are spoken about relation between politics and social organization of transport in term of decision making process. Several researches focused on management of urban transport and the political aspect of public transport issues and have found interesting results but it is still difficult to know why urban transportation in developing countries and especially in Africa encountered transportation problems. This issue is not addressed because there is almost no study focusing on the inside organization of transport and try to identify the real weight of this organization on the decision making process on public transportation. If in the developed world this issue is not relevant, it is more than important in the developing countries where public transport is still dominated by the informal transportation mode and the informal organization of this sector.

2.1.2 Informal transport and operating methods

In many developing cities, urban transport is dominated by the informal sector, often called paratransit or Intermediate Public Transport (IPT), it remains an important element of transport services. In many Asian, African and Latin American cities it is perhaps even the most common and widely used form of urban public transport. Informal transport in different locations is known by various local names such as Matatu, Dalladalla, Marshrutka, Jeepney, Angkots, Bemos, Car rapides, Minibus, Microbus etc. Informal public transport presents various and ambivalent

characteristics. Compared to formal public transport services, informal transit modes are usually more accessible and cheaper. On the other hand, they are often unregulated, in oversupply, environmentally unclean, unsafe and unaccountable and hence unpredictable.



Figure 11: Jeepney (Manilla, Phillippines)



Figure 12: car rapide (Dakar, Senegal)

Odile Ayodele (2008) considered transport as a challenge for third world development; he thought that *“the availability of safe public transportation is a privilege that is easily taken for granted in the developed world. In the developing world is opposite is true”*. Considering that access to public transport in the developing world is tenuous, he explained the tendency of people to solve the problem themselves; enterprising individuals have come up with their own solutions to the problem. And the most known consequence is the development of informal sector in public transport.

According to him, informal transport was born from the lack of transportation policy and solution. Hence, since they are unable to afford private cars but needing to travel relatively long distances many vehicles have been turned into informal public transportation by travellers: the most popular being the Minibus and the Motorcycle.

Author Ayole was convinced by the power of these informal transport systems in Africa and gave as evidence the south African case where a simple strike of Miini-bus *“can effectively cripple a city because of the large-scale commuter reliance on this form of transport”*. In that light, another author George Omondi of East African publication Business Daily Africa (*‘Boda boda running matatus out of the city’*, July 22 2008) reported that in Africa these minibus taxis *“have elbowed out organized bus transport companies from lucrative routes and employed their strength in numbers to resist reforms meant to bring high capacity vehicles into the urban transport sector.”*

The weight and importance of informal transport in Africa are raised here by authors to show how public transport in Africa remains a challenge for decision makers. They are speaking about the weight and agreed that it will be difficult to remove them from the urban transports in Africa. They are also speaking about their capacity to resist the reforms. Reasons are certainly different

from one country to another one but authors did not explain why this power is important and how can they resist to the regulation.

For **Cervero** (2000), there is something common to all informal transport modes; *“the common view of the informal transport sector as anarchistic and chaotic is largely misplaced”* she said. Her study reviews the rich mix of services and market characteristics of the informal transport sector in the developing world, addresses various organizational institutional and regulatory issues surrounding informal transport services and identifies promising enabling and remedial strategies.

In her research, he argued that, in response to public transport dysfunction, the informal transport sector has burgeoned throughout cities in the both developed and developing worlds, filling the gap of inadequate and increasingly expensive public transport. In many cases, these systems consist of non-motorized transport such as are found in Asia, or include the mini-vans (matatus) of Nairobi and Mexico City or the “Jeepneys” of Manila. While in some cases these informal systems are efficient, effective and meet real transport needs for many urban residents, in other cases they are yet to be regulated and organized thus, posing a threat to road safety and the environment.

The research is interesting as she identified a wide number of informal transports in the third world with their operation methods. So she reported: *“Plying the streets of Bangkok, Lagos, São Paulo, and other cities of the developing world are fleets of small, low-performance vehicles driven by private operators that serve low-income neighborhoods. In some places, environmental-friendly, pedal-powered modes, like the pedicabs of Manila, provide lifts between markets and squatters whose narrow alleys and walkways are impenetrable by motor vehicles”*.

In other places, like Kingston in Jamaica, station wagons and mini-vans fiercely compete head-to-head with public buses, providing curb-to-curb delivery for a premium fare. And in increasing numbers of cities and towns around the world, dozens of young men on mopeds and motorcycles congregate at major intersections, offering feeder connections between mainline bus routes and nearby neighborhoods for a reasonable fare.

Author **Cervero** explains how the informal transport operators can *“easily alter schedules, routes, and operating practices in response to shifting market conditions”*. Private minibus and micro-vehicle operators are more likely to craft new, tailor-made services in response to increases in suburb-to-suburb commutes, trip-chaining, and off-peak travel than are public authorities. Their inherent flexibility and sensitivities to changing markets stand in sharp contrast to the rigidities and unresponsiveness of protected monopolies.

According to her, Issues and Concerns are traffic congestion, Disorderly operations and unfair practices, Accidents and public safety, Air pollution and environmental problems, Cream-skimming, Intangible Factors, etc. so that Pressure to regulate and even eliminate the informal transport sector comes from many quarters.

A central concern is that the sector is responsible for significant negative externalities, like traffic congestion and accidents, which harm public safety and welfare. As largely laissez-faire, unrestricted services in poor cities with high unemployment rates, critics contend that the sector breeds over-zealous competition and predatory behavior. Over competition – too many operators vying for limited numbers of customers – crowds streets and poses accident risks. These concerns are discussed below.

Authors **Cervero** concluded that there is largely an absence of any kind of normative policy framework when it comes to informal transport services. This is reflected by the fact that fairly comparable informal transport services are perceived and treated unevenly in different parts of the developing world. Jakarta's decision to eliminate the pedicab sector by confiscating vehicles and discarding them in the sea stands in contrast to Manila's acceptance of pedal-powered transport as a viable feeder service in several commercial districts of the city. While Nairobi has embraced and tacitly promoted private minibuses and pick-up truck services, in Abidjan these commercial services have been all but disbanded.

In other paper, **Cervero et al.** (2007) predicted that Informal transport services — paratransit-type services provided without official sanction — can often be difficult to rationalize from a public policy perspective. In this article, authors reviewed the range of informal sector experiences worldwide, discussed the costs and benefits of the sector in general and used several case studies to illustrate different policy approaches to regulating them.

As conclusion, they argued that while these systems provide benefits including on-demand mobility for the transit-dependent, jobs for low-skilled workers, and service coverage in areas devoid of formal transit supply, they also have costs, such as increased traffic congestion, air and noise pollution, and traffic accidents.

Celeste and Daganzo (2012) are more interested in the engineering analysis of the informal transportation in the third world and their operating methods. Analysing the structure of informal transit, they considered operation in many parts of the world, particularly in developing countries, and agreed that informal privately-operated transportation plays an integral role in people's mobility. Most informal transport modes are not subject to a fixed route.

The amount of flexibility varies; while some vehicles have fixed routes along popular corridors, others generally smaller vehicles, have variable, demand responsive routes. In addition to the routes, the size of the vehicle varies, with vehicles ranging from motorcycles to minibuses. This paper focused on larger, fixed route systems serviced with minibuses.

In their paper, they were especially interested in quantity and fare regulations; contrarily to others, authors **Celeste and Daganzo** think that there is effectively regulation in developing countries' informal transports and they define regulation as appearing "*in many forms but generally fall into three main categories: quality (ex. insurance, vehicle inspections, and crew licensing), quantity (ex. route licensing and frequency of service), and fare*".

Other authors, other ideas; for **Luthra** (2006) informal transport system is indispensable in medium sized cities of India due to various reasons even if he agreed that minimal check should be done on drivers' behaviour for their indiscipline, violations, disobedience to traffic rules and

regulations. He noticed also in his analysis, poor maintenance of vehicles spreads pollution in these cities.

The article was interested in a “*profound understanding of economic, social and cultural conditions in the development of the informal transport, as also the challenges faced*”. In his conclusion, he argued that informal transport is a vital system and a panacea for the travel needs for the medium sized cities. This conclusion is applied in the medium sized cities because author did not observe in the mega cities of the third world. This thesis-dissertation is focusing on informal transport weight in mega cities and the case study is Dakar. As an opposite, author Luthra’s field of study was a medium city in India.

Pereira et al. have presented and discussed informal services in Brazil; he raised the problem of road capacity restriction. According to them, the characterization of the services operated by low capacity vehicles in the city and metropolitan region evidences the low level of organization of the sector and the difficulty for establishing a more balanced economic result in the different operated routes

As for the Brazilian system and precisely in Rio De Janeiro, the characterization of informal transport operated by low capacity vehicles in the city and metropolitan region evidences the low level of organization of the sector and the difficulty for establishing a more balanced economic result in the different operated routes. There is a lack of strategic vision according to the authors, and also a mis-consideration of travelers need for reasonable operational criteria that takes into account the perception of users and the level of quality on services, result is a loss of captive users and a gradual loss of demand.

Aworemi et al. (2008) looks at the impact of socio-economic characteristics of formal and informal public transport demand in Kwara State, Nigeria. The study is based on a purposively selected set of 256 respondent commuters in the parks of the randomly selected transport enterprises. Evidence from the study shows that income and cost of the trips played prominent roles on the public transport demand in the study area.

The paper suggests that government must totally support the informal and formal public transport sectors (private transport companies) by providing well-articulated policies to improve the performance of operations and services of both together with adequate integration.

The four last authors seem to definitely legitimize the informal transport system in the third world; it is necessary according to some authors while others argued that they are regulated but not formally. Some asked the decision makers to add more support and try to organize the sector. In all our readings, any author has not suggested their removal. They seem to accept that informal transport should be more organized, mastered and supported by governments.

Another important stuff is that no author has spoken about inside organization and its relation with policy and transportation orientation. They all try to understand the informal sector by the surface and consequently, studies did not explain why government used to fail in informal transport organization in the third world. This unexplored subject is important and interesting in this thesis study.

2.1.3 Regulatory approaches and formalization

To improve the urban mobility and public transport, several local governments try to formalize and regulate their operations. **Ahmed** (1999) outlines and explores initiatives by the South African Government to transform the minibus-taxi industry through formalisation, regulation and empowerment of operators. So the progress achieved by the Western Cape Provincial Government to attain formalization of the minibus taxi industry was emphasised.

Examples of initiatives by the Western Cape Provincial Department of Transport and Public Works are explored, including registration of minibus-taxi associations, owners and their vehicles; formulation of a code of conduct for operators; training and empowerment of operators and drivers; formation of democratically elected structures to represent approximately 8000 minibus-taxi owners in regional and provincial structures; Legislation to regulate minibus taxi operations; recapitalisation of ageing minibus-taxi vehicles. The example of inclusion of minibus-taxi operators in a public transport contract is examined.



Figure 13 : Minibus-taxi displaying the required decals (South Africa)

This South African situation interested researchers as many authors tried to evaluate the informal taxi regulation. For **Barrett** (2003), the organization of taxi workers in South Africa is still in its early stages. At most only 20 per cent are presently unionized and none have won trade union rights. Attempts at negotiating recognition and minimum working conditions with individual owner associations have met with some success but so far have had only a limited impact.

Despite this, there are a number of indications that the successful organization of taxi workers may finally become a reality in the near future. These promising signs relate to both the economic, institutional and legal environment affecting the taxi industry and feature elements of the SATAWU strategy to reach out to and organize informal workers in the industry.

2.1.4 Expected contribution: Relation between informal organization and Transport policy

Among the numerous scientific articles on urban transport in the third world, few or almost no article is focused on implication of social factors and political aspects providing a weakness of decision making on transport policy.

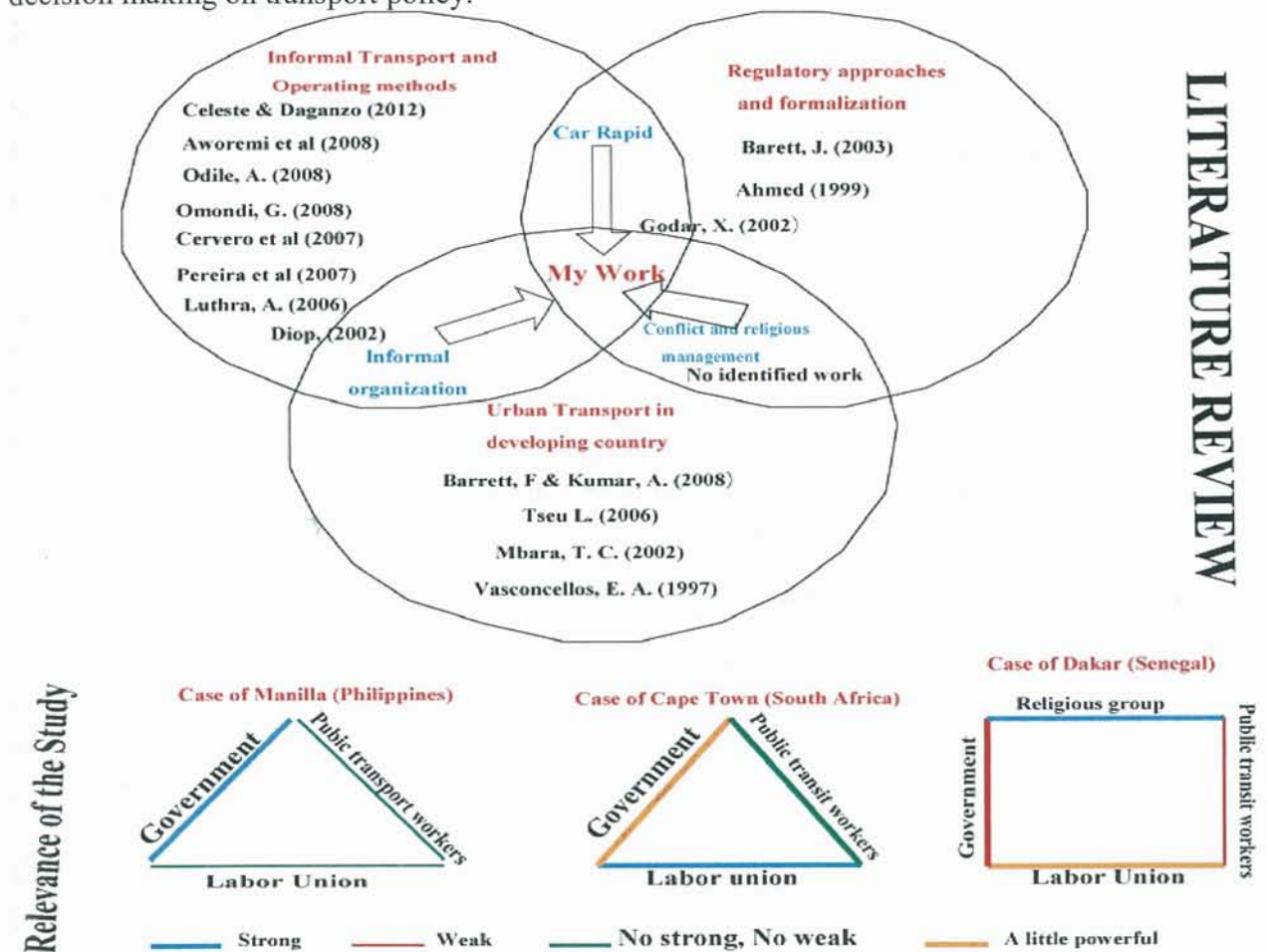


Figure 14: Literature review table

This figure provides in short the studies' trends on public transport, from informal transport and operating methods to actors and technology of informal transport, many authors studied urban transport. As for Dakar urban transport, there are very few academic researches.

We found that there is a gap in car rapid study as well as in relation between informal organization and dakar urban transport. Thus, this study stands on this stage, between Dakar urban transport, informal organization and car rapid system to bridge the deep academic gap on Dakar transport sector.

Researchers and intellectuals should more explore the field of relation between informal transport and urban mobility or informal transit and transport policy in the developing world; this field remains unexplored in Dakar. Our study will contribute to bridge the gap in both officialy and academically.

2.2 DEFINITION OF USED CONCEPTS

Sociologists used to measure *concepts* to complete their studies, concepts as socio-economic background or educational motivation are common in sociological analysis; measuring something in sociology, therefore, involves making choices and the concepts and indicators selected will influence the data that are collected.

This process is not and should not be different in others field of research in social sciences. The sociological process is an interdisciplinary process. Ether quantitative or qualitative can be used to measure concepts to be understood.

This chapter will focus on two major concepts in this study. The entire thesis is organized from these concepts which are the keys of this research. The selected concepts to be defined and measured are the *Urban Mobility Practices* and *Informal transportation* (see literature review).

2.2.1 Urban mobility and Urban mobility practices

The approach on people movements and transportation issues in cities has for longtime been technical stuff of engineers. Nowadays, the social sciences oriented discipline as sociology, geography, psychology; economy as well as engineers multiply their interest in transport mater and are currently in an interdisciplinary way enriching the scientific work on urban transport issues. As a result, an interdisciplinary approach is revealing a new concept: urban mobility. It is commonly known that trips and population movement in town are not only a technical issue but also a social issue that has to deal with urban practice, spatial behavior, and perception of the direct environment and so on.

In this conceptual framework, we are inviting transport researchers to widen scientific point of view on urban mobility to a more systemic and global approach: several element involved in accomplishing movement; trips in town cannot be understand without taking into account the technical conditions of moving (urban transport), the organization of activities in cities (urban structure), the daily practice of urban dwellers (urban society), the quality of space (urban landscape) and the measures taken by decisions makers to shape the city (urban policy). More than

a concept, urban mobility is a conceptual framework, meaning a basis to build new concepts and new notions.

Mobility is defined as a social relationship to changing location (Levy & Lussault, 2003), but in this way, mobility is more than a displacement, there are other dimensions in the social world. It is not only access on site or accessibility by the movement as suggested by bonnet & Desjeux (2000). That is the wide understanding of mobility, it can be virtual as it is social but it can be real as it is physical and happened in a specific space. The mobility we are focusing on is the urban mobility practices; this concept poses the relationship between mobility and urban space. More specific than a changing location, it happens inside city.

No one can understand the urban structure without measuring the centrality of mobility; displacements in town are increasing: people move more and more, for various purposes, using several modes and for multiple destinations. So there is a deep link between movement of people and urban structure in cities.

This concept conducts a new thinking on people movement, management of their movement and the complexity of their mobility practices. In that stage, we are interrogating and identifying the indicators and dimensions of the concept.

The first and most important element to consider is the relation of mobility and urban space; in what kind of urban space is mobility happening? What is the relationship between mobility, territory and network? Are mobility habits depending on age? Is there any relation between the life style, the spatial practices and the people movement management? What are the dimensions of urban mobility?

The dimensions of urban mobility and the concept of urban mobility practices are space and time. We are not defining space by emptiness (Tapping, 2009); it is so far a multidimensional fabric (Einstein) with lumps of material where goods, people and animals can move. That multidimensional fabric proposes several elements among which we identify territory and networks. These two elements are very important to understand the mobility and its delimitation because any movement can be considered as mobility but as wide this term is, we cannot consider all mobility as urban mobility.

As for the time, it refers to speed and period or moment; this also can help to identify what kind of mobility we are speaking about. The main reason is that town or city is in transition, scientific are not any more studying city in term of population, density or activity; it refers to more than this. Time became the key element to qualify the city since metric of city is nowadays less topographical and more reticular; this means that what is important to qualify city is not any more distance in term of miles or kilometers but time. How many minutes or hours should we make to reach our destination?

In this term, speed is important and became a key factor of urban mobility. There is also moment of action; movement of people is not fixed in period of time, it moves all through the time. Indeed, city became multidimensional and multi-periodical, night is now a period of activity as a daytime. This urban development is taken into account in the analysis of mobility. This means transportation study should be included or associated in the field of urban study.

Mobility being a wide concept and a very dynamic term in sociological point of view, we are going to limit it according to the argument above. What we are speaking about is not a social mobility where people can move from some social status to another one, or cultural mobility. We are speaking about urban mobility where people move from a place to another one inside the city. So the wide term of mobility is first of all a movement but the limitation of the concept depends on the couple space and time. A mobility considering the time and happen inside the city can be called urban mobility.

Hence to define the concept of urban mobility, we should understand the city. In fact, development of town reveals a failure of traditional approaches of city. Traditionally, the scientific understanding of the city did not take into consideration some elements of social sciences as environment, social space etc. so city is now more than an urban planning and a set of architecture, it is a nervous system that takes into interaction urban environment, technology and infrastructure, network and transport, density and diversity, housing and settlement in an urban point of view. This city presents some known facilities as adaptable living environment, flexible work space and desirable urban features.

The development of these features involves peri-urbanization, suburbs and exurb. This environment is called urbanity. The transportation is a key factor to develop interaction among these facilities. Mobility nodes, streets, building massing and location of resources creates compact urban cells. Every city has its own mobility pattern as urban designs in city are different from one to another.

Whatever the mobility pattern can be, each movement inside the city can be considered as an urban movement and then urban mobility. Of course, all the cities in the world do not have the same features and facilities. There are some cities with advanced urban framework and other cities with limited urban frameworks; such cities can be found in developing and underdeveloped countries. Anyway, the movement inside city will gather space and time and facilities are all in interaction. In that way, an adaptable definition of urban mobility in both developed and underdeveloped city can be defined.

Thus, the definition we are giving to urban mobility is the following:

Urban mobility is movement performed from one space to another or inside the space during a limited period of time and happening inside the city. This urban mobility goes with human behaviour, economic activity and recreational services.

This urban mobility concept is important in my study and can explain the transportation demand since in our case study (Dakar, Senegalese capital city), the urban structure presents a disorganized interaction from central city, suburbs and exurbs. Mobility as defined above happens in this city with its advantages and disadvantages. The question of urban mobility is for long time a central factor in Dakar urban system; it is a real concern for decision-makers. All the last decade, the key word used by authorities to come over the transportation problem is “enhancing the urban mobility”.

But as defined above, urban mobility should not be a political word or a slogan; it is more than this. It happens in very complex cities and should be approached in interdisciplinary way because the concept itself is a multidisciplinary concept. The engineer studying transport is probably using this concept, so does the geographer as well as the economist while the sociology use the concept as a sociological object. This means the concept of urban mobility cannot be limited to only one discipline, and the urban transport observers and researchers whatever the field of research, will use urban mobility among the studying concepts. Urban mobility is applicable in all urban transport investigation and or enhancement.

In some case, we can argue that urban mobility itself can be a major in scientific field. It will gather transport engineering, geography, environmental and urban sciences, tourism sciences, psychology . . . and sociology. The concept is so large that only one study cannot measure it.

In the set of problem for this thesis, we were wondering that how people in Dakar practice their daily trip? This question brings us to pose the problem of urban mobility practices. After defining the urban mobility, we can determine what is behind the urban mobility practices.

The big question for this building concept is to understand the urban dimension of mobility and how people are doing it in global context. Asking how people are doing their movement in city can reduce the issue and limit the urban mobility to some modal choice from an origin to destination. In this context, we are not going to understand the urban mobility practices.

People are moving every day, using various mode of transport with different trip purpose, having some expectations in the service, etc. they are permanently asking a technical condition of moving to organize their activities inside the city. To meet that population concern, decision-makers are also permanently trying to answer by using some strategy as sustainable urban landscape and transport policy. The way people are moving in this interaction between that concern and the available structure given by decision-makers is called in this thesis, *urban mobility practices*.

So urban mobility practices mean the way people are moving and behaving to accomplish their daily trips inside the city. Therefore, important elements should be reviewed to understand the richness of this concept. Hence, it will be interesting to start by identify the trends.

Urban mobility trends

The way people are doing their daily trips are different from city to city and according to the level of development. For example in the modern metropolises, the mobility occurs in complex urban spaces. The modern cities have new function and new form so that it is necessary to understand the people concerns in term of mobility.

We notice some negative impact of transport in the city where accessibility is limited by high level of increasing congestion, high level of environmental risk with the pollution. The use of private car is more and more important and public transport presents some lack of safety. However, mobility is much easier in developed cities than it is in underdeveloped cities; in poor countries, the most important share of mobility is ensured by walking. Public transport are usually informal, old, polluting and do not have any kind of safety. With a low income of the majority of people, the variable times as well as the modal choice are not applied in the measure of urban mobility practices.

Anyway there is multiplication of people's movements in city due to some specific function of city's area; each city displays its own neighbourhood category as rich or poor neighbourhood. This specialization of place inside city changes or modifies the transport structure and the whole supply.

As a result, urban people try to manage their mobility according to their spatial practices. This makes urban people more independent in their mobility practice. Neither does people in the poor city, usually practices of mobility are done according to the limited available transportation condition.

Mobility is not any more a daytime activity; the development of city included the development of night time activity even if the mobility is much limited compared to the daytime. This makes all the difference between urban mobility and rural mobility; in this last, there is almost no activity during the night while urban people do not have same expectations, same needs and same demands so that mobility in city and its practices became diverse.

In sum, mobility is a component of the modern metropolis: the ongoing processes linked to the phenomenon of metropolization are increasingly difficult to understand with the only traditional tools of analysis. To meet the challenges of global mobility management, it is more than ever necessary to take into account the urban dimension of mobility.

Taking into account the urban dimension of mobility has opened the field of urban transport and related the issues of transport with urban issues in an interdisciplinary effort. This new approach to mobility suggests a unique and better adapted framework to the new issues of mobility management in modern cities.

Urban mobility practices are a set of people movements in three interacted contexts: multimodality and intermodality, mobility's spaces, unequal mobility. Urban people move in a context of increasing transportation mode, thus, the development of transport strategies is not only

multimodal - that promote the use of several modes of transport in the city – it is also intermodal - to facilitate the transition from one mode to another during the same trip.

Urban mobility practices can be performed in a context of transport strategy based on the complementarity of modes depending on type of movement, type of space or time and day. This concept urban mobility practices is the keyword of this thesis; we are going to study how people are managing their daily urban movement in Dakar.

CHAPTER 3. DATA COLLECTION AND ANALYSIS: APPROACH AND METHODOLOGY

3.1 EMPIRICAL APPROACH

This research is based on data collection from two kinds of fields: the first is the household travel survey in a micro-individual stage; data were collected on site in various socio-spatial categories divided into zones while the second field focuses on interview and observation in meso-social scale. Hence, data were collected from both quantitative and qualitative ways.

3.1.1 Complementary study approaches: hypothetico-deductive, hypothetico-inductive and observational-inductive.

3.1.1.1 background and structure of the used method

The study we proposed to do is based on sociological approach with various dimensions. It collects first demographical, social, political and cultural data to be in interaction with spatial data, transport equipments and infrastructures. This kind of study involves several approaches as not only a single method cannot meet our expectations but also, as most scientists agree that there is no single method (Mahootian, 2009). Thus, we used three complementary methods to complete this study through three phases. The first was the observation of urban mobility of Dakar's population in order to attack the conceptual frameworks of our study that leads us to various hypotheses' formulation. It was after this observation and hypothesis that we went on site for questionnaires' distribution and interview. Questionnaires were addressed to household travelers while interview was addressed to transport operators.

Observation, questionnaires and interview have each a specific function since we are studying Power and Social Factors in Public Transport and the Urban Mobility Practices. But academically thinking, there is a deep relationship between them as most of scientific methods lie on continuity.

Hence, the hypothetico-deductive method for this specific study goes with a started point of hypothesis that *Dakar urban mobility practices depend on economical and socio-spatial situation of population*. This hypothesis seems to be common since all transport users choose their travel mode according to their own economical and socio-spatial situation. It means people who leave nearby the train station will choose train and people with a financial matter will work. But in the case of Dakar, choice is not free. People living in the high class zone do not use public transport; some people in the suburb do not have access to transport facilities. Since the living style in Dakar is different to other western cities where the spatial discrimination is not so strong and where people can access public transport from any area, the choice of transport mode is so limited so that the use of transport depends only to the economical situation of people and/or his spatial condition.

That is why we start from a hypothesis to better understand what is leading the urban mobility practices in Dakar. The data we need for that stuff should be collected in the statistical way by distributing the questionnaires in our research field. Evidences from the field of research will help to understand array of movement of Dakar urban population, the habits of mobility and their travel behavior. That urban mobility practices are important but not enough to complete all the study we are doing. One of our goals is to know the power and social aspects of urban transport in third world. So, we need an inductive approach to complete this study; in that way, we did interview and observation.

The hypothetico-inductive brings us to start from some existing specific element to better analyze the common sense. It is from observation and video record that we could understand some structure of urban transport in Dakar. We interrogated data of observation and then linked them to the quantitative data to establish relation between road's usage and social category of people.

There are too many researches wondering whether it is suitable and relevant to use the deductive approach that develops a theory and hypothesis and then design a research strategy to test the hypothesis, or the inductive approach which collects data and develops theory as a result of data analysis (Mark et al., 2007).

3. 1. 1. 2 Applicability and validity of these methods in this research

It is important for this thesis to discuss the relevance and applicability of the methods we are using in a context of discovery. The scientific method is not a scientific reasoning; these methods provide the data to be manipulated and to be analysed.

To speak about applicability and validity, we are going to discuss how the observational-inductive and hypothetico-deductive are not conflicting, but complementary methods to understand and explain the urban mobility practices of Dakar.

These three methods are synergic; the hypothetico-deductive inquiry proceeds by formulating a hypothesis to be tested on observable data. This goes with the principle of falsification as Karl Popper proposed that proper science is accomplished by deduction and we know, deduction involves the process of falsification. Popper's version of scientific method first begins with the postulation of a hypothesis.

As for the Observational-inductive method which focuses on knowledge discovery from *explanation* to *inquiry* and from the *products* of science to its *processes*, knowledge is provided by observation so that a start-point of hypothesis is not necessary. The observational framework allows collecting the data as urban traveler's behavior and the people of roads. It allows to understand the statistical data from household travel survey and to explain interviews of transport operators.

In this sense we can argue that methods we used are in the same way, Qualitative and quantitative methods are often described as mutually (Yauch, 2003). The three used methods articulate the concepts and provide discovery knowledge to produce information and re-orient the question of what urban mobility practices are in Dakar.

It is relevant to apply these methods in a study like this one which start by wondering the urban mobility practice framework in Dakar and how the social and political factors interfere in the urban transport system. Any of these methods above cannot go alone; if we only consider the statistical way, we can know and explain the urban mobility practice framework but it will be difficult even impossible to know its implications with the social and political aspects in Dakar urban transportation. To know the power and social control in public transport as suggested by the title, it is important and necessary to use the sociological comprehensive way.

This process marks a difference with traditional way of doing in transport studies. The engineering way solves only transport execution and its technical organization. But developing transport sector is different to a developed transport sector, in this last, the social phenomenon is weak as it generally happens in developed country where transport follows more demand and time value to other social and political factors as it is in developing transport sector usually seen in third world cities. Social and political factors are related to some kind of transport organization as informal system, several individual transport operators association, lack of regulation and weakness of decision-makers.

Consequently, only one method is not applicable in a third world city transport system to understand, explain the transport framework and to recommend a sustainable alternative. In this respect, we collected and observed all the data of this study through different ways, different contexts and different fields.

3.1.2 Data tracking: The main field of research

This research focuses on a study of road transport practices and their social and political factors. This research is new and complex, as transport situation in Dakar is in a unique stage, with specifically dysfunctions inside organization and various modes of road transport leading various effects on roads, users' behavior, operators and decision-makers.

Therefore, this research called for different methods discussed above applied in different field as *interview space, survey space and video-observation space*. This three phase data collection uses various areas, various sections and various actors.

3.1.2.1 The urban household travel survey: from the surveyors' selection to onsite data collection

The primary emphasis of the household travel survey was to collect travel data from household transit users. In this study, structured questionnaires were given personally by selected surveyors to some randomly selected sample of household transport users who fill it in using pen or pencil, or assisted by surveyors, for example some illiterate travelers. A number of 30 surveyors were selected to compose the survey team from 01st to 10th and from 15th to 25th on March 2012 for the whole study, all the team members are graduate students and majoring in sociology and economical sciences. Questionnaires distributing took 3 days and at each working day, surveyors worked from 9h 30 to 18h 00.

The sampling plan was designed in order to maximize the statistical validity and reliability of the household travel data that was collected to support the travel demand; we conducted among Dakar urban population a household travel survey. Sheets were collected from 1030 people who cooperated. Of the 1030 transit users who agreed to complete the questionnaires, 856 returned a completely filled survey sheet and 174 questionnaires were badly reported. Therefore, we finally got and processed 856 questionnaires which were useable. The questionnaire were originally designed in English and translated into French and then from French to English for the results.

The aim of the survey was to find out how people practice their mobility and what the level of their satisfaction is. The questionnaires show a number of open and closed questions asked about personal information as age, gender, income, location, work place, vehicle ownership. These basic demographic used as independents variables give a visibility of socio-demographic implication in Dakar urban transportation. Other questions are also asked about daily travel information regarding mode, distance, frequency, travel time, trip purpose . . . and customer satisfaction.

Open questions require the respondent to write down his or her own answers and closed questions provide either answer categories such as “yes”, “no” and “do not know” or a scale is provided on which a value for the answer should be rated. There are different kinds of scales and the most appropriate scale for the purposes of the questionnaire must be selected (Bortz & Döring, 1995).

3. 1. 2. 2 Presentation of area of study and selection criteria

This study concerned Dakar metropolitan area divided into 4 zones I called zone A, Zone B, Zone C and Zone D. The Za is the central part of Dakar without plateau which is the central district of the city; this historical heart of the capital is home of all administration structures and places of residence for mostly foreign people and other local high class people.

People leaving in this area use mostly individual cars and cannot be counted among Dakar public transportation users, Fann, Point E, and Almadies are also excluded to the survey area. So the Za represents Medina, Gueule-Tapee, Grand-Dakar, Sicap, Hann, Grand Yoff, Patte d’Oies, Wakam, Ngor, Yoff. The second zone is Zb, it comprises Parcelles-Assainies and Camberene located in the outskirts of Dakar with a population of 184,479. Zc is Guediawaye prefecture and Ze is Pikine Prefecture excluding Diameguene and Mbaou.

This spatial organization is built up according to different criteria (Voss et al., 2002). Firstly, to meet this study, study zone should have abundant road transport activities and be included within the three prefecture listed below. There is no spatial discrimination in this survey but we planned to collect information only in Dakar urban area excluding *Rufisque* which is a little far and detached to the compact area of *Dakar Metropolitan*. Also, this survey include all the social category organized sociologically thinking as high class we can identify only in some specific zones, middle class and low class we can find everywhere.

Field of research, Survey areas

Sampling Methods: Quota sampling

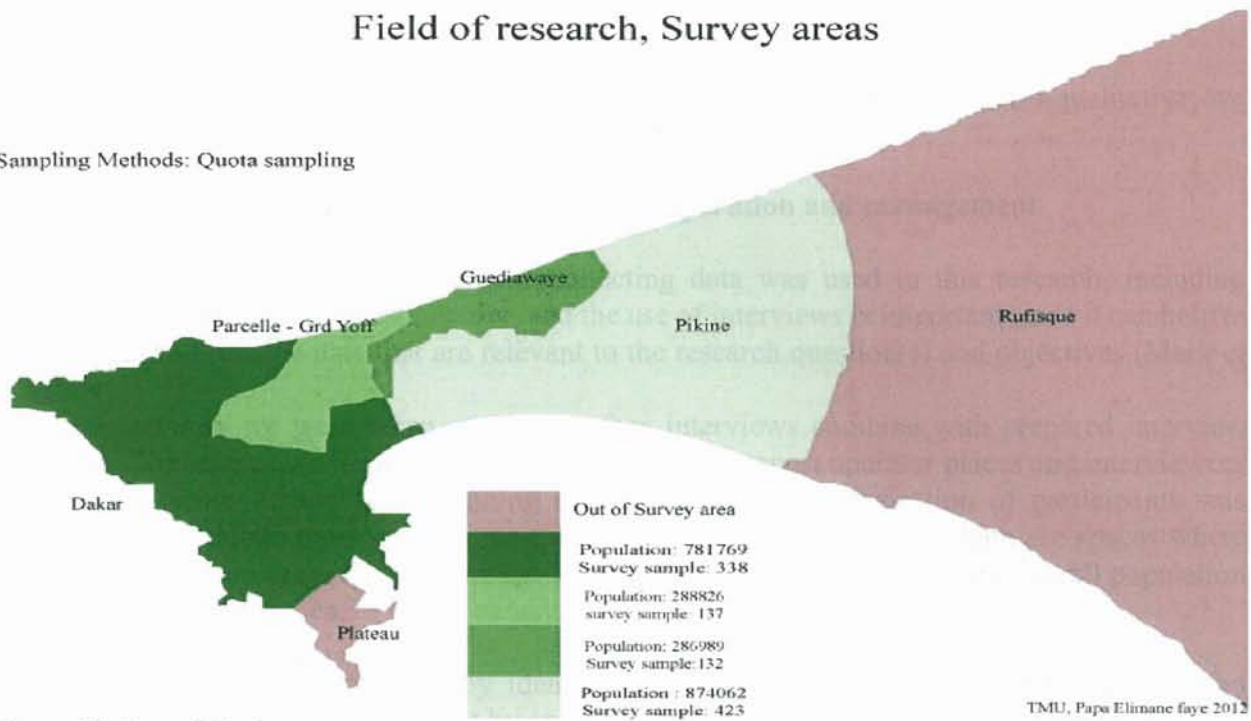


Figure 15: Area of Study

This survey was conducted in the region shown on the map in front. The Dakar metropolitan region including Pikine, Guediawaye and without Rufisque

All green areas include:

1. *Guediawaye* prefecture,
2. *Dakar* prefecture
3. and *Pikine* prefecture

The pink areas are the rest of Dakar metropolitan region but out of the survey area.

The sampling method was the sampling quotas wherein the assembled sample has the same proportions of individuals as the entire population with respect to known characteristics, traits or focused phenomenon. So, we divided our survey area into 4 zones. Parcelles Assainies is a big neighbourhood we have related to Grand-Yoff and Patte d'Oie. In this light, In Dakar (Parcelles Assainies, Grand-yoff and Pate d'Oie excluded), where population is 781769, 338 people were surveyed representing 38.81% of our sample as this zone represents 38.81% of the survey area. The second big population is Pikine with 874062 people, in this zone, we surveyed 423 respondents representing 41.06% of the sample in proportion to the representation of Pikine in our research field. The same process was used to determine the population to be surveyed in Guediawaye and we interrogated 132 people 9.81%. As for Parcelles assainies, 137 people agreed to fill out our questionnaire being some 11.30%.

3.1.3 The secondary field of study: Owners, Operators, and Administrators.

The data collection is not limited to statistical information, as the research is also qualitative; we conducted some interview to the transport operators.

3.1.3.1 Interview on urban transport structure, operation and management

As we already saw, various methods of collecting data was used in this research, including observation, interview and questionnaire, and the use of interviews is important since it can help to gather valid and reliable data that are relevant to the research question(s) and objectives (Mark et al., 2009).

All the interviews we were taken are face-to-face interviews combine with prepared interview questions. The interviews were conducted in the public transport operator places and interviewees were found onsite without any planning or appointment. The selection of participants was undertaken in 2 public transport stations called *Petersen* and *Kolobane*, which are spaces where several public transport services are grouped and has a broad affluence from the overall population of all the metropolitan area.

The participants were approached by identified staff from the public transport operator who accepted to introduce us to its colleges by explaining the purpose of the research. After some initial qualifying questions, each person was then asked to participate in the study.

In this research, 30 in-depth interviews were conducted with public transport operators divided into three groups: Apprentis, drivers, owners. There were slightly more drivers and apprentis (22) than owners (8) in the sample. The respondent's age ranged from 19 to 69, usually apprentis are younger than drivers and owner who are more than 45 years old.

All the participants were workers in the transport sector even if apprentis are regarded as apprentices (learners). Levels of education are very low, most of them left the education system from elementary school (17) some of them (9) are illiterate, they never went to school, and only 4 had at least some college education and 6 participants did not have a driving license but used sometime to drive.

Two kinds of interview were organized to get information from transport operators. The first is free interview with no guideline where people speak about whatever they feel important to share. This interview was useful because it gave some information we didn't think about. Only *apprentis* and drivers participated in this first kind of interview. The second kind of interviews were semi-structured, based on a pre-defined interview guide, and took an average of 50 minutes and was addressed to all. The questions were about the process of informal and formal sector in public transport, condition of operation, inside organization, inside relationship, financial aspects, socio-political factors, etc.

Other issues covered were the participants' overall perceptions of public transport services, their evaluation and relationship between decision-makers. The interviews particularly addressed the socio-political factors and the operation of formal and informal public transport, since they are the two major sectors of transports in Dakar metropolitan area.

The in-depth interviews which were taken in Wolof (Senegalese national language) were digitally recorded and fully transcribed. The codification of data into concepts and ideas emerging from the data and the literature review analysis was done to facilitate the organization, structuring, categorization and the development of relationships among concepts. The analysis was based on grounded theory methods through the participants' interviews, although the interviews with the public operator staff provided important information for the analysis process.

3. 1. 3. 2 Observation and Digital Video record

This system involved a camera and a video recorder to track and observe person's movements across some public roads. The camera is an actor in the research process; Digital video refers to an ensemble of technologies for visual and audio documentation, editing, and presentation, (Shrum et al., 2005). We learned from *Shrum et al* that digital video is not just a new way of presenting but a new way of practicing field research. In one sense, digital video is simply a variety of traditional ethnography, but it responds to new social conditions. The purpose of this digital video recording is to watch and count the number and type of vehicles running in some specific roads and to know their relations with habits of mobility of urban travelers in Dakar metropolitan area.

The selected roads are *Corniche*, *Route des Niayes* and *Express Highway (autoroute a peage)*; these three roads are high traffic roads and have undergone some transformations. The recording of images for the whole study was taken in one week from Monday to Saturday. Observation through video camera was scheduled as followed: Monday and Tuesday for the *Express highway*, Tuesday and Wednesday for the *Corniche* and Friday and Saturday for the *Route des Niayes*. These research activities provide various kinds of information from the roads users' behaviors, vehicle category, congestion and/or fluidity level and vehicle frequency.

The data exploitation was done carefully regarding the purpose of research; we didn't need all the data provided by the available images. Thus, we select only those which can allow us to identify and classify the vehicle on selected roads. This information is related to habits of urban mobility of Dakar metropolitan travelers and the relevance of oriented transport infrastructure policy in the city.

3.2 DIFFICULTIES AND PROBLEM WITH HOUSEHOLD TRAVEL SURVEY IN DEVELOPING COUNTRIES

This section highlights difficulties of using quantitative sample survey methods for household travel study in developing countries. Researching travel behaviour among low-income urban populations seems difficult according to our experience because of their level of adult literacy.

3.2.1 Main difficulty during the household travel survey

Improving transport services for the mega cities in developing countries has long been an area of concern for both decision-maker and developing country transport professionals. They always encountered difficulties of using quantitative sample survey methods in researching travel behaviour among low-income populations (Turner, 2....). There is a debate that data collected from developing countries' travel survey can often be unreliable unless great care is taken in

adjusting survey methods to overcome these difficulties. The problems usually perceived by researcher are areas of sampling, the language the interview is conducted in, interviewer training and selection and other so-called “situational variables”.

In many developing countries the reliable use of quantitative sample survey methods is flawed by the poor quality of data on the population as a whole (Peil, 1983).

In the specific case of our research, the big problems we have met are related to the educational level of respondents; most of them could not remember their trip schedule, purpose and mode choice in the last decade and even in the last 5 years. We would like in that stage, to focus on the dynamic and structural change of urban mobility in Dakar; we finally gave up this project because of this lack of information from the respondents. There are just some people with a high education level who could give us in detail their last past decade trip journals.

Another problem is the culture of scheduling trip in developing countries, usually trips are spontaneous in the developing world, the mode distribution is not so various and in some area accessibility is limited. As a consequence, population gets in the available bus (most of them are informal) bounding for the direction of their destination. In the case of Dakar, the mode choice is not wide and most of population use public transport as AFTU, Couple Car rapid/Njaga Njai, and Bus DDD; these modes do not have fix schedules excepted DDD and the frequency is so limited that travelers can take Njaga Njai instead of having bus. This is another reason for urban travelers to not remember their mobility journal.

The lack of employment among the population also can explain why this information is not available. The jobless rate is high in developing countries and the trip purpose is not mostly for work, it is for recreation, visiting family and sometime shopping. We can add the high rate of walking in the population mobility habits in Dakar; indeed, most of people we have met used to walk for most of their trip five or ten years ago. The respondents who were working used to ride on car rapid or Njaga Njai while the Bus Company DDD was really limited and the AFTU inexistent. They argue that car rapid and Njaga do not have schedule, they may change route during the trip and transfer us to other car. It is, thus, difficult in that way to remember the trip journal in the past.

The current trip situation is also difficult to understand from a household trip survey because of some social beliefs. It was difficult even impossible for our survey participants to get information about income, it is badly seen in Africa to speak about income or salary. Most of the respondents did not accept to give the income they receive every year. They also do not want to give the price of their private car and no one know the number of miles that vehicle ran.

There are also administrative problems. In Senegal, transport displays too many dysfunctional aspects but paradoxically, there is no official study or research from the governments. The few data we can get, come from the international organizations and there is almost no research from Universities. The transport system worldwide is marked by a very dynamical research as well in the engineering way as planning and policy. There is information about transport in the developing Asia from the government and from the academic system. International conferences and meeting related to transport matter is frequent in some part of the world and very few even in existent in Africa.

As a consequence, it is really difficult to focus on transport and mobility research in Africa, the data from World Bank and other international organizations are not enough to understand transportation, the lack of administrative data not helping, it is difficult to make a reliable household travel survey.

3.2.2 Issues of transportation research in developing country

Not enough attention is paid to transportation research in developing countries and especially in Africa where many problems are listed. From road safety in developing world where traffic fatalities are the highest to traffic congestion which makes deep lost in economic situation, strategy to improve public transportation seems to not working. In Dakar, any academic research was not done about transportation safety so that, no one knows the real road safety factors, no one can actually give the level of demand side and there is no link from demand management and supply-side strategy.

There is a great deal of research to be done in developing countries and especially in Africa. There is some what difference in priority between developed countries tasks and those of poor countries. For example, the transport problems in Dakar urban transportation is not requiring engineering solution, it is more than one discipline; it requires selected variables on Geography, Environment, Demography, Sociology as well as political sciences.

The first issue of transportation research in developing countries and especially in Africa should be about the mitigations of these disciplines in order to make a various data-rich country. The lack of data is not helping academic research as well as transport policy makers. Since data is likely scarce, the priority is to create methods and scenario to get rich transport data-base. The countries which already got their rich transport data-base are more prepared to thing about transport policy and then build mobility strategy.

How can we propose a transport strategy if the data to be analysis are not available? How can we change the system if the current situation is not mastered? How can we forecast the mobility in the future and eventually prevent some undesirable situation if we do not know what happen in the demand- side?

These listed questions are not yet replied in many developing countries, in Dakar we notice a lack of interest related to these issues so that in the present study, we found out a deep inconsistency between habits of population mobility and the transport policy supposed to be the supply of the big urban transport demand.

These questions should be a concern not only for academic researchers but also for official government researchers as well as the institutes of statistical recording. In Dakar, transport department is rich of institutes and organizations but no one can say what their roles are. Decision makers still do not understand the academic role of transport development, they have only a political way to solve transport problem. As a result, congestion is getting more and more

important, traffic fatalities became untreatable and new formal transport is working on the steps of informal sector.

Other research problem, which is not assumed in developing countries and especially in Africa, is the saturation in the increase of vehicles. Usually the owners of private cars are not as many as they appear in the developed countries but population of poor countries increases so fast and infrastructures are not following both movement of population development and increase of private cars.

Hence there is a significant role of research and the academy in transport strategy in developed countries as well as in poor countries. Developing countries should make a real effort to come over the research problem in transport development. Since there is nothing clear on urban transport among stockholders yet, the big role of researchers and academic institution is to act as an agent of change (Kusbiantoro, 1998); the point is to influence the stakeholders' attitude, to make them aware of emerging problem.

The development of urban transport in Dakar will happen only if politician gave to transport research and academy their role and create some clearinghouses for database. This will help decision makers to know what step should be used and what direction should be taken.

CHAPTER 4. OBJECTIVE DESCRIPTION OF URBAN TRANSPORT USE AND WEIGHT OF INFORMAL SYSTEM IN DAKAR URBAN MOBILITY

4.1 DESCRIPTION OF URBAN TRANSPORT USE






			Business structure	SKILL	Social Power
Formal	P T B		Public owned (Statal) Regulated Organized } 1 Player	Trained Professional	None
	D D D		Public owned (Statal) Regulated Organized } 1 Player	Trained Professional	None
	A F T U		Limited private players with regulation	Operation outsourced Unprofessional	Exists
Informal	N N		Many private players No regulation Disorganized	Unprofessional Untrained Direct operation	Strong
	C R		Many private players No regulation Disorganized	Unprofessional Untrained Direct operation	Strong

Figure 16: Transport modes in Dakar

Dakar urban transport is divided into two categories: the formal urban transport and the informal urban transport. These two categories of transport are different in various aspects, from their business structure to the influencing social power inside the systems. The transport organizations called informal transport are privately operated in an artisanal way.

The formal transport includes Dakar Dem Dikk (DDD), Petit Train de Banlieue (PTB) and AFTU minibus. DDD is the formal bus company serving in the Metropolitan area while the train system (PTB) serves Dakar and its suburbs. These two companies have the same business structure because they both are public owned. So they are regulated and organized with only one player. Their operating methods are also the same; they hire trained and professional workers.

The other formal transport company is AFTU, it consists of minibuses with a so special business structure. It has limited private players and is regulated. However, the operation is outsourced

since AFTU is not a real company and private operators are asked just to belong in one of the AFTU associations. As a consequence, operating methods are not done in the professional way.

Social power as a reality in Senegal is identified in various sectors, including the transport. We found a type of social power inside the formal AFTU but it was not noticed inside DDD and PTB organizations.

The informal transport includes Car Rapid and Njaga Njai, they are operated by too many private players, they are not regulated and are disorganized. Working people are usually unprofessional and do never have any training for this job. This informal transport is led by a strong social power.

Urban mobility practices in Senegal and especially in Dakar Metropolitan Area (DMA) constitute a key challenge for decision makers, transport operators and the civil society. Since the 1990s, a major crisis was and is still noticed in the urban transport sector due to a “*combination of increasing urban population growth (3 percent on average, with peaks up to 8.5 percent in Dakar suburbs), lack of road maintenance, poor traffic management methods, unbalanced spatial distribution of roads between districts, aging public transport vehicles, and inadequate regulations of urban transport services*” (World Bank, 2010).

With a high growth rate in Dakar and particularly in some remote areas, the population of Dakar is now exceeding 2.5 million people. This represents one quarter of the total population of Senegal, or half of the Senegal urban population, while Dakar's contribution to the national GDP is estimated to 60 percent (*ibid*). The Urban Mobility Improvement Project (UMIP, Cr. 2254-SE, closed September 30, 2008) supported the urban transport sub-sector through a successful US\$131 million program implemented with all active donors (Nordic Development Fund (NDF), French Development Agency (AFD) and the International Development Bank (IDA) (World Bank, 2010)

Bus services provided by Dakar Dem Dikk (DDD) represent the formal Dakar's mass transit system. Senegalese government sold the majority of the company's capital stock (76.6 percent) to other private Senegalese investors. The starting point of DDD was done with 60 large buses, but by 2004 the number had fallen to fewer than 40, resulting in spotty service, long intervals between transit vehicles, and frequent breakdowns. In 2005 and 2006, 409 additional large buses have been provided with bilateral assistance (60 Volvo and 349 Tata). However, the number of daily operated buses is less than 300.

Train system is not more than 1% of transit capacity in Dakar urban system; it is a suburban commuter rail service that is provided by the Petit Train de Banlieue (PTB), previously known as the Petit Train Bleu.

Informal transportation services (*Cars rapides* and/or *Njaga Njai*), provided by a large number of generally small-scale private operators. The current fleet is estimated at about 2,500 vehicles and provides about 80 percent of the public transport supply (World Bank, 2010).

A leasing scheme financed under the Urban Mobility Improvement Project (PAMU) started replacing Car rapides by other kind of new minibuses; 505 old Car Rapides has been replaced with new, considered as more efficient by the decision makers.

More than 1 million of daily commuters are identified between the urban city of Dakar and its suburb. This leads to difficult urban mobility conditions which deteriorated in Dakar from the 1990s until 2005; the lack of inter-modal coordination, and limited attention paid by the Government and local authorities to the sector's needs have also increased the urban transport problems in Dakar

However, the foundations for improvement are now being supported by the Government due to: (i) *UMIP's positive impacts in sector management and public urban transport*; (ii) *greater urban mobility due to improvements in key primary urban roads*; and (iii) *other programs prepared to upgrade primary transport infrastructure like the Dakar-Diam Niadio Toll Highway (Cr. 4579 SE) and the inter-communal road upgrading program under the ongoing Local Authorities Development Project (LADP, Cr. 4224-SE)*. (World Bank, 2010)

The general urban transport efficiency has strongly decreased from 2000 to 2004, occasioning heavy traffic congestion and delays in investment resulting in the government new action to fight against transport matters. So, traffic in Dakar was improved slightly after the implementation of AFTU in 2005. But still urban traffic demand cannot be met and until 2008, conditions were worse than in 2000 with an intractable time-lost-in-traffic increased by 30 percent; the market share of public transport declined by 13.5 percent; and the cost of externalities increased by 32 percent (World Bank, 2010).

Table 2: Daily trips by public transport mode, 2003

Mode	Trips number	%	Mode	Trips number	%
Autobus DDD	30 000	2.5%	Metered taxi	112 000	10%
Car rapide SG2	440 000	40%	Shared taxi	77 000	7%
Ndiaga Ndiaye	300 000	27%	Clandestine taxi	88 000	8%
Urban train	25 000	2%	Others	38 000	3.5%
			Total public transport	1,1 M	100%

Source: Gmat, 2004

Transport in Dakar is provided by several modes and the most common before 2005 was Car rapid and Njaga Njai which are still important in Dakar urban transport system. Given in this table, the daily trip of car rapides was estimated at 440 000 or 40% of the whole motorized urban mobility in Dakar. And just behind, we found 300 000 daily trips operated by Njaga Njai, this represents 27% of the whole motorized urban trips.

The other public transport mode did not have enough capacity, they are composed by the Bus company DDD and the urban Train (Petit train De la Banlieue) PTB. They are formal but could carry only 30 000 for DDD or 2.5% and 25 000 daily trip for the train or 2%.

So, the informal sector itself organized 740 000 daily trips before 2005; this means 67% of the whole trips in Senegalese capital city. And the entire public transport daily trips were estimated to 71.1%. This shows how important is public transport in Dakar urban system and how weak is the formal transportation system in Dakar.

We do not consider taxi as a public transport mode; we call them para-transit mode. In Dakar what we call Metered taxi does not use meter to estimate cost of voyage. Everything is based on bargain, and fare price is usually fixed between driver's estimation and customer's proposition. These taxis operated 112 000 daily trips or 10% of the transit system in Dakar. Shared taxis are mostly located in the suburb and are not as much expensive as metered taxis; every taxi carry 4 customers who pay the same amount. Prices are usually fixed so that the bargain is very rare with this kind of Taxi. Their daily trips are estimated to 77 000 around 7% of the whole transit.

With the high transport demand level, and the difficulty of the government to meet this demand, many clandestine taxis were disseminated in Dakar. In the beginning, they do not have registered and then were not counted by the government; they used to compete with formal bus system and were combated by the police of roads. After years of secret and illegal operation, they were allowed to operate face to the increased transport demand and the bankruptcy of Bus Company.

They still have the name of clandestine (*Taxi-Clando*) and operated 88 000 daily trips or 8% of the motorized urban mobility in Dakar. These-taxi clando use the same routes than DDD and carry the customers of DDD who could not wait more than 30 mins to find bus. As a consequence, Taxi clando with only a capacity of 4 people per ride got more customer than DDD whose bus can carry more than 100 people a ride. This taxi clando system is also informal transport mode that government accepted because of its problem to face to the high motorized urban mobility demand.

The other transport modes made 38 000 daily trips or 3.5% of the transit organization. These modes can be motorized and none motorized; there among them horse-drawn carts. In the suburb of Dakar, this transport mean is also popular since it can help people living in the isolated area to get their destination. Fare prices are not expensive but the time of travel used to be long even if the distance is not long.

This table expresses the data of year 2003, and still new data have not been found for the same purpose. The officials we addressed said that these data might not be changed because DDD still have the same capacity; there is no improvement since 2003 neither for the bus fleet nor the frequency. So does the PTB (Petit Train de la Banlieue) which still have the same number of daily trip.

As for the introduction of AFTU after year 2003, public transport operators, government officials and unionists I have met said all that the AFTU do not create a new kind of customers; they just withdraw from mostly car rapid and Njaga Njai and a little from the bus system. This means even if the demand get higher and higher, customers are those people who use to take car rapid, Njaga Njai, DDD, PTB, and Taxi and since the AFTU are mostly taken the same routes than car rapid and Njaga Njai, they shared the same customers.

We do not know exactly how many daily trips are operated by AFTU through official data. But the number of minibus to ensure Dakar urban transport is 900 and AFTU unionists consider this number of vehicles as sufficient to supply the urban transport demand. However, urban transport is still characterized by the congestion and disorganized informal transport modes.

4.1.1 AFTU minibus, the new car rapid or the upheaval of hierarchy

The bus renewal concept, regulation and reform of Dakar urban transportation system have been done and AFTU minibus system is growing up. Already 906 minibuses are operating in Dakar and earning some scope; officially, informal transport dominates the system but after our conducted survey, we learn that the new minibus company seemed to become the first transport mode in Dakar. People use more and more these transport modes and the fleet is expected to be more important.

Table 3: Main transportation mode

Mode	%
Njaga Njai& Car rapid	31
AFTU	37
DDD	8
Taxi	11
Clando	5
Motorcycle	4
Private car	1

Sources: Papa Elimane FAYE/ TMU, 2012

I noticed from this study that Car rapid and Ndiaga Njai lost their supremacy in favour of AFTU minibus which became the main mode of Dakar Urban transport System. According to our survey, 37 % of people are now using AFTU transport modes for their mobility in Dakar while 31% are shared between car rapid and Njaga Njai and far after, the use of taxi is more important than the use of DDD buses.

We interrogated 1030 people and reported 836 acceptable answers in various places and neighbourhood in Dakar. If we noticed 37% oriented in AFTU mode, even if we have to read it

with caution, it means the importance of AFTU. This new transportation mode is likely to completely and definitely change the hierarchy.

In simple observation, everywhere (I went) that car rapid and Njaga Njai operate, I have seen almost the same number of AFTU minibuses or at least a few differences in term of number. This means car rapid, Njaga Njai and AFTU use the same lines and have the same way of operation. For example, in the crossroad of *Petit Mbao* or *Poste Thiaroye*, I find all the different modes in the same informal transit stop.

Observers and operators speak about an upheaval. The fact is not only that AFTU modes became or are about to become the main transport mode, but it appears as a new form of car rapid. As we already seen, car rapid is more than a simple transport mode; it is a wide system abounding in many elements.

AFTU is an imitation of car rapid method with some developed standards that do not exist in car rapid system. For example in an AFTU mode, the pass receiver is not operating in the way of *apprentis*. He becomes a formal trained person and is always seated inside the minibus in a vending cab where passenger can purchase their tickets.

AFTU minibuses got also fixed stations, terminals and stops, this is one element of difference between car rapid, which is more flexible because it can stop everywhere and can use any line. As long as it works and continues to replace car rapid, AFTU seems to be a hybrid of car rapid and Njaga Njai system.

I do not know after my investigation how much they exactly earn but M. D. operating in Petersen said even if there is some reluctance of people for the reform; we know that earning money for an owner is easier with AFTU than car rapid. With the new formal minibus, owner yields 75 000 Cfa (150 \$) while a car rapid's owner expects a daily amount of 15 000 Cfa (30 \$) when schools and universities are in session.

However, getting the request amount from operators to owners is difficult with car rapid because of the lack of transparency. In the car rapid system, everything is done by the *apprentis*, and one could not control them. There are no ticketing methods, passengers are directly paying in cash to *apprentis* and sometimes, they do not pay because they do not have money. That is the car rapid system.

Also maintenance is decided by owner but whenever the car rapide's vehicles get broken (it can happen while operating), *apprentis* have to go to see the mechanics for some check and reparation. "*This is a source of scam*" claimed S. S., a car rapide owner. This case is very common and *apprentis* can every week create a similar case to justify some missing in the amount that should be paid to the owner. This is possible in Dakar system because the culture of billing does not work well in the whole country and does not exist at all in the informal sector.

As for the AFTU minibus, it is not possible to create this kind of situation because every AFTU mode gets its dedicated mechanics and there is anyway where driver or pass receiver has to pay to the mechanics. Also, when mechanics finish checking the vehicle, a proper form invoice is proposed.

So globally, the reform raised the level of services in Dakar urban transport. However, this improvement results only over a new structuring of the sector; the implementation of a formal

system with known lines and destination; an official and respected table of fare. The vehicle itself does not meet all the requirements of customers and operators. They complain about the quality of vehicle they considered bad.

I noticed from this reform, three great improved elements:

- Distribution of vehicles became faster and more reliable on departure with a fixed route for each vehicle; compared to informal system, where vehicles leave the terminal only once it gets full and will often change routes on road.
- Passengers know the exact fare they should pay before getting on board; it is not so in the informal sector where tariffs are adjusted by *apprentis* according to the level of demand
- Owners of AFTU minibuses get in their daily profits more than *car rapide* and *Njaga Njai* owners.

4. 1. 1. 1 AFTU minibus facilities and users perception

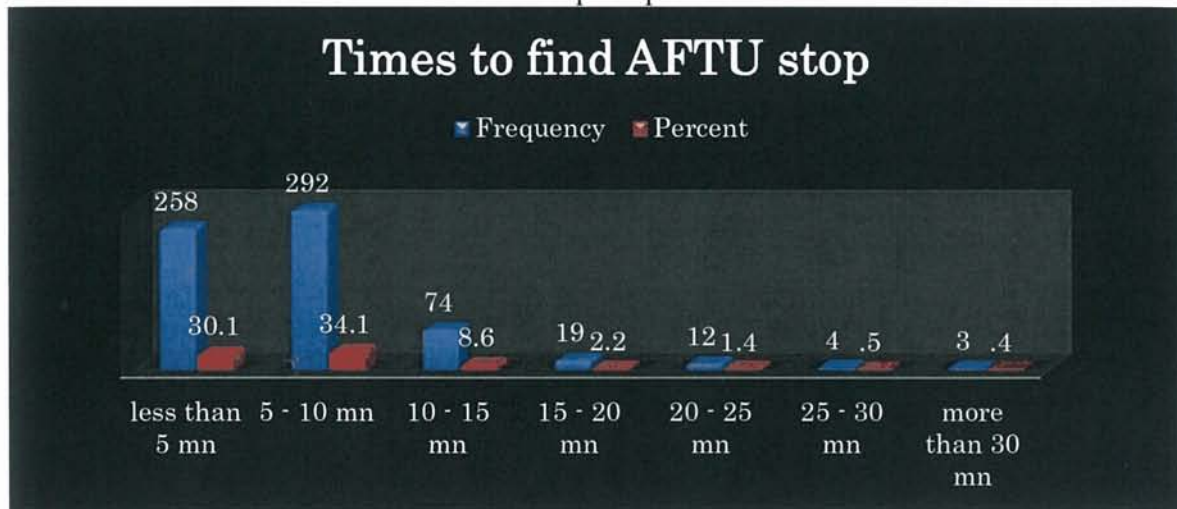


Figure 17: Walking time before finding a minibus¹

The management of supply brought decision makers to implement a formal Car Rapid system called AFTU or Tata in reference to the handing Maker (the Indian Tata). As we saw below, AFTU is becoming the main transport mode for Dakar’s public transport users; according to our own survey, it is the first transport mode for many travelers in Dakar. This happens because a successful distribution of service was organized by the GIEs which lead the operation of AFTU system.

Therefore, getting to AFTU stop is not difficult as 30.1% of dwellings are located within 5 mins of walk. In the meanwhile, some people have to walk until 10 mins before they get an AFTU station. This means a well distribution of AFTU bus-stops; people able to walk between 0 to 10 mins represent the wide majority with 64.2%. Hence, AFTU is not isolated from the dwellings and can be located in so many areas of the capital and its suburbs.

¹ Sources: Papa Elimane Faye/TMU, 2012

I can however notice an important number of AFTU users who have to walk more than 10 mins to get their favor transport mode. More than 35% of our respondents still do not have close AFTU stops to their houses.

This numerals reveal the weak network coverage of AFTU system, they do not have yet the flexibility of car rapid and Njaga Njai; a problem of accessibility is posed by some users and for several time confirm to use other transport modes because the isolation and distance of The new minibus system facilities.

But it is interesting to note that among people we surveyed, only 0.4 % are working more than 30 mins to find AFTU. These travelers are located to the exurb of Dakar, AFTU reaches these neighborhoods but do not have the required frequency by the identified potential users.

While AFTU users spend some minutes from houses to bus-stops, there are probably people waiting in the station or stops for the next AFTU minibus. The reading of the figure below shows the level of waiting time at the bus stop.

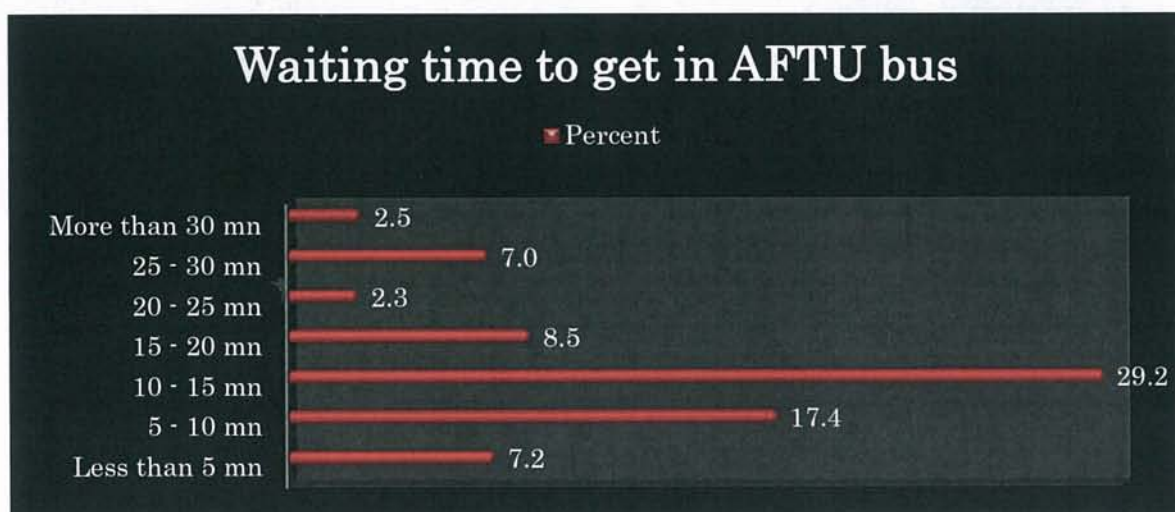


Figure 18:Waiting time to get AFTU¹

Officially, the interval of AFTU service is 11 min in average (Kumar, 2010). Our survey presents almost a similar result. 29.2 % of respondents wait from 10 to 15 mins to get in AFTU bus. While 17.4% are waiting from 5 to 10 mins. Usually, people living in the close suburbs as *Parcelle Assainies*, *Golf*, *yoff* and *Wakam* get an AFTU bus from every 5 mins to every 10 mins. But people living in distant suburbs used to have some problem of frequency. In this light, we count 8.5% people who use to have their AFTU bus in an interval of 20 min in average while 7% get their minibus every 30 mins.

This is one important element that helps car rapid and Njaga Njai system to still be strong. Even if we notice waiting time in car rapid service, the nature of waiting is quite different. Usually, Car

¹ Sources: Papa Elimane Faye/TMU, 2012

rapid and Njaga Njai's travelers wait inside the vehicle because of this famous principle that informal vehicle should be full before departure. While the AFTU users wait outside in the station. This means as soon as passengers get in the minibus, they do not have to wait longtime.

Distances from dwellings to AFTU stops and waiting time once getting the station show some limits in AFTU accessibility but can be accepted as wide distributed transport mode since the start point of the system is 2005. If this way of replacement of car rapid continue working, then AFTU minibus can be emerge as the new car rapid system.

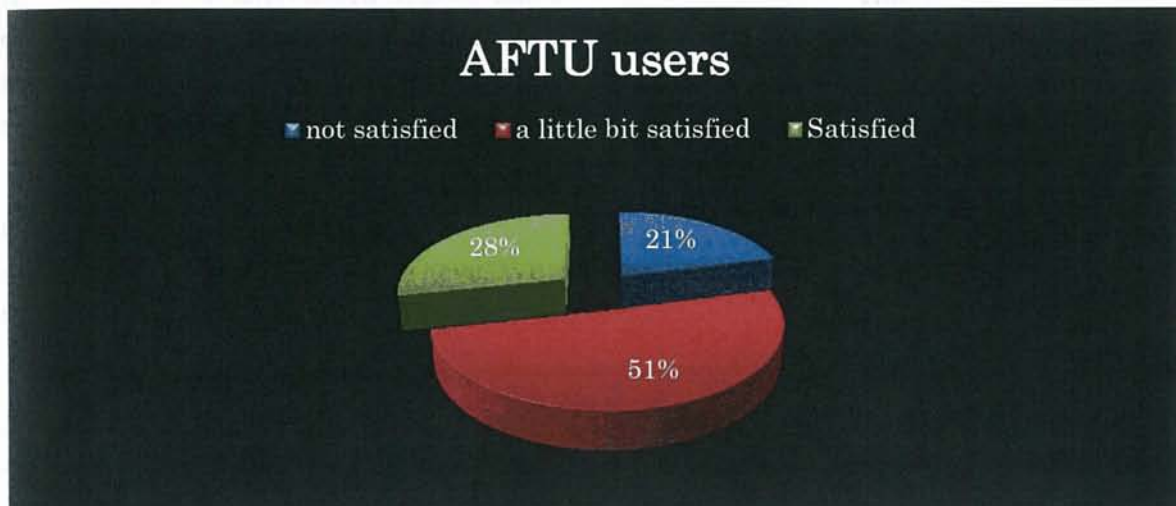


Figure 19:AFTU user's satisfaction¹

The addressing question was to know whether people using this transport mode are satisfied by supplied service or not. All service included, only 28% AFTU users are well appreciated AFTU operation. 21% of users are not satisfied by service, the main described dissatisfactions are noted in exurb where the minibuses are submitted to a problem of accessibility and suburbs where the main encountered problem remain the frequency of the mode.

However, 51% of respondents get satisfied in some service as frequency and accessibility. This means they can get the stops within 5 or 10 mins walking and do not have to wait so longtime before boarding. Nonetheless, they describe some problem such as the overloading of minibuses. In that point, they do not find difference between Car rapid and AFTU.

AFTU users are likely to complain about the lack of seats and the non-compliance of the beginning's principle. They fill some unsatisfied change with the same methods as car rapids and Njaga Njai even if they note cessation in the structure and management. The AFTU organization is a formal transport system that gives some standards completely unknown with car rapid system but existing with DDD Bus Company. This conventional bus system is organizing with the AFTU

¹ Sources: Papa Elimane Faye/TMU, 2012

system, the formal sector of Dakar urban transport. System seems to be “young” but reveals some dysfunctions related to lack of funding and non-mastery of international standards system.

4.1.2 Dakar Dem Dikk (DDD) bus company and its operational characteristics

Conventional bus services are currently operated by Dakar Dem Dikk (DDD), a company created in 2000 by Senegalese national government and private local interests with a fleet of second hand vehicles, with the intention to purchase additional new buses.

But the situation deteriorated in 2003 and 2004 so that very few vehicles were operated daily — officially 45 vehicles for public transport and 15 vehicles for specialized transport. In 2007, the urban bus company “Dakar Dem Dikk” counts a park of 410 vehicles divided into 17 lines. The network of cover counts 987 stops.

The bus company DDD provides a fleet of 410 buses operated on 22 lines. It is called formal transport system in Dakar but the operation method reveals some informality as it does not have some facilities the buses used to have. We note that DDD bus does not have applied timetables so that bus users do not have any idea about the next bus.

This facility became very standard in other countries but actually the timetables of DDD are not applied at all by the bus company submitted to too many difficulties (they have never been applied). There is also not updated data in DDD bus operation; no recent information is available in the bus company. However, we can examine the data of 2003 as following:

4. 1. 2. 1 Details of vehicle kilometres run,

Table 4: Data on Dakar Dem Dikk operation in 2003

Mois	Kilometers	Passengers	Receipts (MFCFA)	Receipts/ Km (Fcfa)	Receipts/ Bus (Fcfa)	Km/Bus
January	637 625	1 382 266	225.5	354	73 998	209
February	525 480	1 138 179	184.9	352	72 744	207
march	573 986	1 222 303	197.3	344	71 538	208
April	544 930	1 172 683	189.7	348	72 272	208
May	541 767	1 116 811	180.9	334	72 276	216
June	527 710	1 045 762	169.3	321	67 841	211
July	507 237	1 032 203	168.4	332	72 220	218
August	464 505	861 322	141.0	304	68 492	226
September	371 161	731 616	119.6	322	74 569	231
October	388 589	770 974	125.6	323	75 662	234
Total	5 082 989	10 474 119	1 702.6	335	72 052	215

Source: Kane from Dakar Dem Dikk December 2003

According to this table, DDD runs from January to October 5 082 989 km and got 10 474 119 passengers. In average, the daily trip length of DDD is around 200 km. these data supposed to be changed but according to O. K. a DDD labor union member, *if there is any change, it is not big*

because evolution in DDD is very limited. This numerals show how weak is DDD operation; less than 1.5 million of passenger per month does not have any significance.

This lack of passenger is due to inaccessibility of bus price; it seems to be high for the general economic condition of people. It is also due to the infrequency of buses, people can wait longtime to get in the bus.

During the survey, people argue that the service provide by DDD is not so efficient, one loses too much times waiting for a bus. Limited Car fleet, unknown terminal management system and other facilities are some problems that meet DDD users.

4. 1. 2. 2 Bus terminal distribution

According to our survey, DDD stops were well distributed, however, the frequency and the waiting time do not encourage passengers to stay and wait. We showed in the chapter 5 that some categories of people cannot access to DDD because of their weak financial condition. But people who can access to this transport mode used to wait for long minutes before getting a bus.

There is neither schedule nor signal in the bus terminal. One of our interviewee said: “when we go for bus riding, we just go to the stop and wait; we do not know when was the last bus and when will be the next” sometime, we need to go to informal transport stop we are always expecting that the next bus will come soon and since time passed very fast, we can spend more than 30 mins waiting. The figure below shows the time to work from dwelling to DDD bus stop.

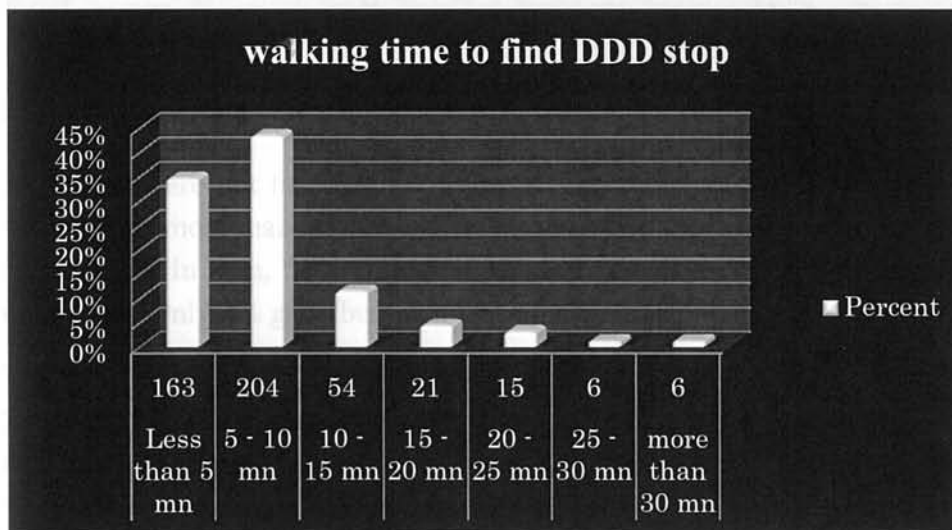


Figure 20: Time to DDD bus stop¹

Actually, there are some DDD bus stops which are not fare from houses; the coverage of bus is not yet meeting the level of the demand but is represented almost in the whole metropolitan area of Dakar. Through the different lines, people of DDD are located in various areas.

¹ Sources: Papa Elimane Faye/TMU, 2012

Usually transit users can get a bus stop less than 10 mins walking. 35% of our respondents can find a bus stop near their houses, within 5 mins walking 43 % have to walk at least 5 to 10 mins to find DDD stop and 12% have to walk between 10 to 15 mins while 10% have to walk more than 15 mins without finding a car.

This means 10% of our respondents do not have easy access to DDD even if they do not have financial problem to commute in the formal system. The big problem for some of them is distribution of the bus facilities. Those who can easily (in few mins) access to a bus terminal usually met the problem of bus frequency. Let's read the waiting time level in the figure below.

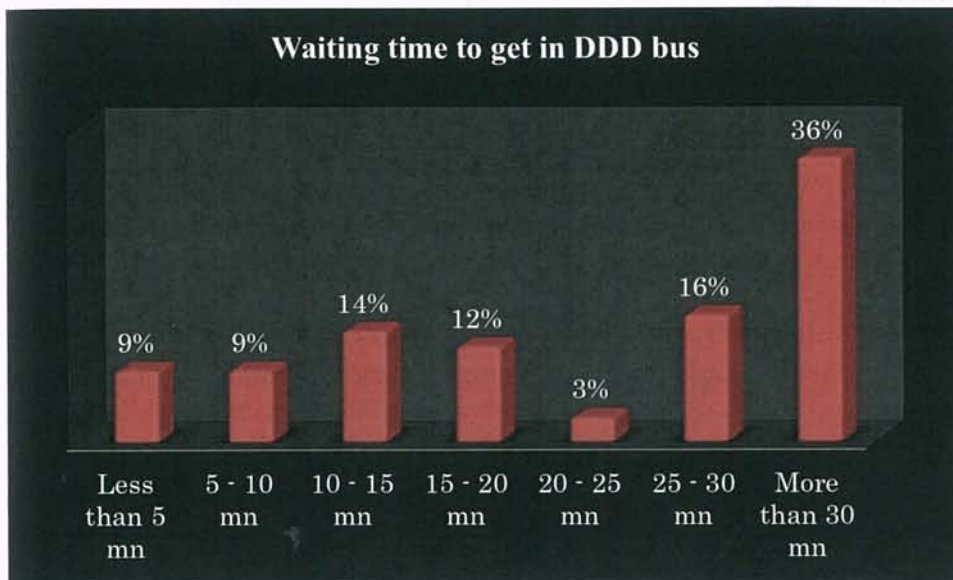


Figure 21:Waiting time for DDD¹

DDD buses are not frequent according to our survey responding, 36% of people recognized to wait always more than 30 min at DDD stop before the next bus comes. 16% have to wait from 25 to 30 mins. In sum, 52% of bus users will lose more than 25 mins at bus stop to find their commuter. Only 9% get a bus within 5 mins waiting.

The global intended waiting period between consecutive busses' arrivals at a DDD bus stop exceed 25 min for 52% of transit users. A random passenger who came to the bus stop at a chosen moment would expect to wait for minutes until the next bus arrived. Other problem is when a would-be passenger arrives at stop and waits for a bus; when the waiting bus arrives, passenger can board only if there are enough seats, and otherwise passengers wait for next bus. This experience is common in Dakar urban transit users and usually leads to a change of transit stop in order to get other transport mode.

One of our interviewee complain that *“One of things he always found intriguing is that he always wait more than 30 min for the bus in opposite to what is expected according to the frequency*

¹ Sources: Papa Elimane Faye/TMU, 2012

quoted by the transport companies at the bus” he also argue that he cannot know if the bus is late or not because of the lack of information about a bus schedule.

Transport researchers used to examine bus stop distribution by the spacing of facilities to determine the accessibility. That is the engineering way, what is interesting for us here, is the perception of people to their bus stop. We tried to understand their experience due to the location of their housing.

As a result, we can categorize people who use to commute with DDD bus and understand why others are not using this formal transport mode for their mobility. What the two above figures show means if people can find easily a bus stop, less than 15 mins of walking, most of them have to wait more than 30 mins, the usual time intervals between bus arrivals.

This explains why only few people ride on DDD bus, they do not have other choice than going through another transit mode to ensure their daily mobility. Only around 9% of our survey respondents get a bus within 5 mins waiting, this estimation meets exactly our results in the modal share where 8% of respondents use DDD bus as their main mode of transport.

This population of DDD bus users thinks to get their destination easier once they get in the bus compared to the informal transportation modes. (see figure below).

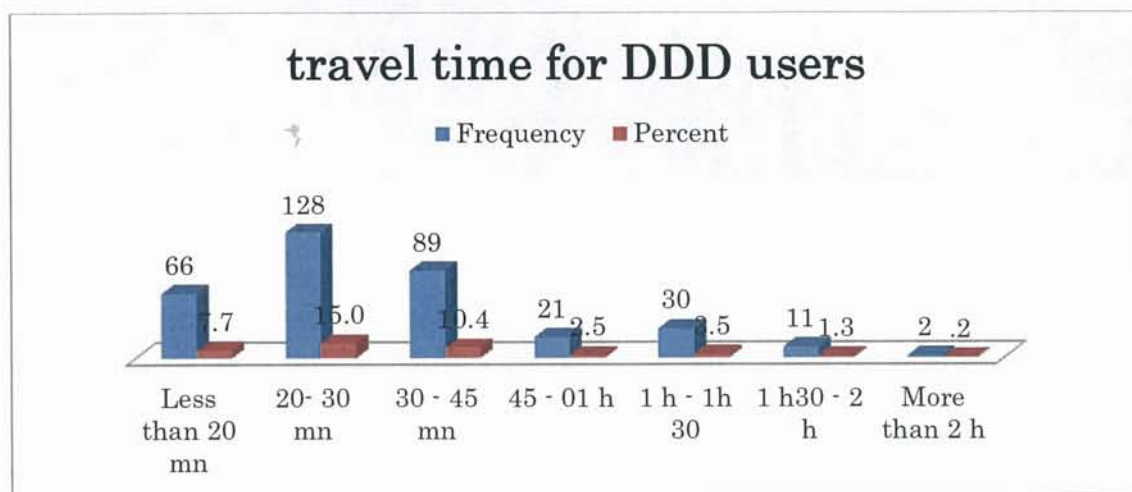


Figure 22: Average travel time for DDD users¹

33.1% of DDD users estimate they can reach their destination within 45% while 15% of respondents can arrive within 20 to 30 mins of run. In this term, formal buses save more time than the informal modes. Moreover, the line and stops of formal are organized and structured while the informal sector can stop wherever they want (see above).

This fast time of travel compared to other transport modes in Dakar urban system is due to the reliability of DDD routes. Even if there is not a schedule, users know the destination through the

¹ Sources: Papa Elimane Faye/TMU, 2012

number given to each bus and which indicated the itinerary of the bus. There is also the fact that DDD buses stop only where a stop or station is dedicated and it never stays at transit stop more than three minutes.

However this travel time is fast only compared to the informal transport or AFTU; DDD shares the same road with other transport devices and do not have any dedicated corridor even in peak hour. Therefore, reaching destination often takes more times than expected. Compared to train, we see that train system is really fast because there is no other traffic able to trouble the train itinerary. This lack of rapid transit way is one of the reasons that DDD is not playing its role; actually it is not a rapid transit and taking taxi is much faster than the bus because taxis are more flexible.

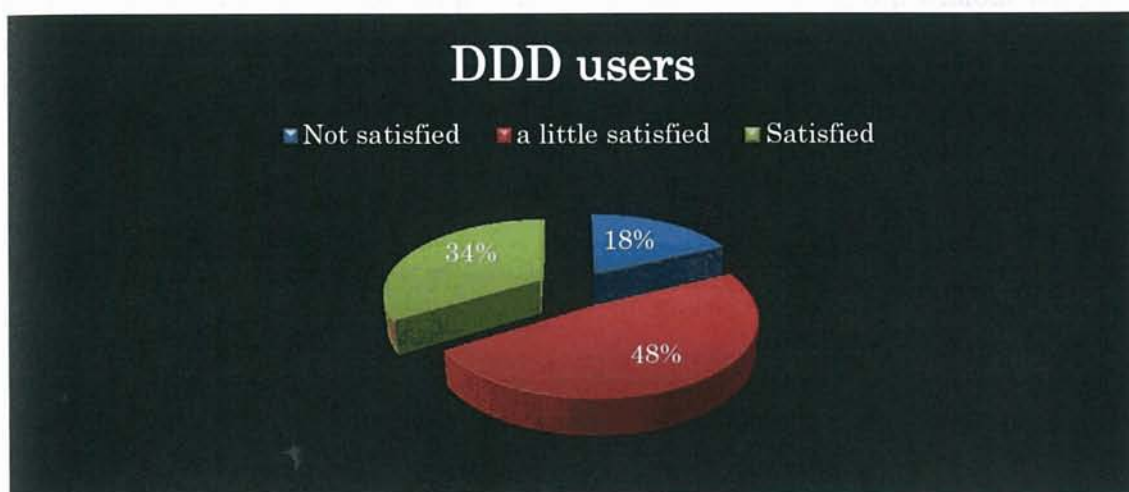


Figure 23: DDD customer perception¹

Service that DDD offers is better compared to other services in Dakar urban transport in term of comfort. However, people using DDD are globally not satisfied in DDD service; near the half or 48% said they are a little satisfied. This is for the price which is not consider as expensive for some category of people.

Other people said they *“can get seat if it is not a peak hour and it is quite fast”*. 34 % said they are satisfied by the DDD service and 18% of interviewees are not satisfied at all by DDD service. The first problem they seem to have with DDD is frequency; indeed A. G said that he used to stay long time without getting a bus *“DDD is very rare, it comes once every 45 mins or more”* for D. N. *“DDD pass receivers never have change, even if you give a little bank note of 1000 CFA, they do not return change easily, needless to speak about the crowdedness in peak hour and sometime in off-peak hour while the frequency of the bus is likely to be once an hour”*

So the problem raised by people for DDD is first the frequency problem that we already speak about. In fact, the small number of DDD fleet is playing a big role in its infrequency; there are

¹ Sources: Papa Elimane Faye/TMU, 2012

also some zones where DDD is more frequent but in the suburbs and exurbs, the frequency is not at all meeting the population's needs.

Another aspect of dissatisfaction is the fare collection method; people using DDD found that some time they lost time waiting their change, other said they are leaving the change to the pass collector without any chance to recover it, there are also some people who argue that sometime they miss the bus willingly because they do not have change with them and they do not want to lose their money or leave it to the pass-receiver.

I also notice that the crowdedness is a source of dissatisfaction of people using DDD; in fact, DDD bus is non-step buses and there is no place inside dedicated for priority seat. Thus disable people, expectant mothers and old people can travel a whole long trip without sitting down while everybody is crammed inside as small sardines.

4.2 INFORMAL TRANSPORT SECTOR AND ITS COMPONENTS

The main components of informal public transport in Dakar are Car rapid and Njaga Njai. They are the main transport mode for so many people and are more flexible and cheaper than what we call formal transport mode in Dakar. They are located in specific areas (see Chp 7) in Dakar and carry on some specific social category of people.

Over the last 2 decades, the mega cities of developing countries have exploded in size. Formal, often state-owned, public transport services have not opportunity to meet demand, and have been badly affected by lack of operating vehicle and privatization. In Dakar, SOTRAC¹ was replaced by DDD bus Company after collapse. This new bus company is still unable to meet the needs of urban mobility for bus users and rail services also offered by *Petit Train de Banlieue* meets only 1% of Dakar urban travelers.

As a consequence, the informal transport sector symbolized by Car rapid and/or Njaga Njai has grown rapidly and substantially, also spurred on by rising unemployment and rates of urban poverty. Their growths are so important and fast that decision-makers decided to change the whole system into a formal and regulatory pattern. This project going and earning some important place in Dakar urban transport system, Car rapid and/or Njaga Njai continue to operate in Dakar using the same methods, the same deteriorated vehicle and remain cheaper.

¹ Societe de Transport en Commun (SOTRAC) was a national owned urban bus company in years 80s and 90s; it went bankruptcy in the late 90s.

4.2.1 Car rapid and Njaga Njai and their operating methods



Figure 24 : Njaga Njai with Apprentis on the back



Figure 25: car rapide with Apprentis on the back

As in much of the rest of Africa, public transport in Dakar is dominated by the informal operations of minibuses; we locally known them under 'Cars Rapides' and 'Njaga Njai' name.

The exact number operating is unknown and their ageing fleet is usually in poor condition and, despite relatively low fares, services are erratic and quality poor. They are old, artisanal, highly polluting vehicles (average age of over 15 years) and operate in a lack of road safety.

These types of transport carry an important load of passengers. Unregulated competition between them and traffic congestion bring them to “*stop in unregulated locations, sometimes consuming two full lanes of traffic. Furthermore, the competition for passengers along the roadway means that they run down pedestrians*” (ITDP, 2004).

The motorized people in its majority use the “*car rapide*”, “*Ndiaga Ndiaye*” and the minibuses (AFTU) to ensure their displacements.

Car rapide and Njaga Njai used to be older and pollute heavily; the pass-receiver called “*apprentis*” “*stand outside on the back of the bus right above the tailpipe emitting black clouds of exhaust, breathing emissions all day long*”. Each trip is quite cheap but with cutting road system (car rapide and/or Ndiaga Ndiaye divide one trip into two or three rides to get to their destination), trips have become more expensive than expected.

Owners of Car rapide and Ndiaga Ndiaye are not always the real managers. They used to hire a driver and a pass-receiver who is also the controller. They should pay every day to the owner a fixed amount of money. That amount depends on the state of the vehicle, it is usually between 15 000 Fcfa and 18 000 Fcfa, or 28 to 34 USD (Lombard, 2005).

All administrative services and maintenance should be done by the owner; he has to repair the vehicle if it is broken down. The driver is operating the vehicle with the help of a controller he

may sometimes choose, in that case, the driver will pay the daily amount required by the owner and will manage the vehicle.

The controller or pass-receiver who is locally called *apprentis* is directly chosen by owner, thus he has the responsibility to plan and choose the best route where he think demand will be high; this is not a real planning, it depends on the controller feelings. So the real manager is neither a driver nor an owner, but he is essentially the controller.

The majority of cars rapides, Njaga Njai, and taxis are privately owned by members of the economically-powerful Mourid Islamic brotherhood (see Chapter 6).

4. 2. 1. 1 Brief history

Cars rapides were introduced in Dakar since 1847. They all were originally second-hand freight vans imported from Europe and converted into passenger transport vehicle in Dakar.

They were in the early 1960s operating only in the suburban to complete the service of formal transport company which was limited in the small city of Dakar. By 1976, car rapides got popularity but with a few number operating in *Pikine*, *Parcelles assainies* and *Grand Dakar* (Lombard, 2006).

Until 1980, cars rapides and Njaga Njai were the only public transport in Dakar, now the fleet seems to never be renewed and has grown rapidly and substantially.

From 2001, the bankrupted bus company was resuscitated under the name of *Dakar Dem Dikk* with a fleet of 408 large buses divided into 17 lines. This fleet was not increased according to our research, we found the same number of bus at the last updated data of the company's website in 2008. However, number of large bus was taken into 904 buses by 2011.

Cars rapides and *Njaga Njai* utilization appeared in Senegal during the colonialism period and have progressed with public transport dysfunction and the religious intrusion.

Development of this form of transport was not accepted by authorities and many actions were made to stop their development. As result, importation of Renault vehicle was banished in 1963 to limit the growth of *car rapide* before reconsidering this position in 1969 with a new regulation of its operation method. Hence, the development of this artisanal transport system is accepted with some regulation and the progress was a little slow.

So in 1970, *car rapides* were allowed to reach the downtown of Dakar and some area as *Plateau* (Lombard 2006). But after 1980 with a difficult economic situation, government couldn't face the popular protest, the religious group pressure and the incapacity of formal transport to meet the supply requirements; it accepted and opened largely the informal sector as a consequence. *Car rapides* got popularity and could operate everywhere in Dakar. Thus, the growth was fastly done, from less than 1000 of *car rapides* in 1985, the sector counts more than 3300 units after 2003 (Lombard, 2006).

The exact number of the current operating units in Dakar is unknown, even if it can be roughly estimated at between 2500 and 3000. In 2009, the number of operating units was 1,390 cars rapides and 1,161 Njaga Njai (the other dominating transport mode larger but similar to cars rapide). (Honors, 2009).

Until 1994, there was no policy to formalized public transport sector in Dakar and any renewal scheme was not developed.

As a consequence, the small formal company of bus could not survive with the uncontrolled development of informal sector. Thus, by 1998, the formal bus company goes bankrupt so that informal minibuses became the only public transport system until 2001. This makes transport more difficult with the population growth of Dakar and increase of *cars rapides* and *Njaga Njai*.

However, this transport system was never an official organized sector, that's why, it's called the informal transport system. Hence, the development of this sector, the concurrency with the formal system and the lack of fare control by government send the formal bus company to bankruptcy in November 1998 (transAfrica, 2011). The formal company fleet declined totally from about 500 buses in 1987 to almost none by 1996 (Kumar and Diou, 2010).

The lack of organized public transport in the beginning and the long domination of *car rapides* and *Njaga Njai* have increased the pre-eminence of informal transport system.

So to face the new situation of formal public transport bankruptcy, government called for development of new transport means in the informal sector. This mode of transport is called *Njaga Njai*. As a consequence, transport in Dakar was operated by only informal minibuses (*cars rapides and Njaga Njai*) so that many informal stops and disorganized terminals were created from the suburban to downtown.

From 1997 to 2000, Dakar lived without formal transport system, the sector was disorganized and public policy seemed to not find any kind of solution.

4. 2. 1. 2 The car rapid phenomenon: **symbology and cultural value**

We got from our interview that car rapids were created by operators in Africa and particularly in Dakar; in the beginning, vehicles were luggage transport truck in Europe, they are imported in Dakar and mechanics transform them to public transport modes. They become solely urban transport modes; this form is actually unique in Senegal.

They come without seat and that way, mechanics create seats, benches, cut windows and everything so that they can transport people instead of luggage or objects. One of car rapid owner we have met considered this model of vehicle as very hard (solid). According to him, "it is faster and supports more wear and tear than the buses or other mini buses like AFTU". Our informant said seriously that during the raining season, car rapid do not have any problem to manage potholes, flood, puddle and other aspects of African weather disaster.

"As old as they are, it's only very rarely that do the car rapid break down" said one of the drivers we have met. Material seems to be in hard quality since this transport mode is solely constructed from

iron metalwork with all the work done on site. As soon as the used imported vehicle arrives to its destination, the mechanics arrive with their skills and labor and start recycling first the motor so that the vehicle will run.

Then inside the garage, the blacksmith transforms the body of this luggage transport vehicle by completely redesigning it with windows openings on both sides. The second bench, situated behind the driver's place will represent room (lounge) for five passengers. The step into the back is where apprentice stands.

Now car rapid construction is more difficult, there is a serious lack of material and car rapid builder do not have enough place to do their job said one of the builder we have met. This makes sense while the government is reducing the use of car rapid and banning the import of vehicle for more than 8 years old. The regulation of informal sector and the intended replacement of Car rapid and/or *Njaga Njai* by AFTU can make difficult the accessibility of materials.

Also, There is not any more imported vehicle for car rapid redesign because no handing are now producing that kind of vehicle so what we are seeing is a change of car rapid structure. Informal transport workers think they "*need a kind of vehicle which can be lasted because it is not easy to find a replacement of car rapid*" and as an example, they said that "lots of car rapids are older than their drivers and or owners, but still operate".

Car rapids have transported people for years now; before the mode was for intercity transport system, now *Njaga Njai* is more affordable for that, as consequence, they are not anymore doing intercity transport as *Njaga Njai* does right now, so Car rapide are solely for the urban transport.

"*Yet now we are left for few problems, for example when you want to go somewhere, car rapid does not go fast because it makes stop everywhere and all through the travel*" argue one operator who agreed to speak to us. We can after observation, interview and survey consider Car Rapid as a symbol of Dakar urban transportation. It is not only an important element in the transportation system, but it is also an element of Dakar urban identity; it is part of the urban scenery.

Users and transport operators agreed that the informal fleet is still important and fully plays its role of domination in the urban transport system of Dakar. Car rapid remain officially the most commonly used mode of transport; and it symbolizes also the oldest transportation mean in Senegal.

The busy external image of car rapid, the way vehicle is painted and the interior show how it represents the identity of the society. Car rapid is colored by vibrant yellow and blue and is adorned like many houses in Senegal with religious sayings and colorful artwork. The interior of the vehicle is, for almost every car rapid holder, a place to display pictures of *marabouts*, Muslim religious leaders, as well as famous athletes, especially wrestlers.



Figure 26 : Example of Muslim religious leaders on Car rapid

Car rapid is more than aesthetics or money (Pierce, 2011), the phrases and designs, the atmosphere within the car, emerges as a mirror, a point of intersection, a point of unification, for the two dominant and contradictory avenues of Senegalese life said Pierce.

The physical internal space of the car-rapid appears as a lounge and seems to represent an extension of the Senegalese home. Dem describes the fluidity of operation in the car rapid as the “*flow of life in a Senegalese household so that when the Senegalese started moving around by car rapid, they “transferred what they were doing at home to the car rapid.”*” (Pierce, 2011). The seating lay-out appears as an organic, communal lounge or roundtable for discussion, as it always happened in Senegalese houses.

This makes car rapid more symbolic and more cultural as it is a real representative of Dakar urban society. Car rapid tends to connect Senegalese past, its values and downfalls.

4. 2. 1. 3 Operation, fare and apprentis: a unique working method

4. 2. 1. 3. 1 Fare description and proceedings

Both *Car rapid* and *Njaga Njai* use the same working methods which are very unique to them. The fare of *Car rapid* and *Ndiaga Njai* varies based on the travelled distance; even if there is official prices for each travel decided by policy-makers, prices are still negotiable, “*one of the advantage of car rapid*” (Cline, 2009); passengers pay on Apprentis’ request, this model of collecting fare is called pass (it means travel fee in the local language: Wolof).

Fare can be submitted to argument and discussion between Apprentis (fare collector) and his passengers; this happens when the price proposed by passenger is less than what is demanded by

apprentis, this usually leads to some exchange of argue, dispute and then calm down. Dispute can also come from the lack of coins or forgetfulness which leads the apprentis to not give change to passengers who pay his fare.

Apprentis is generally circulated inside the car rapid to collect fare for all passengers but once the vehicle gets full, the *apprentis* cannot move around to collect fares. He stays at the back (still partially outside) and calls by row's turn for fare payment.

4. 2. 1. 3. 2 *the roads*

Apprentis and driver work every day, Sunday included until 8pm, only if they have a qualified replacement, apprentis and/or driver can have a little rest. In the world of informal transport, rest is scarce, the amount of time for rest is really insufficient; the operators have to be up each morning so early and get ready next to the vehicle with only washed face, most apprentis and some drivers sleep inside the vehicle, recounting events from the ending day.

Car rapid starts running early in the morning at five o'clock; morning-passengers come by one to fill the first car. In order to fill up the car rapid with the first passengers, various vehicles line up for their turn. This way of doing is probably created by their public transport union.

With a need of many passengers, car rapid starts filling up long before it finally depart. All destinations are towards the city or between the city and its suburbs and additionally from one suburb to the next. This allows a little more profit to be made before entering the city. At night the vehicles park alone or with several others belonging to the same owner in his neighborhood or not far from his business so as to watch over them of course.

They always overloaded but they play an important role because very flexible, they can go where the buses cannot; they are linked to the notion of society and poverty helping people to spend very low-cost. This means even the poorest people can use this kind of transport mode.

4. 2. 1. 3. 3 *Apprentis*

The Apprentis represents the vehicle's sign as he directs the passengers to the route of the vehicle. On the sidewalk, he tells potential passengers where the vehicle will be headed. In the hope of fillig up the 25 places of the vehicle plus himself and the driver, apprentis used to compete on customers against others who share the line with him. Hi is responsible for filling up the vehicle with passengers.

Car rapid always waits until it gets full to start the journey; so while passengers get in and impatiently wait for the vehicle to begin its journey, apprentis continue to run after the customers outside to fill the vehicle. In that way, apprentis used to shout, yell and promise to leave by saying "*right away, right away and it will go fast, we just waiting the last passenger*".

On the "transit stop", apprentis get some helpers, called coxeurs, who seat inside the vehicle so that customer will think vehicle is full. Customers are usually surprised when after few minutes getting in the vehicle, coxeurs get off and the car becomes almost empty; they often get off when

many passengers get on. So customer have to wait or take another vehicle; usually, they wait until it get full.

Once the *car rapid* becomes full, there is an exchange of money between *Apprentis* and *Coxeurs* who should be paid before the vehicle leaves. This is because the *Car rapid* leaves only when it has been filled. The *Coxeur* will then demand a small amount for having served as a pretended passenger.

The milieu of informal transport is a wide school where idle people are recycled after their failure somewhere else. *Coxeurs* and *Apprentis* start new life while learning inside the disorganized sector. They learn the life, they learn management, working inside and leading a team, communicating and negotiating; they learn driving without an official school driver and start to break all the rules inside this sector.

Coxeurs are men who work either at the car rapid terminal, the parking lot where they are parked or at car rapid stops throughout the city. Doing this job is other kind of training for those who do not have yet an employment inside the sector; they play the role of helper and can get an amount of money daily. They can also replace *Apprentis* and or drivers sometimes when they get trouble. In our interview, we have met several *Coxeurs*; one of them was kindly helping us to get some informers.

4. 2. 1. 4 Interaction and competition with other modes

Car rapid is a potential competitor for other transport mode in Dakar urban system. Its direct rival is *Njaga Njai*. It also competes with AFTU and DDD but they have neither the same working plan nor the same passengers. Therefore, competition is not confrontational. Unfair competition that always leads to a conflict is against taxi.

We interrogate both taxi and car-rapid driver about this competition; actually, urban transport users are blaming the car rapid driver's indiscipline. They used to blame their way of driving. In their answer, *car rapid* operators argue that "*people are not right when they said we are not driving well while we are sure to do that better than the other like private car drivers, taxi drivers or bus drivers*". Most of them since they respect the driving rules better than other mode drivers.

After interview and discussion, we understand that the main problem with taxi drivers is the lack of knowledge of the sector; it usually happen for a guy who stayed more than 15 years without any kind of job and who probably left the school so early without any degree to become a taxi driver because his parent bought a vehicle for him. This guy runs the route as he wants without meeting any rule, any discipline and any experience. "*Driving public transport is a job and should be learned with a special way*" said A. D, a car rapid operator we have met.

It is in this light that M. N., a car rapid driver, recognized the truth that "*Car rapid stops everywhere*" however, "*it is not because we want to disturb but because it is the job requirements and drivers are not actually different, they are all the same, even with the new AFTU whose drivers are the former car rapid and Ndja Njai drivers*".

According to the taxi driver S. M, driving a Taxi is different with driving other kind of vehicle; he said: *“I used to be private car driver, company car driver but now I feel like my way of driving is getting bad, it is because of the running for money, you have to get your payment. We should look behind before stopping, but it happens even to me to not respect that principle”*.

Our informant think then conflict between car rapid and taxi is normal because it is some kind of competition. Therefore, he said: *“I just avoid to run where car rapid are numerous because we have the same way of driving such as no respecting rules in the way of loading customers, doing fast etc. we know it’s not normal. Actually, we do not have the same kind of customers, I think we may work besides them without problem but they often stay on the middle of roads so that you cannot go. In that case, Taxis are usually doing the same after getting the front of car rapid and when they are stopped by customer”*.

The Car rapid driver L. D. makes clear that *“in the road, one can find several people who just get the driving license and start to work as taxi driver while the car rapid drivers are at least in the job for more than five years before being a driver”*. So he concludes that *“the problems of the roads are the taxi drivers because they never give way and can stop at any time, as a consequence, if the next running car rapid does not curb, accident will necessarily happen”*. He said: *“We don’t have the same customers with the taxis but even if we ask them to give the way, they refuse”*.

This conflict is not about competition on customers, it is more about the share of the roads. Since any of them do not respect the rules, roads become very narrow. We understand a problem of driving due to the license provision; the fact is drivers both car rapid and taxi are likely to stop every where to get customers. In that way, there will be necessary blocking of the next transport carrier running behind.

Driving license is one of the problems in Senegalese transport system. Due to the corruption, getting a driving license is easy and as a result, people can start driving in a total ignorance of driving rules. Also, it is frequently noted that some drivers even for private cars can run without the driving license.

Anyway, Driver’s licenses provision reveals two kinds of problem:

- The applicant presents a good behavior and fulfills all requirements at the time of application but will change into unprofessional conduct on the roads as soon as he receives the license.
- The driver’s license grantor gets arrangement with applicant to pay for an undeserved driver's license

4.2.2 Informal transportation distributions and facility's accessibility

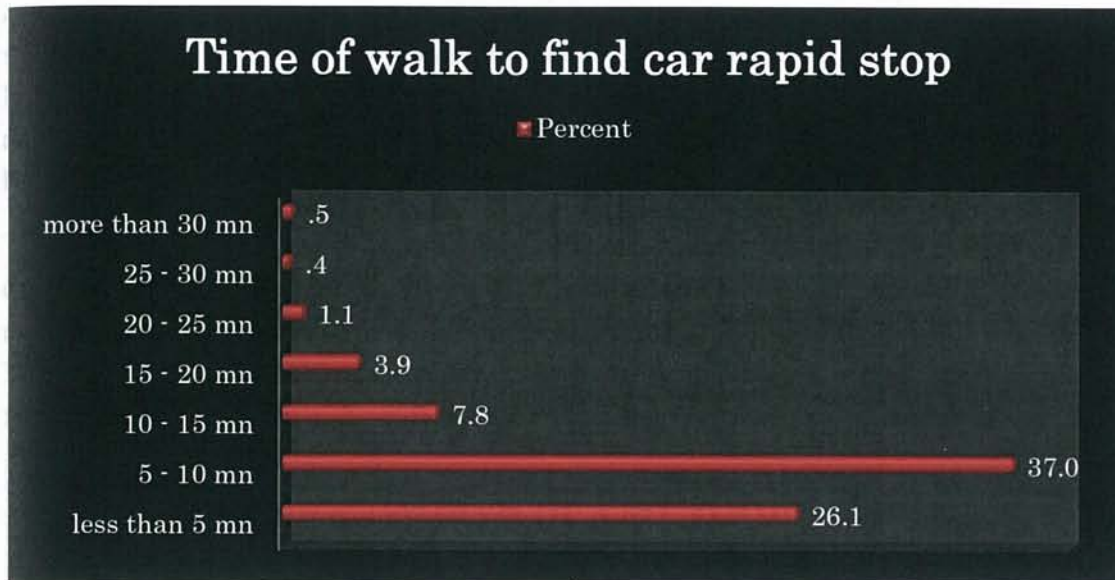


Figure 27: Walking time to get informal transport¹

Car rapid and Njaga Njai are flexible transport modes; transit users do not have difficulty to find an informal transit mode. Usually, the time of walk does not exceed 10 mins. According to our survey, 63.1% of respondents can get a car rapid and/or Njaga Njai within 10 mins walking. Among the 1030 people we have met, 26.1% get a car rapid and/or Njaga Njai within 5 mins of walk while 7.8% have to walk between 10 and 15 mins to get this informal transport mode.

This informs how the level of accessibility is high with this transit mode. We note during the survey that people who live in some places in what we called city-residence, are not using car rapid and the roads we find there are banish for car rapid and Njaga Njai. That is why we can understand some people working more than 20 min to find car rapid. But this is just 1% of our survey's respondents.

Car rapid facilities can be found all through the town, at all along the roads, at every cross road. Stops are spontaneously created both by customers and operators. Even if there are some formal transit stop dedicated for them, passengers can wait everywhere throughout the road or in front of his dwelling and stop a running *Car rapide* or *Njaga Njai* with a simple wave. Vehicle stops immediately and passenger gets in; the same procedure can be done also when he wants to get off, just asking for stop, everywhere is ok.

This flexibility of the informal transport modes is seen by too many observers as an advantage one cannot see with AFTU minibus or DDD bus. Transit users we interviewed said they want to see continuing Car rapide and Njaga Njai system because no other transport mode can provide this kind of advantage. A. D a car rapid customer said: "at anytime I leave my house, I found a car rapid in front and it cost me around 1min. Car rapid is like a family belonging for us, we live with it".

¹ Source: Papa Elimane Faye, TMU 2012

This advantage is not enough for A. S, an occasional customer of Car Rapide, she said: *“besides the accessibilities of Car rapides modes and facilities, one can consider the big disadvantage of waiting time with this transit mode. Car rapide is real machine of time waste.”* She refers to the long waiting time inside Car Rapide and/or Njaga Njai modes. We already show how long people are waiting for the Car Rapide to move once they get in while the mode looks forward to be full before leaving.

This also happens during the route, when numbers of people get off and only few passengers stay on board. In this case, Car Rapid waits and waits until it gets full again. This described situation recalls some vicious circle that customer cannot avoid. So, finding easily a Car Rapide or Njaga Njai does not mean getting destination easily, it is probably the level of spent time with other formal modes.

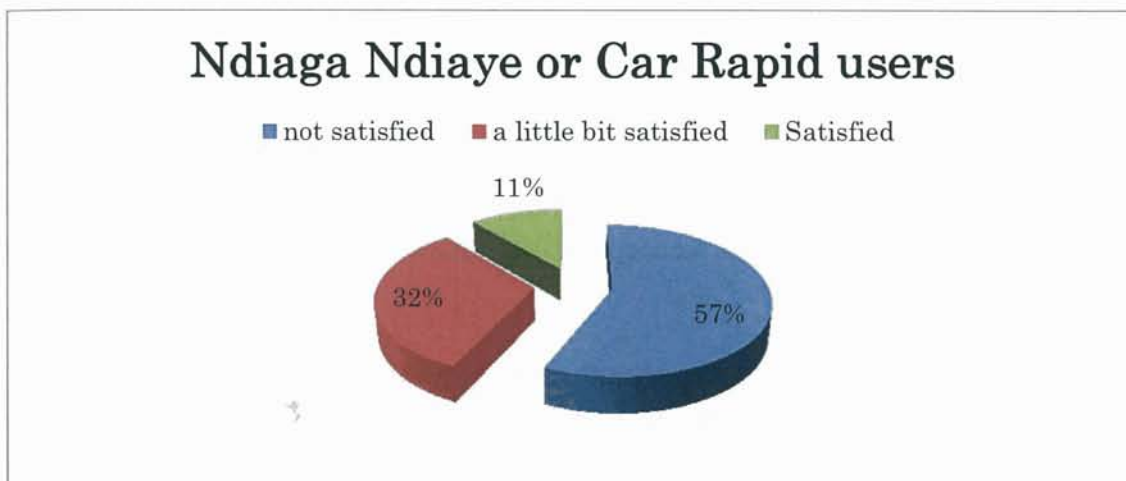


Figure 28: Informal transport users' perception¹

Figure 27 explains the level of satisfaction of informal transport users. Among people we interviewed, 57% are not satisfied in Car rapide and/or Njaga Njai service. 31% are little satisfied regarding the flexibility of the transit mode while 11% get total satisfaction with car rapide and/or Njaga Njai, they evoke the availability of seats, the low cost of fare and the flexibility of modes.

However people that do not have any satisfaction pose the problem of indiscipline, the lack of training and the missing of rules in the sectors. M. T. is a customer that does not have satisfaction in car rapide service; he said *“Car rapide drivers do whatever they want on the roads, they don't respect anything, any rules, so that it seems they are loading animals instead of people. They should respect passengers but they don't. They stop everywhere and usually immediately and under traffic causing some annoyances”*.

A same vein was defended by I. C. who thinks one of the big problem of Car rapide is that vehicle is dangerous since *“when it is stopped on road by a customer, it gets going ride away as soon as he*

¹ Source: Papa Elimane Faye, TMU 2012

step inside". Other problem he mentions is that "vehicle waits for passengers at stop while the on board-passengers are actually in hurry. Sometimes, they tell to people that they are going somewhere but before that pretended destination, they ask passengers to get out of the car because the car is not full.

This bring people to be angry, yelling shouting but nothing, they will get off, because informal transit managers really don't care. What is essential for them is the car rapid should be completely full otherwise they cannot continue the route. And it is very often in that condition of arriving at your final destination if you ride on car rapide. So outside of that, they are everywhere. That's the only positive thing I can say about them and very frequent. However, in terms of discipline, there are lots of things that need to be done differently"

These described problems create some difficult relation between Car rapide and their customers. It's interesting to understand that as soon as the car rapide stopped by the controller authorities for overloading or other driving offenses, they have to pay a fine but because a loss of money is not beneficial anyway for them, the car rapide will therefore not hesitate to take a detour from its normal trajectory in order to escape the police control and the fine. This is not beneficial for the car rapide as well; passengers are so often in disagreement with these actions causing them to be late or to completely miss their routes. So they become angry and agitated.

Conclusion

This chapter dealt with description of urban transport use, the weight of informal transport system and the government objective and orientation. 2 categories of urban public transports were identified as formal and informal we can subdivide into 3 types of urban public transport. In the category of informal transport, we have Car rapide and Njaga Njai. These two informal transport devices have so far organized urban transport in Dakar and are still important in term of popularity. Even if they are old and dilapidated, they continue to play their social role. As for the formal transport sector, we identify 2 types of urban transport, first is the bus and train system which are public owned and fully conventional. No social interference was identified there. The second is AFTU whose business structure has combined 14 associations and 300 operators¹. Indeed, Government is proceeding in Car Rapide and Njaga Njai system removal to be replaced by AFTU.

As results, our findings reveal an upheaval of hierarchy in the urban transport in Dakar whose "king" has so far been Car rapide; in fact, our household travel survey states that AFTU mode is already or is becoming the main transport mode in Dakar. This urban transport hierarchy upheaval reorganizes completely the urban transport system and reduces the impact of informal transport that is loosing its place of main urban transport use of dakarian people.

¹ www.calameo.com/.../00027534795a831d, view on November 15, 2012, last update September 8th 2011

However, this informal transport use is not losing ground due to its cheap fare and socio-cultural aspect as it is found as the identity of Dakar urban system. Car rapid users have some perception of the device that can be a threat for the government objective and direction. This can be a reason for understanding why the transition from informal sector (Car Rapid/Njaga Njai) to formal (AFTU) is difficult. The table below shows the perception of compared Car Rapid/Njaga Njai-AFTU-DDD by users, despite its vehicle obsolescence, car rapid is seen as comfortable, unique and culuturally important.

Table 5: user's Perception comparison of Dakar urban transport modes

	CAR RAPID/NJAGA NJAI	AFTU	DDD
Main reported advantages	Comfortable, cheap	Reliable, ponctual	Fast in off-peak hour
	Uniqueness of seat configuration	Good for the suburban population	Safety and security
	Our belonging, our culture	//// //// ////	//// //// ////
Main reported disadvantages	Too many spontaneous stops, congestion	Overload of vehicle, not cheap	Infrequency, waiting time too long
	Drivers and apprentis behavior (indiscipline)	Lack of seat, no comfortable	Overload of bus
	Vehicle old and dirty	Narrowness, congestion	Often break down

Source: Papa Elimane Faye/ TMU 2012. See appendix D.

CHAPTER 5. DAKAR URBAN TRANSPORT ACCESSIBILITY AND URBAN MOBILITY POLICY: INCONSISTANCY AND AMBIVALENCE

5.1 SERVICE SUPPLY CHARACTERISTICS OF THE FORMAL PUBLIC TRANSPORTATION

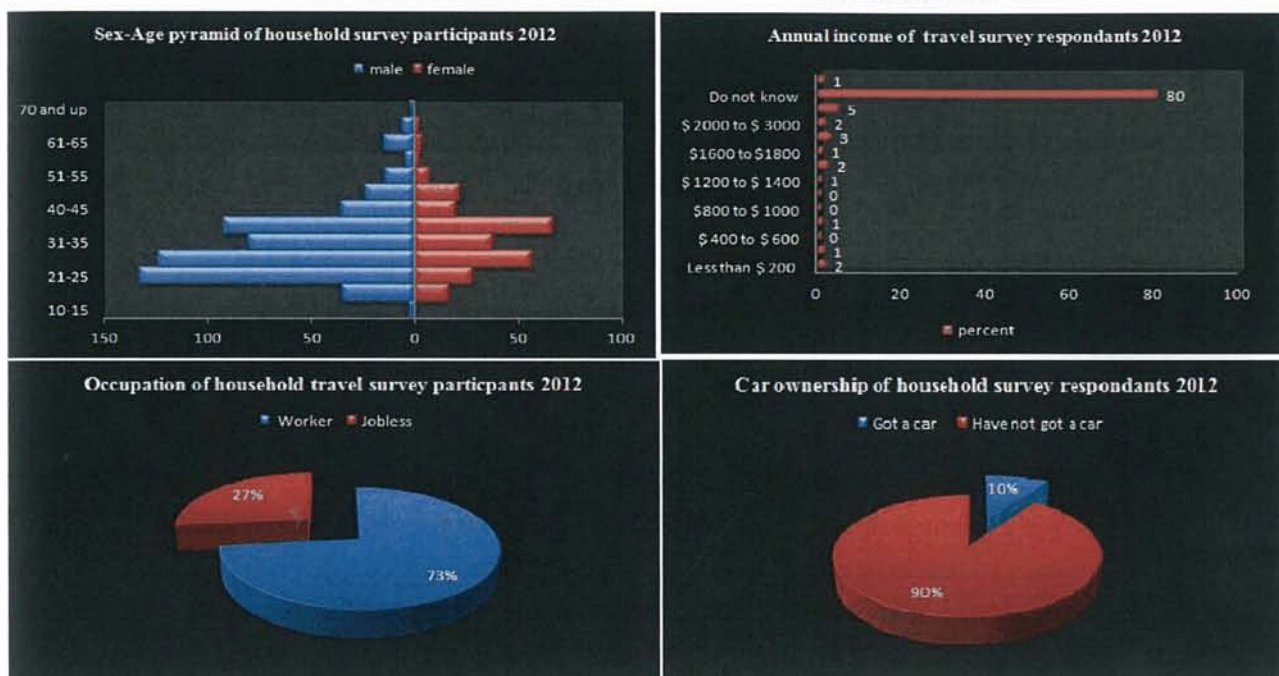


Figure 29: Socio-demographic characteristics of travellers¹

Figure 28 illustrates the socio-demographic characteristics of the respondents. With a majority of males (68.6 per cent), and more than 70 per cent of the respondents were aged between 20 and 40 years old. 73 per cent of respondents were professionals; 27 per cent were shared among students, jobless persons, and housewives. More than 80 per cent of people were not able to tell their annual income they do not know how much they earn annually (it means they do not earn money regularly so that it is not a substantial amount of money). 13 percent of the respondents had an annual income of less than US\$3000. Among the survey respondents, only 10% own a car, the others use public transport.

Car ownership is limited in Dakar urban area and, travellers then usually do not own a car since incomes are low for most of them. It was difficult for this study to get the income level of

¹ Source: Papa Elimane Faye/TMU, 2012

population as it is difficult to speak about wage in Africa but we can after observation understand the level of poverty of some household.

First we listed 27% of jobless and many houses we have visited do not get the Tv, Computer, Fridge even if the house is big such a lack of facilities reveals some level of poverty in city where everybody are supposed to have tv while fridge and computer are not yet a necessary household stuff. Most of the household travellers are not anymore eating 3 times a day as it is in Senegalese tradition. Indeed, in Senegal family food service is divided into 3 times: Break first early in the morning, Lunch at midday and diner in the night. In fact some family we have visited says they do not anymore ensure the break first while others neither have break first nor diner.

In the exurbs, some people can stay one day without eating any meal, it happens so often in family where there is no job for no one. This situation explains how transport can be difficult for some category of people who do not have income to pay their daily fare. According to official statistics¹, around 80% of Senegalese people do never take public transport for their travel; they walk to get their destination.

This general low income can explain also the use of informal transport modes since they are the cheapest ones and sometime, some people can commute without paying. So the traveller's profiles in terms of car ownership, income level and occupation explain the pre-eminence of walking and the overuse of informal transport.

Another sociological aspect is the gender issue in Dakar urban transport system. In fact, 49.9% of Dakar population are female against 50.1% of male, 54% are married and 30.1 are in polygamy² (SRSD, 2007); the work activity rate of women 41.1% is lower than that of men 62.1% (SRSD, 2007). This means that in Senegal usually married women are defined as housewives so that they do not go out often and then do not use often motorized transport. Most of their trip purposes are related to private (visiting family, go to events etc.).

¹ ANDS, 2010

² *Polygamy* is a marriage that involves multiple spouses instead of just two, in the Senegalese case, it means one male married to two, three or four wives.

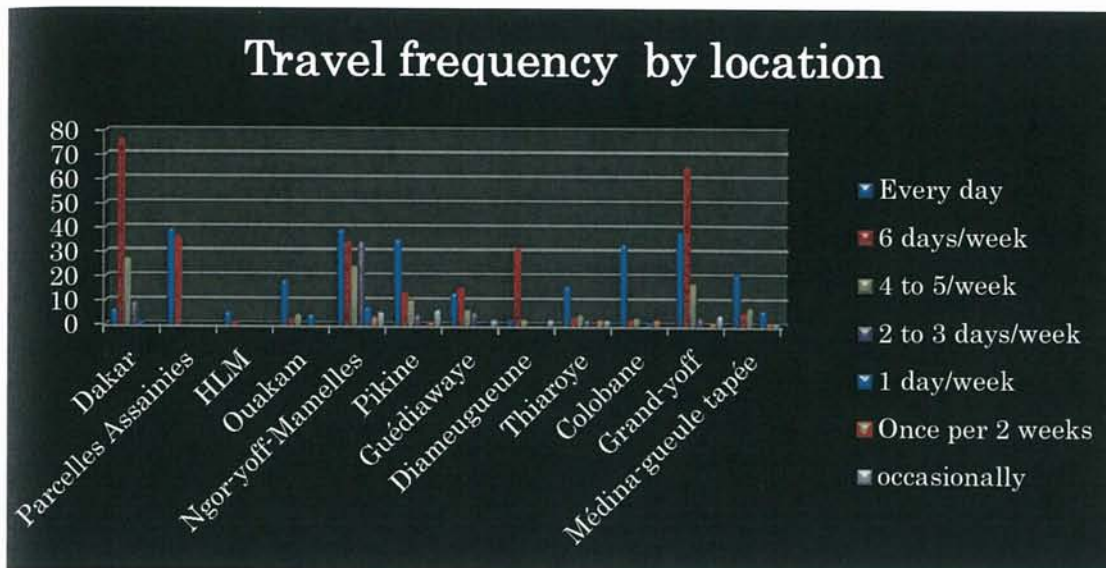


Figure 30: Travel frequency by location¹

Figure 29 shows how frequent are people's trips and according to our survey, people are more moving in Dakar than in other location since near to 80% of people are moving 6 days a week. However, except this situation in Dakar-Plateau, others living in the suburbs or some popular neighbourhood of Dakar seem to move every day, even on Sunday. Working on Sunday is not common in Senegal; as European and American countries, there is almost no activity on Sunday, even the shopping centres are not opened as it can be in Japan.

Anyway, according to the figure 29 almost 30% regardless the location are travelling every day using motorized transport. In Medina-Gueule Tapee, people are not using a lot public transport because these neighbourhoods are very close to Dakar business and administrative centre. This is one of the reasons why walking rate is very high there around 90% (Papa Elimane Faye/TMU, 2012) of people whose destination is Dakar.

People travelling around 2 to 3 days per week are more located in Ngor-Yoff-Mamelle. So why there is more than 30% people travelling such a few days per week in these neighbourhoods? First of all, we should say that these places are the location of rich people in Dakar where everyone almost gets a private car while a big number of politicians, other famous people and retired people are located there. Hence, the use of public transport is few and the number of people working to the public service are also few. This can explain why some people there can move just twice or three times a week.

In some areas as HLM, Colobane, Wakam, Thiaroye and Diamagueune, we saw that people are either travelling every day or not travelling at all. This means the moving people are every day going somewhere; while others are rarely travelling. This is because most of the people living

¹ Source: Papa Elimane Faye/TMU, 2012

there are under 20 years old, are jobless or students and living under the parent responsibility (SRSD, 2007). For students, schools are usually close to the house and they used to walk to get their educational place. We can also add the importance of polygamy in these areas and the housewife’s situation for most of the women.

In opposite, Grand-Yoff, Guediawaye, Parcelles and Pikine are showing all categories of travellers: those moving every day, those moving 6 days a week, until people who are travelling just once a week. These neighbourhoods have the particularity to be popular and divers in terms of population. According to the DPS 2007, these neighbourhood areas are where most of the job seeking people comes from. There is also the fact that people walking in the business centre as *Port Autonome de Dakar*, *Sandaga shopping center* and *Ponty business center* are from these neighborhoods. Their involvement in the open and informal market can explain why they can travel every day.

In final, we can argue that people are travelling frequently in Dakar using motorized transport system. Dakar where inhabitants counts a big number of jobholders and Grand-yoff and parcelles-Assainies where small business people are living, movement of people is effective for every day or 6 days a week providing that Sunday is holyday. In Dakar precisely, two category of travellers are known according to the figure number 29; indeed, there are people moving 6 days a week and people moving 5 days a week. In the first category, people have only one day leave while in the second, people have 2 days leave; anyway this shows that the moving people are mostly the working people and students.

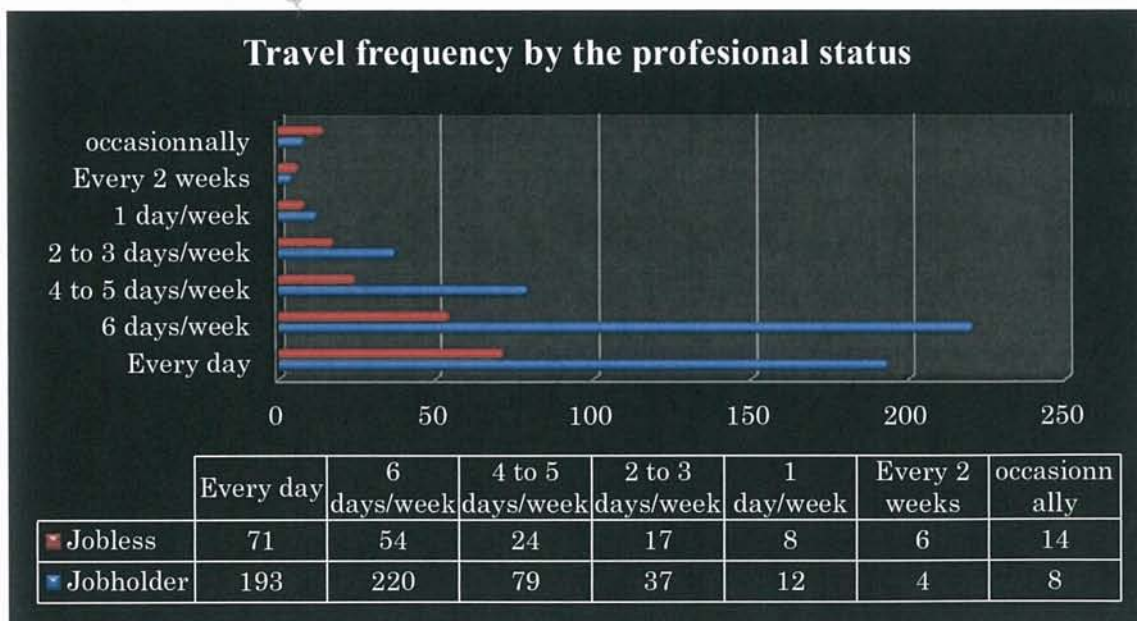


Figure 31: Travel frequency by professional status¹

¹ Source: Papa Elimane Faye/TMU, 2012

The professional status is important for travel frequency analysis; in fact, jobholders need a transport device to get their job places. Figure 30 shows the frequency of Jobholders travel in the week; mostly working people are travelling from 6 days a week to everyday. This confirms the previous figure and analysis arguing that working people are moving. We can understand that there are some people who are not working so often.

However, in jobless category 71 people, we are speaking with, said that they also are moving frequently a week (every day) while 54 people travel 6 days a week. In this category, there are student and people seeking job every day and having chance to catch a daily job in some factories.

Trips for some social affairs are common in Senegal; people are traveling to see parents, friends and others, they often go to the hospital to visit a known people in health trouble. We can add the multiple social events as baptism, wedding ceremonies, death funerals and others. All this events are trip purpose for both working people and jobless people.

As a result, we can argue that Job is not the sole transport purpose and jobless people are moving so often. The problem is whether they are visiting parents or seeking job. As for jobholders who are moving every day, we can also affirm that they usually work on week day while they choose the week-ends to visit parents or doing some recreation; that is an explanation of every day movement of some people. In this light, we have met during the survey many people who said that they are moving everyday but usually “*Saturday is for shopping and Sunday is for visiting parents or ‘Tour de famille’*”¹.

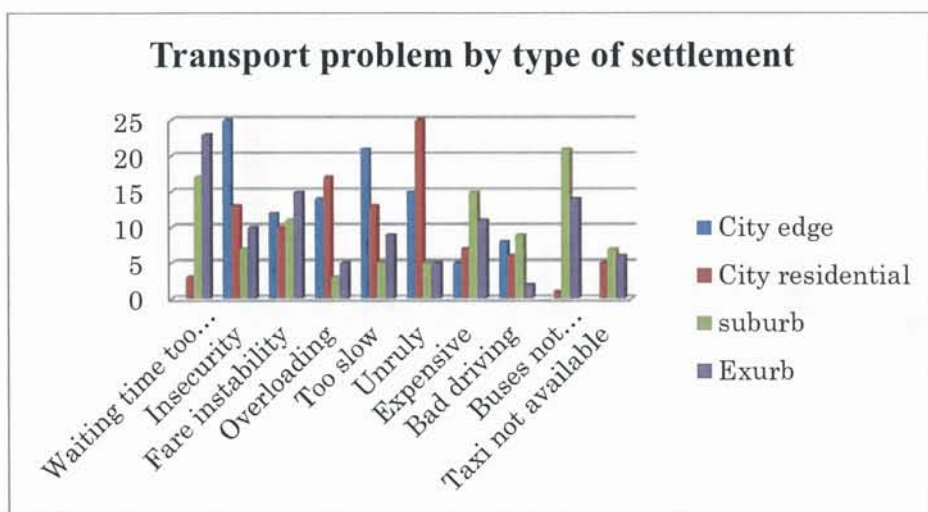


Figure 32: Transport problem by type of settlement²

¹ *Tour de famille* is a family meeting for party gathering members of the wide family once a week or 2 weeks or month

² Sources: Papa Elimane Faye/TMU, 2012

Various problems were perceived by Dakar urban transport users, from this figure 32, we notice that problems depend on type of settlement. For example, the main problems reported by suburbs and exurbs people are that they wait too long to get a public transport and for most of them, buses are not available. They also said that usually urban transport workers are unruly people; this argument is given by people using informal transport. Their concern regards also the fare instability, expensiveness, and the bad driving.

Exurbs and suburbs are then facing to real problem of transport since the mostly reported problems are related to some economic and social aspects. We also found that the government did not make effort to extend the public owned company service to these areas. This is a real problem because, if the city centres can get various transport services due to the demand level and better economic condition of residents, suburbs and exurbs cannot have the same potentiality; it is so a reason for the state to concentrate a big effort in these zone to ovoid urban transport disparity.

As for city edge and city residential, we see from the figure that their main concerns are related to the insecurity, slowness, overloading problem, and unruly workers problem. So, fare is not a problem there and they do not have a difficult access to public transport. They are served both by formal public transport and informal public transport.

The challenge of the state is then to solve insecurity problem, fare instability and bus availability to address an equal transport pattern for the whole metropolitan area. The bus availability is especially an important transport device need for suburb and exurbs population.

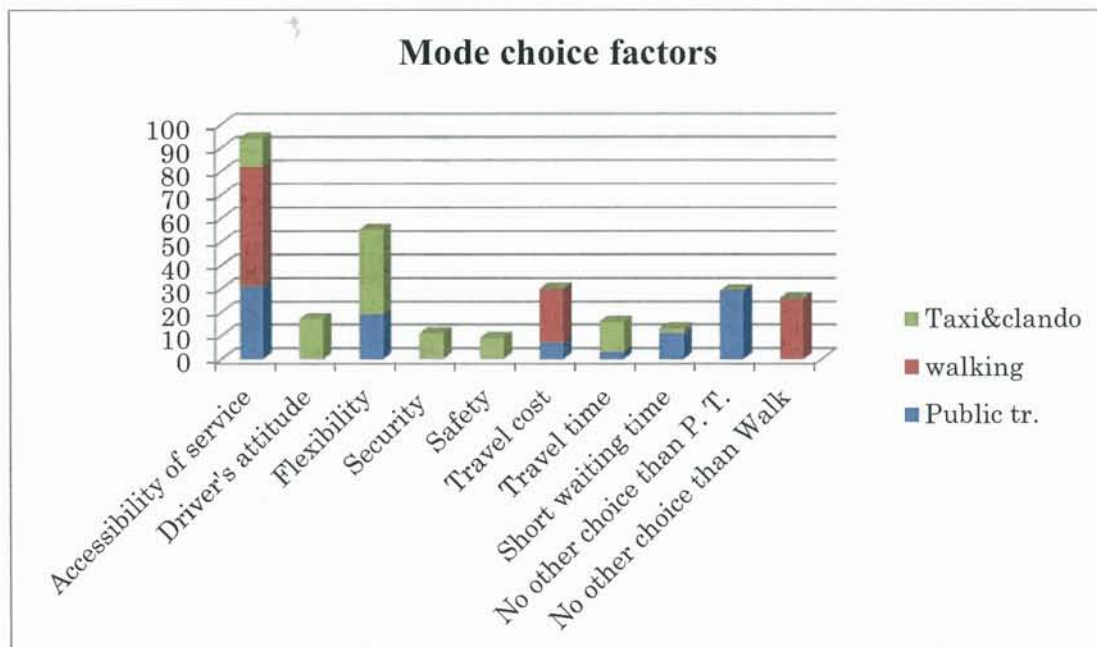


Figure 33: Mode choice factors¹

¹ Sources: Papa Elimane Faye/TMU, 2012

We found too many factors influencing the selection of modes; the main is the service accessibility. This reveals some interesting element as the flexibility of transport users; in fact, when people get some problem of accessibility, they do not hesitate to walk. A surveyed people argue that “*I cannot stay more than 15 minutes waiting for a vehicle whose schedule does not exist or is not reliable*”. Those promptly walking people use their feet when the cost of travel is also expensive. It happens that transport users do not have any other choice than walking, for example if there is strike of public transport or if there is not public transport availability.

People using public transport generally do not have other choice; they live nearby a several public transport stops or do not have enough financial condition to take taxi or clando while the prices offered by public transport are usually cheap. Others prefer public transport because of their flexibility, “*it easy to get public transport that serves less than 5 minutes walking from home*” said a surveyed. Some people argue that they use always public transport and especially the informal one because they are cheap and waiting times are generally short in the case of informal transport modes.

Among people who do not own private cars, there are many who do never use public transport due to their numerous problems such as driver’s attitudes, security and safety problem, travel time due to their numerous spontaneous stops. These people report that they are usually travel by taxi or clando. However, instead of using car rapid, Njaga Njai or AFTU, they can get a bus if while waiting for taxi or clando, they find a bus. For one of our surveyed people, “*I often take a bus while I was supposed to take a taxi; this happens when I unexpectedly find a bus*”.

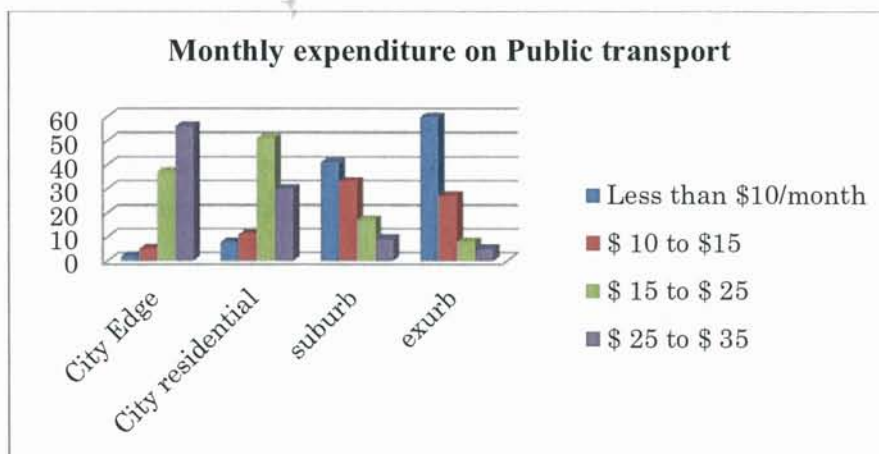


Figure 34: Expenditures on Public Transport¹

Public transport is not generally expensive for the simple reason that every country wants its population to shift from their private cars to public transport. In Senegal also, public transport is considered cheap by the transport users.

¹ Sources: Papa Elimane Faye/TMU, 2012

So, we can understand some expenditure in public transport by the settlement type; indeed, people spending less than 10\$ a month are located in the suburbs and exurbs. This finding reveals the important element that those people are using informal transport and walking system. It makes sense since people living in these areas do not have enough accessibility on public transport and jobless people are mostly located there.

We also find in the City Residential less than 10% and in the City Edge less than 5% of people spending less than 10\$ for their monthly transport. This can be explained by closeness of some facilities such as working places, shopping centers, schools, hospitals, universities, stadiums etc. Many of people living in the city do not need urban transport for their movement they can access several facilities within 15 minutes of walk.

The most costly transport expenditures are located to the cities with people using so often taxi and private cars. We can understand that people owning car spend on fuel that is also expensive in Senegal. Taxi users spend also too much for their mobility since the cheapest fare of taxi is an equivalent of 10 times the public transport price.

From 15 to 25\$ are an equivalent of DDD monthly expenditure ; so we can understand why more than 35% of people located in cities spend this amount for their monthly mobility, around 15% spend the same amount in the suburbs while less than 10% spend the same amount in exurbs. These people are the rare who can use public bus system in the suburbs and exurbs; they are usually working in downtown according to our survey.

5.1.1 Accessibility of mass transit and analysis of independency

In Dakar, owning a private car is a privilege reserved only for the wealthiest said *François Séguin*. He also argues that a taxi ride is also too pricy for many Senegalese families; so almost everybody uses public transit for his or her daily commute. This situation may explain why there is a wide variety of transit options.

This assertion brings us to speak about decision and transport usage, informal transport is most commonly used in Dakar urban system. The question was to know whether informal transport was accompanied with freedom in the decision of travel. Independence and freedom are important in transport decision in developed countries but seem to be completely weak in underdeveloped countries where informal transport shows popularity.

How people are practicing their urban mobility in Dakar?

The opening question addressed the decision of travel with informal transport. Responses are strong and clear. One participant said, "*Informal transport modes are flexible, cheap and accessible. Everybody can get an informal public mode near his neighbourhood*".

Actually, informal transport symbolizes the urban mobility in Dakar. No one gets move in the city without considering these transport modes. It depends surely on personality and socio-spatial

condition but even if one is not using informal transport for their travel, he will suffer from the effects of Car rapid or Njaga Njai.

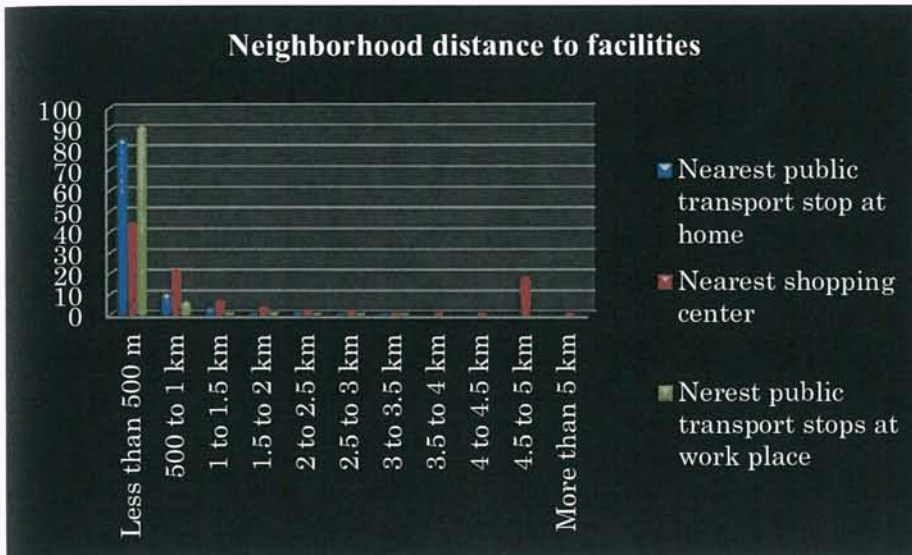


Figure 35: Neighborhoods and facilities¹

The following are the main point revealed about household accessibility to services:

- Most of services as shopping center and public transport stops close to both home and work place can be found within 1.5 km.
- The services that population and household claim as inaccessible are the important shopping center located after 5 km.
- The services that really close to households are food shops

I do not report schools, medical services, post offices, police stations etc. but know that schools are usually close to dwellings even if some population located their trips to other areas. The important medical services are not few and most of them located to the center of city, however there are less important medical centers near to the household.

Table 6 shows up distance of facilities such as transit stop both for work places and homes and shopping centers to individual locations. Homes and work places are really near to transit stop 90.9% of work places are close to transit stops, 84.9 % are near the households and 44.3 % can access to a shopping centers.

Generally, I can say according to table 6 that 98.3% of households can get a transit stop with 1.5 km while 69.3% will find a shopping center within the same distance. Not worth than 97.9 % located a public transportation stop with 1.5 km around their work places.

¹ Source: Papa Elimane Faye/TMU, 2012

What does this mean? The meaning of these numerals is people can get access to transit stops within short distance and can get a shopping place just walking. Generally from observation, transit stops I am speaking about here are informal transport stops and mainly Car rapid and Njaga Njai stops.

Accessibility of users to these transit modes withdraws the freedom and independency in travel decision. Making decision is not strong in this stage of informal transport status. People use the most suitable and accessible mode of transport when they need to move and they do not want to wait for long time to find a bus. So they just get in the current available mode of transport.

So there is no independence even less freedom. Transport users are just taking what are in front of them. Since there is no alternative that can help to have a wide choice among urban transport modes, it is difficult to speak about independence and freedom.

Travel decision is not perceived as a freedom and/or independency inside Dakar urban system; travel decision gets another meaning more accurate. It does not mean whether we should move or not, it means whether we should link modes and destination choices. That is why trip purpose is not important in mode selection, the accessibility is.

Asking the question, "*who are choosing mode, to go where?*" addresses the involvement of people in their own trip decision. Different factors should normally lead travelers to choose from one mode to another one; different factors bring out Dakar urban travelers to stay on informal transport.

Here, the problem is not about the use of public transport, policy makers do not have to persuade people with ready access to public transport to use it more often. Mass transit is widely distributed and people are using them even if they are mostly informal.

Do people choose their trip mode in Dakar? The same question is: are people independent in their selection mode? Or do they get wide freedom in mode choice?

This question should be clarify regarding the tables below, numerals can show alternative if it exists and the level or choice; then it will be easier to determine the responsibility of transit users.

Table 6: Comparison of time-use in waiting urban transport modes

Modes Walking time	Car Rapid/Njaga Njai	AFTU	Dakar Dem Dikk (DDD)
	% of Household	% of Household	% of Household
Less than 5 min	35.9	38.6	36.4
5 to 10 min	44.4	43.0	40.2
10 to 15 min	11.7	12.5	12.9
15 to 20 min	4.9	2.9	4.5
20 to 25 min	1.2	1.0	2.1
25 to 30 min	0.7	1.0	1.4
30 min and more	1.0	0.7	2.1
Do not know	0.2	0.2	0.3

Sources: Papa Elimane FAYE, TMU, 2012

Anyway, observing table 6, I see that Dakar urban transit users do not have to walk for long time to get a public transport mode. In less than 5 min, 35.9 % of households can access to a car rapid and/or Njaga Njai; more households, 38.6 % will access for the same time of walk to AFTU while 36.4 % will get a DDD bus.

This means, public transport is widely distributed through the neighborhoods and it is clear than formal transport system such as DDD and AFTU are well represented in this distribution. It explains the willing of flexibility that policy makers want to give to formal transport system. But accessing to a formal transit places does not mean accessing a formal transit mode. Once they get the transit place, people have to wait again to get into the related mode.

The only access to both formal and informal transport facilities within 5 min of walk is not enough to determine the level of independency in mode choice by travelers. There are other factors such as waiting time at a transit stop, Transit time and reliability, travel cost by mode, flexibility of modes and security. We are obviously interested in the waiting time at transit stops. How long do transit users wait to get in their relevant mode?

Formal vs Informal accessibility

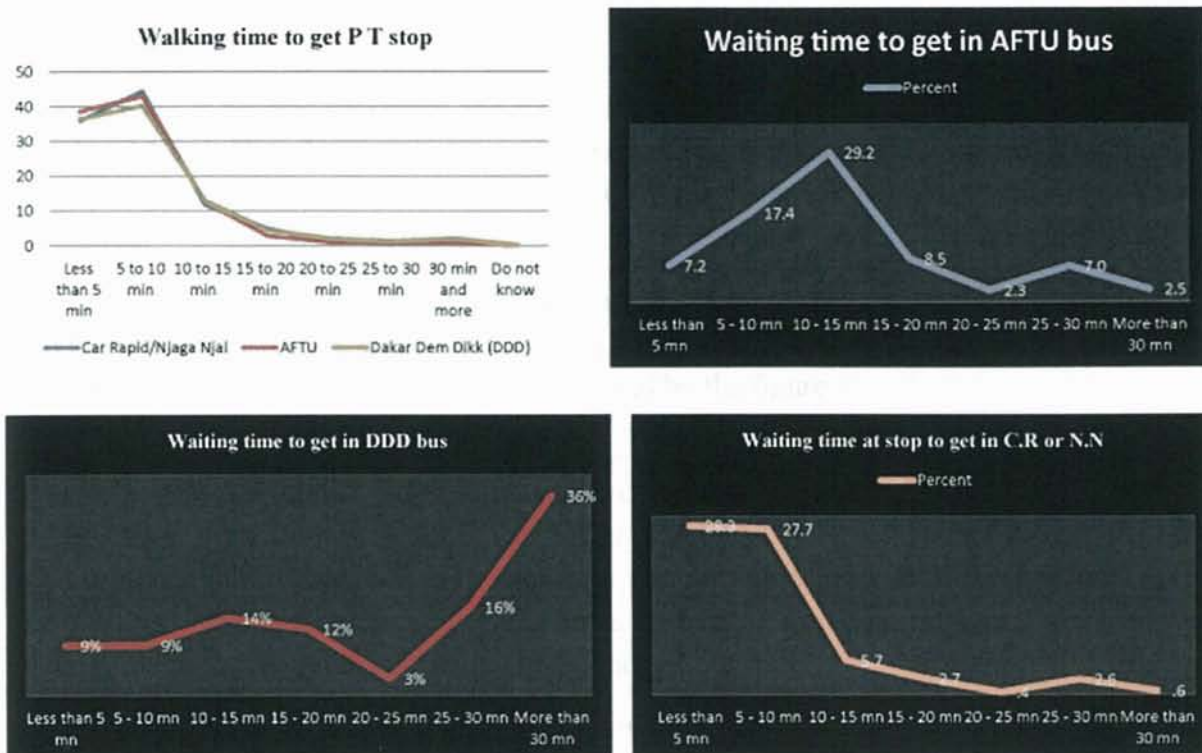


Figure 36: Waiting time at transit stop¹

Time lost at transit stop is remarkable when 31.1% argue that they can lose until 30mn to wait a transport modes; 5.6% wait usually more than 30mn to find a transit mode. In global, only 6.1% can get a public transport mode within 10mn waiting. Getting a car rapid or Njaga Njai is much easier; 28% can get their mode within 5mn while 7.2% of AFTU users got this opportunity and early 4.6% of DDD users can get a bus in less than 5 mn. Waiting time is hence more important with DDD where more than 25% of users wait more than 25mn to get the bus and around 29.2% wait until 15mn to get AFTU.

This confirms the inaccessibility of formal transport system, indeed, results reveal that it is easy to find Njaga Njai and car rapid while AFTU is a little rare and DDD very rare. This means people whose time value is important cannot wait more than 30 min to get into a transport mode. So in our interview, we have met some people whose dwelling are not “well served by formal transport system”, one of them said that “even if we have a DDD bus stop near our house, we do not have a frequency in bus service; usually we get only one or a maximum of 2 buses per hour. You can imagine how long it takes to get the bus of DDD”.

¹ Source: Papa Elimane, TMU 2012

DDD is not accessible as the number of buses proposed by the company are few, the split is not enhancing while some buses often break down. We notice some frequency in some areas close to city center but that frequency never exceeds 5 buses per hour. This inaccessibility or infrequency of DDD buses is due to the weak number of vehicle presented by DDD Company.

As for AFTU, it became important and frequently used but does not have yet the flexibility of Car Rapid and Njaga Njai. In some areas, users still have to wait until 15 min to get AFTU. It is more accessible than DDD and more flexible but does not meet all the socially desirable aspect of population.

The most accessible and frequent transport modes remain car rapid and/or Njaga Njai. When arriving to the transit stop, people do not have to wait for long time to get into a car; usually they can get a car in less than five minutes as suggested by the figure.

People living in city centre used to find vehicle on transit stop so they do not have to wait. This accessibility of car rapid is interesting if we only analyze it in term of access, but the word requests more watchfulness. Indeed, it is easier to get into Car Rapid and/or Njaga Njai but they often wait to be full before leaving the transit stop; *Cars rapides* can sit 10 to 20 minutes at a stop just waiting for more passengers. This means even if a customer gets into a vehicle which is loading, it does not mean that it will go immediately.

In peak hour, people get more chance to leave with a non-full or empty car than in normal time when, this waiting time can be so long that 2 or 3 Aftu minibus can pass over one car rapid and Njaga Njai waiting. Hence, transit users have some choice to make.

Therefore, accessibility cannot be the only factor of mode choice in Dakar urban transport system; we will however determine the accessibility role in transit mode selection in Dakar.

In a travel, people show some preference related to time, service, cost and accessibility. In Dakar, the pattern of transport is not suffering to the social desire of people to use mass transit; transport system suffers rather to accessibility in public transport. If the informal modes are more accessible, more distributed, cheaper, that is not so for the formal modes which are neither accessible, nor well distributed or cheap.

Thus, people use mass transit because the cheapest one is more accessible in term of availability; this explains the full use of *Car Rapid* and/or *Njaga Njai* in Dakar. Use of AFTU can also be explained by the same way.

Accessibility and overuse of public transport can be understood through various factors such as income level, lack of car ownership and over presence of informal sector.

5. 1. 1. 1 Accessibility of public transport by lack of car ownership

Map of Car ownership

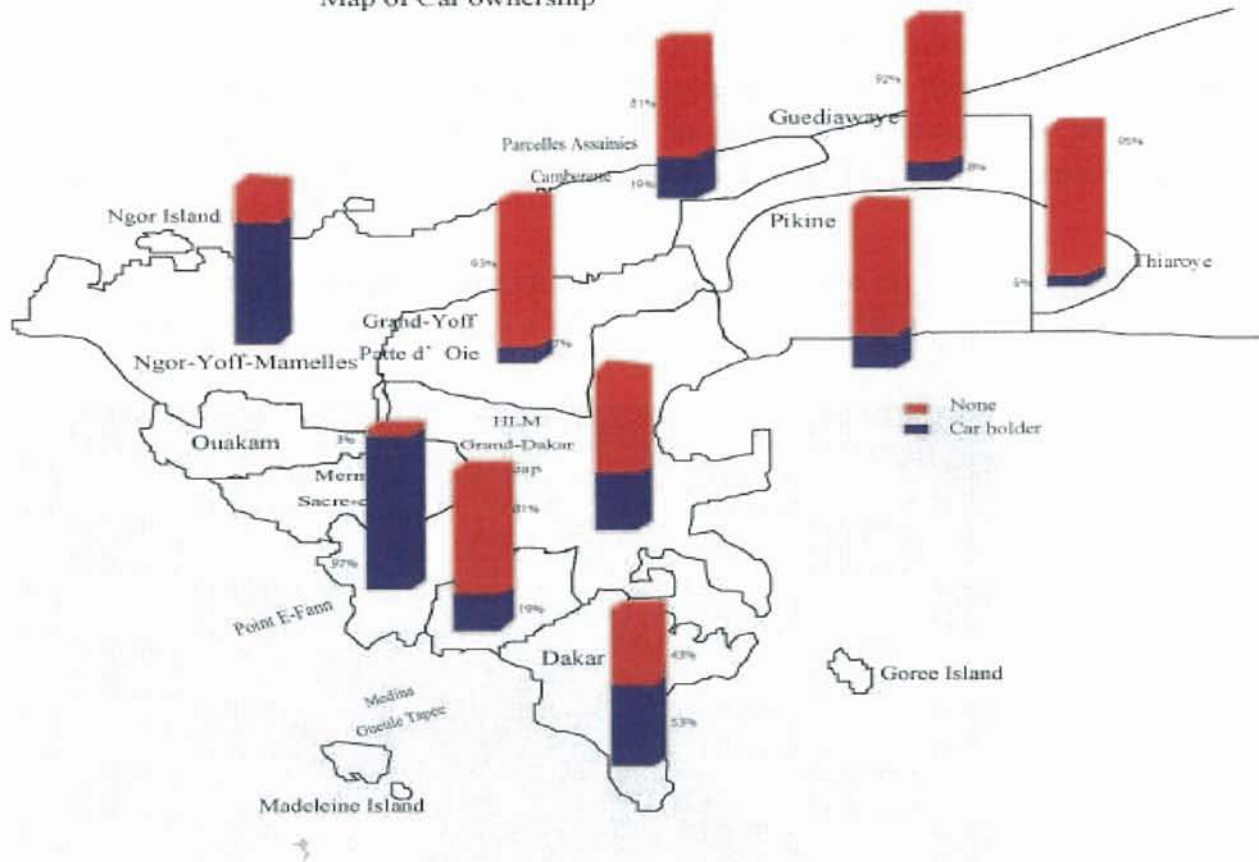


Figure 37: Car ownership¹

This map shows how lack is car ownership phenomenon in Dakar urban transport system. The official data mentioned that there are less than 10% of the population who own a private car. Watching this figure, we can clearly understand why public transport is so popular in Dakar. Car holders are rare in some areas as *Thiaroye*, *Guediawaye*, *Grand Yoff*, *Pikine*, *Medina* and *Gueule Tapee*. These mentioned neighborhoods are most popular homes for public transport and especially informal transit modes.

The lack of private car holders is one of the factors we can gather to explain the closeness of people and public transport. Private car is still a luxury in Dakar while the majority of the population are poor. Accessing a bus mode can be not only costly but also expensive for them. If we still observe the figure 36, there are some zones where public transport modes are not easily located. For example *Point E/Fann* as it suggested by the map do not suffer from lack of car ownership. Almost all people living there got a car. And the public transport is so rare that to find a public transport except a DDD bus, traveler have to completely leave the area.

¹ Source: Papa Elimane FAYE, TMU 2012

This dispatching of transport modes suggests some discrimination on mode usage so that public transport is dedicated to middle and low class people while almost everybody in the range of high class is only using private car. As a consequence, even if that is easy for people living in some areas to get private cars, it seems to be difficult for them to access a transit stop. Hence, choice for people belonging to different social categories are limited and oriented so that private cars are for a dedicated range of people and residential areas while public transport undergo a disadvantage treatment.

Lack of car ownership being effective in Dakar urban system, the easy access of public transport can be understood and considered as a key factor to analyze either public transport usage or accessibility.

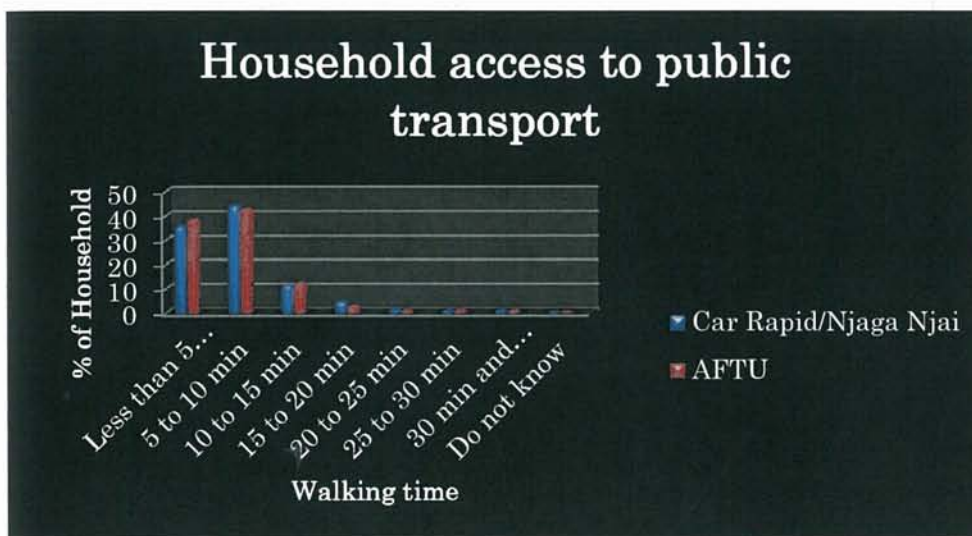


Figure 38: Household access to public transport¹

In Dakar urban system, train service is not accessible by the wide population; train has only one line and cannot link the majority of households. So, we are considering as public transport only 3 modes (couple Car rapid/Njaga Njai, AFTU minibuses and DDD) as it is suggested in the figure 37. It is evident from the figure that the majority (37%) of survey respondents should walk around 5 to 10 mins to get a public transport service. According to the reported data, AFTU became the most accessible mode of transport as 38.6% of households can find an AFTU in less than 5 mins walking. Car rapid and Njaga Njai are more frequent after 5 mins walking. However, 5% of respondents can walk until 20 mins to find car rapid or Njaga Njai and until 25 to 30 mins to find DDD bus.

Since the inaccessibility of trains is evident, people used to get in informal public transport and other formal. I can say that on average, households are located around 5 to 15 mins distance from public transport stop while there is an average of 1.5% who do not have access to public transport or at least they are walking more than 30 mins to find a public service stop.

¹ Source: Papa Elimane FAYE, TMU 2012

5. 1. 1. 2 Accessibility by income level

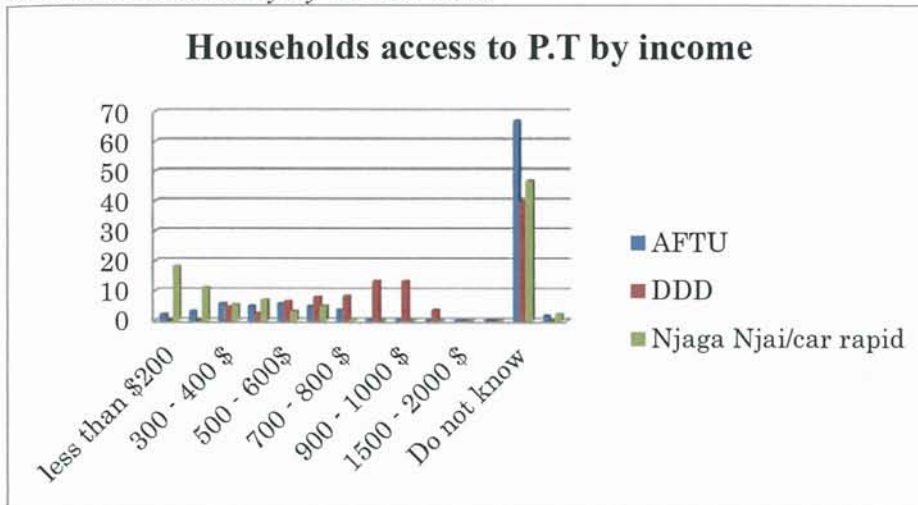


Figure 39: Accessibility to P. T. by income¹

This figure is surely not the reliable data since more than 60% of our respondents do not know how much they earn. Usually they do not have fixed amount or fixed job, there are some people who never give the amount they earn. Anyway, as suggested by figure 38, use of car rapid is more popular among people earning less than 100\$, it is officially the most used transport mode.

The same situation is noticed among people earning from 200 to 300\$. Car rapid and/or Njaga Njai remain popular in the ranges 300 to 400\$ and 400 to 500\$, however, AFTU earn some popularity among people earning from these two ranges.

The use of DDD is quite inexistent in the first two ranges, however, the formal bus company is frequently used by people earning more than 600\$. Travelers who are able to earn more than 1500\$ stop using public transport.

In sum, figure 38 reveals three kinds of transport users in Dakar; people who are using only car rapid, Njaga Njai and AFTU due to the low-level of income, those who are using only DDD because they earn acceptable amount of money and those who are not using public transport at all due to the high-level of income.

As a consequence, accessibility is also closely related to the household income. People living in poverty do not have any other choice than taking public transport for their mobility. And among that public transport, the informal one is more accessible than the formal one which is not for everybody. People use Car Rapid and/or Njaga Njai because they do not have wide choice, because they do not have enough money or because they do not have money at all.

As well as the lack of car ownership and since there is not an affordable and qualitative public transport as a rapid transit, poverty is one of important factors affecting the transport demand in

¹ Source: Papa Elimane FAYE, TMU 2012

Dakar where the wide majority earn less than 700\$ per month. This phenomenon is one of the key-elements tending to perpetuate the use of public transport in this form. Hence, even if informal transportation system is banish and regulated, the form will remain the same due to the poverty.

So one of the key-elements to enhance and develop the transport sector is to eradicate the poverty. As it happened in several major countries in the world, public transport is always most accessible to everybody, but it remains a results of choice from travelers who can choose among several modes such as private car, rapid transit, traditional bus system.

In Dakar and some other underdeveloped countries, mega cities suffer from this phenomenon of lack of rapid transit and a wide modal choice to make their trips. Therefore, trip stops being a pleasure in some cities in the world, it become difficulty that everybody should necessarily pass because even if one gets his private car, the risks of congestion and accident are always present.

5. 1. 1. 3 Accessibility by over-presence of informal sector

Table 7: Modal share in Dakar before 2005

Mode	%
Private car	9.2
BUS DDD	2.7
Car rapid	35.5
Njaga Njai	22.3
AFTU	N. A.
Shared taxi	12.2
Meterd Taxi	9.2
Motorbike	4
Bycicle	0.8
Others	4.1
Total	100

Source Syscom/Cetud, Emtsu

Informal transport mode well known under car rapid and Njaga Njai organized before 2005, 58% of total Dakar urban trips, while formal DDD buses account for only about 3% of total trips, car rapid and Njaga Njai being banish in some area of the capital including many parts of *Plateau*. Use of public

transport is still important but bus system continues to carry only few counts of travelers. 58% of travelers represents more than half so it means car rapid are located everywhere in the cities except the banish parts.

The most important movement of Car Rapid and Njaga Njai are located in exurbs and suburbs of Dakar. There is some kind of over-presence of informal transport modes in these areas even horse-drawn and carts can be counted in the transport modes. Existing routes of informal modes (see map below) show how they are dispatched in the city. It reveals also how accessible they are in the middle and low class areas.

After observation and considering the video record, one can identify important number of *Car rapid* and *Njaga Njai* in *Pikine*, *Parcelles Assainies*, and *Thiaroye*, *Guediawaye* etc. the same movement was identified by BIPE/TER in December 1999 on following routes in *Pikine* and *Guediawaye* at peak hours:

- Exit of Pikine : 164 *cars rapides* and 94 NN minibuses.
- Poste Thiaroye: 82 *cars rapides* and 196 NN minibuses
- Crossroad B. Thioune : 122 *cars rapides* and 99 NN minibuses

Observation and count revealed that usually, vehicles are reasonably full around 25 people in each *Car rapid* and 30 in each *Njaga Njai* are estimated. From this, we can estimate roughly also the peak hour minibus demand at 6,000 per direction. These estimations would need to be reconfirmed and then considered with caution. Anyway, the map below tried to show car rapid and Njaga Njai lines.



Figure 40: Map of car rapid and Njaga Njai lines¹

¹ Source: ITDP, 2004

Author of this map invited to “*note the difficulty in creating a map of static car rapid and Njaga Njai lines*” because we know these informal transportation mode are characterized by their normal operating flexibility and the fluctuations of demands. However, we can identify through the map the various ways of *Car rapid* and *Njaga Njai* represented by red lines. The **High way**, *Route de Rufisque* and *Route des Niayes* are served by these informal modes.

Map shows also clearly the absence of *Car rapid* and *Njaga Njai* in some place as *Plateau* and *Corniche*. this confirmed our hypothesis that income level creates three kinds of transport users in Dakar, it also confirm that there are some areas where public transport are not easily located since we can identify through this map some area without car rapid and/or Njaga Njai lines. A video record we organized during our field-survey reveals a similar result.

In sum, accessibility problem to public transport responds to three major rules: the first is the serious lack of private car, less than 10% of the population, the second is low-level of income; population in its majority are shared in jobless and low income level, less than 200\$ per month, the 3rd is the over-use of informal transport modes which are more flexible and can be located in multiple places in the city.

In the other side, we can say that urban transport in Dakar is discriminated with some roads likely dedicated to some level of social category and other roads where we can find only public transport.

Among the public transport, there is also a problem of accessibility I can identify in the formal transit system represented by the Bus Company *DDD* and *AFTU*. *AFTU* became more flexible, more used due to the increase of vehicle number. As for the car rapid and/or Njaga Njai, they remain very popular and likely dedicated to some specific category of people. They symbolized the informal sector and still organized a big number of urban movements.

Informal sector is developed in many countries in the third world and remain an important component of its overall transport services. In many Asian, African and Latin American cities it is perhaps even the most common and widely used form of urban public transport. We notice various and often ambivalent characteristics.

Compared to formal public transport services, informal vehicles can be more accessible, faster and cheaper. Most of them are unregulated, in oversupply, environmentally unclean, unsafe and unaccountable and hence unpredictable. Informal transport services are usually provided without official sanction and are still difficult to rationalize from a public policy perspective.

This case is the Dakar’s case where the strong presence of informal transport indicates that the mobility needs are not being met sufficiently by policy-makers through formal public transport services. Therefore, while formal transport system is unable to meet the urban mobility needs, the gap between demand and supply is met by *Car rapid* and *Njaga Njai*. Beyond that, informal transport is also an essential source of income for many people and in many cases, a part of larger economic interests.

However, while this criticized system provides huge benefits in urban mobility for low-income transit-dependent, jobs for low-skilled workers, and wide service coverage in areas devoid of formal transit supply, they also have disadvantage, such as unregulated pattern, increased traffic congestion, air and noise pollution, and traffic accidents.

5.1.2 Getting to the destination and available transport mode

Table 8: Origin-Destination

Destination Origin	DKR	P. A	HLM	Wkm	Ng-Yf-M	Pkn	Gwy	thry	Col.	G - Y	Med.	Total
Dakar	32	4	3	2	9	2	1	1	1	1	3	59
P. A	36	2	7	1	5	5	5	2	7	8	1	79
HLM	31	3	1	2	3	8	1	1	12	1	7	70
Ouakam	21	4	7	1	11	3	1	1	9	1	5	64
Ng-Y-M	36	3	7	6	2	5	1	1	9	5	1	76
Pikine	47	6	9	4	1	9	6	7	13	5	4	111
Guediawaye	39	9	9	1	1	13	11	8	7	3	3	104
Thiaroye	27	7	5	1	2	7	9	4	9	1	2	74
Colobane	32	5	6	2	3	2	1	1	1	1	5	59
Grd Yoff	17	17	14	1	1	5	4	2	11	2	4	78
Medina	28	5	11	1	2	4	1	1	6	1	2	62
total	346	65	79	22	40	63	41	29	85	29	37	836

Source: Papa Elimane Faye & TMU, 2012

This table shows the traffic flow from some areas to others. 11 neighbourhoods involving in our survey were selected and visited. Among the 836 respondents, we can through this table know the travel tendency and orientation in some areas. But we always should take these numerals with caution because it can not represent the transport trends for the whole urban system.

However, it shows slightly the same result as the official sayings. In this view, trips are generated from every area in Dakar and are going to every area. This means there is a real circulation in Dakar urban system. However, the traffic flow displayed by this table show the important number of trips generated from *Pikine* and *Guediawaye*, the most populated suburbs; and the important number of trips destined to Dakar city center.

This confirms the general sayings that Dakar is the major trip attraction. We hypothesized that the major destination of Dakar urban traffic remains the city center of the capital where all the facilities related to administration, health, shopping center, University, etc. are located to this area.

The center of Dakar represents the main destination for all categories of people in the daytime; infants, young, adults, 3rd age persons, ladies and gentlemen. The main attractive places are the 3 biggest hospitals of the country (*Principal, Le Dentec* and *farer Fann*), the biggest shopping center (*Sandaga*), the brand avenue (*Pompidou*) and one of the busiest harbors of West Africa (*Port Autonome de Dakar*). In the nighttime also, the city center being home for the busiest night clubs represents attraction for young people. The figure below describes the trips generation and the trip attraction in Dakar urban system.

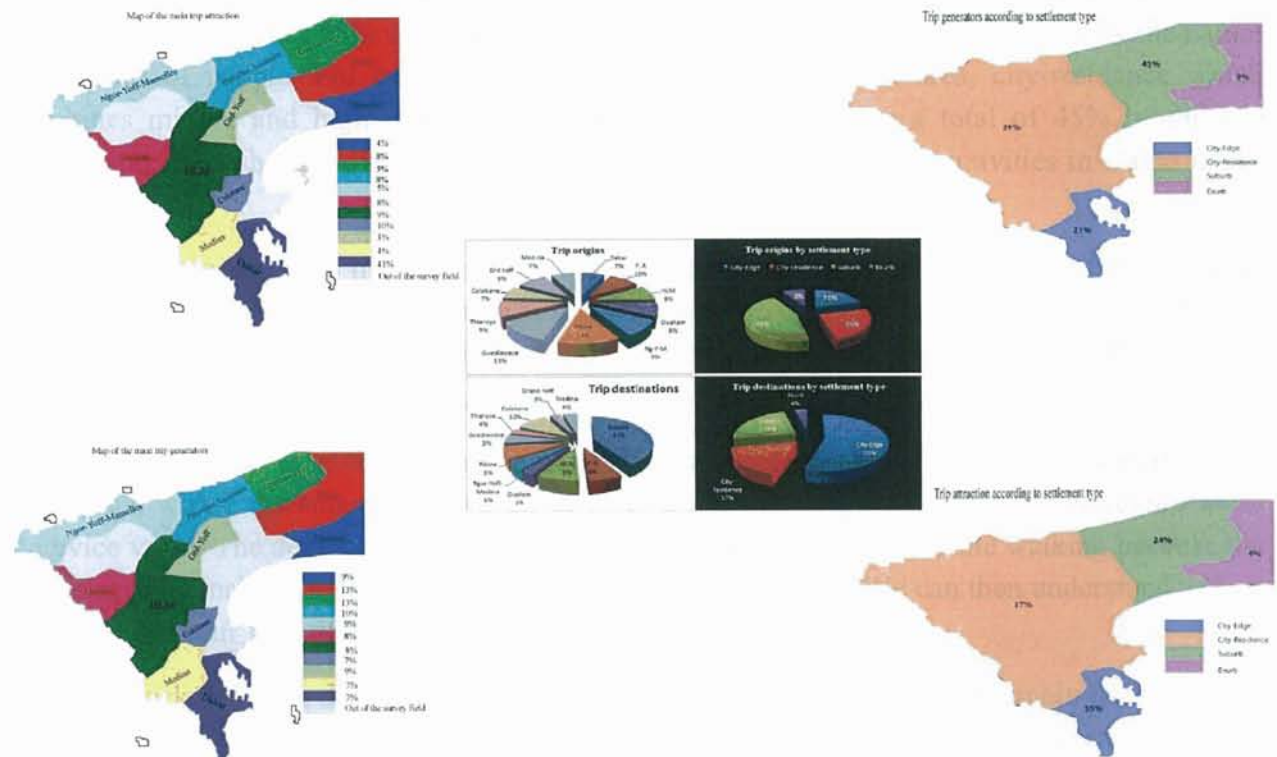


Figure 41: Origin-Destination trends¹

¹ Source: Papa Elimane Faye & TMU, 2012

Under this figure, emission and reception of trips give Dakar city center as a main and busier receptor while *Pikine* and *Guediawaye* with about 26% appear as the main trips senders. Globally, suburbs are the origin of 45% of trip. These people are usually going to the center of Dakar. For example, the table 8 showed that 47% of the trips generated from *Pikine* are going to Dakar while 39% of *Guediawaye*'s trip generations are oriented to the central city of Dakar.

There is an interesting relationship in the travel flow; we know the suburb is the place for an important number of unemployed people, we know also that Dakar city center is the home of the international harbor, one of the largest job and part time job provider in the country. So, this important number of generated trips that are oriented to Dakar can be related to the daily job seeking activity for people.

Trip generations are shown by settlement type in figure 40 below. In this light, we got the main trip origins of people in Dakar urban system. People seemed to daily come from the residential area, the suburbs and the exurbs. This makes sense since in the center of Dakar; the population category is socially belonging in high income level and the rest of facilities are not dwellings but administration services, offices and business places.

Hence, the rate of trip generation of the city edge is according to our survey, 21%. However, the city edge welcomes 55% of the urban trips. We can understand this kind of flow by the nature of activity of people. For example suburb, which is a residential area, city-residence which combines middle and high income level, and the exurb, we note a total of 45% of the trip destination. This shows how important is the social relation and social activities in Dakar urban mobility.

Most of people we have met during the survey travel for family activity as visiting relatives, going to family event as birth ceremony, death ceremony, wedding, religious ceremony etc. this kind of activity is very developed in Senegal. This explains the busy activities of jobless people who are not traveling for work but usually for social concern.

This form of trips is mainly done from residential area to another one, from dwellings to dwellings, within the suburbs or exurbs, or from the residential cities to the suburb/exurb areas and vice versa. The development of this trip show also how developed is the walking because the social activity inside neighborhood is very frequent and common. We can then understand why in Dakar, more than 70% of the trips are done on foot.

If I look back the main destination of the trips revealed by this study and the main trip origins, it is clear that an important part is going from the suburb to the city edge; it is also clear that public transport modes are commonly used in this routes; it is still clear that public informal transport gets an important share see.

As a consequence, the flow from suburbs/exurbs to city edge is important, more submitted to the congestion because of the routes, more submitted to uncertainty due to the non-reliability of informal transport and more affordable due to the weakness of the bus system.

As for the other part of the traffic flow generated by the city-residence, trips seem to be less difficult. I already showed in other chapters that people living in this area are more likely to make an easy trip, they usually got private car and only a few number of them use public transport. I also showed that these public transport users do not travel with the informal modes, they commonly use *DDD* bus.

They are less submitted to congestion because of the location of their residence; they mostly are identified in *Plateau, Point E, Fann, Almady, Mamelle, Ngor*. These zones are served by the *Corniche*, where we did not identify public transport except *DDD* buses. Dakar is then faced to high and distinctive residential area's segregation, which lead to a grouping of rich people in some dedicated places and poor in other places.

This residential segregation is influencing the flow of traffic, the trip distribution and the modal share. As a result, the urban mobility in Dakar is really affected by this residential dysfunction and transport planning or improvement of urban mobility policy seems to follow this unsolved problem. Consequently, it led to some kind of inconsistency between shown and formulated policy by decision makers and the real habit of population's mobility.

5.2 INFRASTRUCTURES AND TRANSPORT FACILITY PROBLEMS

Development of urban transport depends on quality and usefulness of infrastructures and facilities, which are the levers that underpin any process of urban mobility's improvement. Urban traffic is expensive in terms of infrastructure and equipment but also in terms of space occupied. In Dakar, there are two main types of earth transport infrastructures: roads and railways which are sometimes in poor quality that usually host parking places or transit stop.

According to ANDS 80% of Senegalese transport infrastructures are concentrated in Dakar. This strongly lead the national economy to difficulty due to traffic problems in the agglomeration of Dakar which has, in fact, neither the relevant infrastructures, nor the suitable plan of urbanization to accommodate such volume of economical activities.

Dakar's severe traffic congestion has for years caused many problems to the commuter such as health problem and severe and repeated delays. At a cost of 5 percent of the country's annual output, according to the *World Bank*, the need for infrastructure improvement is urgent.

The most obvious road problems are in Plateau area where road infrastructures cannot be neither changed nor extended. In fact, the *Plateau* area is surrounded by the *Atlantic Ocean* and then is not developing its infrastructure since years. However, *Plateau* is one of the areas where transport infrastructures are more suitable.

In Dakar metropolitan area, road network consists of three categories: primary roads, secondary roads, and a final group consisting of other categories of roads often less important and in poor condition.

The primary roads had been mostly built by colonialists. They are enough wide and in good condition. They are well maintained and usually busy, these roads are often leading to the area of *Plateau*. Among these roads: there are *Route de Rufisque*, *VDN (Voie de Degagement Nord: recently built)*, bypasses of *Malick Sy* and *Fann Bel Air*.

Secondary roads are numerous and can be found throughout Dakar metropolitan area, these roads become busier as one come closer to the city center. Most of these roads are in good condition but the problem lies in the maintenance and repair in case of damage. In Senegal, damage roads are not repaired and consequently, many roads fall into impassable state.



Figure 42: Road condition 1



Figure 43: Road condition 2

5.3 PARADOX AND AMBIVALENCE OF PUBLIC TRANSPORT DEPENDENCY: THE NON-CHOICE PHENOMENON.

5.3.1 Non-choice phenomenon

Choice is not a simple word in transport system; it is not an option, but a possibility among a wide generation of elements. When choosing, one should eliminate according to some criteria. In Dakar urban transport, choice is likely to be not wide while population cannot set objective criteria.

In some western countries, Japan and other developed cities, users of public transport choose among fare, punctuality, speed, safety, frequency, etc. thus, it is not about mode but about facilities and service; these selected criteria are important to evaluate the travel behavior and transport development. The case of Dakar reveals some narrowness in the choice-building criteria.

Public transport mode is the only accessible system for all category of population, because of its flexibility, its low-cost fare system and its frequency. The identified transport modes in Dakar are

widely dominated by informal sector since the formal bus company operates with few vehicles what affected its frequency; the AFTU Company is not completely implemented.

The popular mode that goes everywhere and then accessible to all transit users is the informal transport called Car rapid and Njaga Njai. We already showed how this transport mode is more accessible than others. So according to our research results, people do not have access to private car just because of their low-income, people do not have access to bus company because of their low-income, inflexibility and the infrequency of bus whose transit stops require some minutes of walking. As for the AFTU minibus, mode is not still widely represented in the whole city.

As a consequence, transit users do not have a wide provided choice. The only modes that can cover “*any imaginable journey*” remain the informal transport mode such as *Car Rapid* and *Njaga Njai*. We showed that there is an over presence of these transit modes and they are much cheaper compared to others. So that non-work activities, some low-income people, and those whose residence neighbourhoods are not served by other transport than informal modes take *Car Rapid* and /or *Njaga Njai*.

This lack of transport facilities, infrequency of formal transport modes and isolation of some neighbourhoods do not give choice to users. They usually have only one way to accomplish their mobility, the use of informal transport. In that way, it seems that the choice was not free for people, it directly comes from decision makers.

Where they do not widen the distribution of formal transport should be a sector of non-choice for people. Where population counts a wide number of jobless, formal transport became too high and so, the sector is for non-choice; the weak number of DDD and AFTU buses also does not help.

Transport mode choice depends on cities and the supplied service by each country. Usually travellers build their criteria through the existing transport materials, for example, a travel demand cannot concern a train system while there is not railway system; however, the level of demand can recommend an implementation of train system in order to meet the population mobility needs.

So, demand is quite different to choice. The word choice has several connotations and it is necessary to say in what sense we use it here. At each moment of action, people face more than one option, in fact, an infinite number of options. In this point, we simply mean the alternatives travellers face every day between two or more transport modes. The question is how do Dakar urban travellers build their criteria facing these alternatives or options?

During the survey, we noticed an important missing of travel option. Private car, train, formal bus, tram, Taxi should not take into account in mode travel choice of Dakarian people. Some of the modes mentioned above are rare while others do not exist; as for private cars and taxi, the income level of people do not allow a wide number of the population to get them, so do the bus system and the train. Their facilities are so limited that few people can access to them.

As a result, urban travellers build their mode choice criteria among limited options or limited public transport. Thenceforth, criteria are determined by the general transport services or international standards. The most important element in choice criteria seems to be fare since time value is not considered in Dakar urban transport both for decision makers and travel users.

When choosing a transport mode, people consider first the price of service so that the way of getting destination is not important in Dakar urban transport. People prefer the arrival itself; this mean when people are traveling, they do not care about the comfort, about neither the comfort of transport mode nor the time of travel. What they consider as important is the arrival. Thus, travel condition, travel time, arrival time, vehicle service and comfort are out of choice criteria.

People we have met argue that the flexibility of transport mode is also important for them. The selected ideas of these surveyed people show that travellers wonder if the mode can get the nearest roads to his or her house before choosing. In this way, almost all people can find the “*everywhere transport mode*” said a *car rapid* driver.

We noted in this study that no importance was given to security and safety in mode choice criteria, despite the several numerous traffic accidents listed each year in Dakar urban system. From these findings, we can understand why *Car rapid* and *Njaga Njai* continue to successfully compete with the formal transport.

Car rapid and *Njaga Njai* do not meet the safety and security required by travellers and government, they do not provide the required comfort and they do not care about customer willing. In the other side, we note that formal transport are trying to meet the security of people and goods, they are trying to provide a minimum of comfort to travellers and permanently defining some market strategies for sustainable performance.

So, why then formal transport cannot eliminate the use of informal mode? What is determinant in informal transport attraction and performance?

Two important elements appear to be determinant in the informal transport performance; fare and flexibility. In comparison with formal transport modes, *Car rapid* and *Njaga Njai*, designed as “*everywhere transport mode*” by drivers and operators, offer the widest opportunity of travel to low-income people and spatially isolated people.

Low-income phenomenon is a key factor in Dakar urban transport analysis. No one can understand the transport system without considering the socio-economical factor. Neighbourhood location is also a powerful explanatory variable for Dakar urban transport. These two variables are linked since neighbourhood location is determined by the income level. We should remind that in Dakar

54% of population are under the poverty line¹. Actually, 15 to 10% of household budget are spent on transport; this budget goes to 20% for the most disadvantaged people, (Trembley and Ndiaye, 2008).

Considering these two variables with the flexibility that informal sector can provide, we get the triangular rule that meets Dakar Urban transport. In simple world, the mode choice criteria in Dakar urban transport system are determined by three rules: the flexibility of mode that can go anywhere and stop anywhere, the low-income of people who can only pay some category of transport mode, the neighbourhood location that categorized the people of roads.

People under this described situation are likely to get difficulty in choosing transport mode since most of them cannot have access to train system, to bus system, to private car. These people are those who maintain the *car rapid* and *Njaga Njai* system. “*We do not have choice in our travel mode*” said one respondent, and he agreed with another one who told that “*our choice was dictated because we have no alternative*”. This explains the lack of wide transport mode and the missing of leadership between transit companies in Dakar.

In sum, there are no strong criteria in Dakar mode choice. Actually people do not have criterion since the only transport modes that meet widely their criteria are informal transport especially as these transport modes do not offer any required service, comfort, security, reliability and safety. The only aspect that determinant in the performance of *car rapid* and *Njaga Njai* are then low-income level of population. Even poor people have to travel and formal transport mode seems to be a little expensive for the majority of Dakar urban population.

According to the previous analysis, there is no wide mode choice in Dakar urban transport system. I saw with the numerals that informal sector has still dominated with *AFTU* the transport system in Dakar and I explained by the lack of accessibility of formal public transport emphasised by low-income of population whose 54% are under the poverty line, by over-presence of *Car rapid Njaga Njai* which are called “*Everywhere Transport Mode*” and the household isolation.

Among these dysfunctions of transport in Dakar, we note a limited choice of people. People living in some areas with a high level of income do not access to *Car rapid* and *Njaga Njai* because informal transport are not allowed in these places; that population travel usually with private cars and a few use of formal public transport as *DDD*.

People living in middle-class area can use *car rapid*, *AFTU*, *DDD* and Taxi but the infrequency of formal public transport as *DDD* do not help so that people prefer *AFTU* or informal mode. In the low-income people, *DDD* and *AFTU* appear sometimes to be expensive so that people use only

¹ Central Intelligence Agency, *The world factbook*, saw on 10th October 2012. last updated on September 11, 2012. <https://www.cia.gov/library/publications/the-world-factbook/geos/sg.html>

informal modes; that is so for the spatially isolated houses that see scarcely formal transport modes in their areas.

This limited choice can be understood through a non-choice prism; people do not any more choose their transport modes. In fact, it is hardly understandable that low-income people who can find a mode combining low-price and flexibility in front of his house to use transport modes that do not give such a service. Hence, it is commonly admitted that low-income people use informal transport for their social service, their low-price or their flexibility. In opposite, these people cannot get *DDD* because of the high price or the inflexibility or lack of social service. Few of these people can get an *AFTU*.

It is known that these people do not have choice between public and private transport modes, they only can use public transport; they do not have wide choice among the public transport, they can rather get informal transport. Furthermore, people living in *Point E*, *Almadies*, *Fann*, *Plateau* etc, get hardly an informal transport mode and *AFTU*. They seem to be forced to use private car and *DDD* bus.

Anyway, they all have choice, but limited choice. Any of them who wants to use transport mode that does not serve their neighbourhoods, should walk minutes to find the affordable mode. This limited of choice is assumed as a non-choice because people are actually not choosing; they undergo the system that is offered.

This non-choice phenomenon in Dakar urban transport system can explain the lasting of *Car Rapid* and *Njaga Njai* system. According to our research, people using *Njaga Njai* and *Car Rapid* do not have opportunity to use others transport modes. They use informal transit for their mobility and urban displacement because formal transport develops some kind of social exclusion. It is then an economical issue; it is difficult to formalize transport system without a low-cost effectiveness in a milieu of poor population.

Formalizing the transport system without taking into account the socio-economic condition of potential travellers is doomed to a failure. Still people will have car rapid and *Njaga Njai*, they do not care about service other than low price-effectiveness and flexibility. The first condition of making transport affordable for all is to organize a wide option of transport modes accessible to everybody so that people can define some objective criteria that can lead their transport mode choice.

5.3.2 Paradox and ambivalence in Dakar public transport

Public transport system in Dakar displays specific characteristics; we note inside the system some ambivalences and paradoxes. Usually, public transport is considered as a key solution for a sustainable transport system. For example, in developed countries, the use of private car appear to be a flaw for a suitable traffic; as a result, decision makers in developed countries are making restrictive the use of private cars.

In some western country, it is time to develop non-motorized transport system with a wide use of bicycle. These two aspects of urban transport are dominated Dakar urban transport but do not solve the transport problem.

This point is going to examine and classify the paradoxes and ambivalences noted in Dakar urban transport system:

✓ **Few use of private cars and domination of public transport vs permanent congestion**

Most people owning private cars do not want to leave their car behind and opting for public transport. Many private cars owners considered the use of individual vehicle as independences and freedom. That use of private car becomes more and more important in developed and developing countries so that the dependence on private car is one important element of traffic congestion since most owners whose cars are circulating normally do not care about making a transition even temporarily to public transport.

Nevertheless, policy makers in various countries try to bring private car' owners shifting toward public transport so roads will have less individual car and more public transport. One of P. T advantages is the concentration of many people able to have an individual car in a sole public transport.

Consequently, everywhere that the use of public transport is effective and popular, the traffic congestion seems to be less tenuous. That postulate leads to several transport policies in various countries. Transit researchers, observers and decision makers tend to convert the bus system as challenge of a new sustainable public transport with attractive image that can bring people to travel in public.

Some cities as Tokyo succeed to implement a “*good transit system*” (Calimente, 2012); in Tokyo, one has to be prepared to spend a great deal of money to purchase and own an automobile, which contributes to the popularity of public transit in the city. In Japanese metropolitan areas like Tokyo, automobile ownership is not essential, since all aspects of daily life can be conducted by taking a train, bus, bicycle, or travelling on foot. (*Ibid*)

However, traveling in public goes dream for some cities and, especially for strong developed economies. Roads are full of cars and pollution become high and high. This is one of the reasons that research community developed the concept of dedicated bus to clear the roads. The opposite prevails in Dakar urban system; people are using public transport rather than private cars. Public transport in Dakar is still marked by an important informal sector (providing over 70% of public transport), which were also sources of many very costly dysfunctions for the community (4% GNP) (IUTP, IATP, 2010). This means some performance lowering of public transport while everybody seems to use it in Dakar.

We demonstrated that private car is still for some category of people, then a few rate of Dakar population use private cars. This over-presence of public transport and the low rate of private car

usage are encouraged elsewhere as I explain with the willing of developed countries to organize transition on public transport.

In Dakar, decision makers do not have to make deterrent policies against public transportation use; more than 70% use it but there is still intractable road congestion. This is not explained by a lack of efficient railway network, general bus coverage or few infrastructure networks; it is one of the ambivalences noted in Dakar public transport.

Despite the full use of public transport and the scarcity of private car' usage Dakar does not yet solve its transport problem as congestion, pollution, etc. this case of Dakar is not confirming the usefulness of public transport in the third world but it teaches what we can call problems in this study. The first problem that public transport in Dakar is facing is the lack of control of informal sector so that we do not know the exact number of informal transit operators. It makes sense because it is informal but the lack of control leads to several problems such as inability to forecast the future travel pattern.

So decision makers are reforming without knowing what is going on, what is really disrupting transport in Dakar. No question seems to be asked, then there is no answer; the fact is we do not know the exact zones of coverage of car rapid and Njaga Njai, it is also difficult to evaluate the benefits of the system.

Nonetheless, we noted an important frequency of informal modes in our survey so the lack of public transport mode is not a clear argument for understanding why current public transport is a problem rather than solution.

The second rule is disorganization of the public transport; one cannot expect a suitable transport system while there is no link between the different transport modes. We know *DDD* Bus Company covers only some part of the city, and then cannot meet the global transit demand; it is also known that the train system is still operating even if there is a big limitation of service due to a lack of mode; this train cover a part of transit demand. *AFTU* minibus is earning popularity and appears to be as a main transport mode but the coverage level is still low, while the informal transport system, called by some people under the name of "*everywhere transport mode*", has a wide coverage level and wide mode distribution.

We find strange that there is no complementarity among these transit modes. We wonder whether the priority of new transport pattern in Dakar is the renewal of a non-controlled sector or a policy tending to organize and link the different transport modes.

So informal sector itself is not the problem of transport system, the disorganization of the whole sector is. This led to a non-existence of intermodal transit system. One can take the opposite of my analysis but it is clear and undisputed that there are three formal and regularize transport system in Dakar such as *DDD bus company*, *AFTU minibus company* and *Petit Train de Banlieue*. These

three transport modes do not have any link while the DDD and PTB belong to the government and should be easy to be linked through an intermodal pattern.

In a high competition public transport system, link should be developed between companies or operators to gather all condition of intermodality. In the case of Dakar metropolitan area, companies and operators are not only in competition, but there are also working independently. The global sector is still disorganized and every transport mode has its own rule.

The public transport is still dominated by the informal sector; Cars Rapids and Njaga Njai share the same routes with some large and small buses with a fare much cheaper. So as there is no integration between the two formal public transports companies, *DDD* or *AFTU* minibuses do not have any advantage over artisanal transport modes.

The conditions of intermodal transport system can be applied to the ticketing of the two formal companies and the operating routes. In the case of Dakar metropolitan area, the real transition from artisanal public transport to formal system can be done if the complementary is established between the train system which carry only 1% of public transport passenger, the large buses *DDD* 3% and the *AFTU* which getting more and more important as the fleet renewal is continuing.

The absence of intermodal pattern in Dakar urban transport leads to an unfair competition between modes. One of the advantages of various public transport modes is the ability to combine inflexibility of train or bus with the flexibility of taxi or Non-Motorized Transport so that while the train cannot take people into their house or neighbourhood, taxi, bus or NMT will.

In several cases, people are taking the train to get the nearest station and choose among bus, taxi or bike. This situation happens where coverage network of railway is high; in Tokyo, A full 71 per cent of commuters in Tokyo Metropolis take the train, increasing to 91 per cent of commuters bound for the 23 wards (Ieda, 1995). Automobiles represent 33.2 per cent of mode share for Tokyo Metropolis, but only 15.3 per cent in the 23 wards. Both walking and cycling have high mode shares, at 14.5 per cent and 22.3 per cent, respectively, in Tokyo Metropolis and 14.9 per cent and 23.8 per cent in the 23 wards (Ibid).

There is a high share of bicycle usage in Tokyo allowing people to get their houses after getting off the train. In each train station, there is a bus terminal and taxi parking; people getting off the train can easily take bus or taxi to complete their travel. The radius between dwellings and train station are not high so that people can walk from stations to homes. This facilities found in Tokyo is completely and definitely absent in Dakar. There is neither policy of price between transport modes nor intermodal parking policy for trip completion.

Consequently, we can note for one origin-destination frame lots of trip because of transfer but the ticket can remain the same. This view point in transport development can be a first solution in transport disorganization in Dakar. Then government can choose to regulate and formalize without any ambivalence in the system.

Other ambivalence of Dakar transport system that should be examined is the importance of walking. The research we have done during the February 2012 shows that people in Senegal are mostly using their feet for urban mobility. The official data also (see table ...) confirm what we have found from the survey.

Normally, a large share of walking should help to reduce the motorized transport use and reduce the congestion level. We do not need to remind that congestion is still high in Dakar but it surprising that people usually share the road with transport modes.

This can be in part explained by the lack of organized and dedicated pedestrian way in the transport frameworks. But this explanation cannot be enough while there are large spaces in Dakar that are not paved and where people can walk without any risk. This also reflects the disruption of Dakar urban transport system. The figures below show the level of interconnection between transport mode and people on the road side.



Figure 44: Traffic in banish P. T. area



Figure 45 Modes sharing roads with people

Figure 43 shows how walk is important in Dakar urban area where people can share the same road with the circulating transport modes. In this road, what we can understand is the lack of pedestrian way in some part of Dakar. Hence, people usually do not have other choice than taking the same road with cars. In figure 44, I notice the informal transport modes *car rapids* and the formal bus *DDD* in the traffic with people vending some items. This is very common scenery in Dakar urban transport.

So we can say that, the lack of pedestrian dedicated way and the pre-eminence of walking are impacting in the transport framework of Dakar. The uncontrolled rate of walking and consequently, its disruption make the traffic really complicated for drivers. D. D is a car rapid driver, he said: "we have a real problem with pedestrians, they passed through the roads and do not care about transport modes next to them, it is rather drivers who are constrained to be careful".

✓ **Limited NMT and Walking as a main mean of transport**

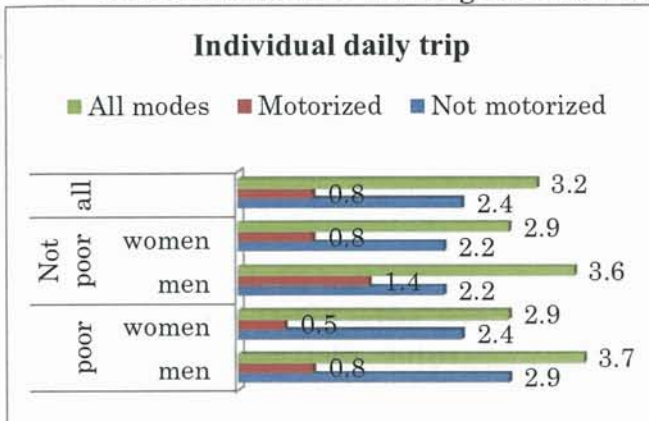


Figure 46: Number of daily trip per person¹

Compared to other countries, the number of daily trips per person is normal but most of the trips are not motorized. According to figure 6 Men move more than women, they also prefer walking than using motorized car. In the poor category, the individual rate of mobility for men with a motorized transport mode is 0.8 while it is 0.5 for women.

The use of foot for travel is common in developing countries; the “walking rate” of underdeveloped city came with a lack of transport means and/or the high level of poverty. Anyway, urban mobility system is diversified in these cities. In Dakar, people walk to go to school, hospital, doing business and visiting family.

Motorized transport is expensive while more than half of people are poor. Thus, it is understandable that walking has a big role in Dakar’s transport system and especially for the poorest which are numerous 44% (Dramani, 2011). Bike is not a common mode of transport in Dakar and the supply of motorized transport is very weak.

Walking is more popular with students who can get school and people going to shopping centers within 30 minutes from dwellings. Their walking practice is done in a short distance. However, there is a long distance walk with people who cannot access to public transport due to the lack of financial resources. Workers are usually taking public or private car but some of them walk when they work near their house.

Thus, walkers can be divided into two groups: those who can access transport service and equipment within 30 minutes from their dwellings and those who do not have financial opportunities to get other transport modes.

In the first group, there are students who live near the school, housewives who can reach the marketplaces so easily, workers whose dwellings are near the workplaces, jobless and all people going to the public transport stops and/or station.

¹ (Source: Emtsu)

In the second group, there are students who do not have enough money to pay for public transportation and whose schools are quite far away from dwellings and low-income.

Problems in public transport and sometime the lack of reliability of informal transport encourage people to walk even when the distance is not short; there is also the lack of bicycle-use in Dakar. But the main pedestrian users are people with few financial resources, the jobless and people whose destinations are near the dwelling.

Many trips are made by walk (75%) and only a minority of them by motorized modes (25%). The rate of walkers in Dakar urban area exceeds 73%; these pedestrian combine short and long distance displacement (DPS, 2010).

Only some students and working people can use public or private transport every day. This is because more than 60% of the population are young (less than 25 years old) and more than 50% of the population are jobless (DPS, 2010). There are also people living in neighbourhoods such as Medina, Grand Dakar and Gueule Tapee. They can access the downtown so easily and within one hour by walking.

In Dakar, urban transport system was not designed for pedestrians and bike riders; most of pedestrian way has developed spontaneously and were never upgraded. The existing walking sides remain outside from the normal processes of transport planning. The preeminence of walking makes sense in the poor country where population is young. It makes sense where the lack of resource is so high. In Dakar, there is no effort to encourage non-motorized transport as bicycle and most of people do not have money to buy a bike. Despite this bike-less culture, there is no bike infrastructure in the city, any kind of bike lane for the urban planning system. Consequently, the preeminence of walking is justified.

Also there are some stigmatizations of bike use; in Senegal, a female bike rider is badly seen so does a rich people. It is not also common to see more than 40 years old men using bike.y

Hence, bike is exclusively reserve to young people and is not defined as a mean of transport in Dakar. This situation is noticeable in many countries in Africa while developed countries create bicycle friendly cities.

Culture of cycling changed the ways of seeing in some developed countries; lifestyle and gender perception have much more evolved, new economic conditions and western culture removed the difference between male and female.

Also, rights are the same for male and female and society is not anymore based on feminine stereotype with female supposed to be only housewife. There is also no categorization of transportation means for rich, or for poor and young.

5.4 NETWORK COVERAGE AND INCONSISTENCY OF POLICY: THE PEOPLE OF ROADS

The fundamental problem in Dakar, as within many large cities, is that there is no coordination between residential locations and business centre locations. This leads large scale movements of population on a daily basis toward the city edge. Around 4.3 millions of people commute daily within Dakar; and 70 per cent of that people use mass transit according to the DPS, (Godar 2005).

While an increasing number of people own cars, currently 10%, public transport, freight trucks, the city still continues to have some difficulty in building infrastructures and intersections needed to meet this increased traffic. This has led to road safety problems, air pollution, noise pollution and heavy traffic congestion as humanly unbearable as ineffective socio-economically. One of the sector's difficulties is worsened by this congestion in Dakar as displayed in the map below.

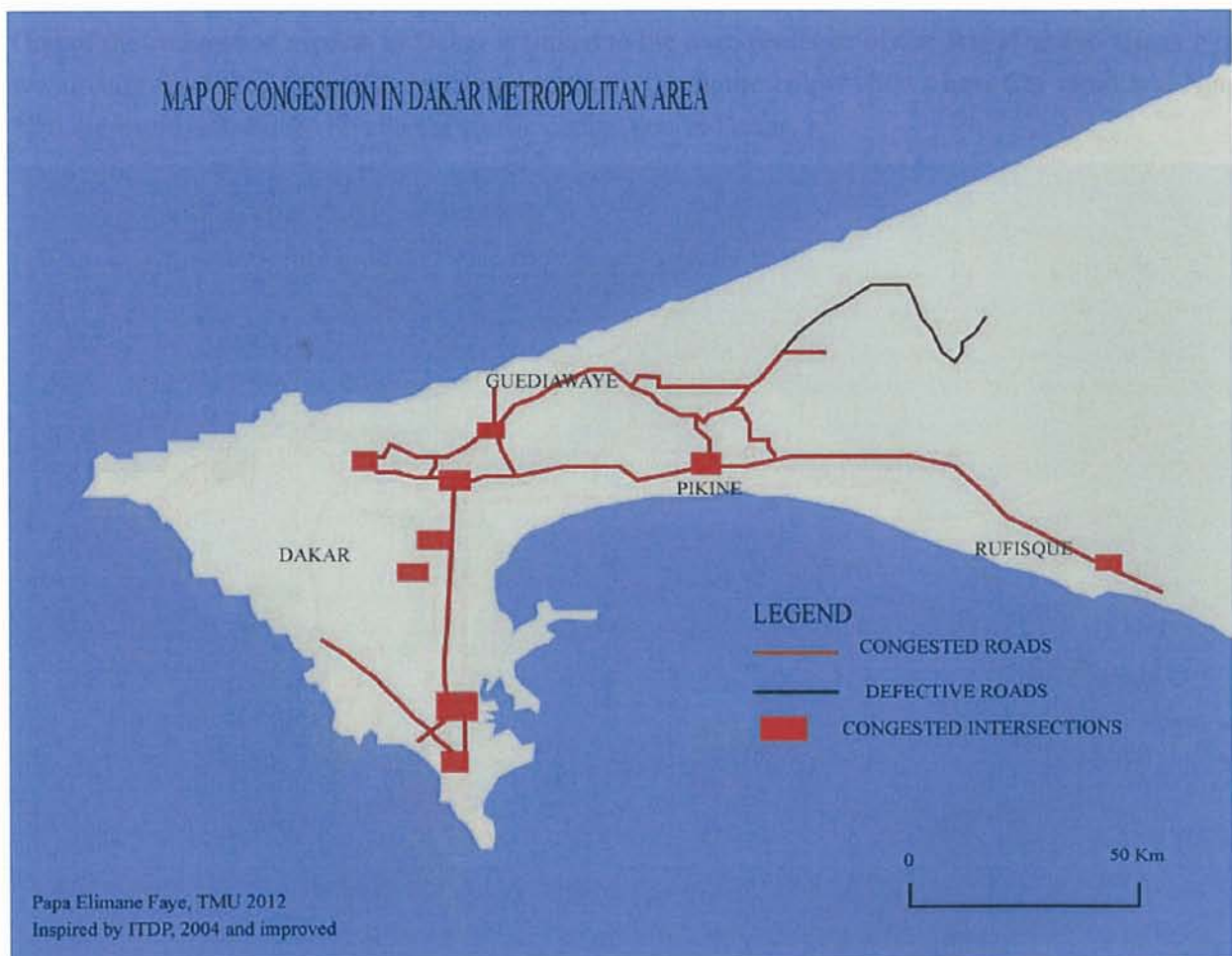


Figure 47: Map of congested area¹

¹ Sources: Papa Elimane Faye, TMU 2012

The roads colored in red in this map represent almost all the road in Dakar urban space. They are the main roads except one part of the *Corniche*. This displays the geography of congestion in Dakar urban travel practices.

According to the map (figure 46), congestion is located everywhere excepted Zone A (Plateau, Medina), B (Fann, Point E) and E (Ngor, Almadies). The red lines on figure 46 express the congested area and the point show every congested intersection. We find in Plateau some congested intersection because it is the final destination of more than 80% of Dakar's urban travellers.

In Dakar, it is estimated that 1000,000 hours of mobility were lost daily because of congestion (Vertongen, 2004), while it is said that this traffic situation costs to Senegal every year about 2% of the GNP. This leads the government to define policy of traffic improvement in order to ease the urban transport fluidity.

One of the congestion aspects in Dakar is linked to the over-presence of Car Rapid and/or Njaga Njai; we already discussed their disorganization pattern, the figure below shows how Car rapid and Njaga Njai were and are still involve in the traffic congestion in Dakar.

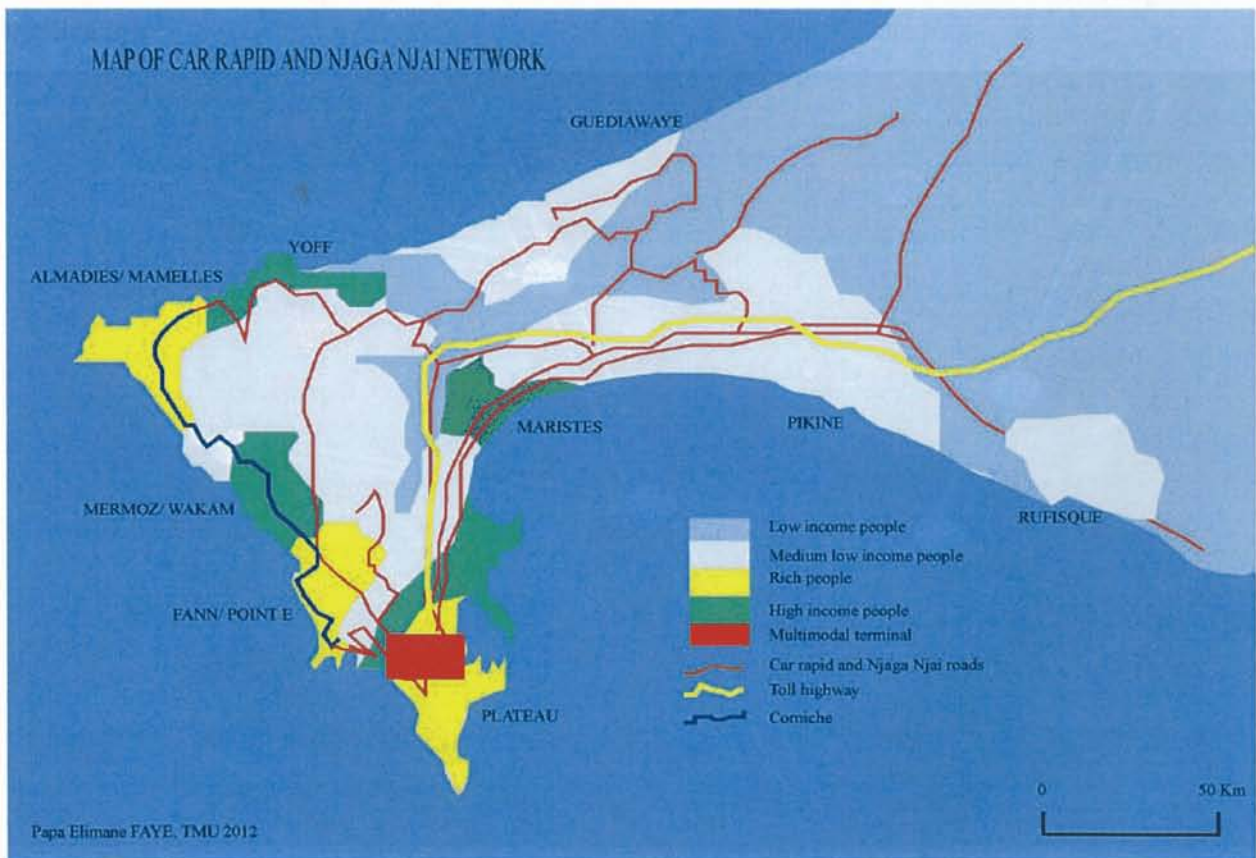


Figure 48 Map of car rapid and Njaga Njai network

From the figure 47, car rapid and Njaga Njai are located everywhere except the Corniche, some part of Almadies, Fann and Plateau. These locations are categorized as neighbourhoods in Dakar where live some category of people. Usually international civil servants, the high level of educational people, Doctors, University professors, diplomats, in short, people with high income level.

Both figure 46 and 47 show the relationship between Car rapid and/or Njaga Njai with the most severe congested area. The car rapids and/or Njaga Njai routes shown in the map (figure 47) by red colored lines are almost the same lines considered as congested area in the map (figure 46). Actually, the congested area appears to be the public transport route and especially car rapid and/or Njaga Njai commercial lines.

So, it is clear that the dysfunction of Dakar urban transport is deeply related to informal transport modes that continue to play a great part in urban mobility of people living in Dakar. However, we already show the importance of Car rapid and/or Njaga Njai in the transport pattern and explain that most of the problem is related to their disorganization and their uncontrolled action by the government. Informal transport modes are not admitted in some places of the capital city of Senegal; these places are served by some DDD buses and mostly private cars as we already saw. The figure below is a map made by Ortrans Project from spatial image obtained from Google Earth application

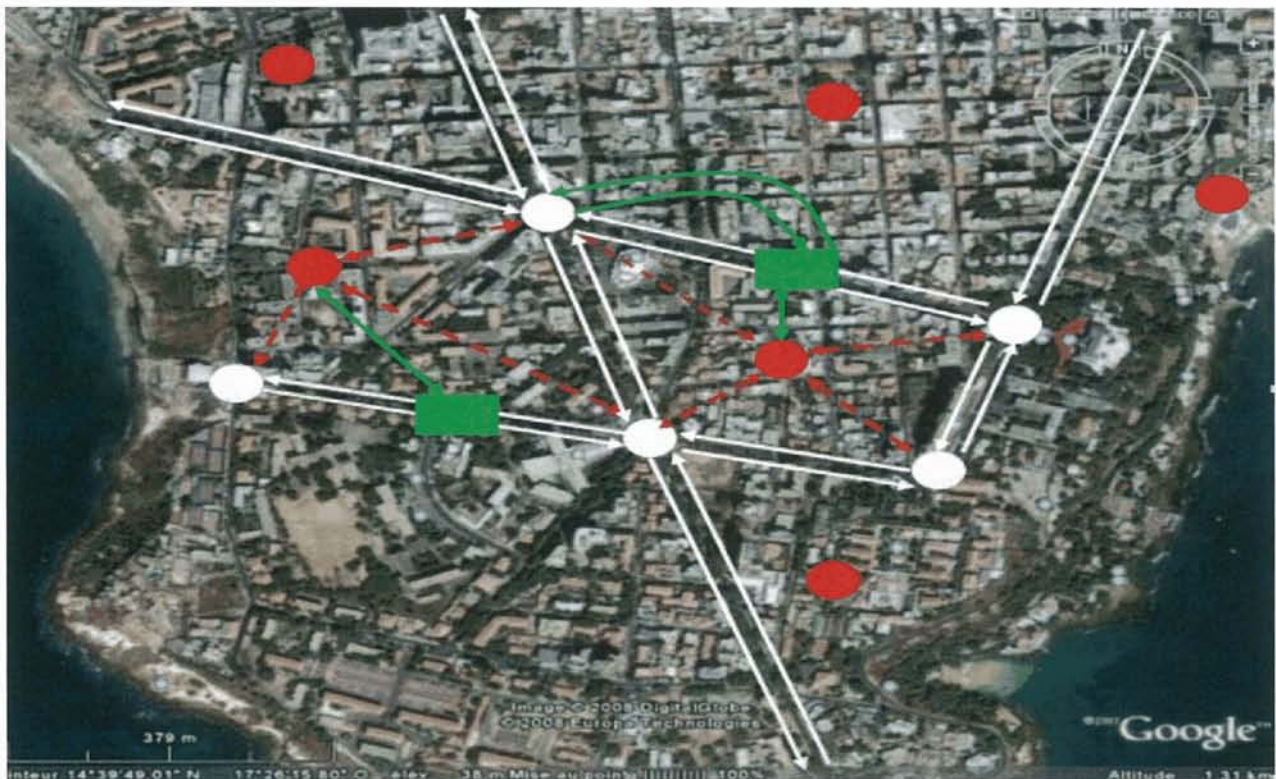


Figure 49: Representation of public transport network in Dakar city edge¹

¹ Source: Dakar city Hall

In this figure, public transport is represented by green lines they are actually some bows; this means public transport is weakly developed in the city edge and in our previous discussions we showed that only DDD buses can access in some area of the city edge, Plateau.

Red colored lines are some origin-destination operated inside the city-edge and are done by private cars. The ban of public transport in this area and the admission of DDD buses reveal some discrimination in the standard transport distribution in Dakar urban system. Neither car rapide nor Njaga Njai nor AFTU can get their customers in Plateau, in this area, people of roads appear to be the workers and residential people. It is not theoretically possible to find poor people in this neighbourhood because houses and apartments are out of reach; Senegalese people consider housing in Plateau as unaffordable.

Consequently, in various arteries of Plateau, taxi and private car are the main transport modes for people after walking. This can be explained by the limit of the main attraction of this area which is Sandaga, one of the biggest shopping center of the country. People going to Sandaga do not have accessibility problem since it is the main terminal for Car rapide, Njaga Njai and AFTU. Those going beyond can work to reach the other places of Plateau as the two most important hospitals (*Le Dentec* and *Principal*), one of the biggest high school (*Lycée Lamine Gueye*) and more than 80% of the national administration centers.

We can, then, understand the plenty of private cars and the important phenomenon of observable walking in this area; people living there are classified in some socio-economical category and those working there represent the governing body of the country. We did not proceed to video record in this zone of Plateau, the sole observation allowed to classify the people of the roads in this area and the level of congestion. We noticed that the streets of *Plateau* are congested with private cars, taxis, public buses, and company buses. The people of roads revealed by our observation are the same we notice with the video record.

Indeed, in *Plateau*, the classifying people using the road and streets are likely to be in social situation offered by some middle-high level of income. In fact the transport level is high standard with more private cars than taxi and public transport. And among the private cars, we could notice some Luxury cars, Sedans, Vans, Wagons, Pick-ups, sport vehicles and some trucks that are seemingly for freight. These cars are, according to us, in recent quality. Usually people using this kind of cars are *sociologically correct* as we equate them to people who meet the social behavior of Senegalese business; this means people using popular wear that is admitted in companies, the common use of safety belt, etc.

The understanding I have from this situation is that people's behavior are different accordingly to the selected roads for their travel. The behavior noticed in *Plateau* roads meet some international standard road and travel behavior while we observed the opposite in some roads such as *Route des Niayes*. This happens in a context where there is no working traffic light in the capital city; this happens also where the use of Taxi is rare in the part of the capital. People using these roads of

Plateau can be sociologically divided into three categories of people: those who are working in the diplomatic affairs and international organization, they are mostly foreign people; people working in Senegalese companies categorized in the middle and high income level; and people who are daily-based business with usually small business or modest work in national or private company.

The first social category of *people of roads* in *Plateau* uses private cars and sometimes luxury ones for their travel. The second category took taxis, *clando*, buses and some of them got also modest private cars. After some discussions with taxis drivers, we have understood that most of those people will be reconverted in taxi users after the 2 first weeks of every most. The last category of *people of roads* is the daily-based business workers and the modest job people who mostly are pedestrian; they walk besides the main roads in the dedicated pedestrian side where high congestion is also located. The sides are too small for the amount of walking people. These people are also mostly coming from *Car rapides* and *Njaga Njai* and walk to complete their travel since *car rapid* and *Njaga Njai* cannot reach their final destination. The informal mode are banish in this sector. This pedestrian can walk some time more than 30 minutes to get their companies because of this distance inside the *Plateau* area and where *car rapid* and *Njaga Njai* can stop, it is also because of the narrowness of pedestrian sides compared to the number of people passing there.

The no use of bicycle is also one of the problems since we do not observe among the people of roads in *Plateau* the bicycle as transport mode. Policy of infrastructure that appears in this traffic zone, which is one of the most important in the capital city, reveals some contempt or carelessness of the two wheels' transport modes than can reduce the distance of travel for some people working from the *Car rapid* and *Njaga Njai* terminals to get their final destination.

We do not find any bicycle parking in *Plateau* and any policy are preparing for that; the official we have met for that said clearly that "Our priority is not bicycle *lane and/or parking* as we all know that Senegalese do not use this mode for their travel". This means in the sense of decision makers, bicycle is not important in the way of easing the traffic situation in Dakar. That is of course not our understanding, transport system should not undergo the cultural habits of people, and it should be rather some orientation, encouragement and deterrence policy.

Observation of people and vehicles was used in *Plateau* area to determine the people of roads in this zone while video record was used to observe those of the other used roads in Dakar. Three different roads were selected to record the traffic; we were especially interested by the type of vehicle using those roads. The selected roads are *Corniche*, *Route des Niayes* and *Express high way*. *Route des Niayes* is normal and standard road in Dakar, it is in the same situation with the other roads of the capital. *Corniche* and the *Express highway* are newly built infrastructure for traffic fluidity, but we are surprised by the absence of public transportation modes in *Corniche* and rare use of *Express high way* by public transportation. The following images we have taken during our fieldwork indicate sufficiently the political orientation of these infrastructures.



Figure 50: Traffic on Route des Niayes



Figure 51: Traffic on Corniche

These images were simultaneously taken and we noticed that while the Corniche welcomed mostly some high standard private vehicle, the *Route des Niayes* were congested by the several kinds of vehicles and informal transport modes. The time chosen for this action was 5h30 pm and the day was Friday. It was not hot as it was March and schools and universities were operating as it was in the school session.

Recorded video shows how difference is that designed congested area and the popular and general-use roads. As we can see in images 49 & 50, road conditions are really different, frequented vehicle also layout another decoration and so does the users. People traveling in the *Corniche* do not have problem of congestion and can reach their destination within few minutes of trip. Traffic is really organized there with respected lanes by the vehicle, while it is disorganized in the *Route des Niayes* with almost no designed lanes and blockage of the traffic modes in any sense of the road.

These images reveal the discrimination in the policy of Dakar urban transport' infrastructure; to reduce the congestion, priority has not been given to the high traffic points and the congestion areas, policy makers build new infrastructure where congestion was not frequently located. For evidence, geography of congestion is still the same. The main roads in Dakar have the same congested problem; we feel that no study has been done before choosing the building infrastructure's area.

Other option of the government was to develop a toll highway (Express highway) besides the national highway where congestion is out of level. This express way has also its people and few urban transport modes are observed. Despite these new infrastructures, people using public transport are still moving in the congested areas. This means new infrastructures, where few public transportation modes are located, are not designed to reduce the congestion. 70% of the motorized people use public transport for their mobility and most of the public transport modes are not using these roads.

As a result, I can argue that Dakar urban transport structure and infrastructure is divided into 2 discriminatory levels: the most popular is composed by public transport people, horse-drawn cart

people, modest vehicle owners; we give to this category the name of low middle class people of roads. The second level is composed by *Sedan cars, luxury vehicles, tour buses, pick-ups, SUV/4WD* and few occasional public transport modes; we call this category, middle high level people of road. As I hypothesized, this situation happens only when people of roads have to choose between these roads; otherwise, they all can be located in the same roads. That is why I can find all kinds of vehicles in *Route des Niayes* because people do not have any other choice than using this road when they want to reach some destinations.

As a consequence, instead of solving the congestion in Dakar urban transport, decision makers have developed a social exclusion in urban mobility practices due to the level of poverty in the case of toll highway; people using *AFTU* and informal transport have no chance to use this infrastructure while public transport is banish in most part of the *Corniche*. This means new infrastructures are likely to be more dedicated for middle high level people of road than the pretended reduction of congestion level. This option of the policy makers do not correspond with the habits of mobility for Dakar urban population travelers.

This makes Dakar's transportation network face a number of problems. While the central business district (CBD) and wealthier areas of the city have paved, modern streets, other sectors of the city still have dirt unpaved roads. The figure below shows the people of the roads from the results got by video record.

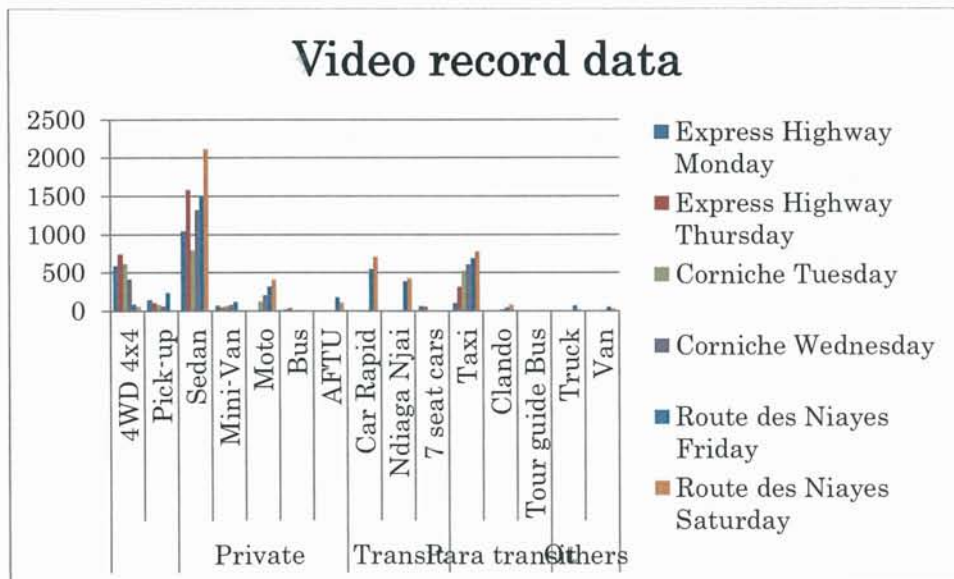


Figure 52: Mode distribution by video record data¹

¹ Sources: Papa Elimane Faye/TMU, 2012



Figure 53 :Video Record location and specification

The diagnosis on urban mobility in Dakar displays difficult conditions of travel and a paradox in organization of public transport: in fact mobility habits is mostly dominated by walking imposed on many urban populations around 70% due to high transport costs, while the motorized mobility is developed through deteriorated public transport where *car rapid*, *Njaga Njai* and *AFTU* dominated the system. Usually transit passenger travel in limited condition due to time spent, lack of comfort and safety.

According to our survey, mass transit is not any more dominated by the informal transport modes represented by the couple *Njaga Njai/Car Rapid* as it was in the last two decades. Since the implementation by the government of new transport scheme with the introduction of new formal minibuses in 2006, *AFTU* became the main transport mode of Dakar urban transport.

However, *car rapid* and *Njaga Njai* are still strong and are still leading with the *AFTU* minibus the mobility orientation of people. In the meanwhile, decision makers and government developed new transport pattern through new infrastructures as toll highway, interchanges and roads. But the new transport orientation seems not to meet the needs of population urban mobility.

¹ Source; Papa Elimane FAYE, TMU 2012

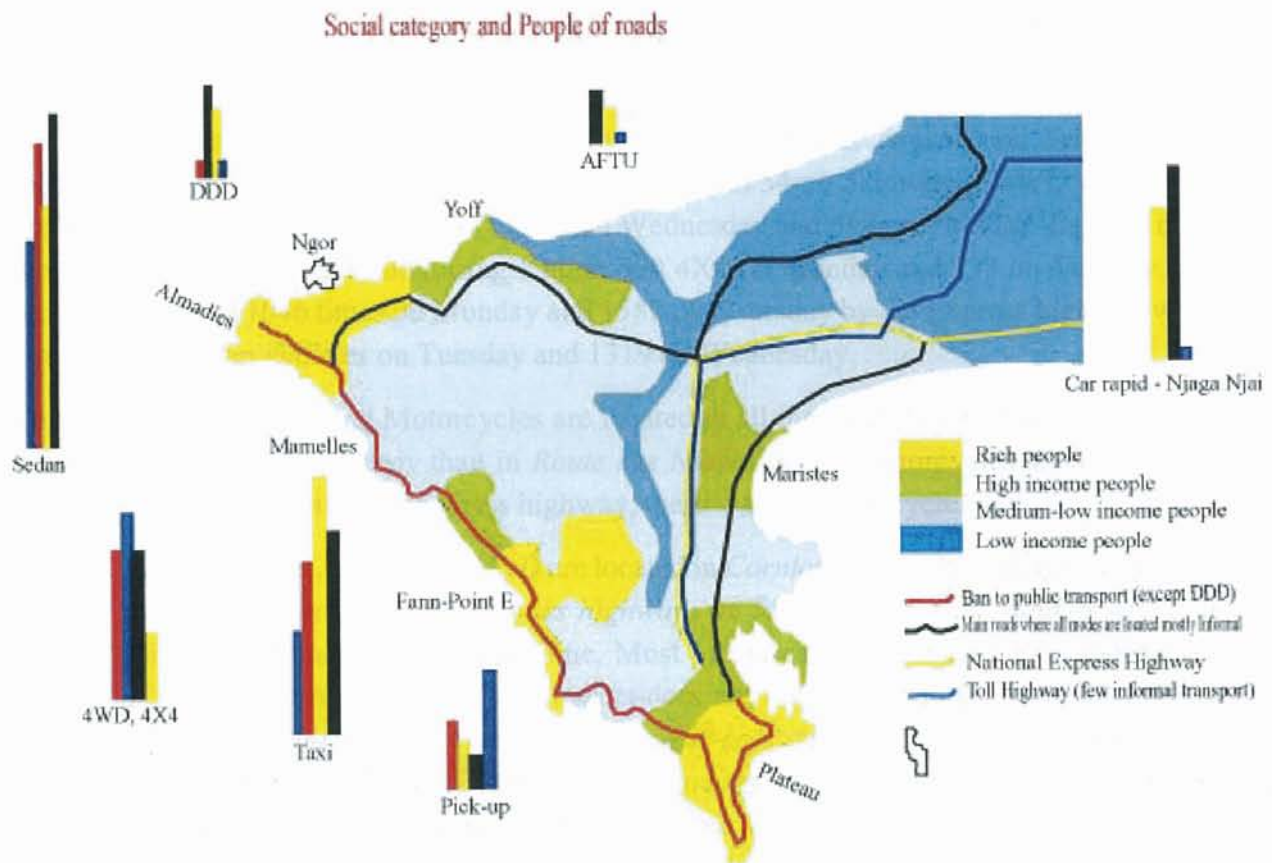


Figure 54: Map defining people of road¹

Indeed, both official data and our survey reveal that the majority of urban trips are still by walk, while there is no coordination amongst the different modes of transport and the mostly used roads are deteriorated. The new roads constructed by the government do not yet play the expected role since it is used only by some social category of people. As a consequence, motorized people are still used the same roads for the same destinations and the purposes. The social category using the new built roads seem to be the high level of income, this is what we find out after the video record in these roads.

As it appears it figure 52 the majority of crossing vehicle are private cars represented by *4WD*, *pick-up* and *Sedan*. The quality level of these vehicle with their types, show up what kind of people is using these roads. The video record points out also the missing of public transport in that area, the rare public transport modes I could meet there are the formal bus company *Dakar Dem Dikk* which globally carries only 3% of total urban population according to DPS 2007 and 7% according to our survey 2012.

As for the toll high way, I noticed the same situation with a little difference; there is *Njaga Njai* and *Car rapid* and other kinds of public transports but they still are very few around 10 public transport

¹ Source: Papa Elimane faye, TMU 2012

modes per hour. In *Route des Niayes*, we found all categories of vehicles. In 1 hour, on Saturday, we count 2118 private cars and 1508 on Friday.

Only 7 mini-vans were observed on Saturday while 121 was counted on Friday with 326 motor-bikes and 402 on Saturday. Just 83 on Sunday and 54 on Saturday of 4WD were found. In opposite, we counted in *Corniche* 417 4WD on Wednesday and 618 on Tuesday. Express highway welcomed, in our presence and during 1 hour, 590 4X4 on Monday and 737 on Tuesday. Private sedan cars passed 1046 times on Monday and 1582 on Thursday by the Express highway while we counted 790 Sedan vehicles on Tuesday and 1319 on Wednesday.

This means private cars and Motorcycles are located in all the roads but we noticed more 4X4 in *Corniche* and *Express highway* than in *Route des Niayes* where Motorcycles are viewed several times. In 1 hour observation in express highway, there was no motorcycle.

As for the transit modes, only buses *DDD* are located in *Corniche* while there weren't any *AFTU* or *Njaga Njai* and *Car rapids*. In the *express highway*, we found only 1 *Car rapid*, 5 *AFTU* and 7 *Njaga Njai* on our Thursday recording time. Most of the car rapid, *Njaga Njai* and *AFTU* are located in *Routes des Niayes* while *seven seats-cars* are not viewed in *Corniche* and are really absent in *Route des Niayes*. However, 66 *seven seats-cars* on Monday and 51 on Tuesday were observed in the Express highway. The *seven seats-cars* are mostly intercity transport modes, so we can easily understand why they do not use the *Corniche* or *Route des Niayes*.

Taxis were counted in all through the selected roads while there is neither *Clando*, nor *Tour guide bus* in both *Express highway* and *Corniche*. 9 *trucks* on Tuesday and 3 on Wednesday were located in the *Corniche*

Hence, since these roads I called discipline roads are used only by private cars and taxis, the middle and low class of Senegalese population cannot use them; this mean that the other side I called disorganized roads host majority of population since informal public transit is carrying by more than 70% of motorized travelers. This situation, which affects mainly the most disadvantaged urban population groups, can be traced back partly to the failure of the transport orientation and the mobility plan.

So we can argue that new urban mobility pattern is not changing the habits of population mobility who continue to use the same roads and the same transit mode. Thus, now we can speak about disparity, there is no link between those infrastructures renewal and population mobility needs. As a consequence, it appears an important inconsistency between nature of travel and official mobility plan. Besides this congestion matter and road discrimination problem, there are among the dysfunction of Dakar public transport some urban and environmental risks.

Congestion and other transport problems set off several risks in urban being as noise, pollution and urban deconstruction. Horns of car are first pollutant; sonorous pollutant that disturb circulating people and even population in dwellings. Honk-use is done with zeal in Senegal urban system, therefore, the use of car horn appears as the main communication language between vehicles themselves, between drivers and driver-assistants (apprentis in Senegal), between drivers

and customers, between drivers and pedestrians. So any action of car in Dakar is accompanied with vehicle horns noise. The use of horn is a big problem in Dakar urban transport.

There is no information about damages directly caused by noise, but compared with European standards, “measurements have shown that the noise level during the morning rush hour in Dakar is always higher than acceptable (65 DBA) on both primary and secondary routes”. (World bank, 2001).

In Dakar, it is commonly known that this problem is gaining weight, but so far there are no measures or studies with figures showing the real situation. The polluted gas from old diesel bus is high; *Car rapide* and *Njaga Njai* emit large quantities of blackened smoke in the air that passengers breathe. Air quality is not in a good point according to Dakar local government. “Gasoline sampling results showed that lead was still present in Senegalese gasoline after the ban, but that levels varied across different times and areas. Most importantly, lead content in gasoline in the capital, Dakar, was much lower--and 75% of all cars in Senegal are located here. Overall, lead levels in gasoline decreased between September 2006 and March 2007” (Sivertsen, 2011)

I do not have material to examine and estimate the real pollution level and very few studies were done about pollution. But, during our fieldwork, we took some photos that show the level of emitted smoke by all transport means. Mostly, we have noticed that *Car rapide* and *Njaga Njai* (see figure 53) are the first air polluters among the urban transport modes; this is due to the age of vehicles, we already seen that the average age of *Car rapide* and *Njaga Njai* is around 25 years old.

I also found that transport modes passing by the *Corniche* do not emit much gas; some of them do not emit at all this polluting gaz. This is because, as we already showed, in this area, people of road are using recent vehicles and we found many luxury vehicles. In opposite, the *Route des Niayes* is high polluting area with the congestion; Drivers, apprentis, passengers and even those whose private cars are not emitting any polluting gas used to breathe this abundant smoke of old vehicles.



Figure 55: Car rapide smoking on traffic jam¹

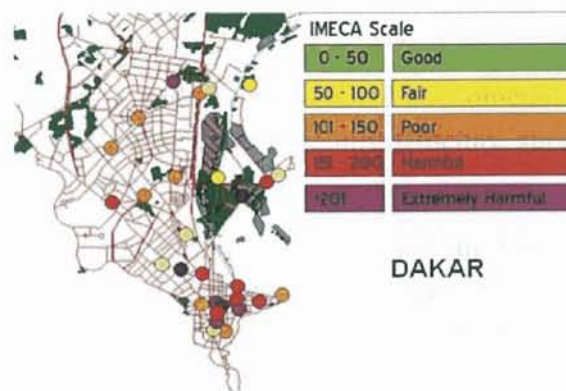


Figure 56: Pollution map²

¹ Sources: Papa Elimane Faye/ TMU, 2012

² Sources: AQ Dakar/B Sivertsen

As it appears in figure 54, red signal is shown everywhere in Dakar but is more visible in the area where the international port is located; in this area, there is train station and some factories. *Car rapide* and *Njaga Njai* stations are also located. So we can understand why the red signal dominates this area. It means the most polluting area in Dakar is this area where *Car rapide*, *Njaga Njai*, train and factories are concentrated.

There is no green signal in Dakar, It means that air quality is not high in the whole city but it appears poor in *Njaga Njai* and *Car rapide* routes as the signal are brown. It is harmful in *Colobane*, area where car rapid and *Njaga Njai* are more important and it appears fair (not so low quality) in *Corniche*, *Plateau* and wherever *Car rapide* and *Njaga Njai* are not admitted. This situation shows that *Car rapide* and *Njaga Njai* cause some dysfunction in the atmosphere.

Looking the figure 53 we find that smoke from vehicles is frequent and accepted in Dakar public transport. According to the local government, this situation had posed serious environmental and public health problems, especially for the most vulnerable population: children, pregnant women, and people with respiratory diseases such as asthma, pneumonia, and tuberculosis.

Thus, transport problem in Dakar is not only the lack of organized system and the chronic traffic congestion; it involves also a worrisome pollution for both air and noise. Hence, Dakar needs to consider its urban transport system; it should identify as well the real needs for a modern and sustainable transport system that meet the international standards. Transport-needs become a common used concept that observers, researchers try to redefine; it is now more important than the only vision of passengers and users need. It involves effectiveness, efficiency and sustainability.

Conclusion

I hypothesized that there is imbalance between demand structure and transport supply and we speak about inconsistency and ambivalence. In fact, this imbalance reveals a social problem. Anyway, the findings state 2 kinds of problems: 1. accessibility problem related to the funding and location and 2. Policy problem related to some social exclusion with the non-choice phenomenon; people using *Car rapide* and *Njaga Njai* do not have choice to use the new infrastructure supposed to improve the urban mobility as determined by the government.

After the non-choice phenomenon which is a finding concept that explains the incapacity of mostly Dakar urban transport problems, there is another finding concept we name *People of Road* in reference of categorization and social exclusion in some road of Dakar urban transport.

Hence, we can argue that disparities are due to a ban of some public transport because of their indiscipline and *AFTU* as a potential *Car rapide* clone is not admitted in *Corniche* or *Plateau* roads while *DDD* whose business structure is national own structure can use these roads. This means that this disparity can be related to the social organization of transport.

Consequently, the urban transport policy created some road categories and hierarchized them so that people coming from the suburb and using car rapid or *AFTU* have a little chance to use the toll highway and don't use at all the Corniche or Plateau roads. Nevertheless, population habits of mobility are organized by informal transport modes because of their cheapness and frequency while *AFTU* is used by people from the suburb because of its reliability and punctuality; this overuse of informal transport modes and *AFTU* modes reveal the inconsistency between demand structure and supply. This inconsistency is rather related to a social problem than others.

CHAPTER 6. MESOSOCIOLOGICAL ANALYSIS OF INFORMAL TRANSPORT SECTOR AND EXPRESSION OF SOCIAL POWERS

6.1 SOCIAL INTERACTIONS IN DAKAR INFORMAL TRANSPORT ORGANIZATION: DEVELOPMENT OF SOCIAL POWER

6.1.1 Educational level in informal public transport workers

The social issues of urban transport in Dakar seem to be prominent; in fact, transport system offers what it gets from internal organization. In this point, we would like to observe the schooling and education level of informal sector workers (operators, drivers, *apprentis*, *coxeurs*, and owners). We did not meet many owners, almost all people we have surveyed are either drivers, *apprentis* or *coxeurs*. In one of our interviews, M. D. a member of the public transport labor union agreed that usually, transport system is characterized by people who have already failed in other areas, particularly in school. So, most of them are being recycling in informal transport system.

We were first interested in people's school origin because, in Senegal, there are two categories of school. The most formal and popular is called "*École française*" which means literally French school in reference to the formal education system supported and managed by the government. This school is secular and organizes the whole educational system of the country, it issues degrees and diplomas, provide workers to the administration system, etc.

In opposite, there is another category of school, known under the name of "*École Coranique*" in French or *Daara* in *Wolof*¹. This school is informal then unofficial; it is created by religious leaders to teach the Islamic rules and principles to Muslims. They use very traditional methods to give the knowledge and create between students and professor a vertical and dogmatic relationship.

People from the Islamic school are different to people from the secular school in their ways of thinking. Since the secular school is the official educational system, they are more adapted to the international standards and prepare student to the academical world, they prepare people to learn, know and practice sciences, liberal art, culture and administration. Its teaching and learning provide profession to student so that all the Senegalese administration's workers are from this school such as teachers, lawyers, doctors, administrators, journalists, judges, clerks, soldiers, bankers, engineers, police officers, and . . . in short, all the officials.

¹ Senegalese national language

In the meanwhile, the Islamic school provides a large number of traders, farmers, masons, mechanics, carpenters, and *Sëriñ daara*¹, etc. these people are not learning their job from the Islamic school, actually they do not learn the job there are doing. As a consequence, they all are released into the informal sectors for a new life. Numbers of these people are located in the informal transport sector as we can see in the figure below.

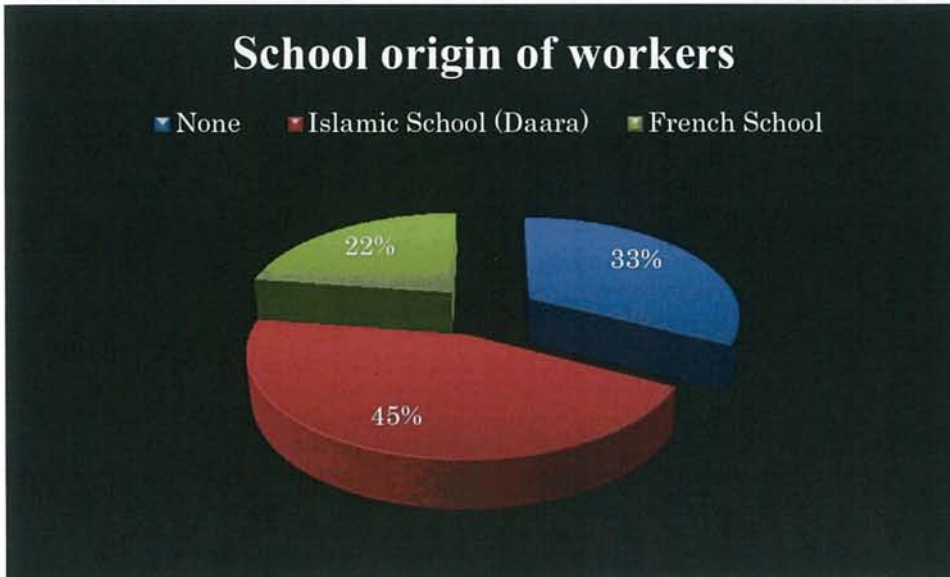


Figure 57: School origin of informal transport workers²

This figure shows the importance of Islamic school in the sector of informal transit organization. Near the half are from the *daara*³, 45% of people we have met said they did all their educational background at the *Islamic* school while 33% of respondents do not receive any recognized education, neither *Islamic* nor secular frame.

If these numerals (we should take with caution) are representative of the reality, it means 33% of people cannot write, speak and understand the Senegalese official language (French). Therefore, it is difficult for them to understand the rules that are written in French, it will be also difficult to regularize the system because of high rate of illiteracy. The same problem is noted with people coming from Islamic school, they are certainly literate, but still have problem to read or communicate in French language.

In sum, we can say that there are more than $\frac{3}{4}$ of our survey-respondents who probably cannot or will have difficulty to understand official rules, formal system and their regulations. But 22% of the respondents were initiated in French school, there is a meaning in this; we argued that people in the informal transport do this job because most of them are failed in their previous occupations.

¹ Teacher in an informal Islamic school

² Sources: Papa Elimane Faye/TMU, 2012

³ Islamic school

Therefore, these 22% who were educated at the secular school may fail so early that they also have difficulty to read or understand the official rules of the transport system. The figure below No 56 examines the level of workers who passed by either *Islamic* school or Secular school.

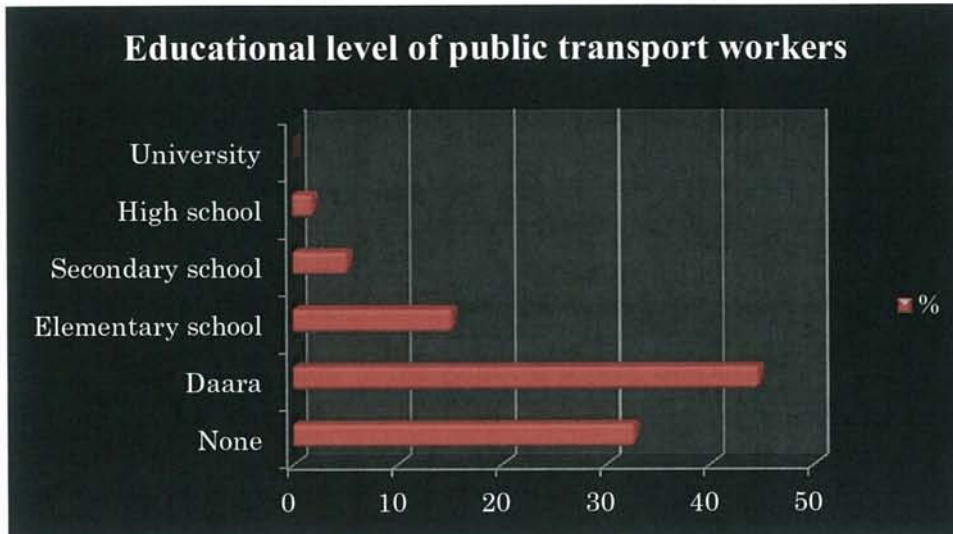


Figure 58: Educational level of public transport workers¹

As we already said, 45% of respondents are from the *daara*, it appears clearly in this figure; we also can see the 33% of people who never go to any school. What is new is then the distribution of the different level of people who were initiated at Secular school. Indeed, 15.3% out of this 22 left the school from the elementary level while 5.3% have done the secondary school.

Doing secondary school can provide some skill; people of this level can understand the official language of communication, can speak and read. This is an important point since the number is too limited. In the same vein, we found 2% of people who studied until the high school while there is no university level in this sector if we trust our survey.

Major problems of this sector lie in this lack of appropriate education system. We are not going to judge whether they are well educated or not but the findings are clear and expressive. It is because of the lack of education that people in this sector do never respect or observe the rules; it is because of the lack of education that people follow more their *Marabout* than the government's willing, etc.

It seems therefore difficult to formalize and regularize the sector without going through the educational aspect. In fact, decision makers are willing to change and formalize the sector of informal transport and it is going on but there is a risk because the educational aspect is likely to not be taken into account; so, as we already showed, the replacing item called AFTU system is reproducing the same flaws as Car rapid' system.

¹ Source: Papa Elimane Faye/TMU, 2012

Anyway, the global public transport sector is now characterized by three categories of people; those who were initiated at secular school, those who received Islamic education, and those who never receive any kind of recognized education. These three categories are organized into two main visions: those who opt for attachment to religious lobbies and those who opt for union labor attachment.

6.1.2 Organizational forms and level of control

There are various forms of organization or association in Dakar urban transport system. The general classification of organizational form we can encounter in Dakar can be presented following two levels: the initiative of decision and the prerogative of domination; the first is politico-strategic level while the second is characterized by religion and market reality.

The initiative of decision is the political aspect of Dakar public transport. It is admitted that decision makers have to take and validate initiative for a developed and sustainable transport system in the city, they involve in the formulation of transport solution and give the mean to accomplish it but they usually face a big social problem incarnated by religious group of pressure.

Senegal is a deep religious country under the domination of Islam with more than 90% of the population divided into various group where most important are *Tijan* and *Murid*. The *Murid* brotherhood has a requirement of complete submission to a religious guide (Marabout) while *Tijānī* attach a large importance to culture and education.

Islamic religion in Senegal is organized through various sub-groups which are, for some people's understanding, lobbies or groups of pressure. For various aspects, they dominate the political action. The main religious group or group of pressure can be seen in the following figure.



Figure 59: The main religious brotherhood¹

The figure 57 shows that *Tijan* are the first religious group in Senegal with 49% of the muslims, *murid* represents 31% while others are less than 10% for each. However, the domination is more emphasized by *murid*'s organization which has more control on their followers; so far, *Tijan* get more freedom vis-à-vis to their *Marabout* (Islamic holy man).

¹ Sources: DNPS/ Senegal 2010

As result, politicians and decision makers care more about *Murid* organization than others. They have their followers everywhere and they used to decide for them, give strategy and protect them against external power as political strength. This is possible because in the ceremony of submission, called *njebbel*, the disciple bows on his marabout's knees and pronounces the following phrase, "please get my body and soul. I will do everything you order me, and abstain from anything you forbid me." the *Marabout* becomes then some kind of guarantor of the person' spiritual wellbeing.

So, controlling the spiritual wellbeing of 31% of Senegalese Muslims provides some power to the spiritual guides of *Murid* (*Marabout*). They are involved in several sectors of activity and dominated in particular the informal sector. In this light, we note their wide presence in the transport structure in Dakar urban area.

With their other name of *baol-baol*, *Murid*, used to leave school so earlier to conform to recommendation of their *Marabout*. In this way, they are oriented to a job category with the control of sub-group of pressure. The following figure shows religious organization we found in Dakar urban transport structure when we organized our survey.

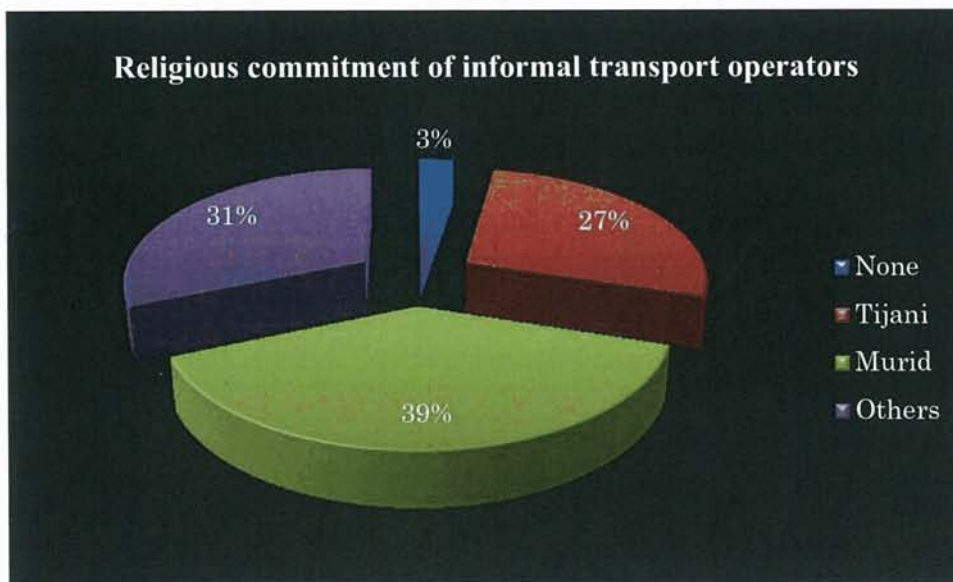


Figure 60: Religious commitment of informal transport operators¹

According to figure 58, there are more *Murid* than *Tijan* in the transport structure; this superiority gives big importance to *Murid* in the sector. Any decision cannot be taken without their support; for example, they are courted by Senegalese politicians over the years. The most recent prominent case is *Abdoulaye Wade* who is the former president of Senegal who considered himself as devout *Murid*. Right after his election in 2000, *Wade* went to *Touba* to receive the blessing of the *Grand Marabout*, *Serigne Saliou Mbacké*.

¹ Source: Papa Elimane Faye/TMU, 2012

Besides this social power, they also control significant sections of the nation's economy and particularly the transport sector as shown in the figure 58. 39% of people have rigorous commitment to *Murid* organization and 27% of *Tijani* in the same sector. However, there is difference in the religious involvement between *Murid* and *Tijani* because *Marabouts* of *Tijani* brotherhoods do not have enough influence to their followers.

Hence, despite their number, *Tijani* has no control in the transport system; but we find more religious active people (*who regularly meet their Marabouts and listen to them*) in the *Murid* organization. This means all member of Senegalese Muslim brotherhood are not strongly involved in religious activity; there are some people who identify themselves in one or other group and some people who do not care about *Marabout*.

I have met some transport workers who confirm that they do not care about *marabout even if they belong to brotherhood*. Others argue that they do not have time to involve in religious activity. So, no influence can be occurred from the religious group on their personal or professional activity.

The following figure explains how people are involved in their religious organization.

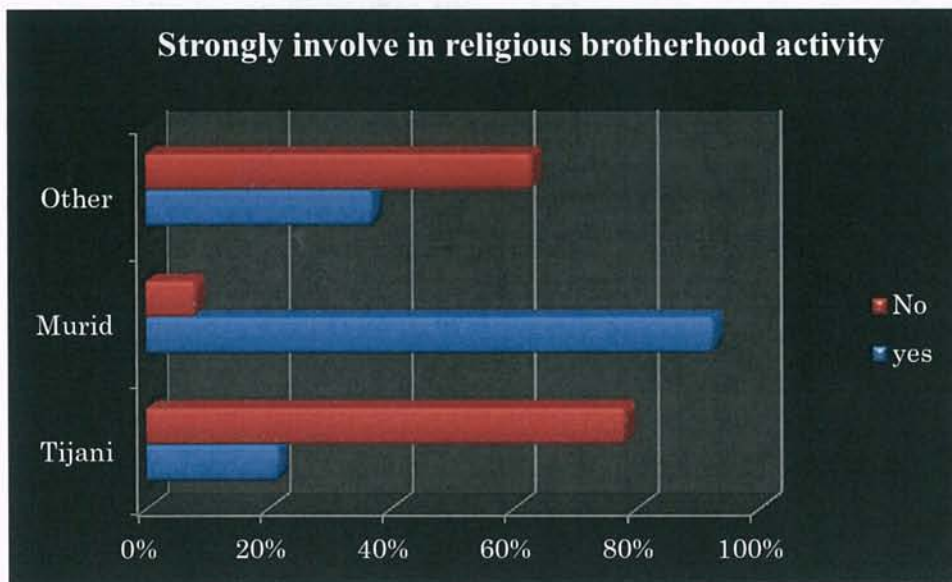


Figure 61: Figure according to activity involvement in religious group¹

According to this figure, *Tijan* are less involved in their sub-group compared to *Murid*. 91.4% *Murid* we have met are involved in the brotherhood's activity while 78.3% of *Tijan* never participate in any religious activity related to their group. This distance noted from *Tijani* and their *Marabout* reduces the takeover of the brotherhoods' hierarchy on transport system.

This can explain why design on *Car rapide* or *Njaga Njai* is more oriented towards *Murid* system than other. The most common decorations and sayings we can find in different *Car rapides* and/or

¹ Source: Papa Elimane Faye/TMU, 2012

Njaga Njaga are *Touba*, *Ahamdoulilah*, *Baye Fall*, *Talibe Cheikh*, *Bamba*, *Bonne Chance*, *Diamalaye*, etc. wherever we can see *Touba*, *Baye Fall*, *Bamba*, it means *Murid* involvement; while Tijani involvement is mostly expressed by *Talibe Cheikh*; *Bonne chance* is generally used by people who do not care about religious group and *Diamalaye* means an involvement towards small religious sub-group.

6. 2. 3. 3 Development and emergence of Labor Movements

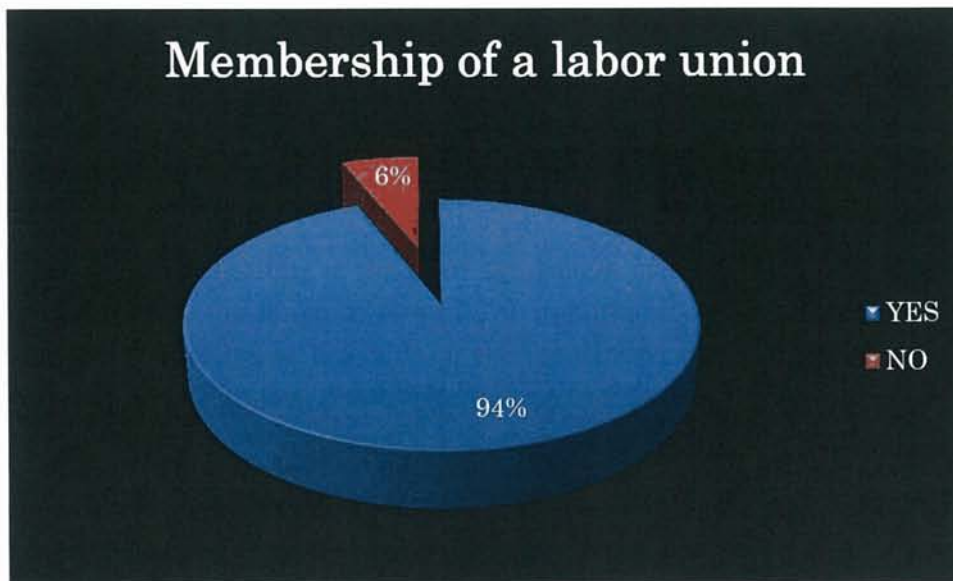


Figure 62: Labor movement membership¹

Labor union and political history in Senegal are closely linked; politicians are leading the country and making policies while the labor union controls government action and develop some strategies to get improvement and enhancement of labor condition from the decisions makers. The public transport system in Senegal and especially in Dakar was structured by a formal bus company which got earlier a union organization while the informal system got it so lately due to the disorganization of the system.

Now labor union is strong in every Senegalese company and is considered as workers representatives in the social dialogue. In the transport sector, we note different labor unions having their own structure according to the company. Usually, formal transport system negotiated directly with government through their union while Car rapid and Njaga Njai were following the owners who can be members of religious family.

This explains why the working condition of car rapid and Njaga Njai operators never changed. “*The working conditions remain the same since the beginning*” said D. D. a car rapid driver we have met. They did not have contact with the decision makers and the frame of working is

¹ Source: Papa Elimane Faye/TMU, 2012

definitely informal. This missing of contact also can be one of the reasons why government officers have never had control on the informal sector.

Now the informal sector is getting organized and the labor association is getting strength. The workers are registering and enrolling in the union and follow some of recommendation. This give a real power of the workers association in the informal sector, this also allows them to consolidate union in formal transport sector.

In light of this figure, we can understand the real development of labor union in Dakar urban transport; to the question addressing who is member or not of a labor union, 94% of respondents are registered in labor union. This numbers may not be the real relative value of labor union representativeness. Nevertheless, we can understand the development of workers association with the development of formal transport system such as AFTU.

94% of people enrolling in the labor association mean a new power for union in a sector that was once leaded by the religious power. The important point here is to know whether people are still following the religious direction or the association direction. We also can wonder if both labor movement and religious power are working together or is there an upheaval.

Anyway, these powers have always had relationship with politicians either conflicting relation or peaceful. Government used to negotiate with religious power that will then decide for their followers (*talibe*). Now with development of the labor association in the informal sector who do they negotiate with? And who do workers follow between union and religious? To answer these questions, we first observe the strike experience of transport workers we have met. The figure below explains the individual experience.

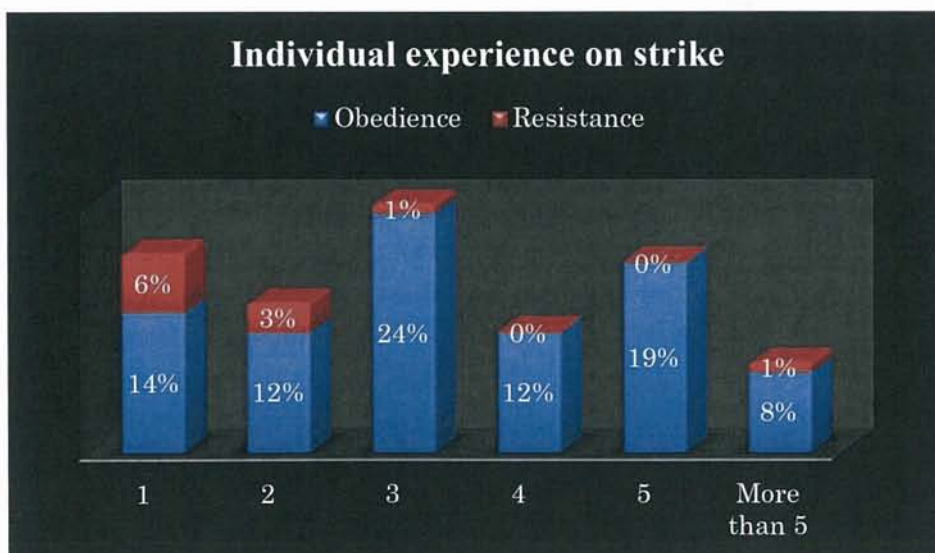


Figure 63: Union resistance/obedience¹

¹ Source: Papa Elimane Faye/TMU, 2012

This figure examines resistance and obedience on strike activity according to individual experience and background. 6% of our respondents refused to go on strike once while 3% said they refused twice. In the meanwhile, we note 1% of respondents refusing to go on strike 3 times and 5 times. Globally, 11% of our respondents have refused to follow the labor union in strike activity at least once.

Furthermore, 14% of respondents said they accepted to go on strike once with the labor union while 12% accepted to go twice. The most important number we reported among people who accept to follow union on strike activity is 24% and they said at least 3 times. 8% have obeyed to the association more than 5 times. In general point of view, 89% experienced a strike at least once and 27% went on strike at least 5 times.

The development of labor union goes with the accession of workers; there is almost no resistance in a union activity that is mainly characterized by a strike. M. M. a union labor leader said that all the strike they initiated was succeeded. The workers are always following the union direction.

This gives to the workers' associations some power to be face to the government officers. It completely changes the relation between politicians and workers; M. M. evaluated the last strike during our interview to prove their new power. *"We are now strong and cannot anymore accept whatever they (government officers) said"* M. M.

« Greve des Transporteurs : Dakar roule en charrette et en Jakarta.

Pas de taxi, ni de car rapide ou encore moins de bus dans les artères de la capitale sénégalaise. Aucun embouteillage n'est noté dans les points où il y avait une forte affluence.

Les usagers de la route mettent des heures dans les différents arrêts et finissent par prendre les charrettes. Les charretiers ont profité de cette grève pour transporter les gens vers leur destination. Les prix varient de 100 à 500 francs et les charrettes parcourent les distances habituelles des cars rapides. Elles vont dans toutes les destinations et les conducteurs crient pour attirer les clients.

Toutefois des affrontements ont été notés au niveau des Hlm entre chauffeurs de taxi et charretiers. Les forces de l'ordre sont intervenues pour rétablir l'ordre et la circulation des charrettes a repris de plus belle. Les charretiers font de bonnes affaires et vont même jusqu'à souhaiter que la grève des transporteurs continue ».

Bitimrew.net

In English words, the above means:

*"Public transporters Strike: **Dakar** ride in carts and Jakarta¹*

¹ In many cities in Senegal, there are Taxi-motorbikes provided by Indonesia, people call them Jakarta

There is neither taxi, no car rapid nor bus in Senegalese capital city's roads. There is no congestion where we used to note heavy traffic.

Road users spend hours in stations and stops before ending up to horse-drawn carts (see picture 3). Carters took advantage of this strike to take people to their destination. Fares range from 100 to 500 Cfa and carts use the normal routes and trip length of Car rapid. They commute all destinations and drivers shout to attract passengers as apprentis used to do.

However, clashes were reported between taxi drivers and carters somewhere in HLM. Police came, solve the problem and restore the cart traffic. Carters make high profit in this business and wish that the transport strike continues”

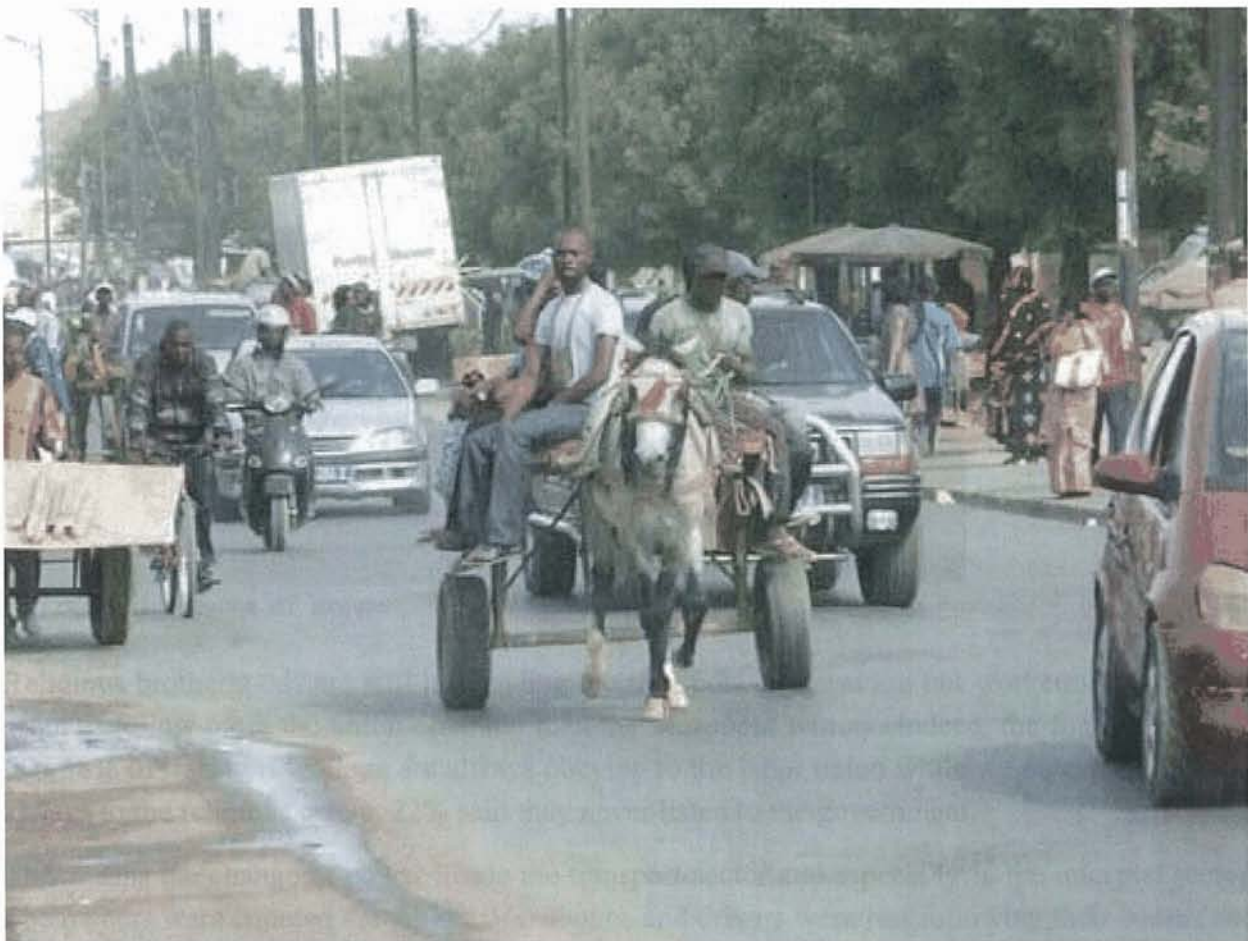


Figure 64: Horse-drawn carts replacing P. T. modes during a strike

This picture and the above newspaper report show the strength of the last public transport strike. People were using horse-drawn carts after hours in the station expecting some strike opponent, but as suggested by the figure 62, all most all transport workers follow the strike movement.

N. S. a car rapid union member said “*if the strike was successful as much, it’s thanks to Car rapid*”. This explains why car rapid is still important in Dakar urban transport and this shows all the power of labor union in the transport sector.

This power is now reorganizing the transport pattern which is not anymore decided by religious structure and government. The new frame of public transport organization is some kind of inside governing through outside negotiation.

Labour union reveals somewhat mutation in the social organization in informal sector and is strengthened the formal public transport frame. We still ask if transport workers are following the union direction or the religious leaders’ recommendation in their working condition and activities.



Figure 65: Influence of groups¹

Religious brotherhoods are still influencing the transport organization but workers in this sector seem to follow more the union direction than the *Marabout* willing. Indeed, the figure 63 shows that 38% of transport workers are always obeying to the labor union while we note 15% obeying always to the religious group; 22% said they never listen to the government.

This means the change of power inside the transport sector and especially in the informal sector. The owners were counted among the *Marabouts*, and drivers were just following their bosses and religious guides before doing any action. Now is completely the opposite; the informal sector is organized by union force who directly link the *drivers*, *apprentis*, *coxeurs*, in short the workers instead of owners.

¹ Source: Papa Elimane Faye/TMU, 2012

As a consequence, union leaders become more influential than Marabouts in term of working condition and according to the market reality. We note through this figure the weakness of the government who does not have any control on the action of unionism in the transport sector. Facing the new method of transport struggling appears as a difficult task for policy makers who prefer solving social problem with transport workers by using the Marabout's help.

Even if the figure shows that 6.67% of workers we have met inside the transport sector do never follow the Marabouts in their working methods. They argue that "*the Marabout does not know exactly our working condition and we have to strive to improve our working conditions*". This happens usually when there is a successful communication campaign by union leaders. Workers now know the relevance of unionism in the informal transport sector and they now believe that their working condition can be enhanced.

However, the Marabouts are still powerful and can flinch a strike; that is the case during the last important religious events in Senegal happening in *Touba* (the capital city of *Murid* brotherhood), and in *Tivaouane* (the capital city of *Tijan* brotherhood). Labor union stopped their strike because the caliphs of these two religious groups have asked them to stop until the event passed. The following was archived during our survey research:

« *Grève des transporteurs: Mot d'ordre suspendu sur demande de Touba et Tivaouane* :

Les transporteurs reprendront leurs activités jeudi. Le syndicat des transporteurs affilié à la CNTS accepte ainsi de surseoir à son mot d'ordre de grève de 72 heures suite aux demandes formulées par Touba et Tivaouane. La grève des transports intervient dans un contexte religieux particulier avec la préparation du Maouloud célébrant la naissance du prophète Mouhamed.

Les transporteurs protestent contre la hausse du prix du carburant malgré la baisse décidée il y a peu par le gouvernement mais jugée insuffisante par les syndicats. »

In English words, the above means:

"Transport strike suspended on request of Touba and Tivaouane:

Transport labor union will postpone their strike until Thursday. Transport unionism affiliated to CNTS accepts to suspend their 72 hours strike on request of spokesman of Tijani's Caliph and spokesman of Murid's Caliph. The transit strike comes at a particularly religious event called Maouloud celebrating the birth of Prophet Muhammad.

Transporters protest against the rising of fuel prices despite the recent decision of government to decrease the fuel prices deemed insufficient by unions".

This newspaper report shows another aspect of *Marabout's* power in the whole country. It means if we can observe the decline of power among the several *Marabouts* in the informal transport sector, the head of religious brotherhood remain very powerful. The labor union leaders can still have

more strength than the other *Marabouts* and continue to lead the transport workers action but this influence will stop when the caliphs decide.

Almost, all workers and their leaders have religious guides and all of them are under a caliph guarantee. So that leaders have always to obey to religious group head. This means the relation between workers and *Marabout* is not any more a direct relation but somewhat diffuse delegated authority.

This not happen always as the religious group leaders do not interfere in every situation, that is why the government needs to meet them usually to get their help in solving some social problem with workers in any sector. The religious power's influence is not changed but the structure of this power has been completely redone.

6.1.3 Expression and development of social power

6. 1. 3. 1. The religious influence in Dakar Urban transport

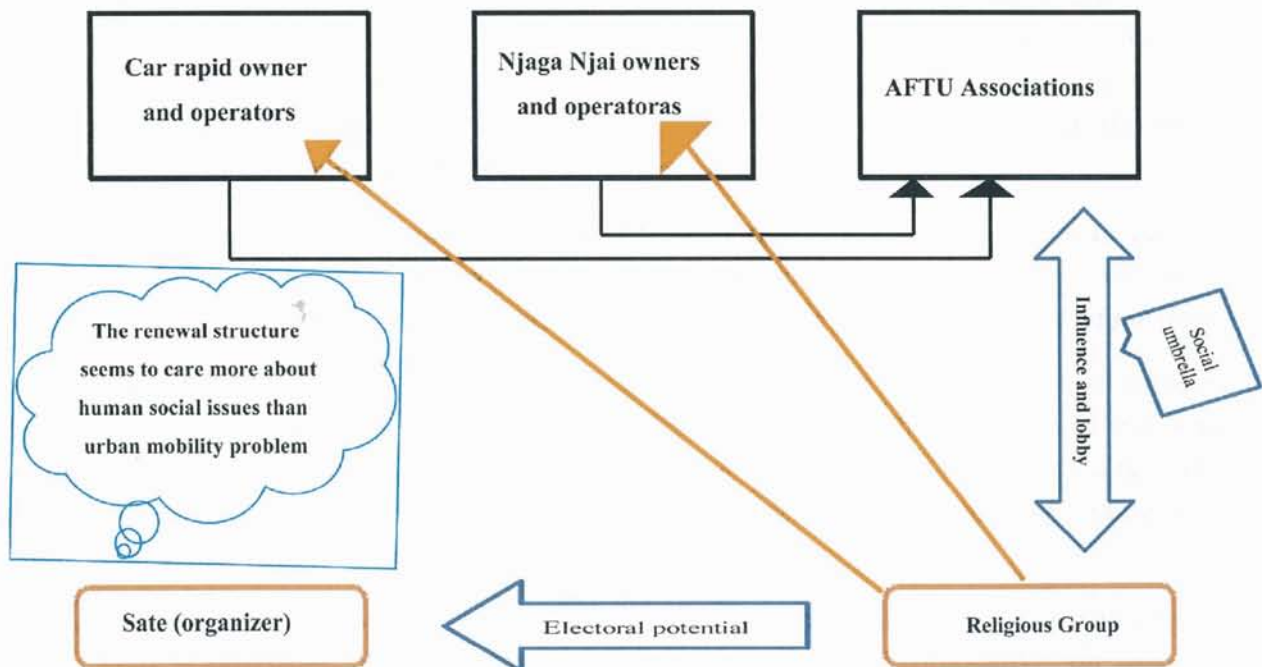


Figure 66: Religious power expression

This figure shows the transfer of religious and social organization from informal sector to formal AFTU system; indeed, the operators and/or owners of car rapid and Njaga Njai are organized into other groups called GIE (*Groupement d'Interet Economique*) to operate the new AFTU minibus so that we find 14 groups or associations which were formerly operating in car rapid system.

Association are not religious group or religious association but the closeness with the religious group was established; this closeness is explained by AFTU workers as a social guaranty, they argue that relationship between “our association and the religious leaders is some kind of social

umbrella that can protect us against some political and business matters". So many associations try to make a lobby to get close to some *Marabouts* who also try to have their full influence to the workers, owners and operators.

This social umbrella is an important element for worker in any group; that is why the religious influence is powerful in some Dakar business organization. But the formal and national company do not undergo this influence since its national standardized company.

But the case of *AFTU* is due to the origin of operators, we cannot expect *AFTU* to be quite new in its structure while most of the organizers came from informal transport organization. We observed that they are almost the same operating methods and leaders continue to follow some rules other than those established by the *AFTU* willing.

One important example is that government and World Bank organized seminars and training session for potential *AFTU* workers since we all know that in informal sector workers do not have any training. But this trained people are not being recruited for *AFTU* service because operators prefer to continue some methods of the former system. In fact, D. G. one of our interviewees said that he prefers recruiting a member of his family even if he does not have any skill rather than an unknown person. According to M. G., sometimes, they recruit person sent by their *Marabout* he added "*we cannot say no to the Marabout, so we have to accept*".

The powerful politicians also can send some of their party activists or members to get job in *AFTU*; "*usually, people they send are sons of some important member of the party who already failed at school, and they have to make them somewhere and AFTU is a good element for them*".

This social and religious lobby inside *AFTU* system affect for sure the business structure and the working methods. Even if we can see some professionalization in the structure of bus with in theory one driver and one pass-receiver seating inside a fare box in the bus, practically, workers are unprofessional with usually no training. As a consequence, they transfer the same way of doing from car rapid system to *Njaga njai*.

From the focus group, some *AFTU* association members argued that there is also some problem in the vehicle provision; as we can see in the above example, theoretically, "*an association member owning a car rapid will get AFTU minibus if he gives in exchange his old vehicle and 1500 US\$*" but in the reality, almost all people we gathered in the focus group said that "*it is easy to get AFTU minibus when you or your association are close to a religious leader*" as "*it is difficult to get a new bus when you do not have support in religious group or political group*".

This situation can have two kinds of bad consequences: new vehicle are oriented and given to other people than those who have right to operate them and workers are not provided by the training seminar but by the religious, family or political affinities. This maintain the religious group as a powerful influence in the urban transport operating methods and some official we have

met confirm this situation saying that “*religious leaders are real electors that we should deal with*”.

This need of electors expressed by state official means some weakness of political power in front of a huge weight of religious leaders to organize the way that some activity should walk. The government after making *AFTU* in service still have the same problem of management as it was with *Car rapid* and *Njaga Njai*. The identified problems of *Car rapid* and *Njaga Njai* system were in their operating method due to their lack of training. It was a good orientation that the government wants to consider the training as most important element; unfortunately, after training some people, there is no one to recruit them, operators making preference to other social aspects as religious or familial affinities.

This means that religious group being able to provide vehicles to some association and/or individual are indirectly controlling some aspects of *AFTU* system and influencing its operating methods which are not the standard method that government wanted to do. This can have also a bad effect in the transport system in general; we collected during our survey some different opinions in *AFTU* service we can understand as followed:

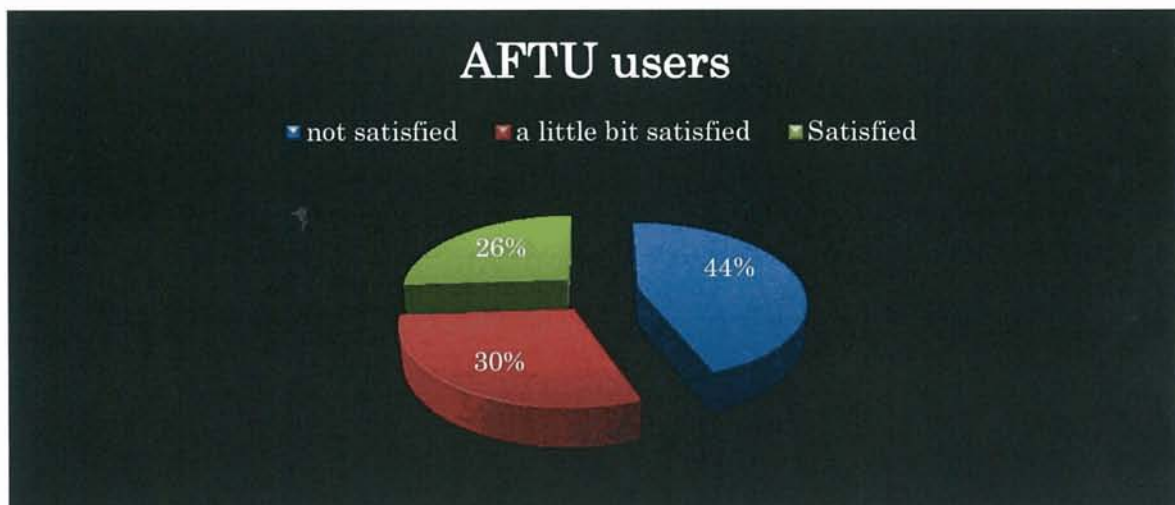


Figure 67: customer satisfaction in *AFTU* service¹

Despite the new fleet offered, 44% of our survey sample are not satisfied by *AFTU* service, 30% are just a little satisfied while 26% recognized good service for *AFTU*. People are usually troubled in their trips by “*indiscipline of drivers and pass-receivers, the overloading of vehicle*” while satisfied people are only considering the reliability of *AFTU* compared to *car rapid* and or *Njaga Njai*.

¹ Sources: Papa Elimane Faye/TMU, 2012

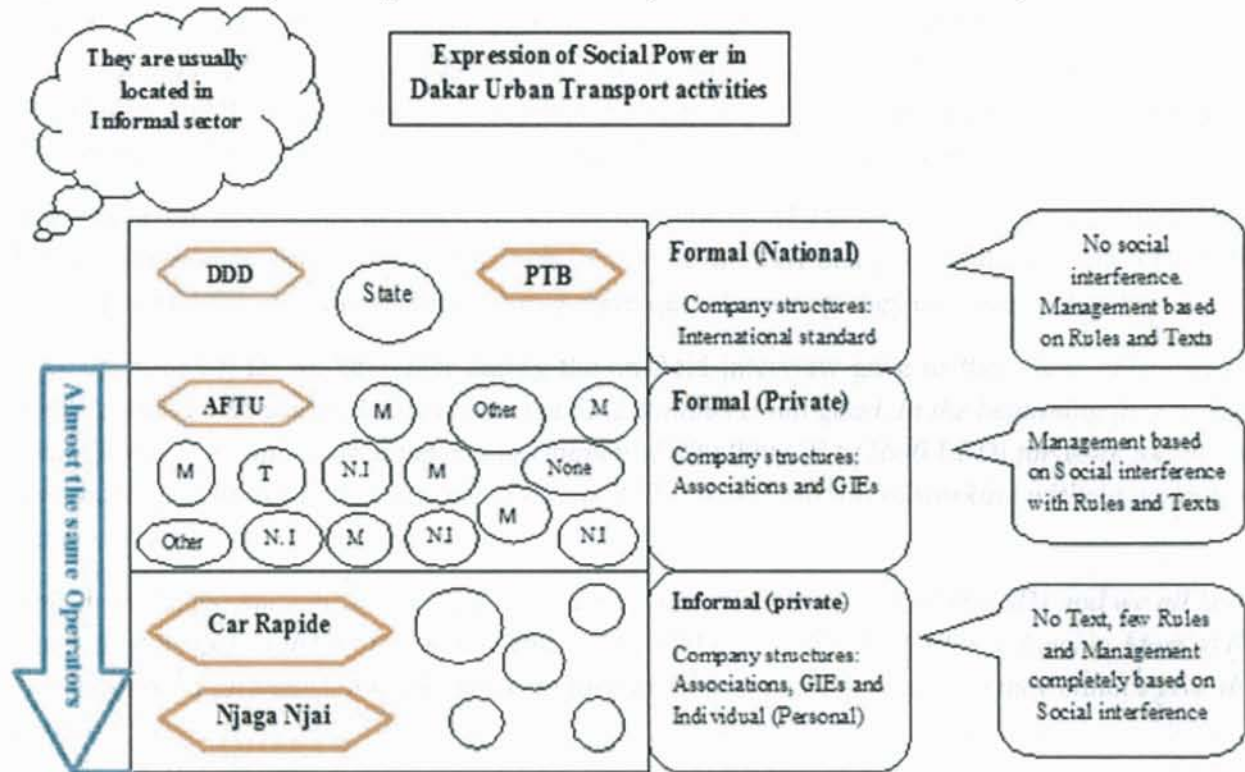
Regarding these elements, we can say that even if the management of the service is still “acceptable” according to satisfied people, the business structure is a real problem with their recruitment system and the social interferences we noticed. The management offers a reliable service but the operation methods are really unprofessional and this will anyway affect the whole urban mobility.

In fact, people think that *AFTU* is using the same methods as car rapid and doing competition with *DDD* so that M. D. a *DDD* workers protest in these following terms: “*some time we are confusing and Cetud (Executive Counsel for Dakar Urban Transport) is not tough enough with AFTU whose vehicles use the same lines as DDD. Worse, they even use our transit stops or station and compete on our customers*”

This shows that *AFTU* can stop wherever it wants as a car rapid even if it has dedicated stops and reliable itinerary but the lack of professionalism of workers bring them to follow only the open market instead of the designed rules. This situation is not an expecting situation for customers who still claim a sustainable urban transport system. *AFTU* materials is not even satisfying the *AFTU* workers since they said that the device cannot last more than 5 years.

However, the 26% satisfied people are mostly from the suburbs and exurbs, they said that “*AFTU has a frequency that we cannot find with DDD and provides one direct trip where Car rapid and Njaga Njai organize the same direction and length in 3 or 4 trips*”.

6. 1. 3. 2 The social power expression and development in Dakar urban transport



Legend:

M : Murid T : Tijan N. I : Not Indicated AFTU : New formal minibus company

None : Do not have any group

Other : Group other than Murid or Tijan

DDD : Dakar Dem Dikk (Bus Company)

PTB : Petit Train de la Banlieue (Dakar Commuter Train)

Figure 68: Expression of social power

To remove “dysfunction” of the transport system, decision-makers attempted a new reform that consisted of reducing the appearance of artisanal transit system in a short term and completely remove it from the system in a long term.

The minibus fleet renewal was so far prepared since 1990s and led to the creation of CETUD in 1997 in order to formalize and professionalize the urban transport system. But it took 15 years to get to actual realization.

The reform consists of a program for which government organized current operators of *cars rapides* and Njaga Njai in an association called *Groupement d’Interet Economique* (economic gatherings of operators) or GIE and finance the purchase of new minibuses to be operated by participating operators.

These new minibuses are replacing *cars rapides* and *Njaga Njai* in a formal operation way so that there are now 14 GIEs in Dakar among which, 9 are participating in the program, regrouping some

245 operators. These EIGs collectively formed the Urban Transport Financing Group (*Association de Financement des Professionnels du Transport Urbain de Dakar, AFTU*), this French words mean in English (*Association of funding for Dakar Urban Transport*). The principle is to purchase the vehicles and then leased them to the GIEs. So operators were grouping and funding association also was created with these GIEs which manage the credit and its reimbursement.

Each operator who wants to purchase a New minibus of AFTU has to give as a contribution of 25% of the vehicle value (the cost of new proposed minibus being 21 Million F cfa, or 40 000 USD). It was difficult for operators to bring the required amount; they considered it as too much.

The operator M. D. we have met during the on-field interview gave us this view: *“For me, the condition the government chooses to give AFTU minibus is not good. In the beginning they used to take off your car rapid with an exchange money of 800 000 CFA (1600 USD) for your social and personal expenditures before you receive your AFTU with 2 months of working without paying; so that you start to pay in the third month.*

Now they change the way by asking first a deposit of 1,500 000 CFA (3000 USD) and we all know that lots of people in the sector do not have 1,500 000 CFA (3000 USD) for a deposit. Most of the owners depend on their car rapid profit to face to their social life needs, so they cannot give this deposit.”

So government and operators did not agree in the way of making the reform, as a consequence, the program started slowly because operators were initially reluctant to form GIEs or to use buses from an unfamiliar manufacturer in Senegal. The vehicles to be used by operators were technically specified. The reform went finally in operation only in 2005 (Diakite, 2007).

All operators involving in this reform got a training course and certificate of aptitude to management. They also signed a “Commitment of a credit for 75% of vehicle value, at favorable conditions: rate of interest of 8%, period of credit of 5 years” (Godar, 2005).

By 2008, a total number of 18 routes were in operation with 505 minibuses in use which are locally built (Kumar and Diou, 2010). Most of the routes are relatively short and uncongested in order to help facilitate the transition and/or reform. The routes cover most of the Dakar metropolitan area.

According to “*Mboup Transports*” director, currently, 906 minibuses are in service in Dakar divided into 504 “*Indian Tata*” and 402 “*Chinese King Long*”. He argues that the vehicles are generally performing well with relatively few mechanical problems.

Operation is between 6:30 am to 9:00 pm with an average service interval of 11 minutes. Only 4 new routes are created, other services are done in *Dakar Dem Dikk* routes or *cars rapides* and *Njaga Njai* routes. An average of 81 departures is provided a day or 5.6 per hour (kumar and Diou, 2010).

The transition is actually working; with the earning popularity of *AFTU* minibus as the fleet renewal is continuing but many of the transit users are afraid that there is risk to turn into *Cars Rapides* and *Njaga Njai* methods as long as it will be in service.

Power comes from the organizational structures; it is according to the business structure of the company. For example, national transport companies which are public owned develop a social power based on unionism where workers can go on strike and change some government decisions. This kind of structure confers power only to workers in order to control and enhance their working conditions.

The unionism in the case of *DDD* and *PTB* are not so powerful since they are fully controlled by the state, they do not decide about the schedule, route or recruitment but they always can control about recruitment and transparency matters. In these national owned structures, we do not notice any religious interference; administration is based on international standard of company building. Here, management is based on rules and texts that lead the operation of everything in the companies which are divided into various subdivisions managing each one important aspect of the operation.

As for *AFTU*, the business structure is quite unique with 14 associations sharing the operations and financing vehicles for association's members. *AFTU* is not a company but a group of associations; it has not for mission an operation of bus but financing and distribution of bus ownership. However the whole system of this sector is managing by *AFTU*, there are some rules and texts but they come after the willingness of individual operators. The unionism is important but they represent more *AFTU* owners than workers.

As a consequence no unionist control is made on the management system of *AFTU* and the recruitment is exclusively belonging to each actors. Some actors responding to any religious appeal and willingness; this lack of professional management and this emptiness, religious will be more involved. Hence, we understand the several recruitments of workers as drivers done from the religious, familial or political affinities. According to A. D., and *AFTU* owners, he defend to "*recruit only his family members even if they do not know the job, they can learn the job inside*"

These social interferences change completely the management system and bring it into an unprofessional level. So it is now clear that *AFTU* is vulnerable to religious influence. Another interviewee M.D from *AFTU* organization said that "*he got his vehicle thanks to his Marabout*" this situation is not then so different to car rapid and *Njaga Njai* option where operators are some time the *Marabout* himself.

There is neither rule nor text to be respected in *Car rapid* and *Njaga Njai* option, the system develops some kind of anarchy so that we cannot speak about company; however, they do have some business structures which respond only to the market realities, their operation methods can be identified as an open market operation. The presence of religious is seen and known in every car rapid or *Njaga Njai* device; indeed car rapid or *Njaga Njai* are always displaying some famous

images or photos of religious figures (the big Marabouts). The most common photo of *Marabout* is the photos of *Serign Touba*, the big leader of *Murid* brotherhood.

A car rapid owner and operators show in which group he belongs, that is why I can find also some important figures of Senegalese *Tijaniya*. Some messages addressing to the users can also refer to the religious brotherhood. This explains how the religious involvement is expressed inside the transport organization.

Table 9: Comparing DDD, PTB, AFTU, Car R. N.N business structures

Modes	Business structure	Type of social movement	Type of management
DDD & PTB	Public owned	Labour union	Formal, Professional, regular
AFTU	Limited private associations	Labour union Association Religious closeness	Formal, Unprofessional, regular
Car Rapid Njaga Njai	Unlimited private individuals associations	Labour union Association Religious	Informal Unprofessional Irregular

Source: PEF & TMU, 2012

This table is a comparative note of social involvement in urban transport in Dakar. We notice with this table that the level of involvement of social aspect depend on the business structure of the company. When it is professional, regular and formal, the sole social movement is identified as a labour union; this means there is no other movement. This is the DDD and PTB case which are public owned.

This situation is common in all Senegalese public companies; in fact, where a company is formal and public owned in Senegal, it means there is a regular labour union and they always play the role of worker defenders. Since they are formal and regular, management system is based on rule and text in their professional aspect, the common way to organize a work. So recruitment and any operation in the job system are submitted under regularization and professionalization.

The second transport mode that the table shows is AFTU which is leaded by limited private associations. Inside the system, we notice 3 kinds of social movements; the first is labour union. It is very common to find labour union in Senegalese companies because it is an inalienable right under the constitution. But we also notice some association who defend themselves and some owners. In AFTU, religious presence is just by closeness; many of the association's members

affirm that they are very close to religious leaders and have strong relationship with them being able to influence their management and working method.

So religious leaders themselves are not present in AFTU system but they play some underground external role inside the system. However, AFTU is a formal transport organization; it is regular but “still unprofessional” according to S. M. an AFTU leader we have met. It is unprofessional because of the working methods which are not based on recognized knowledge and professional way.

As for Car rapid and Njaga Njai, we notice several numerous unlimited private individuals, it means whoever wants to own a car rapid and operate, can do so. There are also lots of associations including some religious groups operating car rapid or Njaga Njai. The types of social movement identified inside the system are labor union, association and religious groups.

The labor union of car rapid and Njaga Njai direct all their claiming, fighting, etc. to the government and never to the employers. In fact, they are not defending the workers in their movement because most of their strikes are against the fuel price increases or other taxes; this is more profitable to owners than workers. L. G. a car rapid driver seems to know why they are not defended by the labor union; he told us *“union leaders know there are too many Marabouts operating car rapid and/ or Njaga Njai and hired too many workers, so they do not want to fight with this social category of people while it easier to fight against some government decisions”*. (PEF, TMU/Interview 2012).

In this light, we can understand the level and importance of religious involvement in the informal sector. Inside the car rapid and Njaga Njai system, we notice then 3 kind of social movement but the type of management is quite different with the two systems cited above: car rapid system is informal, unprofessional and irregular; the management inside do not respond to any rules and workers did never receive any kind of training.

Comparing these three systems, it is evident that various differences were shown by this table. The first difference is according to the business structure and I learn from this table that each business structure responds to a type of management according to the variety of social movement they have inside. Hence, anywhere that business structure is “public owned” and has only “labor union” as an inside social movement, we can affirm that the management type can be professional, formal and regular.

In contrast, if the business structure is not common and involve several actors and social movement as religious, associations, individuals, the management method can easily be informal, unprofessional and irregular. In the middle, we will have the undefined case of AFTU which wants to be formal but does not gather all the requirements. Indeed, AFTU has some associations as operators and some religious closeness.

The low given by this table is as following:

Social involvement depends on business structure and determines the type of management.

So if it is public owned, the social involvement is limited to the labor union and the management is professional. Example: DDD, PTB and all other national companies

If it is private, there is a possibility to be informal or unprofessional; example: AFTU, Car rapid

These consequences of social involvement are affected, as we already saw, the management and we can agree that unprofessional management will affect badly the urban mobility if unprofessional drivers are doing the daily traffic.

6.1.4 Social power vs political weakness: Inside Mutations and/or transfer of social power

The urban transport provision in Dakar develops two faces: the social organization and its political implication. Social organization of transport system knows some mutations expressed by somewhat delegation of power from religious group to labour union. Unionism became the direct interlocutor of decision makers. There are fighting through strike to change their condition of life. In the meanwhile, religious power is likely to be weakened. Drivers are no longer manipulated by owners only, there are almost all affiliated to a labour association.

The new strength of the unionism in the transport sector and especially in informal transport has revealed some infra-social evolution whose variation exerted a compelling and subversive social power. It is important to consider the social phenomenon in Dakar urban transport as we examine those arenas in which several actions occurred

As we have argued elsewhere, we may think that political action and social relations are influencing both within urban mobility of people and beyond the state activity to improve urban traffic. Urban mobility is occurred from a reality of market and an available system that is lasting while state is permanently facing on social problem in improving that urban mobility.

While this distinction is analytically useful, there really is no social space in the informal sector that is so thoroughly controlled by the government that the transport workers can be managed and organized by policy makers. The urban transport system and its workers face to a massive cultural and social penetration of both religious and unionists that maintain the power of informal sector.

6. 1. 4. 1 Social control and religious influences

These issues suggest paying greater attention to the politics and social actions of the urban transport in Dakar because of their social power and political implication in both improvement of urban mobility and regularization of informal transport sector.

Formerly, the religious organization leaded the transport sector by owning the vehicle and hiring their followers (*Talibe*). There was naturally a direct relation between worker and owners while the labour union was not as strong. The government action was weak inside the sector because of its informality but also because of the religious influence.

This disorganization has longer dominated the transport structure in Dakar but users and passengers did never have problem because they could ride even if they do not have money and the strike had rarely happened in Dakar urban transport.

There is an evident tripartite relationship inside the urban transport system that should be understood and another hidden power that have an arbitrator role. The following figure (67) draws the relationship inside the sector.

This figure represents the evident relationship between decision makers, labor union leaders and transportation workers and an indirect relation between these three groups and religious leaders. The nature of the relationship differs from one group to another; therefore, the first relation that is visible is union leaders and the transport workers.

Indeed, the labor union in urban transport sector is affiliate to the association gathering transport workers. They have direct contact with workers and represent them to meeting with government. They deal with transport problem both inside and outside the sector; their role is not only fighting “*we also play advisory and consultancy role*”. Said *Gora khouma*¹

The registered workers can get some advantage from the union as training, advice and orientation, but even if the union appears to be strong in transport sector, they do not control the registered and non-registered people.

This happens because most of the decisions are taken by leader without any basic consultation with the workers. M. D is drivers of Njaga Njai, he said “*we can follow the leaders of the union but we do not trust them deeply because sometimes, it’s likely they just run for themselves and not for the general interest of workers. Also they decide with our general opinion and view*”.

These leaders are likely political leaders; therefore, they have some power and might be in fight with politicians for other reasons than the workers interest. This strength makes them so powerful that they can negotiate without obtaining the opinion of the base.

Compared to France where unionism is really strong, we found various differences in the working methods. In France, the labour union is the Transport Organization Authority that controls public transport network and coordinate the different transport companies; they have a real autonomy and do not occur a political activity.

This is because the union leaders in France are strong; they are not able to take decision before collecting the general opinion of workers. They are organized through a board director composed of members elected by the community. This election seems to be more organized and representative of the community. The Board director includes a representative of the Regional Chamber of Commerce and Industry.

¹ President of road transport union of Senegal

This unionism can easily know and participate to the government action, they directly negotiated and examining the decision to be taken by the government member. If they do not agree, then they will report to the base that indicates the procedure to follow. Other negotiation can occur before they go on strike but anyway, everything is decided by the base.

This organization was not noted in the *syndicat des transporteurs routiers du Sénégal*, the Senegalese road transporters union. For the leader G. K, what is important is the administrative organization of the labor union; the most important thing is according to him, "the training of the drivers, the way driver's licenses are issued since employers do not hire experienced drivers in order to pay a weak wage". In order to improve the working condition, union are not fighting against decision makers, they are fight against some practices.

In fact, the urban mobility practices gathered various actors from passengers to drivers besides the policemen, etc. there are *bad actions* operated by any of these cited actors said G. K. who criticizes the roadside control by policemen that kill the drivers' time who will later do everything to catch up; this causes some accidents. Relationship between union and workers is then a working together frame to improve their activities.

The other relation is between government and labor union. There is not an administrative organization gathering unionism and decision makers so that the action of government is not known beforehand by unionists. Usually, unionism faces the government action after decision and even if they are strong, it will be difficult to change an already taken decision.

As consequence, the unionists followed by transport workers declare a strike. Usually government tries to negotiate while the decision is already working; in that way, negotiations used to fail. Actually we cannot consider this method as a negotiation; there is no social dialogue in the transport sector.

The government, being not able to find partners among the transport workers, use their relationship with the *Marabouts* whose role is henceforth the enhancement of social dialogue. Indeed, *Marabouts* cease to have direct relationship with transport workers even if they are informal mode owners. Drivers and *Apprentis* are registered to the labor union and are no longer protected by the *Marabout* but by the unionism.

Therefore, transport workers get advice from the union leaders and follow in full the strike decided by the strong leaders so that in the negotiation, *Marabout* will mandatorily speak to union leaders. This posture is more understandable in reverse; indeed, both government and unionism need to go to the *Marabout* to solve an existing problem. They all consider themselves as *Marabout's* protégé.

Thus, the power of the *Marabout* lies on management of conflict; they do neither have a conflictual relationship with the government nor the unionism and even if the unionism refuse to follow their advices, they can directly speak to the workers and obtain whatever they want. This force was

formerly assertive but now it became hidden power. This religious power seems to be no longer present while it plays an arbitrary role under the surface.

So, the social control of the transport structure is between labor union and religious group. We know that officially, many *Car rapid* and/or *Njaga Njai* belong to *Murid's* leaders what makes some drivers linked to the union and to the *Marabouts*. It is somewhat double protection in their working condition but it is also in opposite somewhat obstacle to improving their condition as the *Marabout* are usually inflexible and stronger than the labor union

Usually, in every private company, workers can go on strike to ask some salary rise or better condition of working. In the case of *Car rapid* and *Njaga Njai*, the strike are only directed to the government as they only protest against the over control of policemen or the rise of fuel price, or the rise of some taxes. This means, the workers do never protest to rise their salary; many owners are *Marabouts* and “*we do not have to embarrass them and it will always be a pleasure to work for them, even for free*” Said A. F, a *Car rapid* driver.

We now understand why the nature of strike is political and never directed to the owner. Other explanation is the way that owners choose to get their daily payment; in fact, everyday, in the informal sector, *Apprentis* or driver have to pay 15 000 CFA (30 \$US) and the way of collecting fare does not give any possibility of control, so that drivers can earn more than the requested 15 000 cfa while he will anyway pay the requested amount. That benefit plus the monthly wage can give an unsuspected advantage to the drivers.

So the social mutation inside the transport sector goes to relation between *Marabout* and workers to Workers and union; it developed a conflictive relationship between workers, union and government that is perceptible by everybody and an under-surface relationship that is no longer visible. This makes unionism strong, the religious power still present and the government weakened.

6.2 INTERRELATIONSHIP BETWEEN ACTORS

The relationship between socio-political actors can be understood into three angles: trading and business relationship, a conflictive relationship and complementary relationship.

6.2.1 The operating environment and Interrelation

Through our interview and focus group, the informal transport workers argue that they have a “business relationship” with the state since they are “*paying taxes, buying fuel, etc.*” These taxes are very important for them that is why C. F a workers said that “*what we provide to the public purse is unique*”.

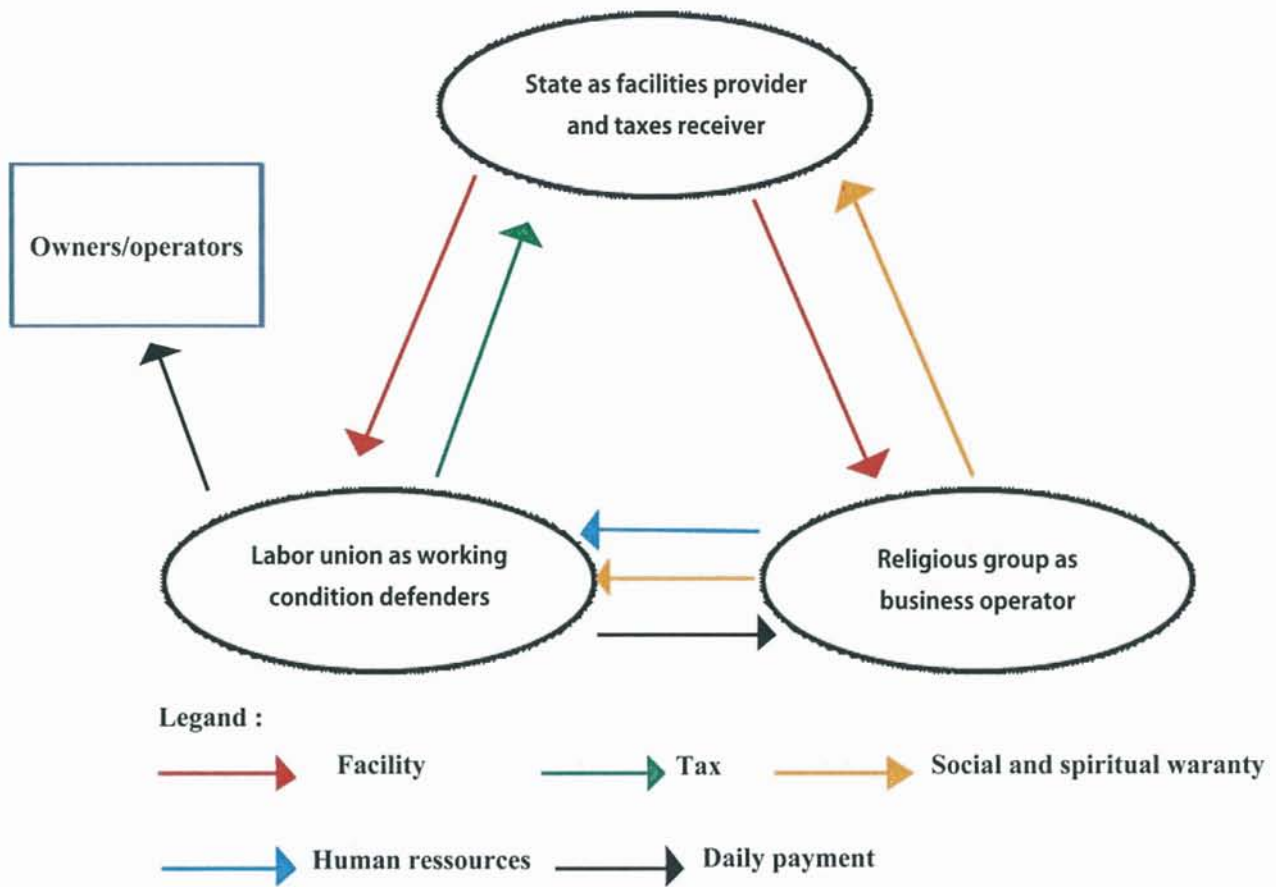


Figure 69: Relation based on business

This figure shows the business relationship among actors; indeed, religious groups are presented here as business operators. In fact, religious leaders are operated *Car rapid* and *Njaga Njai* both as individuals and associations. They provide vehicles and receive a daily payment from the workers they hire.

They do not pay taxes because it supposed to be paid by workers and there is no maintenance of the vehicle. Hence, religious actors who owned vehicle consider only the benefit of the vehicle and do not care about the vehicle condition and working condition. C. F. said that he is driver for a religious leader “*who fixes an amount to be paid while I have to paid for taxes fuel, and some maintenances; but because it is my Marabout, I have just to do what he wants me to do*” (PEF, TMU/Interview 2012).

As for the labor union, they appear as working condition defenders. Actually, the link between unionist and state is to control the fuel increases and drivers check-up by police. H. D. said that “*if there is no problem with the fuel and tax we have to pay, we will not go on strike*”. This shows the business character of state and workers relationship. Actors work definitely in the environment of trading since state plays the role of facilities providers and tax receiver.

This situation creates interaction between actors; while owners and operators (there are *Marabouts* among them) are providing facilities, their expectations are profit and benefit, when the state gives facilities, they have the same expectations so do the unionists when they fight against fuel increases. This relationship is common to all business structures where key element is the profit.

This centrality of profit in any business organization is usually led by the market situation we call here the initiative of market; so conflict can be developed between actors (workers, operators and state) in term of strikes, or drivers and apprentices veered. Strike is organized if “*the government does not make effort to reduce the fuel problem and some tax*” (PEF, TMU/Interview 2012). while drivers or apprentices are veered if they cannot satisfy the daily payment fixed by the operators. As for the government, it imposes fines to car workers and users refusing to pay their taxes.

This economical aspect maintains workers, state and operators into difficult relationship in which each actor tries to get more profit than others. This is how they express their power so that we can argue expression of power is sometime violent. For example, on January 2nd and 3rd 2012 and so far in January 25th, 26th and 27th, workers observed strike that had paralyzed the mobility of transport users in several parts of the country, especially in Dakar. The main reasons of this strike were “*to bring government lowering fuel prices, ending the police harassment and declining the vehicle insurance*” said A. N. (PEF, TMU/Interview 2012); this strike was really powerful because there were almost not vehicle ensuring the traffic except *DDD*, some *AFTU* and *Car rapid* belonging to the religious leaders; transport users travelled on horse-drawn carts.

Another example is the number of drivers whose employers are *Marabouts* and who lost their vehicles due to the non-satisfaction of daily payment; see figure below:

Table 10: Satisfaction scale of daily payment

Daily payment	Number	Consequences	
		Vehicle withdrawal	Continue with the same vehicle
Satisfied	23	6	14
Non-satisfied	31	23	8
Sometimes	13	7	4

Source: PEF & TMU, 2012

This example clarifies the economic aspects of informal transport operated by *Marabout*: indeed, our interviewees whose vehicle providers are *Marabout* said that the daily payment is important for religious leaders operating in informal transport sector. In fact, workers who always paid the daily claim usually continue with the same vehicle while for other reason drivers can be fired. 23

people of our interviewees said they were fired because of insufficient payment. 8 said that their providers accept to continue with them even if they do not satisfy the payment. And people who satisfied just sometimes also can lose their vehicle. This establishes a business relationship between *Marabout* and workers or *Marabout* and their disciples; the principle is to ensure the daily payment.

We also identify some conflictive relationship between government, workers and religious group (see figure below). The strike we already spoke about is one of the examples of conflict.

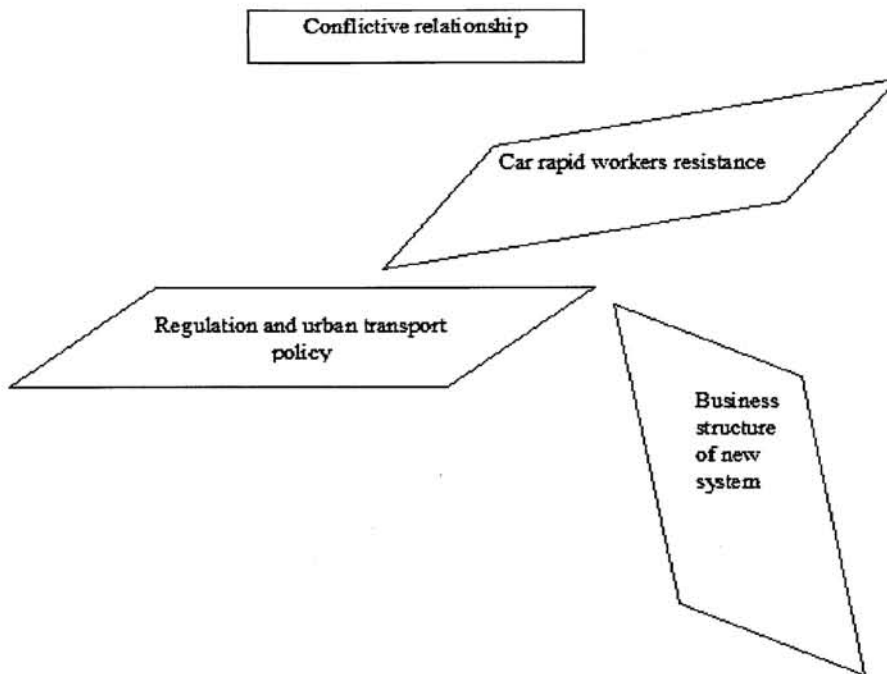


Figure 70: Conflictive relation

Three elements of conflict are identified through interview and observation: car rapid workers resistance, Regulation and transport policy and business structure of new system. Each of these elements is a potential conflict element. In fact there is a resistance of car rapid workers to shift from their current system to AFTU minibus system.

Some of them do not want to go because of fund problem "*the amount we have to give is high*" while "*our employees are not able to ensure the daily payment*" said B. D. other workers refuse to follow the government willingness because some cultural facts. We have met some people saying that they do not want to leave the symbolic *Car rapid* for an unknown *AFTU*.

The regulation and urban transport policy is also an element of conflict since regulation is proposed in an environment of illiterate people. This is having some bad effect on the government policy of urban transport. In the previous chapter we reported an important number

of illiterate people who do not know the relevance of government policy. As a consequence, they do not agree with the policy and do not want to follow the governmental willingness.

The business structure of the new system (*AFTU*) is also some element of conflict; the state gather the former *Car rapid and Njaga Njai* operators and owners to operate *AFTU*, these people transfer the same operating methods and cannot now meet the willingness of the government. Three elements, we already knew with *Car rapid and Njaga Njai*, are still in operation in this new system: the recruitment system, the driving methods and in-vehicle behaviour.

Interaction of these elements creates some barrier for the new system to operate in the professional way and creates a permanent conflict between social and political actors. The business structure of *AFTU* gives some important place to social actor; first by the management system that gives freedom to operators to recruit family members, “religious brothers” or political partners.

Generally the conflict between government and religious group does not appear; “*they always negotiate their relationship and will obviously find some arrangement*” according to A. G. (PEF, TMU/Interview 2012). But many people think that government takes this option (the business structure) because “*it needs the religious involvement and then would like to maintain this category of organization in public transport*”

But relationship is not always conflictive or commercial, it is also complementary. State, workers, religious group are linked but the willingness to enhance the urban mobility and ensure the movement of population.

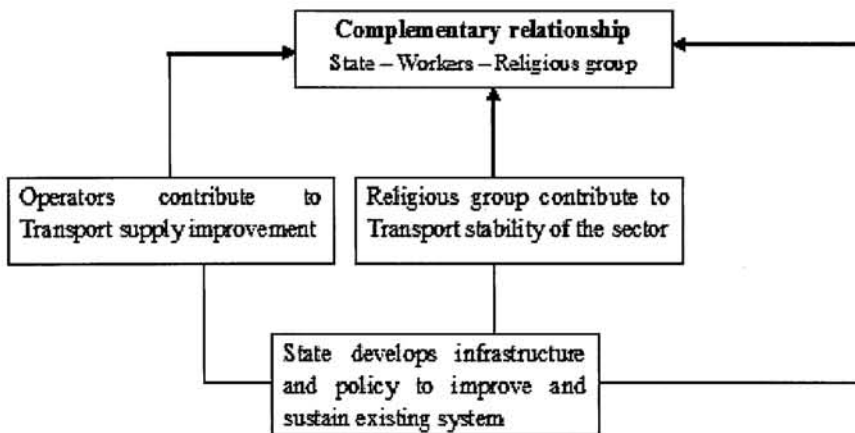


Figure 71: Complementary relation

So as we can read in this figure, operators contribute to develop the transport supply in Dakar while demand cannot meet by the government. However, if it difficult for the government to develop transport modes, it is easier for them to develop infrastructure and policy to improve and sustain existing system.

Here, religious groups are very important; they are a key element for the transport stability according to some people we have met. An official named A. A. B. argue that “*religious leaders can negotiate while we do not have solution, they are very close to the workers and have some influence*”, as for B. F, an informal transport workers, “*government wants to maintain religious in the sector because of their capacity of negotiation with the urban transport operators and their electoral potential*”. This means that religious play an important role between government and transport workers. They can stop strike as we already saw but they also can influence decision making process

6.2.2 Discussion on Dakar informal transport’ social issues: the external relationship

Consequently to what we explain above, three initiatives sub-organize or disorganized (it depends) Dakar urban transport: The initiative of decision, the prerogative of domination and the reality of market. Thus there are three realities in Dakar public transport the first one is the political realities, the second is about religious realities and the third one is what market decides.

6. 2. 2. 1 impact of personal relationship on working conditions

In our reasoning method we assumed that personal relationship is enough important to affect the working condition; we speak about personal relation between either *Marabout* and workers or union leader and workers. Those relationships are defined as emotional for the first stage and commercial for the last example. The figure below shows the terms of existing personal relationship inside the informal transport organization.

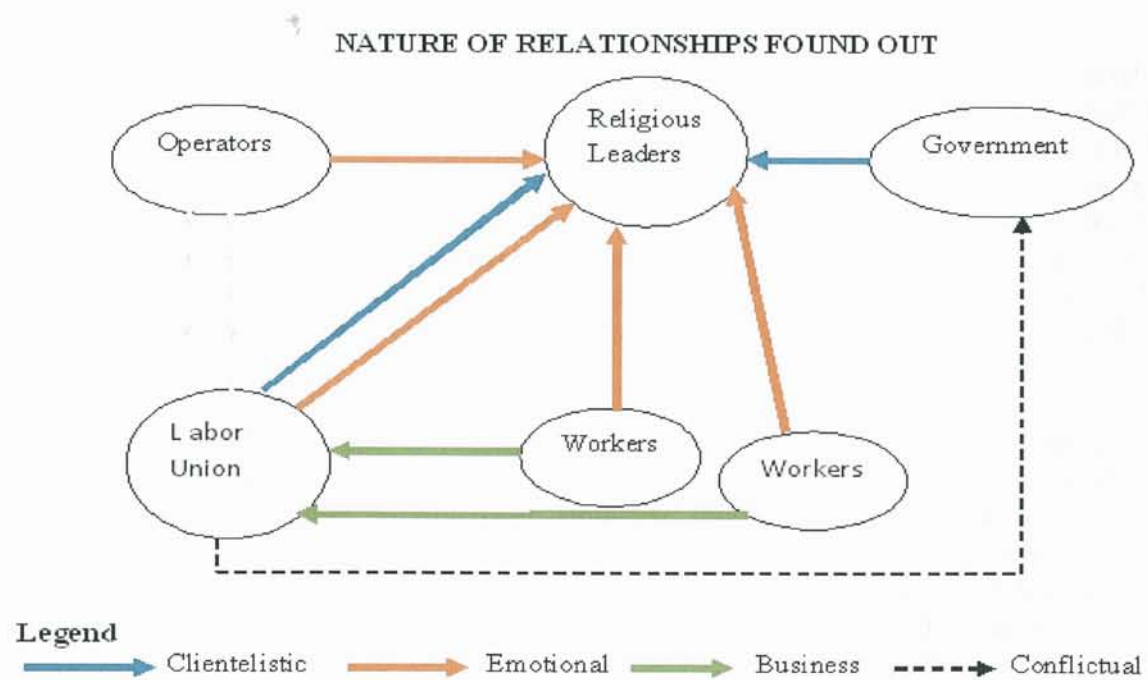


Figure 72: Inside relationship of Dakar informal transport
 There are two visible actors such as labour union leaders and workers and one under-surface actor represented by religious leaders (*Marabout*). The figure assumes that behaviour of workers

towards religious leader is emotional while the behaviour of workers towards labour union leaders is guided by business. So, two kinds of relationships exist inside the transport organization related respectively to the belief and business.

The *Marabouts* especially those belonging to *Murid* devote less time to study and teaching than other brotherhoods. They keep good relation with their disciple or followers and have privilege to ordering their disciples even to manage their working condition and methods. So they used to make amulets for their disciples' work and making amulets for their followers. "I am a Devout *Murid*, and if I have a problem in my work or anywhere else, I go to see my *Marabout* who can give me amulets and dismiss the fate" said A. D. This strong belief can explain the behavior of workers towards their *Marabout*. This is explained also by the fact that homes and workplaces are covered with pictures and sayings of their *Marabout*, needless to speak about the numerous amulets, prepared by them, they wear. This belief is motivated by the fact that they all think that *Marabout* can bring them to better life and solve their problems as well. In this light taxi, *Njaga Njai* and *Car rapid* drivers always decorate their vehicles with stickers, paintings and photos of *Marabouts* belonging to their particular brotherhoods.

So the personal relationship is essentially a relationship of personal dependence. It can be emotional for most of the time but it can be also clientelistic relationship. The emotional relationship is marred by demonstrations of devotion and abnegation towards the *Marabouts* so that followers can stop his job in order to stay some days, weeks or month in *Marabout's* place, M. D. said that he used "to go every *Magal*¹ to *Touba*² for at least 1 week before and two weeks after", to be with his *Marabout*. In the same vein, I. F. "we all stop strike when the *Marabouts* want and stop following unionists whenever they ask to do so".

This relationship is then the strongest since it can bring workers to stop their job for a while in the benefit of *Marabout's* concerns. The other relationship that links workers of informal transport to their *Marabout* is the clientelistic one. In that case, relation is less strong since it is based on business; usually people having this kind of relation with their *Marabout* are operating the *Marabout's* vehicle; that the case of P. A. D. who said that he "stops working every December and every April for at last two weeks to go to the *Marabout's* farms as an occasional farmer without being paid" and he add that after doing this, his "work will be better and the *Marabout* will have more trust to him" since he expects from the *Marabout* to provide certain material benefits.

This clientelistic relationship is identified also in the behavior of workers towards the union leaders; indeed, unionists can get the workers approval if they meet the expectation of workers in term of working condition improvement. However, this patronage works only if the fighting is addressed to the government. The relationship between worker and employers is rarely addressed because among employers, there are *Marabout* and the personal relationship between *Marabout* and workers as well as *Marabout* and unionists do not allow a fighting. This means personal

¹ The **Magal** is the annual festival of an indigenous Senegalese Muslim brotherhood, the *Murid*. It takes place in *Touba*

² *Touba* is the capital city of *Murid* brotherhood in Senegal

relationship is very interesting in the informal transport sector and is the most important as it can change the situation and influence the working framework.

6. 2. 2. 2 *Impact of personal relationship on decision making process*

The emotional relationship we previously discussed about shows that there is a requirement for a loyal disciple of *Murid* to ideologically follow his religious leaders instructions, otherwise, he can be at risk of losing any material support that would have been given to him. Because of that importance and assumed influence, politicians use to make considerable effort to get support from religious leaders.

In order to get their support in elections, too many things as bribes and incentives material are given to *Marabouts* from political parties and potential candidates. In Senegal, Many believed that no party could earn political power if the *Marabouts* were not completely supported it, and any political leader who has been elected should satisfy the *Marabout's* demands, otherwise he will lose their political support. This is way of thinking and people we have met believe in this idea. K. T. said that in "*Senegal, to be a president, any candidate should show real devotion to Murid's brotherhood*". Hence, the political elite finds normal to work with religious elite, or even to show them some kind of devotion. However, "*their goal and willingness is to function without them, if ever they have choice*" said M. C. an official in Senegalese national transport direction while another official S. S. think that "*Marabouts is always seeking to be influential and to maintain the state dependency on them for their social power and control over communities*".

This kind of personal relationship noticed between religious and workers, religious and unionists as well as religious and political elite reveals a dependency of actors on *Marabouts*. Since this dependency is strong and gives for sure a lasting power to religious leaders, *Marabouts* get means to maintaining political influence. The relationship with politician is not only clientelistic, it is also emotional based on belief; In exchange for political favors, religious have to give to "*political leaders a powerful amulet which is thought to bring advancement for oneself or disaster for ones enemies*".

In this reason, various officials such as ministers, directors, soldiers, policemen, civil servants, doctors and even professors go to see the *Marabout* in order to get better condition in the work and in the life. Usually, *Marabout* themselves never participate directly in the political process but they can deeply influence some decisions; they get consulted before some decision and get give their opinion, such opinion will be respected by the decision-makers. This can influence in the top level of political power. An example of that relationship able to influence decision-making is former Senegalese president involvement in religious brotherhood. So that Reuters reported on last Senegal's presidential elections that president Wade, seeking a new term in next election, show up with his visitor *Serigne Abo Mbacke*, one of *Murid* leaders in order to get support from millions of devotees of this brotherhood.

The ensuing images of two men demurely perched next to each other on a king-size divan may not have made great television. But the photo opportunity was not lost to voters as proof of the intimate link between Senegal's Islamic "Brotherhoods" and the body politic of this Muslim but staunchly secular state (Reuters). "*I have never hidden that I am a Murid anyone who votes for me knows*

they are voting for a Murid,” Wade told Reuters after this month’s meeting at a plush residence in Touba, the central town that is the *Murid*’ spiritual home.

This influential relationship is not changing now with the new president; we saw the same relationship and the devotion. They all use to go to Touba before taking any important decision. However all the formal and regulated companies belonging to the state or some privates, have regularly managed and they do not make appear this relationship what means that *Marabout* do not have influence in the normal and standardized companies.

For *AFTU*, there are some of its association belonging to the *Murid* brotherhood and other even if they are not affiliated to the religious group count many followers of religious group so that the risk of influence appears. Such risks bring the state to consider each of its decision before taking it.

Actually, there is not a visible impact of these relationships between actors on urban mobility policy. Official we have met said that there is no link between *AFTU* business structure and the relation between religious and decision makers. For example, M. C. said that “ *the AFTU business structure was made after study plan and it was the best way to maintain car rapid and Njaga Njai operators inside the system*” he argue that “*the most influential part was World bank and IMF¹*”. It is not anyway to show the weight of religious group influence in the mobility policy process since most of their acts are underground act but we have met people who now owned *AFTU* minibuses thanks to some religious leaders.

This means even if the influence is visible, they need that the current system of *AFTU* to be maintain so that they can involve in the decision making process. Actually, routes and fares are fixed by *AFTU* and operators are selected by the organization; this makes the state out or far from some decision. We definitely not find any visible relationship between religious leader and urban mobility process but they can, as we already discussed, influence in the under-surface and that is what the data show. The data show that religious group remain more influential that we expected.

As for the urban mobility; informal workers, *AFTU* workers and officials agreed that the social influence due to the business structure has bad impact on urban mobility of people. This table below shows the relationship.

¹ International Monetary Fund

Table 11: Relationship of behavior and urban transport

Listed of words related to bad effects on Urban transport	Officials	AFTU workers	Informal workers	All transport users
unprofessional	37	12	///	77
Indiscipline	///	59	13	36
Uneducated or untrained	21	34	///	51

Source: PEF & TMU, 2012

This table listed some words related to bad effects due to *AFTU* business structure. So officials, *AFTU* workers, informal workers and all transport users leave their opinion on effect of urban transport. Through the interview results, three frequent words were related to some identified problem in Dakar urban transport; except informal transport workers, all interviewed or surveyed categories think that there is unprofessionalism of *AFTU* workers and this is not good for the urban mobility.

It has a bad impact obviously on customer service. “*The way they offer service is similar to car rapid methods*” claimed one customer we have met. Official did not mention any word related to indiscipline but all other interviewees think that indiscipline is very present and deeply rooted in *AFTU* working method and this indiscipline create many problem of the urban mobility as accidents, traffic jam, non-respect of road rules. Untrained workers are also dangerous for urban mobility and our interviewees agreed that the two first problems: Unprofessionalism and indiscipline are the consequences of untrained worker’s actions.

So the part of relationship between actors is visible in this stage; in fact, the business structure shows that religious actors are still present and can in the under-surface influence workers, we also see that the emotional and clientelistic relationship between Marabout, unionists, workers and political actors maintain some unprofessional way of recruiting workers in *AFTU* and distributing of Vehicle to people who normally should not get it.

As consequence, social control of urban transport is the element that weakens the political action, isolates the professionalism and maintains the religious influence.

Conclusion

This chapter focused on development of social power and its expression. We find school origin and educational background are important factors of social power development. In fact, people from Islamic school background are more likely to be close to a *Marabout* than people coming

from conventional school. There are also people who do not have a recognized educational background, those people are also mostly close to a *Marabout* but there are some who do not have any affiliate organization.

Findings of this chapter state on 2 kinds of existing relationship among the actors of informal transport: the emotional relation based on faith and belief linking the workers to their *Marabout* and the clientelistic relationship based on business and market realities.

We can identify some impact of these relationships: we understand that relation between workers and unionists is evolving so that labor union is emerging in the informal transport sector. But its relationships with workers are based on business while the unionist leaders have the same emotional relation as workers with the *Marabouts*.

In sum, we can say that dependency of actors on *Marabout* is so strong that they get means to maintain political influence. Beyond this influence of *Marabout*, labor union also gets power due to the adherences of workers and the control of strike system. The two different kinds of social power expression are the religious influence and the unionist strike.

CHAPTER 7. CONVENTIONAL CAR RAPID MODEL AS A SUSTAINABLE URBAN TRANSPORT OPTION: ELEMENT OF CAR RAPID PHENOMENON RETHINKING

7.1 AFTU SCENARIO AND TRANSITION PROBLEM

During this study, we found a real problem of transition from car rapid to AFTU and we tried to know why this problem exists. The figure below explains the whole scenario of transition and the developed problem.

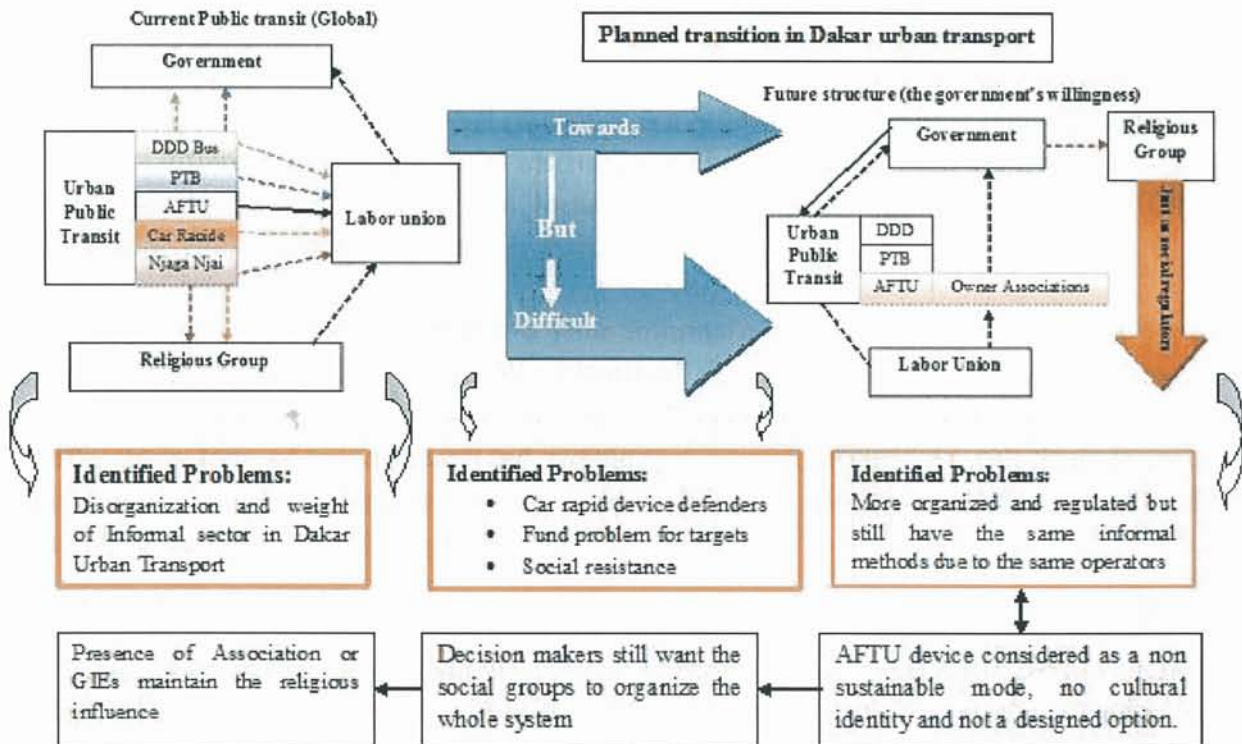


Figure 73: Transition plan and encountered problems

This figure shows the current situation in Dakar urban transport and the future one; indeed, Dakar urban transport currently gathers a formal system of bus, train, minibus and informal minibuses system. In this transport structure religious involvement and labor union are very strong and the government action is identified to be weak in the informal sector.

So because of this weakness, government wants to change the situation to get more involved in the whole structure. This current situation is proposed by some weakness of political power during the reform because the willingness of decision makers was to completely remove the

informal sector but what we finally got is coexistence between formal and informal and nothing else.

Though, the future structure that the government will to implement is the replacement of car rapid and Njaga Njai by AFTU providing vehicle by vehicle. In this structure, AFTU will be more organized with the association of owners but we identified 3 problems explaining the difficult of transition: the first is related to the disorganization and weight of informal transport sector in Dakar urban transport. We showed in previous chapters that sector is powerful in Dakar urban transport and has a big place because carrying around half of Dakar urban travelers.

The second identified problem is related to three points; car rapid device defenders, those people do not want to participate in the “removal idea” because they said car rapid is part of them; the fund problem for targets, most of car rapid and *Njaga Njai* workers (the main targets of this option) do not have affordability to buy a new *AFTU* because they argue that contribution to get *AFTU* minibus is expensive; the social resistance is a little similar to the car rapid defenders point but they are different, in fact, the social resistance can be understood from the frequency of word we collected during our interview and focus group. The most common words were Cultural identity, and symbolic for Dakar urban system.

The third identified problem is related to same informal method of the new *AFTU* as it was in Car rapid and *Njaga Njai* system. We identified during the research, the same operators continuing with car rapid system while owning *AFTU* device, and the operating methods are not so different in term of management and recruitment process, even if we call them formal, we found nothing formal in their way of doing. “*Nepotism is very common in AFTU system*” said I. S. an *AFTU* driver (PEF, TMU/Interview 2012).

So in global, *AFTU* option does not meet the expectation of population and the device itself is considered as non-sustainable mode, no cultural known element “*because it does not have any history*” said I. S. people we have met think that government still wants the social group to organized the whole system; “*opting for the association of owners structure, it is clear that government want to give some prerogative to the social group*” said B. F (PEF, TMU/Interview 2012).

In this light, we can understand why religious groups are still influencing the transport policy process. The option of having association of owners’ structure instead of a standard business structure poses the problem of political weakness while a place is given to the religious because we all know that associations are sometime sponsored by religious group and we identified in the previous chapters that there are some *AFTU* association belonging to religious groups.

This weakness of the state's power gives also some strength to the labor union that can defy the decision making mechanism. In the government willingness, religious group should be used as social regulator between labor union and government.

This is the problem, because if the government wants some social regulator, it means that they do not care about a sustainable urban transport policy where only rules will prevail. We know religious groups have the specific role to promote their disciples and to expect from the state some favor.

This is one of the key problems of Dakar urban transport; it is laying on two uncontrolled social elements and one weak political power. This makes the informal transport operators and drivers Association organizing the transport sector in their own way to the chagrin of users. An example of this Government powerlessness is the practice of *cutting roads*¹: in fact drivers and *apprentis* use to cut one trip into 2 or three rides in order to get twice or three times the same prices.

7.2 RETHINKING CAR RAPID AS A CENTERPIECE OF SUSTAINABLE URBAN TRANSIT IN DAKAR

“Jeepney, the most popular mode of transport in Philippines that came into being post World War II is all set to move the country forward for the second time. The Jeepney occupies a very special place in the Philippine culture – originally made from the left over US Military Jeeps, adorned with flamboyant colors and artwork, Jeepney not only redefined transport but also stands as a symbol of the creativity and innovativeness of the Filipino people”. Twitter @deeparocks

This twit places Jeepney (see figure below) as a heart of Manilla urban system and help understand why it was modernized instead of removing it while Philippines is experiencing other kinds of transport systems such as *Light Rail Transit System (LRT)*, *Metro Rail Transit System (MRT)*, Commuter rail and bus system.

¹ Car rapid used to make more than one ride for one itinerary (one trip)

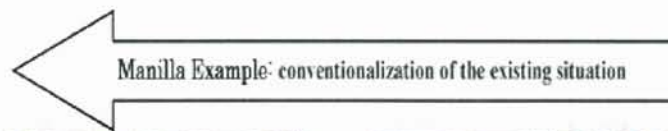


Figure 74: Car rapide for Jeepney example

So beside the formal transit system, in Philippines, decision-makers did not change; they just modernize and regularize the existing system. The iconic jeepney considered as the “*King of the Road*” by many Philippines’ people is one of the most important means of transport in this country, as well as a “*source of national pride because of the ingenuity that it represents: the conversion of a military vehicle into a robust diesel-powered minibus*”.

With their bright colors, they can use all kind of roads, even rough roads, flooded streets and other kind of road dysfunction. Throughout the years, the jeepney retained its basic look and essential features; they are easily recognizable by their distinctive elongated body and decorative flourishes. They operate as cheap form of public transport.

Car rapide is for Dakar what Jeepney is for Manilla. In fact, the famous *Car Rapide*, mainly used in Dakar and St. Louis, the former capital of the country are recognized by their blue / yellow colours and the decorative texts they display such as '*Transport en Commun*' and '*Alhamdoulilahi*' (thanks to God), or *Touba* in reference of Murid capital city.

Table 12: Elements of comparison car rapid and Jeepney representation

	Car rapid (Sources: on site interview, internet)	Jeepney (Source Internet: Twitter, facebook)
Weight in Public transport	Most popular transport mode	most popular mode of transport
History	From 1947	From 1943
representation	Iconic buses of Senegal, micro-culture and social space in Dakar's transport system	Iconic, symbol of Filipino culture
Image	Vibrant, chaotic, interactive, colorful, hectic, reckless bus	Originally made from the left over US Military Jeeps; flamboyant colors and artwork
Management	Always managed by 2 people: Driver and pass collectors called <i>Apprentis</i>	Often manned by two people: Driver and the <i>Backride</i> who collect the fares

Source: Papa Elimane Faye/TMU, 2012

We found too many similitudes between Car rapid and Jeepney; from the historical point of View to the management system, similar elements appear with this kind of transport modes and systems. They both are “*most popular transport modes*” in their respective countries and have almost the same historic benchmark since the first car rapid operated in 1947 while jeepney started on 1943.

They also are considered as iconic of their transport system and we found that car rapid is seen as a micro-culture and social space in Dakar urban transport while Jeepney is also an iconic symbol of Philippine's transport system; it represents also a part of the local culture.

They display colorful images with beautiful design and the management system is almost the same: 2 people are managed, one is the driver and the other one is the *Apprentis* in the case of car rapid while he is called *backride* in the case of Jeepney. They both have particularity to collect the fares; *Apprentis* is always operating with the drivers while *backrides* are often operating.

In numbers of jeepney writings, authors said that there is no other mode similar to jeepney in the world but we found in this research serious similarities between Senegalese car rapid and Philippines jeepneys. The big difference we can view is related to the governments' involvement when we compared Manilla and Dakar. In Manilla, Jeepney was rethought and has evolved from its initial system and shape. Now they more care about environment and regulation; the

generation of e-jeepney is on circulation while in Senegal, car rapid still keep the same shape and system; it never rethought and is prepared to be removed.

This option is a consequence of the government powerlessness to make any action going toward car rapid modernization. After the study, I think, as it was done in Philippine that Senegal should keep car rapid device in order to maintain its social and cultural role inside Dakar urban transport sector. This research states that:

- Removing Car rapid from Dakar’s traffic means to erase the identity of Dakar urban structure.
- Replacing car rapid by AFTU means killing the social role of such a device
- 87% of surveyed people consider car rapid as a cultural specificity of Dakar transport system
- and 71% consider AFTU as an hazardous option (Buses from Tata in the beginning and now from Chinese *KingLong*): this means AFTU sustainability is in Question

We are not defending Car rapid device, we are developing car rapid phenomenon in the conventional way as a real alternative instead of AFTU minibus. Car rapid shape is designed by and for Senegalese people (revised and modernized, It can be a successful local industry). Senegalese people perceive car rapid as an urban identity that should be kept and regularized. The figure below exposes the opinion of our interviewees on car rapid phenomenon.

Table 13: Most often used concepts to define car rapid by interviewees

Car rapid view: most often represented Concepts	N
Cultural symbol “<i>Immerse oneself in Senegalese culture</i>”	793
Socialization “<i>Be prepare to get very close to people</i>”	401
Have fun “<i>once you relax, they can be extremely enjoyable</i>”	71
Identity “<i>Car rapid is part of the city’s scenery</i>”	523
Seat configuration “<i>they are old but seats are available</i>”	817
Remove car rapid would be like separating a man from his heart	12
Symbolic “<i>Car rapid is a symbol of Senegalese urban society</i>”	329
Car rapid should not be removed but reconsidered	108
Car rapid should be remove	08

Source: Papa Elimane Faye/TMU, 2012

This table shows the importance of car rapides and its popularity among the urban population. From interview, we have got some qualitative data and count of these data show the perception by people. Hence, Car rapide is definitely considered as a **cultural symbol** by urban transport users because we found 793 words referring to **cultural symbol**. This is the most important number we have counted to determine people perception. Since car rapide make people to be socially close because of natural discussion happening inside the vehicle, urban transit users we have met use 401 words referring to **Socialization**. The expression “*have fun*” came 71 times while the important word of **Identity** is used 523 times.

We also have met people defending car rapide system because of their seat configuration and it seems to please to everybody; the words “**seat configuration**” came several times and the count listed 817 times the words or others referring to them. “It is **symbolic**” is also used by some people to defend car rapide system 329 listed found car rapide symbolic and 108 people said they do not want Car rapide to be removed, they said that they can be reconsidered. However, we have listed some words that are unfavorable for car rapide and one of them, is “**car rapide should be removed**” we found 8 little words favorable of car rapide removal option.

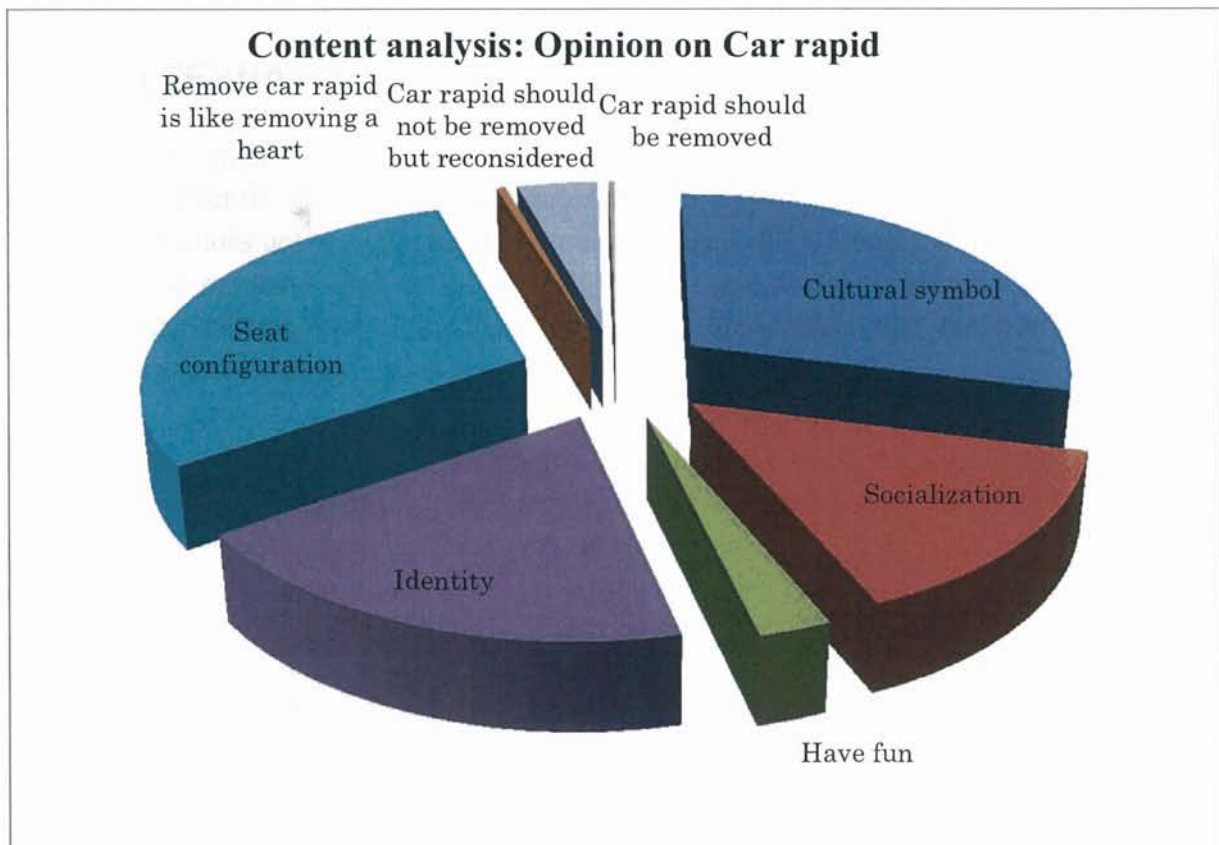


Figure 75: Opinion share on car rapide perception¹

¹ Sources: Papa Elimane Faye, TMU 2012

This figure is the chart version of what we explain up. Car rapid is then more than a transport device; it represents something important in the urban system, the urban identity. It is an iconic transport mode and is linked in a micro sociological view to each Dakarian people and macro sociological view for the whole urban system.

Indeed, each people in Dakar urban system has its own car rapid opinion and most of them are not agreed with their operating methods, indiscipline and low education level of users. 60% of our interviewees said that “*car rapid drivers are indiscipline so that they never respect any rule*” and 91% think that “*car rapid system plays a great role in the social and cultural points of view*”.

In the macro sociological point of view, car rapid is seen as a cultural identity of Dakar urban system by people living in Dakar and foreigners. If we found that each person links himself to some social benefit of car rapid such as its seat configuration, the symbol it represents due to its history, its social space; it is also clear that foreign people have a particular view of car rapid, they usually argue that visiting in Dakar without seeing or riding on Car rapid means without coming in Senegal.

7.3 ALTERNATIVE MODEL

The end of this chapter is devoted to an alternative model of existing urban transport scenario that does not meet yet the government willingness and will anyway be the car rapid decline. Since the AFTU system does not have the same cultural and social characteristics of car rapid and since we showed some resistance due to the lack of cultural and social characteristics, we think after analyzing the survey, interview, focus group and observation that the best scenario for a sustainable urban transport in Dakar is the enhancement of car rapid.

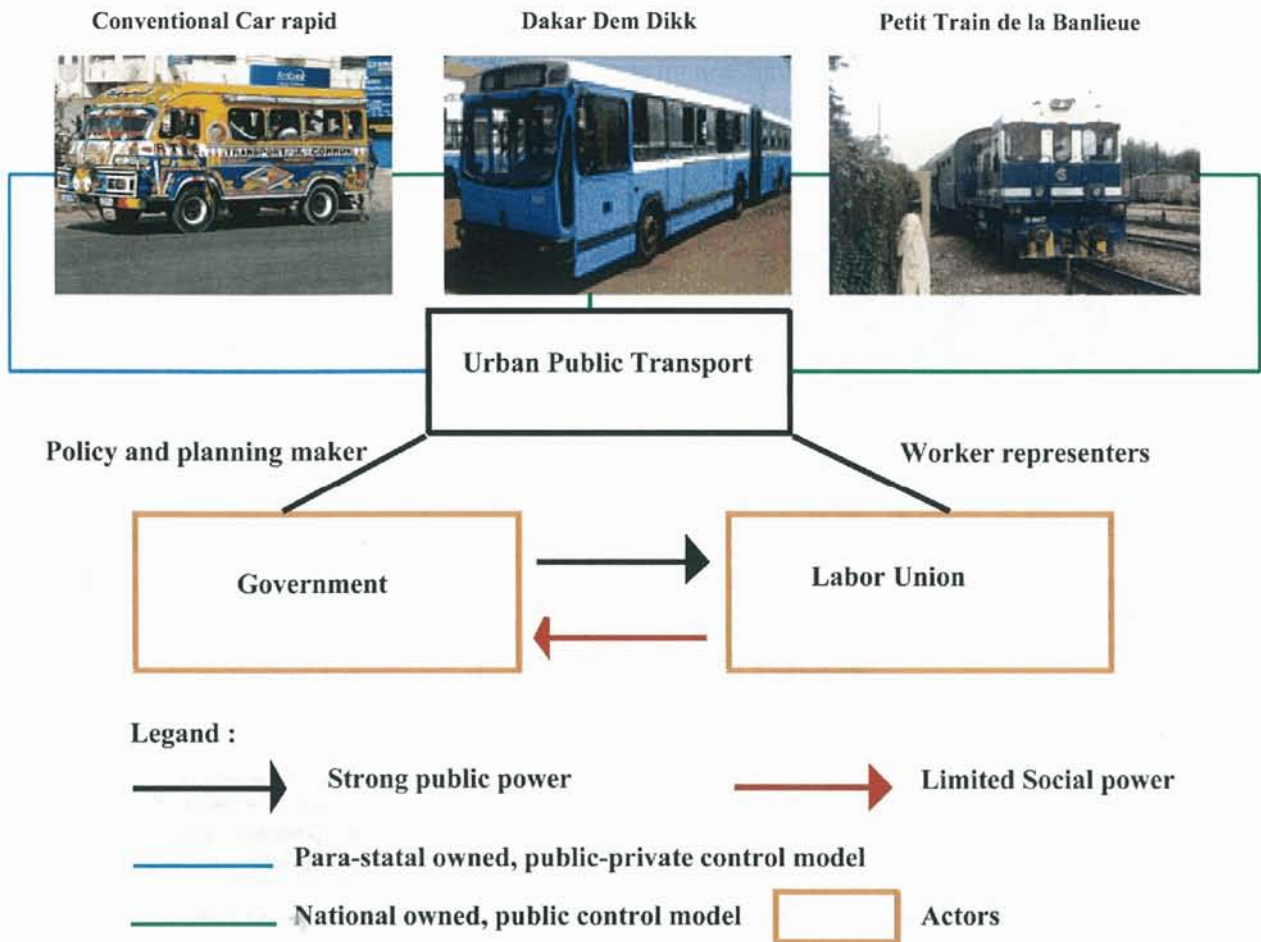


Figure 76: Conventional proposed model

This figure shows a system with three formal urban transports in Dakar with the improved DDD, an improved PTB and a sustainable car rapid system. Before explaining what sustainable car rapid system is, we are going to comment the figure 75. In fact, this figure presents the urban transport system with globally 3 elements, all supposed to be formal. There will be also 3 interactive actors: Government as the most important element with a strong public power; labor unions with limited social power and transport operators.

The strong public power is necessary to control the transport situation, service and pattern; it will transcend all other powers including the religious power. Actually, in this system there is no religious interaction, the social power will be limited to the capacity of labor unions to mobilize people and go on strike or negotiate with the government when they really advocate the working condition.

This figure suggests rethinking the car rapid phenomenon and enhancing it instead of removing it from Dakar urban transport where it plays an important role both in social and cultural point of view. The relevance of this structure is the total absence of religious influence and the full control of transport system by government.

The proposed scenario places car rapid in the same level with DDD and PTB, they will all be regularized and formalized so that, the system will not have informal transport, unprofessional workers and socio-religious interference.

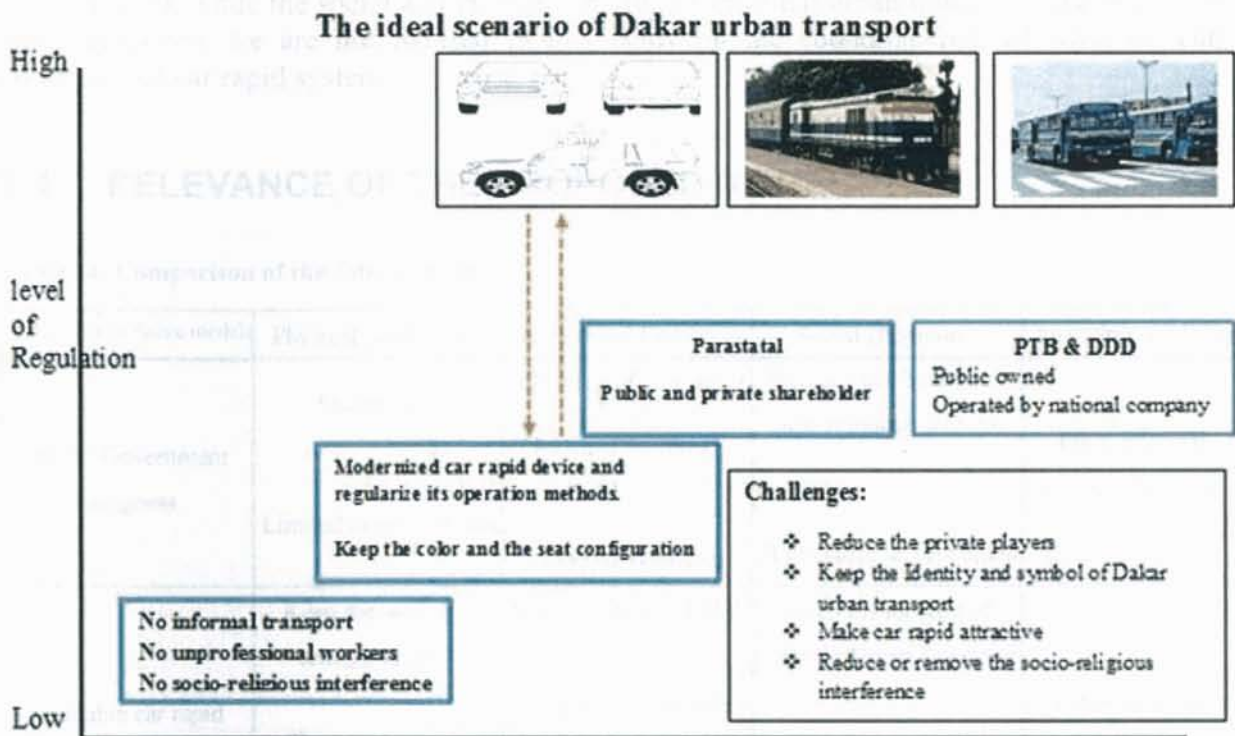


Figure 77: The ideal scenario

This scenario seems to be ideal as it will be difficult to remove the religious and social interferences in Senegalese urban transport system. So, multiple challenges are identified by the workers of both formal and informal transport system. In fact, we find workers in formal sector and one of them thinks that “any system of conventional car rapid should reduce first the number of private players because if there are too many private players, it will be difficult for the government to control the system and it will be also difficult for the players to meet all the fixed requirements” P. A. D (PEF, TMU/Interview 2012).

In the meanwhile, other people belonging to the informal sector give as an important challenge, the “necessary improvement of car rapid attractiveness”, we listed also some common element as a challenge for conventional car rapid, and they usually ask to keep the identity and to reduce or remove the socio-religious interference.

The word “conventional car rapid” is used here in opposite to the informal car rapid. In the conventional system, state will recover its power and the cultural function of the system will be kept.

In this regard, while the social and cultural benefits of informal urban transport have been shown and recognized, we are not focused in this study on the economic role of what we called conventional car rapid system.

7.4 RELEVANCE OF THE PROPOSED MODEL

Table 14: Comparison of the futures models

Comparison of future models	Physical condition	Economical Condition	Social condition	operating condition
AFTU Government willingness	Spacious Limited number of seats	Lasting of device Personal funding Problem Good for operators	Recruitment based on socio-religious affinities Reluctance to Tata brand	From informal to unprofessional
sustainable car rapid Model	Keep the seating configuration Increase the vehicle dimension	Improve sustainability Company shareholders Good for operators, state and customers	Keep the identity of Dakar Urban Transport Recruitment based on skill and experience	From informal to formal

Source: Papa Elimane Faye, TMU 2012

Compared the government model and our proposed model, we can through this table show the relevance of sustainable car rapid system. In their physical conditions, AFTU model is recognized to be wide, spacious but the number of seats is limited. Usually people commuting with AFTU have difficulty to get a seat and vehicles are so often crowded while the length of travel can take from 1 to 2 hours. An AFTU user we have met during the survey said that “*even if I prefer AFTU as transit device, there is some seating problem; it is always crowded and there is not seat for disable people or expecting mothers*”.

The current car rapid shape has a specific seating configuration, it is divided into 2 compartments as a sitting room and lounge; it is similar to a table square where people sit in front and can discuss. Figure below represents the car rapid seats configuration.

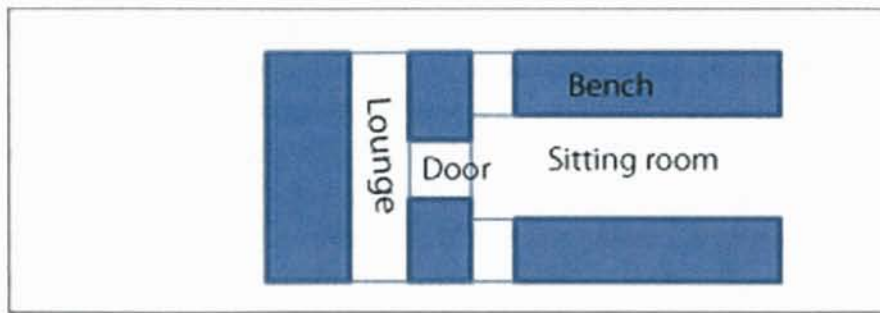


Figure 78: Car rapid seats configuration

Legend: Bench means the seats for passengers; it is all the colored sides.

If numbers of people continue to use car rapid and prefer it among others, the seats configuration and availability is one of the reason. *“I know car rapid is very old and run slowly due to the numerous spontaneous stops, but I prefer it just because it provides seat to everybody”* a surveyed woman said.

Regarding this, a well-appreciation of car rapid seat configuration is found and leads to us the idea of keeping the seat configuration in our proposed model. However, it should go with the increase of vehicle dimension because current car rapid is quite small compared to AFTU and Njaga Njai, it cannot then provide a number of seats that transport demand requires.

As for the economic condition, the main problem was related to the personal funding, in fact, informal transport operators do not have enough financial resource to get a new AFTU bus, other problem highlighted by interviewees is that AFTU device cannot last more than 5 years, material is not as hard as car rapid and as for the benefits that communities can get, operating methods and fare system seems to be not good for customers.

In opposite, the conventional car rapid model proposes to improve its sustainability and become a parastatal company (see figure (78) below). In this way, the proposed model can continue to play its socio-economical role that might be good for operators, state and customers.

The social condition of the proposed model is first to keep the cultural identity of Dakar urban transport system and base all recruitment system on skill and experience instead of socio-religious affinities-based as it is in the current *AFTU* system. One of the big disadvantages of *AFTU* is the reluctance of former car rapid workers to shift from informal transport device to formal *AFTU* minibus.

Finally, the table shows difference in the operating condition because the current *AFTU* system is operating from the informal management of car rapid to unprofessional management; indeed, the way *AFTU* is operated does not meet the standard of a normal company, administratively, hired

people do not meet the standard required by the government and World Bank. This is due to the business structure of the company. Belonging to an association inside AFTU is not actually meant to be controlled by the association, it is just a condition to get a minibus and after getting the device, operator can work freely even if he should be still covered by the association. P. T. an AFTU owner, said that *“I have my bus and belong to a GIE but I do not follow the association’s willing, I have my own operating method and if I have to hire, I prefer my family member than other even if he does not get any training or experience”*

To avoid this situation due to the business structure, the proposed car rapid model suggests to go from informal transport system including operating method to a typical formal and sustainable car rapid system. So beyond the relevance of a new, rethought and sustainable car rapid system in Dakar metropolitan area, it is important to define a relevant political option to make this ideal phenomenon happen.

7.5 POLITICAL OPTION FOR SUSTAINABLE CAR RAPID SYSTEM

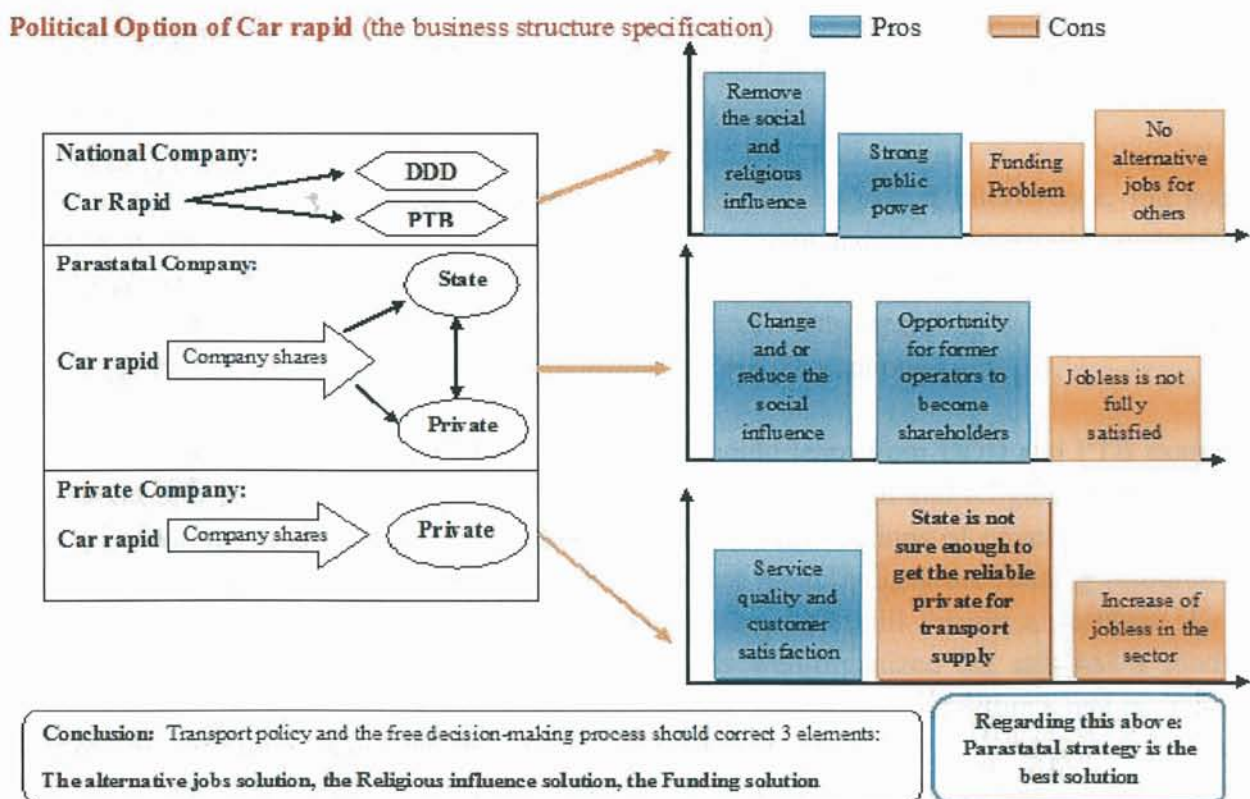


Figure 79: Possible political option of the model

The alternative plan, we define here to raise the debate on political option of new car rapid model rethinking, tries to get the best policy option; in fact, we showed that the big problem of AFTU option and its difficult transition is related to the business structure which is not commonly known even if we can place it in the private category. Indeed, the standard common business structure that we know should be the key solution for a new and sustainable car rapid model in the Senegalese context where social interferences are very important and can be identified in all sectors and especially in informal sector.

It is thus important to redefine the common standardized business structures and select which one is more suitable for this car rapid option. So, figure 78 gives three available option that lead the proposed car rapid model to a *National Company* option or *Parastatal Company* option or even *Private Company* option. Each option develops its own specificity and displays some pros and cons. This figure gathers information from the interviews and focus groups

The first political option that proposed sustainable car rapid model can choose as a business structure is *National Company* option. A *National Company* is a company or agency owned or controlled wholly by the government. In the case of Dakar urban transport, we already have national companies that are fully controlled by the government; these companies are DDD that operates the main urban bus system of the same name and PTB that operates the commuter train system of the same name.

DDD and PTB are standardized company where there is not social interference; the social dialogue is occurred between government and the labor union and all administrative matters are based on texts and rules, hired people worked based on their skill, experience and educational background. As a consequence, these companies are correctly operating in the urban traffic because “*workers are professional and responsible*” said L. D, a unionist in DDD.

So, to implement car rapid as a national option, we should learn from DDD and PTB example, the system will provide them some advantages as removal of social and religious influence and restore the strong political power that a state needs to control actions of population. However, there is some important disadvantages in the case of car rapid; indeed, the funding resource for the government to get enough rolling material (vehicles) will still remain a problem. As an example, we observe the DDD case; the company is well-organized but still has a funding problem to buy enough buses. In fact, since 2002, the bus company suffers from a real problem of fleet due to a bad financial condition of Senegalese government.

Another disadvantage of national company for new car rapid option is the jobs distribution problem. Indeed, sociologically, the unemployment problem is a real concern for developing and underdeveloped countries; in Senegal, the rate of unemployment is high and the government is permanently facing this problem. This means it will be difficult to get add some jobless people to

the already saturated Senegalese jobless world. Option of National Company for new car rapid will cancel the existing employment and will not propose alternative jobs. This is not expected and wish by the workers and it cannot be sociologically approved.

One of the options was a Private Company that is a company whose ownership is private. As a result, it does not need to meet the strict Securities and Exchange Commission filing requirements of public companies and may issue stock and have shareholders. In Senegal, there are several private companies usually operating in other sectors such as education, communication and Media, etc. They used to be strict and mostly succeeded. So the proposed new car rapid model can choose this option with the advantage of giving satisfaction to the customers and provide service quality. However, there are some important disadvantage to consider; in fact, in this kind of situation, the government will be never sure enough to get the reliable private company that can meet the important demand of transport. Other important disadvantage is with a private option, jobless will be increased in the sector.

An example of reliability with private company can be found with *Transrail* which is the concessionaire company of the Dakar-Bamako rail corridor since 2003. This is the Interstate Railway System funded by Senegal and Mali to serve as freight and personal travel. But the business plan (operated by concessionaire) was the base of the bankruptcy of the system which is deeply rethought. Concessionaires could not meet the requirements of the two governments and traveler's needs. Regarding this example, a private option might be not good.

The last option is a Parastatal Company, this means a company or agency owned or controlled partly by the government with shareholders owning the other part. So two important parts are identified, one is the government and the other is composed by privates. The scope of this option is that each part can strictly control the other one and impose a maximum of transparency.

In the case of proposed new car rapid model, this option can get advantage to change completely or reduce drastically the social interference since private shareholders can be from various areas of competence, social, cultural and educational background. Other advantage is the opportunities for former car rapid operators to become shareholders of the company so that some of them can keep their job by involving in the company's life. The disadvantage of this option is that the job demand will not be fully satisfied in the short term.

There are many successful Parastatal Companies in Senegal and the most visible is **Sonatel** (*Société Nationale des Télécommunications du Senegal*). It is the main telecommunications provider of Senegal. The headquarters of the company are located in Dakar, among the shareholder we can list beyond the important part of Senegalese government, *France Telecom* and *Orange S.A.* this company give the big example of successful and is now among

the biggest mobile phone provider in West Africa. It is operating now in Bamako (Mali) and Conakry (Guinea).

We choose the Parastatal option for our proposed sustainable car rapid to give a strong political power that the government should have, to completely remove the social interference and establish a social dialogue between labor union and government while workers will be professional. This option will maintain transparency and can help to enhance the urban mobility.

CHAPTER 8. CONCLUSION AND RECOMENDATION

This research was started on transport problem to know about its relationship with Dakar informal sector of transport. We did not find through the literature review a study in Dakar informal sector focusing on relationship between this informal sector organization and the transport policy. The big contribution of this study is the exploration of this field of research; in fact, inside organization of informal transport sector revealed through this study the strength of social organizations and the weakness of political power affecting directly the decision making process on transport policy.

This study has stood on at least four disciplines such as sociology, political science, geography and transport policy. We adopt both the quantitative methodology and qualitative methodology through survey, interview and video observation for collecting all data we needed. After two years research on books, papers, articles, journals, website and numbers of international conferences, we went back to the research field in Dakar for 3 week onsite investigation.

Several findings were gathered and analysed inside the four discussion chapters in response of our research questions. The big question was to know about social control weight in informal transport in Dakar and its implication in urban transport policy.

This study reveals that social control is important in Dakar urban transport by its religious organizations and labour unions. Indeed, religious organizations are revealed as under-surface actors that are more influential or powerful; the other visible actors are the labour unions whose fighting strategies are considered as dread. These social aspects of informal transport are so often dealing with the political power incarnated by the state.

Through this study, we find that the political power is weak face to the social power so that informal transport organization was fully controlled by that social power. In fact, the state having some problem to supply the important transport demand due to the low capacity of formal transport service had allowed development of informal transport that fully meet the demand of urban transport in Dakar. This operation has been marred by many irregularities since operators have to decide for everything starting from the fare to routes. These irregularities have some negative impact on urban mobility that bring population to pay more than they used to do, making more rides that they used to do; there are also numerous roads crashes due to the lack of control from state.

As a consequence, the government decide to take back the control of the whole transport system by introducing a new transport system supposed to replace the whole informal sector with their device. Currently the project is going on and numbers of new minibuses were introduced while some car rapid and Njaga Njai are removed from the system. However, situation is not as easy as the government expected.

This study finds that one of the lacks of result is related to this weakness of political power; in fact, government has some problem to withdraw the social and religious power so that it proposes a business structure that can involve both religious and social power. As results, we saw the same operating methods still embarrassing the urban mobility; the policy of fleet renewal do not match the social and cultural expectation of the urban community of Dakar who consider car rapid as a heart of Dakar urban system. This community consider the government willingness as an intention to remove a symbolic and cultural identity of Dakar urban transport.

So two different problems were identified: one is the relationship between the business structure of AFTU and travel service problem revealing therefore a political weakness of government in its transport policy and decision making process. The second is the reluctance of people to shift from current car rapid system to New AFTU system providing two main reasons with, first, the fund availability that allows exchanging car rapid to AFTU device and the socio-cultural identity of car rapid whose removal is imaginable.

This thesis was not actually the technical diagnostic of urban transport problem or traffic flow in Dakar; it was the study of social aspect to better understand the transport policy process and its determinants. So, we naturally needed to know the urban mobility pattern to determine the weight of informal sector. We found that the informal transport is deeply rooted in the traffic flow of Dakar urban transport. Except where public transport or informal service is banish, we can identify *Car Rapid* and *Njaga Njai* as important transport device for communities.

The observation of traffic flow defines a strong trip attractive power of Dakar and a strong trip generating power for the suburbs and especially *Pikine* and *Guediawaye*. A strong use of AFTU was identify so that our data reveal that AFTU is becoming the main transport mode in Dakar due to its reliability and fixed route system while car rapid and *Njaga Njai* are still important for people with poor economic condition and whose locations are far or landlocked. This situation is due to the flexibility of Car rapid and *Njaga Njai*.

The view of this traffic flow show an inconsistency and ambivalence in transport policy regarding the habits of community's urban mobility. This thesis emphasized the phenomenon in the concept of people of road providing that each principal road built by policy makers seems to be used by some specific categories of people. Thus, we identify almost only wealthy people or people with high-income level through the *Corniche* road while car rapid and *Njaga Njai* were roughly located in *Route Des Niayes* where we identify mostly low-income people.

So, in fine, we can argue that this thesis related the social aspect to transport policy process and urban mobility understanding. This point is the main contribution of this thesis while we saw that social aspect and social relationship have never been a study concern for urban transport researchers.

8.1 CONTRIBUTION

This study has two main contributions: in academic science and in the state of the social knowledge of urban transport.

□ **In academic science:**

An innovative approach to transport studies:

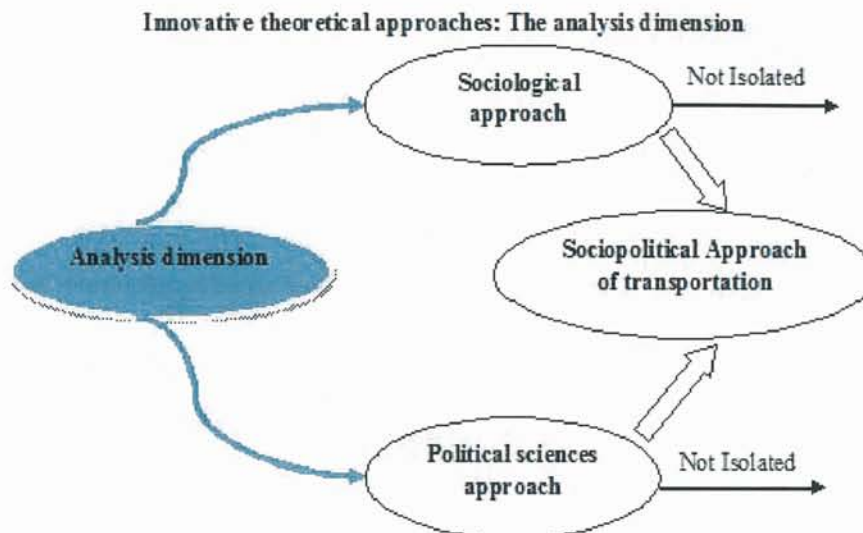


Figure 80: Sociopolitical approach frame

An interdisciplinary approach was necessary to understand transport situation in Dakar since it involves a wide number of science such as political science, geography, engineering, urban studies, transport policy and management, sociology, etc.

Our analysis combines 2 different and not isolated approaches as sociological approach and political science approach. The combination of these approaches gives to our analysis dimension a socio-political approach of transport.

This approach invite sociologist and political scientist to be more interested in transport policy matters and especially in underdeveloped countries since transport in these part of the world does not mean only flow, or mobility pattern; it involve some social phenomenon such as religious aspect in the case of Dakar and some social and cultural aspects in the case of several other counties. (See literature review).

This approach is rarely used in transport studies or even not used at all; it is anyway important if we want to understand the transport matter in Dakar. If the sociological way allowed understanding the inside organization and the existing relationship in both the micro level with interpersonal relationship and their implications and the macro level with relationship between inside actors and external actors and their implication on urban mobility.

The political science view was adapted to the expression of power since we know that political science is interested in the study of power in society, decision-making, public policy and political behaviour.

So the combination of these two interesting approaches was somewhat an important contribution of this thesis to the academic science so that transport studies can henceforth consider this approach to better understand some external situations able to plaque the whole traffic flows.

8.1.1 Application of this approach

Example 1 Use of ‘Figurational Sociology’ or ‘Process Sociology’ to understand inside interaction of transportation organization (Norbert Ellias 1897–1990)

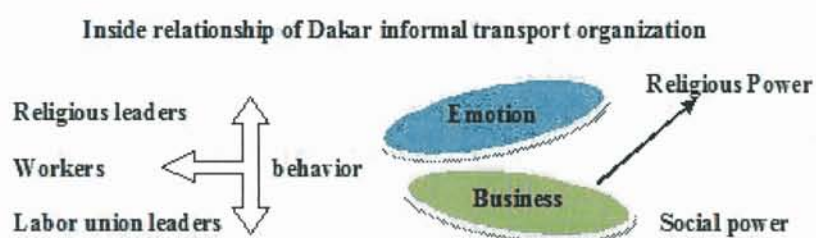


Figure 81: Nature of relationship inside informal transport organization

Example 2: Study of Power in society (Political science approach)

Interaction of powers in Dakar informal transportation system

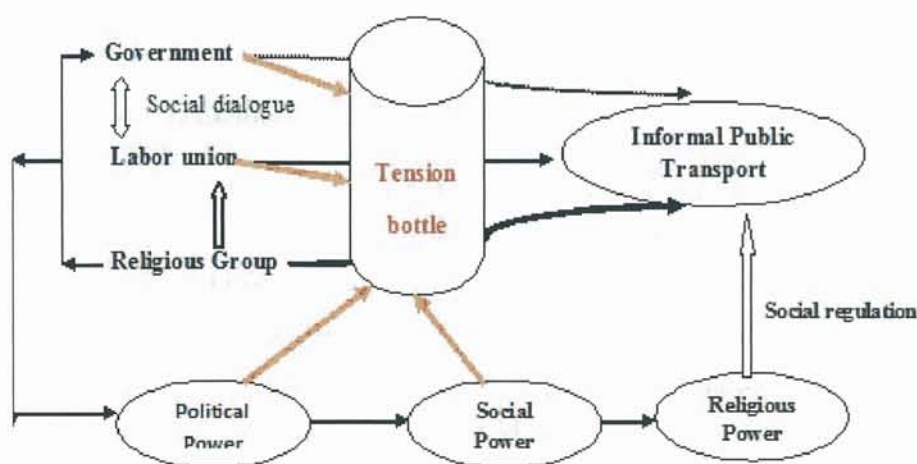


Figure 82: Interaction of power

Definition

The socio-political approach uses the same methods of social sciences to identify various powers and determines their latent tension in face to decision making process and better understand the political behaviour. Socio-political approach reveals the relationship between workers and power holders, the tension between powers themselves and the political behaviour of decision makers.

□ Contribution to the knowledge

- ▶ **The effects of socio-political factors in transport development (third world?) in Dakar urban system:** the social control and religious influence rather than simple social pressure.
- ▶ **AFTU is becoming the main transport mode because of its reliability and fixed routes**
- ▶ **Shifting from car rapid to AFTU is difficult because of personal fund problem in one side and socio-cultural reluctance in the other side**
- ▶ **Car rapid as a centerpiece of Dakar urban mobility is more than transport mode or mobility device, it is a social phenomenon. Rethinking car rapid phenomenon instead of removing it**

In fact, in the specific case of Dakar urban transport system, there is no scholar focusing on effects of social control and religious influence in the urban transport system.

From all the readings we got on car rapids, the limitation of the knowledge was that car rapids dominate the urban transport in Dakar. After this research, we took car rapid as more than a transport device; it is a social phenomenon so that when Senegalese started moving around by this transit mode, they transferred what they were doing at home to the car rapid.

This thesis poses for the first time the debate on whether Car rapid should be withdrawn from Dakar or whether it should be protected, regulated and modernized

8.2 RECOMMENDATION

Through this study, one of the important problems was the availability of data in Dakar transport. There are few academic researches focusing on Dakar urban transport, most are done by foreign people and not under the supervision of Senegalese universities. The other problem is the lack of official data; DPS¹ do not have detailed data from Dakar urban transport.

Today, no one can say how many car rapids are running in Dakar and how many people own how many car rapid or Njaga Njai. This lack of knowledge about informal transport is one of the reasons why government cannot control the informal sector.

¹ Direction de la prevision et de la Statitique (Prediction and statistics bureau)

Regarding this situation, we strongly recommended to decision-makers to better orientate their concern on transport database building; this can develop the knowledge about transport for academics and other observers.

As for the informal transport, its removal as suggest by the State necessary to more organize and sustain the urban transport but AFTU is not necessary the best option. So we recommend to change the business structure of AFTU since one of the problem in the power of social organization and we show in this thesis that those social organizations gathered in AFTU's associations are somewhat a continuation of the social power and social control in the informal transport organization; it makes it also unprofessional as it continue the same operating methods.

AFTU device is also another problem; the renewal fleet might not mean a death of the device type and the birth of a quite new kind of device, this process will also kill some identity and cultural phenomenon as we already saw.

Hence, we recommend rethinking the car rapid phenomenon and developing it as a sustainable urban transport device inside a formal and regulated system. As a centrepiece of Dakar urban transport, Car rapid should be protected and not removed.

8.3 FURTHER WORK

This study was intended to know the social power and its implication in the transport policy and decision making process; in final we find that the socio-religious interaction is not a good option for a sustainable urban transport. In the meanwhile, we find that people do not want to completely remove car rapid, they suggest rethinking it in a sustainable way.

One possible study object in the future is to know how to rethink the car rapid phenomenon and build a more sustainable, formal and regulated car rapid system in Dakar urban area. This potential study is already started in the chapter 7 of this thesis.

The socio-religious power being strong in Senegal and deeply rooted everywhere, it is difficult even ideal to remove it; so, this study pose the debate on how to remove this social power in Senegalese development sector

Other future work that this thesis can pose is the urban transport system and Tourism Sciences; indeed, this thesis is for the degree of Philosophiae Doctor (PhD) in Tourism Sciences and Dakar urban system seems to lose its tourism potentiality due to the bad urban transport and old and unsafe transport mode as Car rapid and Njaga Njai while AFTU device is always crowded and then unsafe. Hence, regarding the results we got through this study, we can explore the subject of tourism and urban transport in Dakar and especially a role of transport device for a sustainable tourism image building in Dakar urban system.

REFERENCES

- Ajay K. and Fanny B. (2008) *Africa infrastructure country diagnostic, Stuck in traffic*. In: Urban transport in Africa, World Bank
- Arosanyin, G. T., (1998). *Determination of transportation output in Nigeria*. Journal of transportation studies. Vol 2. No 1, pp69.
- Aworemi et al. (2008). Impact of Socio-economic Characteristics on Formal and Informal Public Transport Demands in Kwara State, Nigeria. *African Journal of Business Management*. Vol.2 (4), pp. 072-076
- Ayodele (2008): *Third World Mobility. Informal Public Transportation in the Developing World*. Available from:
http://povertyworlddevelopment.suite101.com/article.cfm/addressing_the_challenge_of_the_3rd_world. consulted on 10 - 30 – 2012
- BACERO, S. R. & VERGEL, K. (2009). “Assessment of Jeepney’s Components, Systems and Separate Technical Units for the Development of Standards”. *Proceedings of the 17th Annual Conference of the Transportation Science Society of the Philippines*. Manila.
- Barrett, J. (2003): Organizing in the Informal Economy: A Case Study of the Minibus Taxi Industry in South Africa. *International Labour Organisation*, SEED Working Paper No. 39
- Bortz, J., & Döring, N. (1995). *Forschungsmethoden und Evaluation für Sozialwissenschaftler* (2 ed.). Berlin: Springer.
- Bryman A. (2012). *Social research methods*, 4th ed. Oxford
- Cervero R. (2000) *Informal Transport in the Developing World*, United Nations Centre for Human Settlements (Habitat). Nairobi
- Cervero, R. and Kockelman, K., (1997). *Travel demands and the 3 Ds: Density, diversity and design*. *Transport Research Part D*, 2 (3), pp. 199 - -219.
- Cervero et al. (2007): « Informal Transport: A Global Perspective ». *Transport Policy*, Volume 14, Issue 6, November 2007, P. 445-457.
- Chavis, C., & Daganzo, C. F., (2012). *Analyzing the structure of informal transit: The evening commute problem*, *Research in Transportation Economics*. Available from
<http://dx.doi.org/10.1016/j.retrec.2012.06.025>

De Vasconcellos E. A., (2005) *Urban Change, mobility and transport in Sao Paulo: three decades, three cities*. *Transportation policy*, 12, pp. 91 – 104.

DIAZ OLVERA L. (2002). *Mobilités quotidiennes et pauvreté. Méthodologie et résultats (EMTSU Dakar)*, Lyon, Association ARTUR, Rapport pour le CETUD, 84 p.

DIOUF M. (1994). *Sénégal : les ethnies et la nation*. - Paris : L'Harmattan. - 205 p.

DPS (Direction de la Prévision et de la statistique), *Situation Economique et Sociale de la région de Dakar*, 2010.

DSRP (Document stratégique de Réduction de la pauvreté), juin 2002.

Duarte, P.; De Souza, D.I. (2005). Suggestions for the improvement of the quality of services of collective transportation. *Competition and Ownership in Land Passenger Transport*, Selected refereed papers from the 8th International Conference (Thredbo 8), edit by David A. Hensher, pp. 649-658, Published by Elsevier Ltd. Holand.

Eduardo Alcantara Vasconcellos. (1997). "The Urban Transportation Crisis in Developing Countries: Alternative Policies for an Equitable Space" *World Transport Policy & Practice*. Volume 3, Number 3. Pp 4 – 11.

French Embassy in Senegal (2004). *Les transports urbains à Dakar et l'amélioration de la mobilité urbaine*. www.gouv.sn accessed June 12, 2012.

Guezere A. (2007) Taxis collectifs et taxis-motos: un couple intermodal pour une meilleure intégration du transport urbain à Lomé, Colloque international de taxi, Lisbonne

Gueye, S. Ndiaye B. M. & Seck Diaraf. (2006). Optimisation des Réseaux de TRANsport du Sénégal : Analyse des flots et localisation d'activités. *PROJET ORTRANS (I)*.

GODARD X. (2002). «Les transports de Dakar: vers une intégration !ente», in M. C. Diop, *La société sénégalaise entre le local et le global*, Paris, Karthala, p.657-6[10] AQ Dakar/B Sivertsen. 2011. *Gasoline sampling scale*. [URL://http://www.air-dakar.org/LinkClick.aspx?fileticket=hdu0HmPKu0U%3d&tabid=220&language=fr-FR](http://www.air-dakar.org/LinkClick.aspx?fileticket=hdu0HmPKu0U%3d&tabid=220&language=fr-FR), view on 25

Hine, J. and Scott, J. (2000). *Seamless, accessible dependence in cities: users' view of the public transport journey and interchange*, *Transport policy*, 7, pp. 217 – 226.

ITDP (2004). Institute for Transportation & Development Policy. *Pre-Feasibility Study for Bus Rapid Transit in Dakar*.

ITDP: Institute for Transportation & Development Policy, 2004.

Kaufman, V., (2002). Rethinking mobility. Contemporary sociology, Aldershot, Ashgate, 109 p.

Kenworthy, J. and Laube, F, (1996). *Automobile dependence in cities: an international comparison of urban and land-use patterns with implications of sustainability*. Environmental Impact Review, 16. Pp. 279 -308.

Kusbiantoro, B. S., (1998), Transportation problem in Jabotabek (the greater Jakarta Metropolitan Area), Conference on transportation in developing country: Proceedings. Berkeley.

Larsen OI & Ostmo K (2001) The experience of urban toll cordons in Norway. Lessons for the future. *Journal of Transport Economics and Policy* 35(3): 457–471.

Lawrence Tseu (2006) urban transport growth: the challenges ahead-the new realism and institutional changes. Fourth Sabah-Sarawak Environmental Convention.

Luthra, A. (2006). “Para transit system in medium sized cities problem or Panacea”. *ITPI JOURNAL*. 3 : 2 55-61.

Levy, J. (2003) Quelle France voulons-nous habiter? Vote, urbanité et aménagement du territoire, *Territoires 2020 N°7*, 1-2003, pp. 121 – 139.

LOMBARD J. (2005). «Sénégal: des dérives du système de transports à la catastrophe du Joola», *Afrique Contemporaine*, n° 207, automne, p. 165-184.

Ly El Housseynou. (2004) – la politique de l’habitat au Sénégal : permanences et ruptures- in « Gouverner le Sénégal : Entre ajustement structurel et développement durable. » ed Khartala, sous la direction de Momar Coumba Diop.

Mark, S., Philip, L. and Adrean, T. (2007), *Research Methods for Business Students*, Prentice hall-Financial Times, 4.

Mark, S., Philip, L. and Adrean, T. (2009), *Research Methods for Business Students: Fifth Edition*, Prentice hall-Financial Times.

Mahootian, F & Eastman E. T. (2009) *Complementary frameworks of scientific inquiry: hypothetico-deductive, hypothetico-inductive, and observational-inductive*. World futures Vol. 65 pp 61 – 75.

MUAT/DPEVU (2004)- Elaboration du plan directeur d’aménagement et de sauvegarde des niayes et zones vertes de Dakar : rapport sur les orientations d’aménagement du plan directeur.

Niang S. et al. (2002)- L’épuration extensive des eaux usées pour leur réutilisation dans l’agriculture urbaine : des technologies appropriées en zone sahélienne pour la lutte contre la

pauvreté. Valorisation des eaux usées domestiques dans l'agriculture urbaine à Dakar. Rapport scientifique 1. Décembre 1999-mars 2002. IFAN/ENDA. Dakar 84 pages.

Ogunsanya A. A., (2004). *Analysis of Nigerian Government Policy on urban transportation*. Pub. By Nigeria Institute of Transport Technology (INTT), Zaia pp 203- 223.

Ortuzar, J. de D. and L.G. Willumsen. (1994). *Modelling Transport*. England: John Wiley & Sons.

Peil, M., (1983), Situational Variables. In Bulmer, M. and D.P. Warwick, (eds.), *Social Research in Developing Countries: Surveys and Censuses in the Third World*. UCL Press, London.

Pierce, Merrill, "A Foreigner's Gaze on the Micro-Culture of the Car-Rapide—Senegalese Values vs. Monetary Lust" (2011). *Independent Study Project (ISP) Collection*. Paper 1199.
http://digitalcollections.sit.edu/isp_collection/1199

PNUD (2004) Rapport national sur le développement humain/2003 : Le développement local au Sénégal/Problèmes et perspectives. Document de Travail. Version provisoire.

Republic of south Africa. (1996). *White paper on national transport policy*. Government printer. Pretoria.

Roland Lomme « La réforme des transports publics urbains à l'épreuve de l'intégration du secteur informel », *Afrique contemporaine* 2/2004 (n°210), p. 79-94.

URL : www.cairn.info/revue-afrique-contemporaine-2004-2-page-79.htm.

DOI : [10.3917/afco.210.0079](https://doi.org/10.3917/afco.210.0079).

Shrum, W., Duque, R., & Brown, T. (2005). Digital video as research practice: Methodology for the millennium. *Journal of Research Practice*, 1(1), Article M4. Retrieved [2012 – 08 - 29], from <http://jrp.icaap.org/index.php/jrp/article/view/6/11>

Strainescu, I. and Radulescu, V. (2011). The need for change of the transport mode in the great cities of Romania *In Urban Transport XVIII, WIT Transaction on the built Environment*, vol. 116, pp. 205 – 213, Pisa, Italy.

Sylvaine BULLE : - Gestion urbaine et participation de l'habitant : quels enjeux, quels résultats. Le cas de Yeumbeul (Sénégal).

SYSCOM (2001). *Enquête sur la mobilité, le transport et les services urbains à Dakar (EMTSU 2000)*, Dakar, CETUD, Rapport d'analyse, 201 p

Tatenda Chenjerai Mbara. (2002). Transport: how have African cities managed the sector? What are the possible options. Paper presented at the Urban & City Management Course for Africa. UMI, Kampala, Uganda 4-8 March 2002.

Transport for London (2003) Congestion Charging: Six Months On October 2003.

Washbrook K (2002) Assessing the Potential of Road and Parking Charges to Reduce Demand for Single Occupancy Vehicle Commuting in the Greater Vancouver Region. Report No. 298, School of Resource and Environmental Management, Simon Fraser University, June 2002.

TransLink (2000) Regional Travel Survey. GVRD Results. TransLink Marketing Department and Canadian Facts.

Tremblay, R & Ndiaye E. H.M (2008). Les caractéristiques du secteur du transport urbain à Dakar *Perspective Afrique* Vol. 3, No 1-3 2008, Note 1

Toney A et al. (2003). "Social weight: designing to minimize the social consequence arising from technology use by the mobile professional". *Springer-Verlag*. London.

Turner J., (), Developing Appropriate Survey Methods for Transport Research Among High Illiteracy, Low-Income Populations In Accra, Ghana, *TRB Transportation Research Circular E-C008*

Turner. J.. and P. R. Fouracre. (1993). "Women and Transport in Developing Countries." Project Report PPIOSC/004/93. Transport Research Laboratory. Crowthorne. U.K.

United Nations Economic and Social Commission for Asia and the Pacific. 1994. *Infrastructure Development as Key to Economic Growth and Regional Economic Cooperation*. New York.

Vertongen, L. (). Cost estimate of air pollution caused by public transport in Dakar with the help of EMME/2.

Wane, C. B., (2010), « L'islam au Senegal, le poids des confreries ou 'emitterment de l'autorite spirituelle » These de Doctorat en sociologie/anthropologie, Universite Paris Est

Wang H. G. and al, (2009). *Preparing to Manage Natural Hazards and Climate Change Risks in Dakar*.

WASHBROOK K.et al. (2006). Estimating commuter mode choice: A discrete choice analysis of the impact of road pricing and parking charges. *Transportation* (2006) 33:621–639. Springer

World Bank, (2010). Transport and urban mobility project. Report No: 53774-SN

World Bank, (2009). Transport and urban mobility project. Report No: 53774-SN

Yauch, A. C., Steudal, J. H. (2003). Complementary Use of Qualitative and Quantitative Cultural Assessment Methods, *Organizational Research Methods*, Vol. 6 No. 4, pp 465-481.

www.calameo.com/.../00027534795a831d, view on November 15, 2012, last update September 8th 2011

APPENDIX A. SOME SELECTED TESTIMONIES ON CAR RAPID EXPERIENCE FOR FOREIGNERS

R. C. (Robert Chatfield)

"*Car rapid*" literally translates to "fast car," yet any resident or visitor to Dakar can quickly confirm this particular type of vehicle is neither rapid nor even a car. Each contraption looks more like a brightly painted, Volkswagen Microbus that somehow took a journey from the Flower Power era and magically landed halfway around the globe in Senegal.

It would be impossible for any expatriate to navigate the mysterious routes and proper etiquette of the *car rapid* without the assistance of a trusted local guide. But, now I'm getting ahead of myself...

The *car rapid* stops every fifty feet or so to pick up passengers. The *car rapid* fits about 15 passengers comfortably. I counted 37 riding in ours; 38 if you count the guy, called locally *Apprentis*, literally hanging out the back door of the *car rapid* and shouting destinations to prospective passengers. It is not always easy to distinguish the called destinations so it is recommended to confirm the route with the controller to avoid surprises asking people on the street if they wanted to join the magic bus ride. The entire ride lasted about five miles and took nearly an hour.

The main advantage is that they ensure a seated place for everyone, if being in close proximity to the other passengers is not an issue. The payment system is quite interesting. Once full, the *apprentis* cannot move around to collect fares. He stays at the back (still partially outside) and calls up rows.

When it is your row's turn to pay, you give your money to the passenger behind you who passes it along to the next passenger all the way to the back. But 'what if I don't have the exact change?' a first time user might think. No worries, it will come back the same way. Once you have arrived at your destination, just knock a few times with a coin on the metal frame of the van to tell the driver to stop. It works almost every time.

A. T. (Andrea Thomas)

So for those of you that don't know, public transport in Dakar makes Detroit look like the shining gem of public transport. For those of you that don't know, that also says a lot. One of these infamous Dakar systems is the Car Rapide. It can hardly even be called a "system" and certainly not be called a "car."

These colorful, dangerous-looking vehicles are privately owned and carry about 20 people or more at a time. (The items hanging off the buses are relics that locals generally put on their buses and

taxis.) However, I feel only the Lonely Planet Senegal can give the description justice: While the [Car Rapide] is really cute to look at, it's not a great way to get around unless random stops, daredevil overtaking maneuvers and crammed seats are your thing. Car Rapides only operate in Dakar and pretty much cover any journey you can imagine, though not always as directly or quickly as you might hope.

Well said, Lonely Planet. And since there are no assigned stops, you bang the roof when you want to get off. But since Car Rapides only cost 100 CFA (~23¢ USD), and I do love crammed seats and daredevil driving (welcome to Dakar), why not? So one day, Zoey and I decided to test out the system. We waited at the NE corner of *Rue Cheikh Anta Diop* because that's where they all come. About three drives up and the boys on the back yell quickly out the destination over and over and if you want to go in that direction, you run up and hop on. So after about ten minutes, one drives up and the boy shouts "Dakar! Dakar! Dakar!" to go downtown. So we run up. And hop on. And then realize the boy is actually shouting "Ouakam! Ouakam!" (pronounced Wah-kum) not Dakar. Stupid Wolof accents!

So it looks like we're going to Ouakam. Ouakam is a northern village of the greater Dakar area that is vibrant, dusty, and chock-full-of Wolof (people and language). Luckily, Jess lives up there, and Zoey supposed to meet her later for lunch, so I call her up. She tells us to get off at the *Bonjour!* Gas station after about 20 minutes and she'll come get us. But twenty minutes later, no *Bonjour!* And we're still bumping along the dirt, pot-holed roads of Ouakam. Soon we're the last people on the bus. Uh-oh. The driver pulls over, and the boy on-back starts yelling for us to Marche! Marche! Well eff, we are stuck dead in the middle of dusty, Wolof-speaking Ouakam, nowhere near anywhere a gas station would be. We call Jess, but she can't really identify the trash piles and fabric markets we're passing. Finally, Zoey buys a banana, and we ask the man how to get to the Renaissance monument. We stop for another snack at a pastry shop, and then finally meet Jess at the base of the monument about 30 minutes later.

Anonymous

When we first arrived in Dakar I could not believe my eyes. I was overwhelmed by the yellow and black taxis and their incessant honking to get your attention for a fare. Since I've already covered that mode of transport it's time to focus on the more affordable and common alternative - the "Car Rapide" - these vibrant colored buses snake, and swerve and weave around Dakar and the outlying regions of the city. From what I can tell the Car Rapides have been hand-painted all with unique designs and messages, like 1960's psychedelic poster art from San Francisco but on wheels.

For a number of months I was content to admire them from afar and continue to take taxi's around but I also knew that the Car Rapide was a better price performer at 100 CFA (20 cents) one way compared to a taxi going the same distance for 1,500 CFA (\$3 USD) or more. Deep down inside I also knew that in order to appreciate and feel apart of the reason why we came to Dakar - to be a part of the culture - I had to get on board.

As I observed the way they work - they stop but not at any designated spot with a bench or sign that says "Car Rapide Stop - ici". In the chaotic appearance of them on the road - there is a system - one that is not intended to be truly figured out - which is why it probably actually works in getting you from point A to point B. There is always a young man who hangs outside of the swinging back door that is always open with his little satchel of fare money he has collected.

What I've also concluded is that there are never women or what would appear to be retirees in this 'job' - at least up to now I have never seen any. The guy on the back yells out a number of times the destination which I could never understand. When the people who want to get on - get on and he's ready to go - he taps on the bus several times as the indicator to the driver - "allons-y". As they go - they belch out a lot of dirty smoke that at times could be cut by a knife.

Up to now I had already graduated from the taxis to the Dakar Dem Dikk (mass transit type city bus one would see in the states - and has a formal route and designated bus stops) in order to get to Le Foyer to teach English every Friday. Multiple routes leave my neighborhood so I had a handful of lines I could catch going out. But what put me over the edge was my wait time after I finished at Le Foyer to get home - the number of Dakar Dem Dikk lines dwindled to one.

While I waited for the Dakar Dem Dikk - but no guaranteed time schedule - time would tick on while I waited and waited and waited. So while I waited I would entertain myself by engaging in a French conversation with a Senegalese person waiting too. It helped pass the time and ensured my continued effort to practice my French. As I waited I would observe more than multiple Car Rapides stopping at another spot before the designated bus stop and passing me by. After weeks of this it was time to take some action and get this wait time down to 5 minutes instead of 30 minutes to an hour.

And it was time for me to attack my fears and get in this colorful beast. From what I eventually realized at this spot the Car Rapides were all going in the same direction as the Dem Dikk so what did I have to lose, except get on the wrong one and notice it veering off to a neighborhood I was unfamiliar with. So I figured I'd wait for a Car Rapide that did not look so full - they usually hold about 20 people. And just ask the guy - "Sandaga?" - since I know they don't go any farther than that market - I can easily walk home from there. If he shakes his head yes - then I'm good to go! So the day had come, I ask and I hop on!

APPENDIX B: Questionnaires

Demande et satisfaction de la clientèle du transport public: Questionnaire pour le transport dans les ménages

Section A: Information personnelle

A.1: A propos de vous
 Genre Masculin Féminin
 AGE 21
 Avez-vous actuellement un emploi? OUI NON
 Quel est votre statut? Temps plein (Moins de 10 heures) Temps partiel (Moins de 10 heures) Self-employed Autres

A.2: Revenu
 Quel est votre revenu annuel? 1.000.000 2.000.000 3.000.000 4.000.000 5.000.000 6.000.000 7.000.000 8.000.000 9.000.000 10.000.000 Plus de 10 millions

A.3: Location
 Adresse 123456789 (ex. Tully bu road)
 Quartier 123456789
 Ville ou Municipalité 123456789

A.5: Possession de véhicule
 Avez-vous un véhicule? Oui Non
 Si oui
 Quel genre de véhicule(s)? 123456789
 Année(s) d'acquisition de véhicule(s)? 123456789
 prix(s) de véhicule(s)? 123456789
 Combien de km/an au courant de chacun?
 Combien de km au courant de chacun?
 Etes-vous le principal utilisateur du véhicule?
 Oui Non
 Etes-vous le second utilisateur du véhicule?
 Oui Non
 Temps/semaine commuté par chaque véhicule? 123456789

Raison
 B13 Satisfaction des clients (Cocher et expliquer)
 Etes-vous satisfait du service offert par:
 Ndiaga Ndiaye or car rapide satisfait pas satisfait
 Pourquoi 123456789
 Aftu minibus satisfait pas satisfait
 Pourquoi 123456789
 Bus DDD satisfait pas satisfait

B14 Fréquence de voyage
 Quelle est la fréquence de vos voyages?
 Tous les jours 1-2 fois par semaine 3-4 fois par semaine 1 fois par semaine 1 fois par mois 1 fois par trimestre 1 fois par semestre 1 fois par an occasionnellement jamais
 Pourquoi 123456789

Qu'est-ce qui motive le choix de votre mode de transport (Choisissez le principal motif puis le plus important, indiquez le nombre e.g. 1, 2, 3,)
 Pour arriver à temps distance entre la maison et le stop est court le billet n'est pas cher le service offert est meilleur
 Le temps d'attente est court le temps de parcours est court Confort Sécurité Mode Sûreté autres (précisez):

Transfert modal
 Quant il arrive au cours d'un voyage que vous décidez de descendre d'un *Car rapide* ou *Ndiaga Ndiaye* pour un autre mode de transport, est-ce qui peut être la principale raison?
 1) le car attend d'être plein 2) Le car est surchargé 3) les apprentis se disputent les clients 4) autres (précisez): 123456789
 Dans le cas où vous auriez pris le N°1, voulez-vous préciser vos différentes expériences?
 Maximum temps d'attente? 123456789 Minimum temps d'attente? 123456789
 Dans le cas où vous quitteriez pour changer de mode, lequel avez-vous l'habitude de prendre?
123456789

Section B: A propos de vos voyages journaliers

B6 Longueur des voyages
 Quelle distance parcourrez-vous par jour?
 Moins de 1 km Entre 1 et 3 km Entre 3 et 5 km Entre 5 et 10 km Plus de 10 km
B7 Combien de km marchez-vous pour trouver un stop de Ndiaga Ndiaye or car rapide 123456789
 Aftu minibus 123456789
 Bus DDD 123456789
 Taxi 123456789
 Train (PTB) 123456789
 Clando 123456789
B8 Temps d'attente
 Combien de mn attendez-vous un: Ndiaga Ndiaye or car rapide 123456789
 Aftu minibus 123456789
 Bus DDD 123456789
 Taxi 123456789
 Train (PTB) 123456789
 Clando 123456789
B9 Durées de voyages
 Combien de mn faites-vous pour atteindre votre destination finale si vous prenez un: Ndiaga Ndiaye or car rapide 123456789
 Aftu minibus 123456789
 Bus DDD 123456789
 Taxi 123456789
 Train (PTB) 123456789
 Clando 123456789

B10 Prix de transport
 Vous payez combien pour atteindre votre destination finale si vous prenez un: Ndiaga Ndiaye or car rapide 123456789
 Aftu minibus 123456789
 Bus DDD 123456789
 Taxi 123456789
 Train (PTB) 123456789
 Clando 123456789
B11 Principele mode de transport moyen suivants?
 Ndiaga Ndiaye or car rapide
 Aftu minibus
 Bus DDD
 Taxi
 Train (PTB)
 Clando
 Autres.....
B12 Occasionnel mode de transport
 Quel est parmi ces moyens suivants celui que vous utilisez au lieu de votre principal mode de transport? (vous pouvez choisir plusieurs)
 Ndiaga Ndiaye or car rapide

Mode de déplacement	Fréquence	Motif de voyage
C.14: Marche	<input checked="" type="checkbox"/> Tous les jours <input type="checkbox"/> plus de 3/semaine <input type="checkbox"/> 1-2-3/semaine <input type="checkbox"/> Moins de 1/semaine <input type="checkbox"/> 1/jour <input type="checkbox"/> 1/jour	<input checked="" type="checkbox"/> Travail <input type="checkbox"/> école <input type="checkbox"/> Recréation <input type="checkbox"/> Autre (Précisez le mode de transport) <input type="checkbox"/> Shopping (Précisez le mode de transport) <input type="checkbox"/> autres
C.15: Bicyclette ou Motocyclette	<input type="checkbox"/> Tous les jours <input type="checkbox"/> plus de 3/semaine <input type="checkbox"/> 1-2-3/semaine <input type="checkbox"/> Moins de 1/semaine <input type="checkbox"/> 1/jour <input type="checkbox"/> 1/jour	<input type="checkbox"/> Travail <input type="checkbox"/> école <input type="checkbox"/> Recréation <input type="checkbox"/> Autre (Précisez le mode de transport) <input type="checkbox"/> Shopping (Précisez le mode de transport) <input type="checkbox"/> autres
C.16: voiture individuelle	<input type="checkbox"/> Tous les jours <input type="checkbox"/> plus de 3/semaine <input type="checkbox"/> 1-2-3/semaine <input type="checkbox"/> Moins de 1/semaine <input type="checkbox"/> 1/jour <input type="checkbox"/> 1/jour	<input type="checkbox"/> Travail <input type="checkbox"/> école <input type="checkbox"/> Recréation <input type="checkbox"/> Autre (Précisez le mode de transport) <input type="checkbox"/> Shopping (Précisez le mode de transport) <input type="checkbox"/> autres
C.17: Ndiaga Ndiaye or car rapide	<input checked="" type="checkbox"/> Tous les jours <input type="checkbox"/> plus de 3/semaine <input type="checkbox"/> 1-2-3/semaine <input type="checkbox"/> Moins de 1/semaine <input type="checkbox"/> 1/jour <input type="checkbox"/> 1/jour	<input checked="" type="checkbox"/> Travail <input type="checkbox"/> école <input type="checkbox"/> Recréation <input type="checkbox"/> Autre (Précisez le mode de transport) <input type="checkbox"/> Shopping (Précisez le mode de transport) <input type="checkbox"/> autres
C.18: Aftu minibus	<input type="checkbox"/> Tous les jours <input type="checkbox"/> plus de 3/semaine <input type="checkbox"/> 1-2-3/semaine <input type="checkbox"/> Moins de 1/semaine <input type="checkbox"/> 1/jour <input type="checkbox"/> 1/jour	<input type="checkbox"/> Travail <input type="checkbox"/> école <input type="checkbox"/> Recréation <input type="checkbox"/> Autre (Précisez le mode de transport) <input type="checkbox"/> Shopping (Précisez le mode de transport) <input type="checkbox"/> autres
C.19: Bus DDD	<input type="checkbox"/> Tous les jours <input type="checkbox"/> plus de 3/semaine <input type="checkbox"/> 1-2-3/semaine <input type="checkbox"/> Moins de 1/semaine <input type="checkbox"/> 1/jour <input type="checkbox"/> 1/jour	<input type="checkbox"/> Travail <input type="checkbox"/> école <input type="checkbox"/> Recréation <input type="checkbox"/> Autre (Précisez le mode de transport) <input type="checkbox"/> Shopping (Précisez le mode de transport) <input type="checkbox"/> autres
C.20: Taxi	<input type="checkbox"/> Tous les jours <input type="checkbox"/> plus de 3/semaine <input type="checkbox"/> 1-2-3/semaine <input type="checkbox"/> Moins de 1/semaine <input type="checkbox"/> 1/jour <input type="checkbox"/> 1/jour	<input type="checkbox"/> Travail <input type="checkbox"/> école <input type="checkbox"/> Recréation <input type="checkbox"/> Autre (Précisez le mode de transport) <input type="checkbox"/> Shopping (Précisez le mode de transport) <input type="checkbox"/> autres
C.21: autres	<input type="checkbox"/> Tous les jours <input type="checkbox"/> plus de 3/semaine <input type="checkbox"/> 1-2-3/semaine <input type="checkbox"/> Moins de 1/semaine <input type="checkbox"/> 1/jour <input type="checkbox"/> 1/jour	<input type="checkbox"/> Travail <input type="checkbox"/> école <input type="checkbox"/> Recréation <input type="checkbox"/> Autre (Précisez le mode de transport) <input type="checkbox"/> Shopping (Précisez le mode de transport) <input type="checkbox"/> autres

APPENDIX C. FREE INTERVIEW AND FOCUS GROUP

Focus group elements

Excerpt of DDD, AFTU and Car Rapid and Njaga Njai comparison

PS: these textes were not corrected or revised in order to maintain the whole interviewee's ideas. Also, these texts are just some parts of our interviews.

(French)

Avec car rapides et njaga Njai, tu es à l'aise mais beaucoup d'arrêts, les chauffeurs ne connaissent pas le code de la route et les apprentis sont indisciplinés. Avec AFTU, on peut toujours arriver à temps mais la surcharge pose problème.

Les cars rapides et Njaga Njai sont bien pour les pays come le Sénégal mais ils font beaucoup d'arrêts. Pour AFTU, se sont les surcharges qui posent problème

Pour les cars rapides et Njaga Njai, je suis plutôt gêné par le comportement des chauffeurs et de leurs adjoints. Les AFTU quand a eux sont bien organisés, respect les arrêts et sont rapides

Les cars rapides sont plutôt bien du fait de l'accessibilité de leur cout et de la disponibilité des places assises. Quant aux AFTU, ils mènent a destination, il n'y a pas de coupure sur le trajet. Pour DDD cout moins élèves

Impolitesse du chauffeur, salissant, état de délabrement, les bus DDD sont plus pragmatiques, les AFTU sont plus rapide et il n'y a pas de coupure de route

Ndiaga ndiaye ou car rapide ils durent aux arrêts, Aftu minibus a cause du manque de place, Bus DDD il arrive pour certaines lignes que l'attente soit longue, Taxi a cause de la rapidité. Clando il ne s'arrête qu'a destination. Mes sorties ne sont pas nombreuses.

Aftu minibus a cause de la rapidité, Clando quand les places sont complètes, il ne s'arrête pas

Ndiaga Ndiaye or car rapide disponibilités des places assises, Aftu minibus il ya de la surcharge, Bus DDD la surcharge, Clando les clandos sont salissant et ne st pas confortable.

Ndiaga ndiaye or car rapide lenteur, puis nervosité, Aftu minibus rapidité(Gawaye), Bus DDD rapidité,

Ndiaga Ndiaye or car rapide a cause de la non fixité des arrêts, Aftu minibus a cause de la surcharge, Bus DDD la surcharge, Clando le chauffeur respect son engagement il te mène a bon port. Juste pour les services d'une grande importance du genre les cérémonies familiales.

Ndiaga Ndiaye or car rapide a cause du cout qui et a me porte, Aftu minibus plus rapide

Ndiaga ndiaye a cause de la lenteur (the cutting fact), Aftu minibus a cause du surnombre avant l'arrêt il sont déjà bondes, Bus DDD ils se font rares, Taxi s'il est plein il n'a pas d'arrêt jusqu'à destination, Clando c'est le moyens de transport jusqu'à Pikine(clandos taxi, clando gueulguel).

Ndiaga Ndiaye or car rapide le retard qu'il me cause, Aftu minibus rapidité, Bus DDD il y a une rareté des DDD.

Aftu minibus on arrive a destination.

Ndiaga Ndiaye or car rapide on trouve des places assises, Aftu minibus surcharge, Taxi rapidite, confort. Car cela dépend de mon activité (tailleur).

Ndiaga Ndiaye or car rapide parcequ'il s'arrête n'importe ou, Aftu minibus il y a une surcharge, Bus DDD la surcharge, Taxi confortable.

Ndiaga Ndiaye or car rapide s'il est plein il st rapide.

Ndiaga Ndiaye or car rapide beaucoup d'arrête, Aftu minibus il respect ses arrêts, Bus DDD du détour.

Ndiaga Ndiaye or car rapide ils sont souvent vétustes et les chauffeurs et apprentis indisciplines.

Ndiaga Ndiaye or car rapide il n'y a pas de surcharge les places assises sont disponibles.

Ndiaga Ndiaye or car rapide il retarde le voyageur, Aftu minibus ils ont répondu a une vieille doléance de la banlieue, Bus DDD le nombre de siège et limite et sont souvent bonde de monde, Taxi on y gagne en confort, Clando ils sont souvent vétuste, et salissant pour les habits. A de la retraite, et je ne sors que pour des obligations (cérémonies) ou visite a l'hôpital.

Ndiaga Ndiaye or car rapide la place assise, Aftu minibus AFTU mène a destination AFTU a soulagé la banlieue.

Ndiaga Ndiaye or car rapide à cause des durées au niveau des arrêts, tracasseries policière, Aftu minibus trop serre.

Ndiaga Ndiaye or car rapide le manque de respect des apprentis, Aftu minibus il ne retarde pas la clientèle, Bus DDD parce que les receveurs ont du respect et font tout pour rendre la monnaie, Taxi << sans panne il roule direct >>, Clando car après marchandage ils suivent une ligne direct.

Ndiaga Ndiaye or car rapide mais beaucoup d'arrêts.

Ndiaga Ndiaye or car rapide rapidité.

Ndiaga Ndiaye or car rapide manque de respect, Aftu minibus pas de problème, Bus DDD rapide, Taxi rapidité mais l'indiscipline souvent des chauffeurs.

Ndiaga Ndiaye or car rapide indiscipline, mauvais état, mauvaise conduite, Aftu minibus augmentation arbitraire des tarifs, Bus DDD vétuste du parc, problème d'assiduité, Taxi cherté des prix, Clando vetuste de parc.

Ndiaga Ndiaye or car rapide indiscipline et manque de sécurité, Aftu minibus sécurité et rapidité, Bus DDD sureté, sécurité, fiabilité, Taxi le tarif est cher, Clando rapide, économique.

Ndiaga Ndiaye or car rapide problème des monnaies, indiscipline, Aftu minibus même chose étroitesse, Bus DDD surcharge, Taxi rapidité, confort, Clando que pour les distances restreintes.

Ndiaga Ndiaye or car rapide parce que pour les car rapide ils mettent trop de temps dans les arrêts, Aftu minibus parce qu'ils ont des arrêts fixes et ne perdurent pas des ces arrêts, Bus DDD parce c'est très difficile d'en trouver et ils tombent souvent en panne, Taxi cher j'ai pas de choix, Clando j'ai pas le choix.

Ndiaga Ndiaye or car rapide embouteillage arrêts fréquents, Aftu minibus embouteillage surcharge, Bus DDD longue attente au niveau des arrêts, Taxi un peu cher, Clando pas sérieux.

Ndiaga Ndiaye or car rapide parce qu'il s'arrête beaucoup, Aftu minibus a cause du cout qui est élevé, Bus DDD parce que ca traine et y'a pas assez de place,

APPENDIX D. EXCERPT FROM INTERVIEW TRANSCRIPT

PS: these textes were not corrected or revised in order to maintain the whole interviewee's ideas. Also, these texts are just some parts of our interviews.

Le prix d'un car rapide et Ndiaga Ndiaye varie en fonction de la distance parcourue, les passagers paient sur demande de l'apprenti, ce modèle de collecte de tarif est appelé pass (cela signifie les frais de déplacement dans la langue locale: wolof). Ils sont toujours surchargé, mais ils jouent un rôle important, car très flexible, ils peuvent aller là où les autobus ne peuvent pas aller, ils sont liés à la notion de société et de la pauvreté aidant les gens à dépenser très peu. Cela signifie que même les plus pauvres peuvent utiliser ce type de mode de transport.

D'autre part, les passagers perdent trop de temps, le temps d'attente est longue et il n'ya pas de sens de la discipline, mais certainement, ils sont utiles pour la société.

Les modes de transport formels DDD et AFTU ne sont toujours pas accessibles pour tout le monde et ils moins sûrs que les car rapide et ndiaga Njai parce qu'ils sont généralement surchargés

Les cars rapides sont encore nécessaires à Dakar, car ils répondent aux besoins de transport à Dakar

Car rapid and Ndjaga Ndiaye semble être meilleure parce que les gens peuvent avoir des sièges, et sont aussi les mode de transport les plus abordable du public dans le secteur urbain de Dakar.

Même si il ya des prix officiels pour chaque voyage décidé par le gouvernement, les prix sont négociables, sont soumis au tarif arguments et discussion avec les apprentis (collecteur de tarif) qui peut durer tout le voyage, quand le prix proposé par le passager est inférieur à ce qui est exigé par apprentis, cela conduit à des échanges et disputes, mais il vont se recalmer. Des différends peuvent provenir du manque de pièces de monnaie ou les oublis qui conduisent l'apprentis a ne pas rendre la monnaie aux passagers qui ont deja payé le prix. Cependant, il y aura des réclamations qui finiront toujours dans la paix quand l'apprentis paye.

Je n'ai jamais disputer avec apprentis, un jour, j'ai pris un car rapid dont le prix est 100cfa mais je n'avait que 50cfa, l'apprentis me dit que c'est 100 cfa mais je lui dis bien "s'il vous plaît gerez ca" et il a compris.

Donc, comme nous le savons, il ya une façon de parler entre nous, au peuple sénégalais, même si vous n'avez pas d'argent pour le transport, il ya moyen de faire comprendre à l'apprentis qui aura à faire face. Personnellement je n'ai jamais eu de probleme avec des apprentis ou chauffeur

Les cars rapides etait dabord des interurbains et ont transporté des gens pendant des années, avant que cela devienne meme un mode de transport urbain, maintenant Ndiaga Njai est plus abordable pour cela, cars rapides ne peuvent pas plus faire le transport interurbain en ce moment, donc les car rapides sont uniquement pour le transport urbain.

Mais maintenant nous sommes partis pour quelques problèmes car lorsque vous voulez aller quelque part, car rapide n'est peut-être pas le meilleur moyen car il ne va pas vite du fait de ces incessants arrêts partout et tout le long des voyages

Donc, dans ce sens, je pense ça marche pour nous, nous les aimons vraiment, mais je suppose que si on pouvait les réformer un peu à cause de leur état, ce serait superbe et il ya beaucoup de choses dans les coulisses que vous connaissez pas.

Les cars rapides sont simples, si vous voulez aller quelque part, vous pouvez rencontrer beaucoup de problèmes comme des difficultés liés au prix, ou le grand bruit à l'intérieur du véhicule, vous n'êtes pas confortable même si vous essayez, si nous pouvions changer les cars rapides, il sera une très bonne chose.

Apprentis et chauffeurs travaillent tous les jours, y compris le dimanche jusqu'à 20 heures, c'est seulement quand ils ont un remplaçant qualifié apprentis et / ou le conducteur peut avoir un peu de repos. Dans le monde du transport, le repos est rare, la quantité de temps de repos est vraiment insuffisant, les opérateurs doivent être en place chaque matin très tôt et se préparer à côté du véhicule avec seulement le visage lavé, la plupart apprentis et conducteurs dorment à l'intérieur des véhicules, relatant les événements de la journée épuisée.

Principal of tomorrow nobody knows, only god knows

1. As old as they are, it's only very rarely that do the car rapides break down

Ce mode de transport est uniquement construit en ferronnerie, du fer avec tout le travail effectué ici même. Dès que le véhicule d'occasion importé arrive à sa destination, la mécanique arrive avec leurs compétences et la main-d'œuvre et commence à recycler le premier moteur de sorte que le véhicule puisse opérer. Puis, à l'intérieur du garage, le mécanicien transforme le corps de ce véhicule de transport des bagages en créant des ouvertures pour portes et fenêtres aux deux côtés. Il installe les sièges à l'intérieur des véhicules, le second banc, situé loin du conducteur contient de place pour cinq passagers. La marche arrière est l'endroit où l'apprenti se met.

Les apprentis représentent le signal du véhicule car ils dirigent les passagers et leur donne la destination du véhicule. Sur le trottoir, il raconte les passagers potentiels où le véhicule sera dirigé.

Dans l'espoir de combler les 25 places du véhicule ainsi que lui-même et le conducteur. Il ya aussi des coxeurs et ils sont tous des apprentis sont responsables de remplir le véhicule avec les passagers. Alors que certains autres passagers attendrons avec impatience que le véhicule commence son voyage. Tous les apprentis promettent de quitter tout de suite, tout de suite et il ira vite. En simulant un échange d'argent entre les apprentis et coxeurs qui doivent être payés avant que la voiture ne parte. C'est parce que le car rapide ne part que quand il est rempli. Le coxeur exige alors un petit montant pour avoir servi en tant que prétendu passager.

You often seen them get of the vehicle when many passengers get on.

How is work going?

Le travail est difficile en ce moment, il ya de nombreux problèmes comme le manque de matériel. Nous n'avons pas assez de matériel pour travailler. Et il n'y a pas assez d'espace pour travailler ici.

The road

Les cars rapides commencent à rouler tôt le matin, à cinq heures, les premiers passagers viennent un par un pour la première voiture. plusieurs cars rapides font la queue et doivent à leur tour prendre des passagers. Cette façon de faire est probablement créé par le syndicat des transports publics. Avec une importante demande, car rapide se met à remplir longuement avant de finalement partir. Toutes les destinations sont vers la ville ou entre la ville et ses banlieues et additionnellement d'une banlieue à l'autre. Cela permet à profiter un peu plus à faire avant d'entrer dans la ville. La nuit, le véhicule est garé seul, ou avec plusieurs autres du même propriétaire dans son quartier ou pas loin de son entreprise afin de les surveiller, bien sûr.

Coxeurs

Je suis un coxeurs, mon rôle est de tenter d'acheminer les passagers à prendre le car rapide, ils y a beaucoup de gens qui montent gratuitement parce qu'ils n'ont pas d'argent, ou ils font l'auto-stop. Les car rapides existent depuis 1976 en tant que moyen de transport pour les personnes de la classe ouvrière. S'il n'y a pas beaucoup de passagers, nous allons prendre les gens gratuitement, vous ne pouvez pas avoir ce genre de sociale avec le bus DDD ou Tata, ils ne pourront jamais le faire pour les gens et en particulier ceux qui n'ont pas beaucoup d'argent. Si quelqu'un monte et demande «savez-vous où je vais?» cela signifie qu'il ne peut pas payer, de sorte que l'apprentis décide si il ou elle peut monter ou non. Mais parfois les gens essaient de voler pour payer le voyage, ou sont agressifs envers les apprentis s'il refuse.

Owners

Je suis propriétaire d'un car rapide, les car rapides ont été créés par les premiers propriétaires ici, en Afrique, au début, ils étaient des camions de transport de bagages en Europe ; après les avoir importé à Dakar, nous les transformons en mode de transport public et ainsi ils deviennent des modes de transport urbain, ils sont unique au Sénégal. D'habitude ils descendent avec un seul siège et c'est nous qui mettons les autres sièges, des bancs, couper les fenetre et de tout faire pour qu'ils puissent transporter les gens au lieu de bagages ou d'objets. Ce modèle de véhicule est également très dur (solide). Parce qu'il est plus rapide et plus soutenu à l'usure que le minibus ou autres véhicule comme AFTU. Par exemple, pendant la saison des pluies, ils gèrent les nids de poule, les inondations, les flaques d'eau et autres aspects des desastres saisonniers Africains.

Commenter

Il est également nécessaire de comprendre que dès que les cars rapides sont arrêtés par les autorités contrôleurs de surcharge ou d'infractions de conduite, etc, la perte d'argent n'est pas bénéfique de toute façon, les cars rapides à cet effet n'hésiteront pas à faire un détour de leur trajectoire normale pour échapper au contrôle de la police et de l'amende. Cela aussi n'est pas bénéfique pour les cars

rapides. Les passagers sont souvent en désaccord avec ces mesures qui peuvent les retarder. Ainsi, les passagers se mettent en colère et sont souvent agités, mais la paix et le calme reviennent à chaque fois.

Passenger

Eh bien, un des problèmes du car rapide c'est que dès que vous montez sur le marche-pied, il se met en route sans se soucier si le client est confortable ou pas et cela peut causer naturellement des accidents. Le car rapide attend les gens à l'arrêt, au moment où d'autres déjà à l'intérieur sont en fait à la hâte. À l'intérieur, d'autres personnes qui ne voyagent pas font semblant d'être pressées, mais ce n'est pas le cas. Et parfois, ils disent aux gens qu'ils vont quelque part, mais avant cette prétendue destination, ils disent aux gens de sortir de la voiture parce que la voiture n'est pas pleine. Ce comportement amène les gens à être en colère, ils crient, mais rien, parce que chauffeurs et apprentis ne se soucient pas vraiment. Ce qui est essentiel pour eux est le car rapide doit être entièrement rempli sinon ils ne peuvent pas continuer la route. Et il est très souvent dans cet état que vous pouvez arriver à votre destination finale si vous roulez sur car rapide. Donc, en dehors de cela, ils sont partout. C'est la seule chose positive que je puisse dire à leur sujet et très fréquente. Cependant, en termes de discipline, il y a beaucoup de choses qui doivent être faites différemment.

Car rapid drivers

Je suis un chauffeur car rapide, il est vrai que nous nous arrêtons partout, mais ce n'est pas parce que nous voulons déranger mais parce que ce sont les exigences de l'emploi, les chauffeurs ne sont pas réellement différents, ils sont tous les mêmes, même avec les nouveaux Tata (AFTU), leurs chauffeurs sont les anciens car rapide et Njaga Njai.

Chauffeur de taxi:

La conduite d'un taxi est différente de la conduite d'un autre type de véhicule, j'avais l'habitude d'être conducteur de voiture particulière, chauffeur de compagnie et je conduisais sérieusement, mais maintenant je me rends compte que ma façon de conduire va très mal, cela est à la course pour l'argent, car il faut qu'on se decarcarasse pour obtenir le paiement à verser. C'est que nous devons regarder derrière avant de s'arrêter, mais il m'arrive (même à moi) de ne pas respecter ce principe. Le conflit entre les cars rapides et taxi vient de la base, c'est normal, c'est une sorte de compétition, je viens de courir ovoides où les cars rapides sont nombreux parce que nous avons la même façon de conduire comme aucune règle relative à la manière de charger la clientèle, etc faire vite nous savons que ce n'est pas normal et en fait nous n'avons pas le même genre de client afin que nous puissions travailler à côté d'eux sans problème, mais elles le restent souvent au milieu des routes de sorte que vous ne pouvez pas aller. Dans ce cas, Taxi font généralement le même après avoir obtenu l'avant de la voiture rapide et quand ils sont arrêtés par le client.

Car rapid drivers

sur la route, vous trouverez plusieurs personnes qui viennent d'obtenir le permis de conduire et a qui on donne ce travail, mais les automobilistes sont moins rapides dans le travail pendant plus de cinq ans avant d'être un pilote. Les problèmes des routes sont les chauffeurs de taxi parce que le ne peut se briser et peut s'arrêter à tout moment, si la prochaine voiture en cours d'exécution rapide n'empiètent pas, un accident va nécessairement se produire. Nous n'avons pas le même client avec le taxi, mais même si on leur demande de donner le chemin, ils refusent. Voiture rapide et Njaga Njai sommes le fournisseur de gros des conducteurs à un autre type de mode de transport à la fois public et privé.

INDEX

- AFTU, 8, 10, 11, 13, 14, 15, 16, 17, 24, 27, 28, 29, 30, 31, 33, 35, 60, 63, 64, 65, 67, 68, 69, 70, 71, 76, 78, 80, 81, 84, 86, 88, 89, 96, 100, 101, 102, 104, 105, 106, 108, 114, 116, 117, 119, 120, 127, 130, 131, 133, 135, 136, 139, 144, 149, 150, 151, 152, 154, 155, 156, 157, 158, 163, 164, 165, 169, 170, 172, 173, 177, 179, 182, 183, 185, 189, 192, 193, 206, 208, 210, 212, 213
- Aftu minibus, 102, 206, 207, 208, 209
- Almadies, 56, 117, 125
- Andrea Thomas**, 201
- apprentis*, 9, 58, 68, 69, 78, 79, 81, 82, 83, 89, 133, 134, 137, 146, 147, 163, 174, 201, 205, 206, 208, 210, 211, 212, 213
- Apprentis, 10, 58, 78, 82, 83, 84, 160, 161, 176, 201, 211
- autoroute a peage*, 59
- Car Rapid, 15, 16, 17, 30, 64, 65, 69, 81, 87, 88, 89, 100, 102, 105, 107, 114, 117, 125, 131, 156, 175, 189, 201, 202, 203, 206
- Car Rapid and Njaga Njai, 16, 64, 88, 102, 107, 114, 117, 189, 206
- Car rapid drivers, 167, 213
- Chauffeur de taxi, 213
- Cheikh Amadou Bamba, 21
- Clando, 66, 67, 133, 206, 207, 208, 209
- Corniche*, 11, 59, 108, 112, 125, 126, 128, 129, 130, 133, 134, 135, 136, 189
- coxeurs*, 83, 137, 147, 211, 212
- Coxeurs, 84, 212
- cultural symbol**, 178
- Daara***, 137
- Dakar, 8, 10, 11, 13, 14, 15, 16, 17, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 35, 36, 38, 39, 41, 44, 46, 47, 50, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 84, 88, 89, 90, 91, 92, 93, 95, 97, 99, 100, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 137, 140, 141, 143, 144, 145, 147, 149, 150, 152, 153, 154, 156, 158, 159, 163, 165, 166, 170, 172, 173, 174, 175, 176, 177, 179, 180, 183, 184, 185, 186, 188, 189, 190, 192, 193, 196, 197, 198, 199, 201, 202, 203, 210, 212
- DDD, 8, 10, 13, 15, 18, 24, 26, 27, 28, 29, 60, 63, 64, 65, 66, 67, 71, 72, 73, 74, 75, 76, 77, 84, 86, 89, 97, 100, 101, 102, 103, 104, 105, 106, 108, 112, 114, 116, 117, 119, 120, 121, 126, 127, 133, 135, 152, 155, 156, 158, 163, 180, 181, 185, 206, 207, 208, 209, 210, 212
- Dikk Dakar Dem, 24
- École Coranique***, 137
- École française***, 137
- Express Highway*, 59
- Fann, 37, 56, 103, 110, 112, 113, 117, 125, 126, 195
- God, 21, 124, 154, 175
- Grand-Dakar, 56

- Guediawaye, 23, 56, 57, 93, 103, 107, 109, 110, 111, 189
- Gueule-Tapee, 56
- Identity**, 177, 178
- informal transport modes., 67, 96, 129
- Islamic*, 10, 20, 21, 30, 79, 137, 138, 139, 140, 168, 170
- Islamic school*, 138
- Jeepney, 10, 12, 13, 40, 41, 42, 174, 175, 176, 195
- KingLong*, 177
- labor union, 24, 30, 32, 72, 137, 143, 144, 145, 147, 148, 157, 158, 159, 160, 161, 162, 171, 172, 174, 180, 185, 187
- Layene**, 21
- Manilla, 10, 41, 174, 175, 176, 195
- Marabout*, 14, 16, 17, 21, 27, 139, 140, 141, 142, 147, 148, 149, 150, 155, 156, 157, 160, 161, 162, 163, 166, 167, 168, 169, 170, 171
- Medina, 56, 92, 103, 109, 123, 125
- Mourides*, 21
- Murid**, 21, 26, 140, 141, 142, 148, 156, 161, 167, 168, 169, 175
- Muslim, 10, 20, 21, 81, 82, 137, 141, 142, 167, 168
- Ndiaga Ndiaye, 14, 65, 78, 207, 208, 209
- Njaga Njai, 8, 10, 11, 17, 24, 26, 27, 28, 30, 60, 64, 65, 67, 68, 69, 70, 71, 77, 78, 79, 80, 81, 82, 84, 86, 87, 88, 89, 96, 98, 99, 100, 101, 102, 104, 105, 106, 107, 108, 114, 115, 116, 117, 119, 120, 125, 126, 127, 128, 131, 132, 133, 134, 135, 142, 143, 149, 151, 152, 153, 154, 155, 156, 157, 159, 161, 162, 165, 167, 169, 173, 183, 188, 189, 192, 193, 206, 213, 214
- Papa Elimane Faye/TMU, 2012, 69, 70, 71, 73, 74, 75, 76, 90, 92, 93, 94, 95, 96, 98, 130, 138, 139, 141, 142, 143, 144, 147, 151, 176, 177
- Parcelles-Assainies, 56
- Petit Train Bleu, 24, 64
- Petit train De la Banlieue, 66
- Pikine, 23, 56, 57, 79, 93, 103, 107, 109, 110, 111, 189, 207
- Point E, 56, 103, 112, 117, 125
- political science, 16, 61, 188, 190, 191
- Prophet Muhammad, 21, 148
- PTB, 13, 15, 18, 24, 26, 27, 28, 29, 63, 64, 66, 67, 120, 155, 156, 158, 180, 181, 185
- qualitative methodology, 188
- quantitative methodology, 188
- Religious and social power, 30
- religious group, 11, 26, 27, 79, 140, 142, 143, 147, 148, 149, 150, 151, 157, 158, 161, 162, 164, 165, 166, 169, 173, 174
- Robert Chatfield**, 201
- Route des Niayes*, 11, 59, 108, 127, 128, 129, 130, 133, 134
- seat configuration**, 17, 89, 178, 179, 183
- Senegal, 10, 16, 19, 20, 21, 22, 23, 24, 25, 26, 27, 32, 39, 41, 50, 59, 60, 64, 66, 72, 79, 80, 81, 82, 85, 91, 92, 94, 96, 97, 111, 112, 113,

121, 123, 125, 126, 127, 128, 133, 134, 137,
138, 140, 141, 142, 143, 145, 146, 148, 154,
156, 159, 160, 167, 168, 176, 177, 179, 181,
185, 186, 192, 193, 196, 198, 199, 201, 202,
203

Serigne Saliou Mbacké, 141

Sīdī 'Aḥmad at-Tijānī, 21

Sociology, 1, 2, 61, 191

symbolic, 14, 16, 82, 164, 173, 178, 189

Tata, 64, 69, 154, 177, 212, 213

Tijan, 21, 140, 141, 142, 143, 148, 156

Tijani, 21, 142, 143, 148, 156

Tijānī, 21, 140

Tijaniyyah, 21

Tivaouane, 21, 148

Touba, 21, 141, 143, 148, 156, 167, 169, 175

Train de Banlieue, 26, 63, 64, 77, 119

wolof, 210

Xaadir (Qādiriyya), 21

