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ASSESSMENT OF PUBLIC TRANSPORTATION PROBLEM: THE CASE OF ADDIS ABABA CITY

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JUNE 2020, SMU, ADDIS ABABA

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Table of Contents

TABLE OF TABLES AND FIGURES

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ABSTRACT

The main objective *of the study was to assess the public transportation problem in Addis Ababa City specifically code-3 minibus taxis. Pertinent data were collected from different stakeholders (passengers, taxi drivers, public transport authority operation workers and line-up facilitators or Tera Askebariwoch) through questionnaire survey and interview. Descriptive statistics (frequency, percentage, mean and standard deviation) and thematic analysis were used to analyze quantitative and qualitative data, respectively.* Based on the research findings, the major problems facing public transportation, specifically code-3 minibus taxis in Addis Ababa are *long waiting time to get minibus taxis, paying more than stipulated fare, cutting the trip, not working on their assigned line, and disciplinary problem from drivers, transport authority operation workers and line-up facilitators. For the above problems to exist there are different underlying factors. Among those factors the main one is poor government management system, road and infrastructure problem, traffic congestion, lack of modern technology, lack of societal awareness or empowerment towards their right and shortage of vehicle, lack of integration among different stake holders.Thus, the researcher concluded that there is a great gap between demand and supply of public transportation specifically code-3 minibus taxis in Addis Ababa city. Based on this, the researcher recommends that to overcome the above mentioned public transportation problems, the government should give high emphasis to transport infrastructure, improve its transport management system by using modern technology, integration of all stakeholders, societal awareness creation to struggle for their right to stop those illegal works and towards the use of mass transport, increasing the number of mass transport and applying mass transport lane to each* sub city *and others.*

Key terms: public transportation problems, code-3 minibus taxi, Addis Ababa City

List of tables &/or figures

List of tables

List of figures

ACCRONYMS AND/OR ABBRIVIATION

- AACATA-Addis Ababa City Administration Transport Authority
- UKAID-United Kingdom AID
- MT-Ministry of Transport
- AAFEB-Addis Ababa Finance and Economic Bureau
- NZMT-New Zealand Ministry of Transport
- AERU-Agribusiness and Economics research
- TFP-Total Factor Production
- NCST-National Center on Public transportation
- PT-Public Transport
- TPMO-Transport program and management office
- LRT: Light Rail Transit
- BRT :Bus rapid Transit
- GPS :Global Positioning System
- SPSS: Statistical Package for Social Science
- A.A: Addis Ababa

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This is to certify that the thesis prepared by DEREJE ASSEFA, entitled "Assessment of public transportation problem: The Case of Addis Ababa City" and submitted in partial fulfillment of the requirements for the Degree of Master of Business Administration complies with the regulations of the University and meets the accepted standards with respect to originality and quality.

Signed By the Examining Committee:

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Advisor: _____Signature_____ Date _____

Declaration

I declare that this thesis is my original work. It has not been presented for a degree in any other university and all sources of materials used for the thesis have been fully acknowledged.

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Date of Submission: __20 /JUNE/ 2020_____

This thesis has been submitted for examination with my approval as a supervisor.

Advisor:

Name: EPHREM ASSEFA (Ph.D)

Signature: _____

Date: _____

CHAPTER ONE

1. INTRODUCTION

1.1. BACKGROUND OF THE STUDY

The principal role of transport is to provide access between spatially separated locations for the business and household sectors, for both commodity (freight) and person movements. For the business sector, this involves connections between businesses and their input sources, between businesses and other businesses, and between businesses and their markets. For the household sector, it provides people with access to workplaces and education facilities, shops, and social, recreational, community and medical facilities. Transport may be regarded as an important sector of the economy in its own right: transport infrastructure provision and transport operations together account for about five percent of New Zealand GDP. Given the significance of the sector in economic terms, both the level of transport investment together with the amount of expenditure on transport operations can have wider effects on the economy (as is seen when transport fuel prices increase substantially, resulting in reduced household expenditure on other goods and services). Transport and the economy are often said to have a two-way relationship; changes in the supply of transport may affect the level of economic activity and, conversely, the level of economic activity can affect the demand for transport (New Zealand Ministry of Transport, 2014).

Because of its intensive use of infrastructures, the transport sector is an important component of the economy and a common tool used for development. This is even more so in a global economy where economic opportunities have been increasingly related to the mobility of people and freight, including information and communication technologies (Rodrigue and Notteboom, 2020).

Public transport is an important mode of transport, especially for low-income populations. Cities, however, struggle to provide public transport services for fares that are both affordable and financially sustainable. Since meeting both goals is quite difficult, transport systems, either end up relying on high levels of subsidies or charging transit fares that are too expensive for the city's poor (Hernández and Peralta-Quiros, 2016).

In large cities where dependence on non-motorized modes for all travel needs is no longer feasible, public transport systems are essential to provide equitable access to city labor markets and other opportunities, and to enable the city economy to be efficient and productive. The states of Para transit-based public transport systems in Sub-Saharan African cities are inadequate, and there is an evident case for system improvement and reform. An essential component of any such reform will need to be the introduction of road space priority to free public transport vehicles from the congestion externalities arising from private transport on high volume corridors, and to rationalize vehicle size to match available road space and passenger demand profiles when such priority has been provided Four approaches to improvement and reform have been proposed, in the form of: the installation of new mass transit to replace existing services; a slower stepped transition from Para transit to mass transit; existing service upgrade; and the introduction of sophisticated contractual forms of service regulation in the form of concessions or franchises. Elements of these approaches can be observed in various contemporary Sub-Saharan African public transport improvement programs, but none has yet achieved success at scale (UKAID, 2015).

As the world population increases, life requires competition which needs increased mobility. The ability of moving from place to place with comfort, reasonable cost and desired time is one of the major factors affecting the competency of individuals. Human beings use different modes of transport for mobility. The growth of modes of transport varies based on the level of development of countries. As Ethiopia is a developing country, the transport service accessibility is low. Compared to the developed countries the mobility rate observed in Addis Ababa, the capital city of Ethiopia, is also low. In the cities of developed nations, the average mobility rate per person or trip/day is 2.5km. According to the 2005 transport study, the mobility rate or average trip/day/person in Addis Ababa is 1.08km. In this respect, the average length of mobility covered by vehicle is 3.3 km. and that of 1.5km by foot. In developed countries, the length of mobility by walking is not more than 500meter. Transport studies indicated that there is a big gap between public transport demand and supply in Addis Ababa.The service standard is also low. Old neighborhoods far from the main roads and expansion areas of the city are not well served by public transport. The city's growth in economy, geographical area and population, brings urgent attention and needs additional mass transport service provision supported by capacity and technology. As the City is experiencing urban expansion, the bus service needs to be improved

proportionally with City's spatial growth. At present there are various public transport providers some are funded by Government and some are private. Government funded are Anbessa, Sheger, Light Rail and PSETSE, private are Code 1- Mini Bus, Code 3 - Mini Bus, Higer – Midi Bus and Kitkiti – Midi Bus (TPMO,2020).

1.2. STATEMENT OF THE PROBLEM

Many studies, in different parts of the world, have been conducted to examine the challenges associated with public transportation. Govender (2014) has conducted a study on A Theoretical Overview of Public Transport Service Quality: A Focus on Bus and Mini-Bus Taxi Service in South Africa and he founded that passenger transport will best serve its customers when fares and routes are integrated and, when it offers access to a wide range of destinations with easy transfers. These easy transfers are made possible by purpose-built interchanges, where passengers may change modes in safety, and are protected from the elements.

Another study by Nkambule and Govender (2014) examined mini-bus taxi as a means to improving public transportation in South Africa and founded that a general lack of business skills, violence and ignorance of labor laws among taxi operators were cited as some of the "core problems" facing the South African mini-bus taxi industry. These challenges are further compounded by the poor regulation and controls that prevail in this industry.This gap in transport service is mainly serviced by private "illegal" taxi owners and individuals who own private cars, and charge higher than the normal taxi fares, since their services are based on a 'door to door' principle. Regardless of the high fares charged, commuters are prepared to pay for these services as their safety is relatively guaranteed.

Kerr (2014) has conducted a study on Minibus Taxis, Public Transport in South Africa, and concluded that South African households have fairly good access to public transport, with only 7.5% of poor households reporting no access to either bus, train or taxi, and 83% of these being outside metro areas. Operating a taxi is thus generally fairly profitable, with the City of Cape Town survey data suggesting that the return on capital was between 30-70% across the 12 routes they surveyed.

Few studies were also conducted to assess public transportation system in Ethiopia. According to The FDRE Ministry of Transport (2011), the existing public transport system in Addis Ababa

is critically inadequate to provide services for the existing travel demand. The overall performance of mass transport was constrained by many problems, of which low transport service accessibility and standard, lack of taxi station, parking spaces and poor traffic management and control have remained the most critical issues today. Besides, most of the roads are poor and the quality and accessibility of taxi is discouraging, increasing traffic congestion, pollution and accidents in the city. Despite magnificent effort, taxi transport service remains the main problem in Addis Ababa and the need for adequate transport service has kept on growing (Ministry of Transport, 2011).

According to Addis Ababa Finance and Economic Bureau (2010), more than 50 percent of Addis Ababa city residents live below absolute poverty line and most of the residents have low income. However, the cost of transportation in the city is steadily increasing overtime as a result of increase in the price of oil and spare parts. Complaints come frequently from passengers on traffic congestion, unpredictable and irregular service, cutting the trip, collecting above-tariff, long waiting time to get taxi and the rearing the taxi assistants and the driver's (MT, 2011).

Habtamu, etal (2014) conducted a study on zonal regulation of minibus taxi transport service: a solution or confusion? Evidence from taxi transport service in Addis Ababa, Ethiopia concluded that time spent onboard, waiting environment for taxis at taxi terminals, responsiveness of transport bureau towards transport related problems, theft and traffic congestion are not improved with zonal taxi transport system. There is poor traffic management, poor road network and narrow road in the city which result in congestion. Congestion in turn slow down the speed of vehicles that produce longer time spent onboard. Even though taxi terminals are established, the waiting environment for taxis at taxi terminals such as facilities like benches and shelter is not improved as compared to the situation before the regulation came into place.

Mammo (2010) has conducted a study on assessment of customer satisfaction in transportation service delivery in the case of three terminals of Anbassa City Bus Service Enterprise. In the analysis the researcher found that the existing transport service of ACBSE is constrained by capacity limitation. Consequently, the quality of the service is poor and the basic quality of service indicators devised by World Bank was not meet and the majority of customers were dissatisfied with the selected service attributes. Most of the respondents do not have positive

feeling about the transport service of ACBSE. Therefore, ACBSE is not meeting the requirements of customers.

A study by Zewdu (2014) assessed public transport service in the case of cross country buses in Ethiopia and founded that the accessibility of the existing long distance public transport service is not satisfactory. The growth of public transport in comparison to other transport system is still backward. The buses do not arrive to their destination on time. The capacity of regulatory body to implement rules and regulation both financially and in human resource aspect is weak. The trip schedule setting by transport authority is not convenient. The bus terminal service is poor.

Therefore, the researcher has seen firstly the contextual gap from the empirical studies of other countries. Regarding the empirical studies of our countries most of the researcher focused on public transport like Anbassa city bus and code-1 minibus taxis. The researcher hardly founds empirical studies related with code-3 minibus taxis. Hence, the researcher attempted to fill the gap by focusing on the assessment of the affordability, accessibility, comfortability and structural problems facing code-3 minibus taxis in Addis Ababa, Ethiopia.

1.3. OBJECTIVE OF THE STUDY

1.3.1. GENERAL OBJECTIVE

The general objective of the study was to assess the problems facing public transportation specifically code-3 minibus taxis in Addis Ababa, Ethiopia.

1.3.2. SPECIFIC OBJECTIVE OF THE STUDY

- To assess the current public transportation system in Addis Ababa.
- To examine the affordability of code-3 public transportation system in Addis Ababa
- To examine the accessibility of code-3 public transportation system in Addis Ababa
- To examine the comfortability of code-3 public transportation system in Addis Ababa
- To assess the current efforts and future plan of A.A Transport Bureau to alleviate the city's transportation problem

1.3.3. RESEARCH QUESTIONS

- How does the current public transportation system in Addis Ababa looks like?
- How does the affordability of code-3 public transportation system in Addis Ababa looks like?
- How does the accessibility of code-3 public transportation system in Addis Ababa looks like?
- How does the comfortability of code-3 public transportation system in Addis Ababa looks like?
- What are the current efforts and future plan of A.A Transport Bureau to alleviate the city's transportation problem?

1.4. SIGNIFICANCE OF THE STUDY

This study brings lots of benefits to different stakeholders involved in the transportation sector. First it helps Addis Ababa Transport bureau, Addis Ababa City Administration Transport authority, and Transport Planning and Management office to improve their practices. In addition to this, the final report of this research was helps transport policy makers as a tool or input for their decision making. It also helps the researcher to gain deep knowledge about the public transport problem and will also serve as a work of reference for other researchers.

1.5. SCOPE OF THE STUDY

Conceptually, the study was delimited to assess the affordability, accessibility, comfortability and structural related factors affecting code-3(minibus taxis) public transportation system in Addis Ababa. This study was geographically delimited to Addis Ababa city. Methodologically, and pertinent data was gathered through questionnaire and interview from different respondents in all sub-cities (10 sub-cities).

1.6. LIMITATIONS OF THE STUDY

Some of the limitations of the study are unwillingness of survey respondents to disclose some important data due to the existing global pandemic diseases (COVID-19). Moreover, was were lack of up to date secondary resources to conduct the study. Besides, due to financial and time constraints, the researcher could not fully collect from respondents.

1.7. DEFINITION OF KEY TERMS

Transport: the movement of people or goods from one place to another. is the movement of humans, animals and goods from one location to another. to carry, move, or convey from one place to another.

Public transport: buses, trains, and other forms of transport that are available to the public, charge set fares, and run on fixed routes.

Public Transport Accessibility: is a simple, easily calculated approach that hinges on the distance from any point to the nearest public transport stop, and service frequency at those stops.

Public Transport Affordability: means that people can purchase access to basic goods and activities (medical care, basic shopping, education, work and socializing), which typically means that households spend less than 20% of budgets on transport and less than 45% on transport and housing combined.

Public Transport Comfortability: The degree to which something or someone is comfortable in the type of transportation system he/she usually uses.

Public Transport demand: is about the movement of people and goods and we travel in order to satisfy a need (work, education, recreation etc) and we transport goods as part of the overall economic activity.

Public Transport supply: Transport supply is the capacity of specific transportation infrastructures and modes over a time period.

Public Transport infrastructures: Transport infrastructure is composed of the fixed installations of canals, waterways, airways, railways, roads, and terminals, as well as pipelines such as seaports, refueling depots, trucking terminals, warehouses, bus stations, railway station, and airports.

Traffic congestion: is a condition on transport that is characterised by slower speeds, longer trip times, and increased vehicular queuing.

1.8. ORGANIZATION OF THE STUDY

This study is organized in five chapters. Chapter one deals with introduction and background of the study and includes, statement of the problem, objective of the study, significance of the study, scope of the study and limitations of the study. Chapter two reviews both theoretical and empirical studies related to the study. The third chapter discusses research methodology including research design, data sources, methods of data collection, target population and sampling, and d methods of data analyses. Chapter four deals with data presentation and interpretations of the collected data. The last chapter presents summary,conclusion and recommendation.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1. THEORETICAL LITERATURE

2.1.1. PUBLIC TRANSPORTATION

Further, being able to move around is essential in people's everyday lives for managing everyday activities, for participating in society, and for maintaining social contacts .The ability to use different modes of transport (such as walking, cycling, going by car, or going by public transport) is also essential for people to fully participate in activities outside their own home, and the World Health Organization emphasizes the importance of ongoing work for the removal of

environmental and social barriers .Public transport often plays a pivotal role in society—ensuring access to education, employment, daily activities, and social interaction and thereby enabling citizens to be a part of society .Public transport is considered particularly important for disabled people, not least since this group can have more restricted access to other modes of transport, such as the access to a private car. Consequently, some researchers discuss "low-mobility populations", where the restricted access to modes of transport can mean marginalization and low possibilities of influencing one's own life situation. Other researchers highlight the "poor relation" the social dimension traditionally has had in transport research. They point out how the lack of resources, in the form of access to modes of transport, can be referred to as transport poverty, which in turn can lead to social disadvantage and social exclusion. People with poor resources for mobility can also be at risk for what some researchers calls "a poverty trap": they might have to settle in more peripheral locations with fewer possibilities of local employment and with lower societal services offered. Some researchers also criticize transit planners for mainly focusing on "the needs of a commuting population, often to the exclusion of low income, disabled or other marginalized riders (Stjernborg, 2019).

2.1.2. Transport demand and supply

Transport supply and demand have a reciprocal but asymmetric relation. While a realized transport demand cannot take place without a corresponding level of transport supply, a transport supply can exist without a corresponding transport demand. This is common in infrastructure projects that are designed with a capacity fulfilling an expected demand level, which may or may not materialize, or may take several years to do so. Scheduled transport services, such a public transit or airlines, are offering a transport supply that runs even if the demand is insufficient. Infrastructures also tend to be designed at a capacity level higher than the expected base scenario in case that demand turns out to be is higher than anticipated. In other cases, the demand does not materialize, often due to improper planning or unexpected socioeconomic changes. There is a simple statistical way to measure transport supply and demand for passengers or freight: The passenger-km (or passenger-mile) is a common measure expressing the realized passenger transport demand as it compares a transported quantity of passengers with a distance over which it gets carried. The ton-km (or ton-mile) is a common measure expressing the realized freight transport demand. Although both the passenger-km and ton-km are most commonly used to measure realized demand, the measure can equally apply for transport supply (church, 2012).

2.1.3. Demand for transport

The demand for travel by individuals and households is essentially a function of their desire for physical access to workplaces, educational establishments, shops, and social, recreational and community facilities. The extent to which these desires translate into actual travel will be moderated by the time and costs involved in making the desired trip. Travel times and costs will be dependent on: the supply of suitable transport services, including speed, quality and convenience factors relating to the services (for example, service frequency, reliability, crowding), the financial cost (price) of the services , perceptions of any social and environmental costs associated with the trip and the services involved (for example, level of safety and security, adverse environmental effects)(New Zealand Ministry of Transport, 2014).

Transport demand is the transport needs, even if those needs are satisfied, fully, partially or not at all. Similar to transport supply, it is expressed in terms of number of people, volume, or tons per unit of time and space (church, 2012).

2.1.4.Accessibility /supply of transport services

The production of all goods and services can be described using the concepts of inputs, outputs and technology. Inputs have to be acquired by the firm and combined to produce and supply outputs. In the case of transport, the firm has to use vehicles, terminals, rights-of-way, energy, labour and so on, to produce movements of freight or passengers, from many different origins to many destinations in various periods and at various frequencies. The supply of transport services occurs through a combination of providing and using infrastructure across a range of modes. Provision of infrastructure incurs capital costs and covers, for example, roads, railway lines, airports and ports, while usage is made possible through vehicles (for example, cars, trucks, trains, airplanes and boats) and management systems (for example, traffic lights, signals, air traffic control, navigational aids). It is evident that the _transport system is broader than just physical transport networks and vehicles (NZMT, 2014).

Transport supply is the capacity of transportation infrastructures and modes, generally over a geographically defined transport system and for a specific period of time. Therefore, supply is expressed in terms of infrastructures (capacity), services (frequency) and networks. The number of passengers, volume (for liquids or containerized traffic), or mass (for freight) that can be

transported per unit of time and space is commonly used to quantify transport supply (church, 2012).

2.1.5. Supply and Demand Functions

Transport supply can be simplified by a set of functions representing what are the main variables influencing the capacity of transport systems. These variables are different for each mode. For road, rail and telecommunications, transport supply is often dependent on the capacity of the routes and vehicles (modal supply) while for air and maritime transportation transport supply is strongly influenced by the capacity of the terminals (intermodal supply) (church,2012).

- ✓ **Modal supply**. The supply of one mode influences the supply of others, such for roads where different modes compete for the same infrastructure, especially in congested areas. For instance, transport supply for cars and trucks is inversely proportional since they share the same road infrastructure.

- ✓ **Intermodal supply**. Transport supply is also dependent of the transshipment capacity of intermodal infrastructures. For instance, the maximum number flights per day between Montreal and Toronto cannot be superior to the daily capacity of the airports of Montreal and Toronto, even though the Montreal - Toronto air corridor has potentially a very high capacity.

2.1.6. Position of Stakeholders towards the System

Institutions are the key instrument in executing governmental policies and strategies. Nevertheless, transport institutions in Addis Ababa have severe capacity limitation in carrying out their responsibilities to lead the sector. Though transport service requires coordination among different institutions. Evidence suggests that collaboration among these institutions seems to be minimal and not coordinated. One of the basic problems in this respect is that, the institutions are organized under fragmented set-up. The existence of resource, capacity limitation in terms of knowledge in transport and failures to accomplish their responsibilities are the main challenges to lead the city's transport sector. The knowledge and attitudes of the stakeholders towards traffic is decisive, in order to have efficient traffic management in the city. That is why currently awareness about traffic is done a better way as compared to the past years. Nonetheless, the

training and awareness creation effects concerning the issue are unsatisfactory and lack continuity (Ministry of transport, 2011).

In most of the developing countries, there are several factors that contribute to the severity of transport problems. The rapid growth of the large cities due to the growth in population coupled with increase in urbanization has posed serious challenges in developing adequate infrastructure facilities. The major transportation problems are haphazard and unplanned development at the suburban fringe with little or no provision of transportation facilities, poor public transport facilities, inadequate parking, and increasing number of vehicle these all problems has a high impact on mobility. Mobility is defined as the access of transportation. It is important in travel demand models to determine choice available to the consumer. Urban mobility refers to the efficient movement of people and goods, through efficient, environmentally sound, safe and affordable transportation that contributes to improving social equality, public health resilience if cities and productivity. Transportation and mobility are recognized as central to sustainable development since they enhance economic growth, improve accessibility and achieve better integration of the economy while respecting the environment. Better transport promotes universal access to social service and therefore can make an important contribution to consolidating and achieving development gains in urban centers (Rathour,S .Gupte,S. Juremalani, J., 2018).

2.1.7. The Contribution of Transportation to Socio-Economic Development

Among the modes of transportation that played a big role in the history of humankind, road and water transport figure prominent [are in the forefront]. Although the expansion of the transport sector is of tremendous economic, social and political benefit, there are nevertheless some negative aspects to it. The fact that its energy consumption is high (16-35%), that it is foremost among the factors that contribute to environmental pollution, that it has been classified among the world's killer diseases with regard to traffic accidents, and that it has become a source of anxiety in terms of congestion constitute the negative side of the transport sector. The contribution of transportation to a country's development is high. Its share of contribution to the GDP of a country is incontrovertible, though the nature and extent of the contribution varies from country to country. Transportation plays a big role in what is known in both national and international trade as invisible trade. It has been confirmed that its share in this respect in many

developed countries is as high as 26%. The role of transportation in the investment sector varies between the developed and the developing countries. Because a good part of infrastructure development has been taken care of in the developed countries, most of the investment there focuses on automotive equipment, whereas the investment in the developing countries focuses on infrastructure development. Of the total investment expenditure of developing countries, 30-35% goes to infrastructure development, whereas in the developed countries the share of expenditure for same is only 15-20%. In terms of creating job opportunities, the share of the transportation sector in the developing countries is only 2-4% due to the low-level performance of the economy, while in the developed countries, the figure stands at 4-8%. And the job creating role of the sector does not include the labor force deployed in the building of infrastructure (Aklilu and Admasu, 2012).

2.1.8. Overview of public transport in Sub-Saharan Africa

The history of public transport development in Sub-Saharan Africa varies from one country to another. However, to date we may affirm that it is a sector which remains poorly organized 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. This part assesses the present organisation of public transport in each country of Sub-Saharan Africa to better understand the current situation and possibly the facts that led to it. Clearly, the disorder that is prevalent in the sector implies poorly reliable statistics and the attempt to evaluate the number of transport units remains everywhere a great challenge, very often for the authorities themselves. Among others, technical maintenance issues represent an important share of the difficulties of the public transport companies and main source of their failures. Therefore, the study also reviews the environmental operating conditions for African fleet, outlining their impacts on vehicle operation as well as the key technical features of buses to be able to operate. However, this part will only consist in providing an overview as the second part of the Trans-Africa Project will specifically deal with this aspect. Generally, public transport operators are confronted with numerous problems, one of the most crucial being the insufficient and inadequate transport infrastructures. In such a context, the result is a struggle for survival due mainly to the costs to be borne in order to continue the transport activity. The difficulty in securing spare parts combined with recurrent breakdowns frequently leads operators to carry out structural modifications to vehicles. Taking

into consideration these difficulties and individual or collective measures taken by the operators, working bases will be established within the framework of this project with a view to drawing up specifications for an African bus(African Association of Public Transport (IAPT,2012).

2.1.9. Public transport in Ethiopia

Public transport in Ethiopia consists of operations to and from the capital Addis Ababa. The transport modal share in the capital can be broadly spilt as: 10% private car, 25% public transport and 60% walking. Contrary to many other African cities, the role of bicycles in urban transport is largely insignificant due to topographical restrictions and there is no rail transport within the city. Public transport mainly consists on the one hand of conventional bus services provided by the publicly owned Anbassa City Bus Enterprise and also taxis, and mini and midi-buses operated by the private sector The large proportion of walking suggests that public transport fares are globally unaffordable for the level of income of the city population. Car ownership among residents is very low, so the majority depends on buses and taxis for their day-to-day mobility in terms of motorized transport. Until 1992, the right to operate large buses within Addis Ababa was exclusively held by Anbassa while minibus 'taxi' services were restricted and regulated on a zonal basis by the public authority. In 1992, the public transport market was deregulated by a transitional political regime through the 'Proclamation to Provide for the Regulation of Road Transport' which limited the conditions for running a public transport activity to only two: proven roadworthiness of the vehicle and qualification of the driver. Once his permit was issued, the carrier was then able to operate throughout the city with no exclusion from routes or areas (IAPT, 2012).

2.1.10. Public transport regulation In Addis Ababa

The public transport sector is supervised by the Ministry of Transport and Communications at the federal level, which has responsibility for formulating policy and issuing directives to give a clear vision of public transport development in the country. It acts through the Ethiopian Road Transport Authority (R.T.A) which was established in 1967 and is responsible for the use of any roads within Ethiopia, the vehicles using these roads and for all road transport activities. At the Addis Ababa regional level, public transport and infrastructures are managed by the transport authority under the auspices of the City Government with the overall mandate to issue route licensing and permits to the operators. The fares are regulated by the city Government with a

substantial difference between the minibuses and Anbassa, whose fares are subsidized (IAPT, 2012).

2.1.11. Transport Characteristics of Addis Ababa

As per the records of Addis Ababa City Transport Authority (AACTA), the existing total number of vehicles registered in Addis Ababa is 316,406, showing a growth of 38.2% since 2014. The private vehicles and commercial vehicles registered in Addis Ababa have increased by 46.4% and 40.8% respectively since 2014, whereas the increase in the number of taxis registered is 4.5% during the same period. As per the Transport Policy of Addis Ababa (August 2011) prepared by Ministry of Transport, the per capita trip rate (PCTR) or average number of trips per day per person in Addis Ababa is 1.08 which is quite low as compared to the developed countries. The average trip length by vehicle is 3.3 km and that on foot is 1.5 km. As per the World Bank, walking remains the predominant travel mode which is estimated to be 54 percent of all city trips (TPMO,2020).

2.1.12. Current Public Transport Systems of Addis Ababa

The current public transport systems in the Addis Ababa comprise city buses (Anbessa, Sheger and Alliance), mini buses, Light Rail Transit (LRT), Higer buses (midi buses) and taxis. Currently, the dominant and affordable means of public transportation are city buses, LRT and mini buses, however, transport studies show that there is a huge gap between public transport demand and supply in the city and the service standard is also low. In September 2015, the Light Rail Transit (LRT) system was introduced in Addis Ababa to augment the existing public transportation system as well as to provide a sustainable transportation option(Ibid).

The LRT has a capacity of 80,000 PPH (Passenger / hour).The LRT carried average 113,500 daily passengers in January 2016, with 153,000 passengers as highest passenger load during a single day. LRT is considered to have brought considerable change in city transportation in Addis Ababa by making available a fast, reliable and cheap public transport option for the commuters. Public transport in Addis Ababa is of mixed ownership structure, as the city has both public and private transit operators. There are a number of public transport modes being operated by multiple operators and there is almost no integration between different modes and services, in terms of network, routes, fares, schedules and facilities (*Ibid*).

2.1.13. Institutional Structure Related to Public Transport in Addis Ababa

There are a number of authorities/agencies at both federal level as well as city level that deal with public transport in Addis Ababa. These authorities/ include:

- Federal Transport Authority (FTA)
- Ethiopian Railways Corporation (ERC)
- Addis Ababa Road and Transport Bureau (AARTB)
- Transport Program Management Office (TPMO)
- Addis Ababa City Transport Authority (AACTA)
- Anbessa City Bus Services Enterprise (ACBE)
- Sheger Mass Transportation Service Enterprise
- Alliance Transport Service S.C (a private company)
- Public Service Employees Transport Service Enterprise (PSETSE)

2.1.14. Issues with Existing Public Transport in Addis Ababa

The Transport Policy of Addis Ababa (August 2011) has identified a number of issues with the public transport in the city which include a wide gap between public transport demand and supply, low service standard, fragmented institutions among others. The frequency of buses is inadequate and unreliable resulting into long waiting times for passengers at bus stops. Major part of public transport need is catered to by private mini buses, however, the same is fraught with a number of problems such as unhealthy competition, unreliable operations, overcharging, ad hoc change of routes, overcrowding of passengers, etc(Ibid).

The passengers usually require to make two or more trips in public transport for intra-city office or work related commuting. The existing public transport systems operate in isolation to each other and there is no integration amongst these in terms of infrastructure, network, information and ticketing (*Ibid*).

2.1.15. Plans for Public Transport for Addis Ababa

Government of Ethiopia has been making substantial investments to expand transport infrastructure and transport service delivery. There has been significant focus on transport sector in both Growth & Transformation Plans (GTP-I and GTP-II). During Growth & Transformation Plan - I (GTP-I) period i.e. 2009-10 to 2014-15, there has been significant growth in transport in Ethiopia as is evident by about 31% increase in the total distance covered by buses and increase in the number of passengers transported from 148.1 million to 394 million in the country, during the GTP-I period. As per GTP-II (2015-16 to 2019-20), it is proposed to address the problems relating to public transport in the Addis Ababa city by providing public transport and light rail services. Although there has been significant improvement in the public transport sector in Addis Ababa with the introduction of LRT and Sheger buses, it has been planned to further enhance the quality of services and safety by strengthening modern public transport and traffic management information system. In GTP-II, it is also planned to reduce transportation cost through creating an integrated system and increasing efficiency of transport services. Recognizing the key role of transport infrastructure for the city's socio-economic development, the federal government and the city administration have given special attention on construction and administration of transport infrastructure in Addis Ababa. With a view to providing safe, efficient, comfortable, affordable, reliable and accessible transport services in Addis Ababa, the Transport Policy of Addis Ababa, 2011 was formulated by the Ministry of Transport (TPMO,2020).

Some of the key strategic objectives highlighted in the Policy are:

- Develop standard, integrated and coordinated system for the mass transport service provided in the city for the convenience of commuters time, ticketing, transfers etc.
- Emphasize on minimizing trip length and avoid unnecessary trips
- Deliver convenient inter-modal mass transport service for transfer in terminals
- To expand infrastructure crucial to enhance mass transport services such as LRT, BRT, etc.
- To give priority to mass transport along major roads and intersections and ensure improved, efficient and high level service

- To make public mass transport more economical and deliver improved service.

In order to improve public transport in the city, the bus fleets of Anbessa and Sheger are planned to be increased during the current year. Expansion of LRT is also being planned (*Ibid*).

2.1.16. TYPES OF TRANSPORTATION MODELS

A variety of types of models is available to the analyst. The different traffic models each have its own pros and cons. The type of network under study and the traffic characteristics strictly influence the choice of the traffic model used for analysis. There is no one single model that can be used effectively for modeling traffic in all kinds of networks .For simplicity, two main groups exist: Abstract mathematic models; and Simulation models (Heyns,W and Jaarsveld,S, 2012).

2.1.16.1. Abstract mathematic models

A number of abstract mathematical models exist including the following:

- **Simple formulae**: An equation of the general form y = f(x) can be used to represent an empirically observed relationship between one variable (x), which can be taken as given, and another (y) which is to be predicted.

- **Time series models**: Many aspects of transport demand vary over time. For example, car ownership and total vehicle- kilometers have been rising almost continually over the past few decades, except for blips coinciding with fuel crises or economic recession. By plotting the relevant data over time, it becomes possible to deduce and underlying trend and or relationship. A prediction of future levels of travel demand can be made by extrapolating the trend into the future. Trend based forecasting is very popular because of its simplicity and because it is based on past evidence

- **Averaging and smoothing models**: When no apparent trend data is available to support demand forecasting, simple arithmetic can be used to calculate an average or an exponentially smoothed prediction. Average forecasts are simply but very crude and may give a distorted view, exponential smoothing seek to overcome the crudeness, by giving weights to the most recent and trustworthy data.

- **Regression analysis**: This is the process of identifying the mathematical function (relationship) which best fits the observed data. The most common applications are in the prediction of car ownership, trip ends (numbers of origins and destinations at a given location) and trip volumes (in an area between a given pair of zones or along a link). It is also used to predict waiting times at intersections, numbers of accidents or levels of pollution.

- **Matrix estimation models**: The cells of a demand matrix (known as an origin – destination matrix) indicate the number of trips between each origin and destination pair, and the row and column totals indicate the total number of origins and destinations respectively in each zone. The matrix provides the overall picture of travel demand in a study area and is a key component in transport analyses.

- **Elasticity models**: When short term planning is undertaken, such that some influences can be considered constant, it is possible to specify a model which is solely concerned with the sensitivity of the forecast to key policy variables – known as elasticity modelling .The elasticity of demand with respect to a certain variable is defined as the rate of change of demand with respect to that variable, normalized by the current levels of demand and the variable in question (Meyer and Miller [14]). Elasticity is thus a measure of sensitivity to change in system conditions (He and Zhao [15]). Its general form is:

$Yt = Yt\text{-}1\ \{1+E(Xt - Xt\text{-}1)/Xt\text{-}1\}$, where, Yt = quantity demand in year t, Xt = value of a supply variable (e.g. price or journey time) in year t, and E is the elasticity coefficient for Y with respect to X. The elasticity coefficient should be calibrated on past data containing evidence of the marginal effect on Y of a marginal change in X.

- Demand allocation – modelling the choice between alternatives: Trips are made as a result of choices made by travellers; choices between alternative modes of travel, alternative times of travel and alternative routes. Some of these choices are heavily constrained (e.g. if the traveller has no car available or if a public transport timetable provides only one service per day) while others may be made from a very extensive choice set. Different groups in the population have different constraints and those who have a very restricted choice set may be described as captives of a particular option. Even

if they are not captive to one option some groups may have a strong preference for one option over the others; for example, high income travellers are likely to have a high value of time which causes them to prefer a fast and expensive option over a slower and cheaper one. There is a wide and growing range of models which seek to predict travellers' choices among available options. They vary in sophistication from models which simply aim to reproduce an observed pattern to others which seek to replicate the underlying choice processes. An important concept underlying many of these models is market segmentation whereby separate forecasts are made for subgroups within the total population who, by virtue of their particular characteristics of car ownership, income, journey purpose etc., may be expected to respond to the choices available differently from other subgroups. Having made a forecast, for each subgroup, of the proportion of group members selecting each option, the overall forecast is simply achieved by weighting the proportions by the expected size of each subgroup in the forecast year's population (Heyns,W and Jaarsveld, S, 2012).

2.1.16.2. Simulation models

Simulation models differ from abstract mathematical models in that they attempt to represent the dynamic evolution of some aspect of the transport system through an explicit representation of the behavior of actors within it. Therefore, at a detailed scale, the performance of an intersection might be simulated by representing individual cars passing through it and the performance of a bus route might be simulated by representing the boarding and alighting of individual passengers at each stop. At a less detailed level, the development of a bus network might be predicted as the result of competition between different operating companies. Another major difference between simulation and abstract modeling is that simulation modeling allows the analyst to develop a logic model of a very complex system by putting together a number of components which are themselves fairly well understood. It therefore becomes possible to develop a model of a complex system without having recourse to overarching theories about system dynamics or concepts such as equilibrium. When simulation is very detailed (zooming into fine detail analysis), it is sometimes referred to as micro-simulation, but the term is sometimes used interchangeably. When applied in traffic engineering the units are vehicles. When applied in travel behavior the units are persons and households. With cheaper, readily available commercial

software programs and ease of use and understanding opposed to abstract mathematical models, simulation modeling is undoubtedly the fastest growing area in modeling and is more often applied in solving transport and traffic problems (*Ibid*).

2.2. Policy Review

2.2.1. TRANSPORT POLICY OF ADDIS ABABA

Urban transport serves as veins to accelerate developments in Industry, trade, education, health and other services. However, there is no compatible urban transport supply and effective management to meet the increasing trip frequency and mobility needs of the people and goods which resulted in the seriousness of the issue. Among the challenges of the urban transport include:

- Poor access to work place, education, health and other services due to lack of public transport service
- Continuous increases in transport fair especially for low income groups
- Lack of smooth traffic flow
- Lack of infrastructure for None Motorized Transport(NMT)(for walking and bicycle)
- High rate of traffic accidents
- Increasing air and noise pollution are the major ones.

Unless these challenges and other associated problems are addressed in time, they will have a negative impact on the socio-economic development of the city and on good governance which directly affects the livelihood of the residents. In order to narrow the gap between urban transport demand and supply, to provide the transport service that can support the residents' socio-economic development effort, it is vital to take necessary measures which, in turn, will have an impact in solving complex problems observed in the sector. Therefore, in order to clearly identify those continuously increasing basic challenges, indicate clear direction and identify measures to be taken and to, optimally, utilize those positive experience, it has been found

important to formulate Addis Ababa transport policy. The policy has been coined taking into account the main actors, considering crucial issues and by identifying alternative solution and forecasting the future changing situations. Different studies witnessed that Addis Ababa, the defacto capital of Africa, and capital city of Ethiopia suffers from inadequate transport service. Above all, day to day transport operation is arrested with complex issues and currently complaints of the service users are vivid. In other respect, there are opportunities which have a significant role in urban transport improvement. The commitment of the government and the interest of the residents, as well as the interest of the private sector to participate in improving the sector, are major issues to be indicated(MT,2011).

2.2.2. Existing condition of Addis Ababa Transport

Addis Ababa, with an area of 540 km2 is divided into 10 sub-cities and 116 woredas. The city is the country's political and economic center, the seat of Head Offices of African Union and United Nations Economic commission for Africa. It also accommodates many international Aid and Development organization and more than 100 embassies. The city's population is estimated to be 3 million. With the current population growth rate of 2.1% the city population is estimated to reach 5 million after 10 years. Addis Ababa is exhibiting high social, economic, structural and change is found to be a fast growing city. More than 70% of registered vehicles in the country are found in Addis Ababa. Taking into account Addis Ababa's fast growth and to enable the transport sector to play its required role, the Government has invested a huge resource to construct roads so as to expand the road network. An effort has been made to improve the transport service provisions. Preparatory actions required have also been taken to introduce a light rail transit (LRT) (MT, 2011).

2.2.3. Urban Land use and transport plan

Urban transport plan and implementation is based on land use plan and its implementation. As it is indicated in the Addis Ababa 2002—2010 master plan, the increasing pressure on public transport service, low fleet size of buses, unattractive location of freight and passenger transport terminals and weak traffic management system are the main challenges to mention. According to the master plan, in order to alleviate the identified challenges, timely recommendations and outlined implementation strategies had been proposed as follows:

- To improve the efficiency of the city's public transport service and traffic management system,
- to provide the required bus stops,
- To relocate the freight depots from the center to the outskirt of the ring road so that the trucks will be serving there for loading and unloading.

To build the capacity of concerned institutions in planning and management so as to upgrade them in performing urban transport planning and management. However, though the adoption and implementation of the master plan has counted years, most of the recommendations and implementation strategies proposed in the plan are not implemented due to various problems. This is especially true that the urban transport plan and land development plan were not coordinated; lack of coordination among concerned stakeholders and lack of trained manpower are main problems that threaten the sector. On the other hand, in connection to the master plan many urban transport plan studies have been conducted, though they are not implemented (MT,2011).

2.2.4. Infrastructure

During the last few years massive road construction and improvement works have been going on in the city. This has contributed to the efficiency of transport mobility and has changed the image of the city as well as facilitating other socio-economic developments. The road length envisaged by the Addis Ababa 2003 Master plan was 800 km. As of April 2010, constructed road and pedestrian walkway were 620km and 423km respectively. Currently the road coverage of the built area is 11.3% and it is envisioned to have the road network coverage about 20% by the year 2020. Due to lack of a rail way and other effective mass transport system, the city mobility needs are mostly covered by road based few number of buses and taxis. Moreover, there is no sufficient and comfortable pedestrian walkway. As far as the city development process is concerned, the infrastructure construction and the transport services are not in accordance with the transport plan (*Ibid*).

This is best explained in the following main challenges listed under:

- Roads capacity and traffic flow does not work in a modern and coordinated manner,

- The increasing trend of traffic congestion,
- Lack of sufficient traffic signals, road signs and markings; coupled with non-functioning and ineffective feature of the existing ones,
- Lack of dedicated bus and bicycle lanes
- Lack of parking facilities and over utilizing of on road parking
- Lack of public and freight transport terminals with necessary facilities

2.2.5. Transport Service Provision

As the world population increases, life requires competition which needs increased mobility. Ability of moving from place to place with comfort, reasonable cost and desired time is one of the major factors affecting the competency of individuals. Human beings use different modes of transport for mobility. The growth of modes of transport varies based on the level of development of countries. As Ethiopia is a developing country, the transport service accessibility is low. Compared to the developed countries the mobility rate observed in the city of Addis Ababa is also low. In the cities of developed nations average mobility rate per person or trip/day is 2.5. According to the 2005 transport study the Addis Ababa mobility rate or average trip/day/person is 1.08. In this respect the average length of mobility covered by vehicle is 3.3 km. and that of 1.5 by foot. In developed countries the length of mobility by walking is not more than 500mt (*Ibid*).

Transport studies indicated that In Addis Ababa there is a big gap between public transport demand and supply. The service standard is also low. Old neighborhoods far from the main roads and expansion areas of the city are not well served by public transport. The city's growth in economy, geographical area and population, brings urgent attention and needs additional mass transport service provision supported by capacity and technology. Therefore, understanding this major challenge and giving special attention to the issue, a great effort is made by the government to realize technology transfer in mass transport by introducing Light Rail Transit (LRT), Bus rapid Transit (BRT) and Trolley Bus transport services (*Ibid*).

2.3. EMPIRICAL REVIEW

This section attempts to review previous studies of various scholars, researchers and practitioners, which have been carried out in the area of transportation system particularly on urban transportation system in different countries and in Ethiopia.

2.3.1. Research in Other countries

To begin with an empirical case studies carried out by Trans-Africa (2010), on public transport situation in some cities of Africa; like Nairobi, Lagos, Dakar, and so on. The finding indicated that Africans use either non-motorized transport (walking and cycling) or informal transport for most of their trips, and informal collective transport is the main means of motorized transport across the whole of the African content and accounts for around 35-40 % of most urban transport trips. Non-motorized transport (walking and cycling) is the second most important group with a modal share of 30-35% (with walking being the most dominant).

Hernández and Peralta-Quiros (2016) conducted a study on Balancing financial sustainability and affordability in public transport concluded that in order to meet the challenges of providing affordable public transit services for the urban poor and at a cost that doesn't impinge on the system's financial sustainability, cities can consider setting fares at cost recovery levels for the majority of the population and targeting subsidies to those who need them most. To this end, Bogotá, where fares are set at close to cost recovery, has designed and implemented a pro-poor public transit subsidy scheme that leverages the country's experience with poverty targeting instruments and the gradual adoption of smartcards in its new public transit system. This paper presented a critical analysis of the structured process adopted in Bogota to achieve a level of fares that is close to "cost recovery", and the rationale, design, implementation and impact of Bogota's pro-poor public transit subsidy.

Kanyama (2004) has also conducted a nationwide survey on urban public transport in Dares Selam, Tanzania. The finding of the study indicated that the presence of poor quality of public transport services and the way such services are being managed doesn't present the city as a ' living ' and ' participating' city. Besides, public transportation doesn't enhance quality of life, its operation is not based on people's participation and it impacts on the environment and health in a destructive manner through harmful exhaust emissions and frequent accidents. Moreover, they

discovered that some of the inefficiencies that characterize the current transportation system of the city are caused by the non- existence of participatory planning practices among the various stakeholders.

Besides, Ali, (2010) conducted a study on the quality of services of urban transport in the city of Enugu, Nigeria. The finding showed that the level of services varied from one center to another, indicating variations in the quality of service of minibus taxi in different parts of the city

Similarly, Kumar and Barrett, (2008) conducted a study on the features of urban public transportation in cities of developing countries and the finding indicated the following points as the major challenges for the sector : lack of a clear articulated of urban passenger transport policy , the need to coordinate land-use and transport planning is widely recognized but rarely achieved, lack of an effective coordinating institution capable of leading the implementation of urban transport reforms, to a greater or lesser extent in most cities, the networks of paved roads and associated traffic control facilities (such as signals, well designed intersections, sufficient terminals , and parking enforcement) are deficient , traffic behavior and vehicle condition are largely unregulated , commercial activities and vehicle parking force pedestrians off the sidewalks in to the road way, reducing the capacity of the road way and posing safety hazards .

2.3.2. Empirical Studies in Ethiopia

This section attempts to review some of the empirical studies that have been carried out in Ethiopia concerning urban public transportation system in Addis Ababa city .

Bitew (2002) has conducted a study on Taxi Traffic Accidents in Addis Ababa and found that public transport plays a great role in satisfying demand of transport in the city. But road traffic accident is shown as the major problem of the city. Besides, the study found that poor traffic control system and regulation, overcrowded residential patterns, lack of good engineering systems and absence of modern road transport regulations were the major features of public transport in the city. Moreover driver behavior, driving experiences , level of education and age of taxi drivers have been found the major causes of traffic accidents in the city public transportation system.

Meron (2007) has examined the impact of public transport on urban mobility in Addis Ababa and found that the existing public transport couldn't solve the need of transport in the city. Besides,

the finding indicated that congestion is one of the main problems that affect the mobility of the people in the city. And specialization, continued growth of population and demand overlap are noted as the major causes of congestion in the city.

In addition, Mekete (1997) has conducted a study on some thoughts on intra-urban transport problems in Ethiopia obtained that traffic congestion due to mix of the old and new means of transport and the nature of the roads, growth of population, physical size and number of vehicles, road traffic accidents and incommensurate population and physical growth of Addis Ababa are the major problem of urban transportation system in the city of Addis Ababa.

Another study conducted by Demelash (2007) analyzed public transport performance using efficiency and spatial analysis and found that efficiency of public transport particularly minibus taxi service control is poor in the city. However, due to transport problem and to save time the majority of urban dwellers select the service of minibus taxi since it arrive early and comfortable as compared to other modes of transport.

Besides, Mintesnot and Tekano (2007) have conducted a study on Diagnostic Evaluation of Public Transportation Mode Choice in the city. Their finding indicated that socio-economic as well as public transport mode related parameters have a significant negative or positive influence on the mode choice and the users' perception of the bus service condition.

2.4. Conceptual Framework

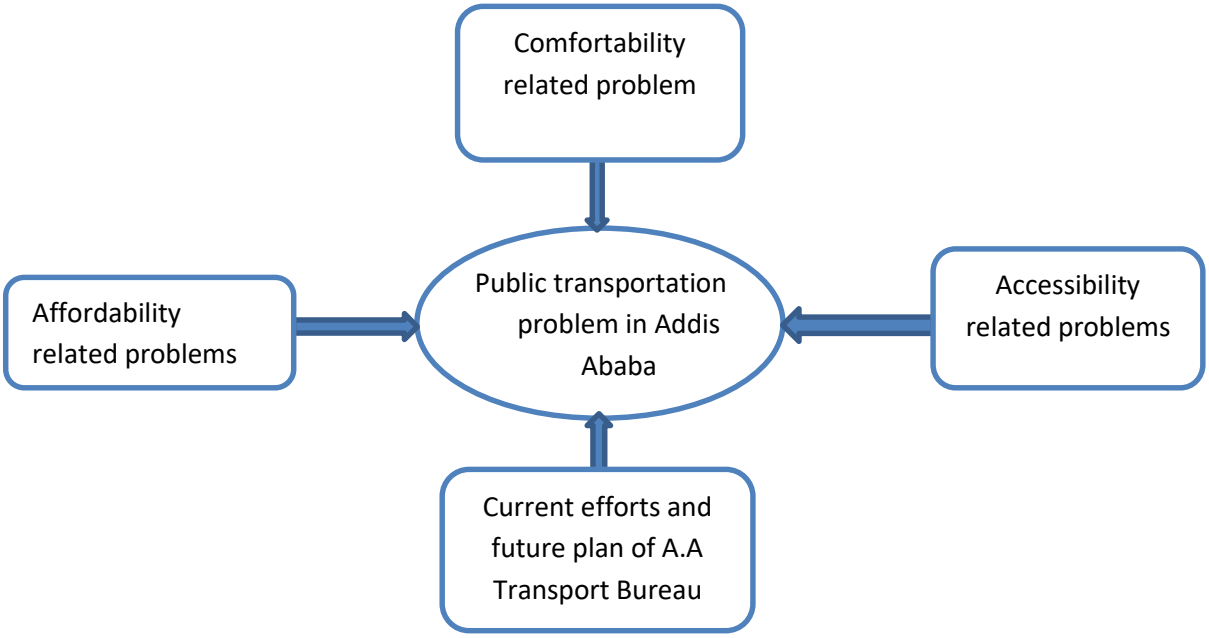


Figure 2.1: Conceptual Framework

CHAPTER THREE

RESEARCH METHODOLOGY

To successfully and efficiently carry out the study, research approach, research design, data sources, data collection instruments, sampling and sample size determination, and methods of data analyses will be discussed as follows:

3.1. RESEARCH APPROACH

This study applied a mixed research approach (a combination of qualitative and quantitative methods) as it helps to benefit from both methods.

3.1. RESEARCH DESIGN

This study used a mixed research design, both descriptive and exploratory research designs. Descriptive design helps to describe the existing phenomenon (who, what, when, where, and how) while exploratory design allowed to uncover or understand the underlying issue which was not yet well known or investigated. Therefore, a combination of descriptive and exploratory research design was used.

3.2. SAMPLING METHOD AND SAMPLE SIZE

The researcher has used purposive sampling method in order to select taxi transport terminals. Accordingly, those terminals with high passenger frequency and long waiting time were selected for the study. According to the data from AACATA (2019), there are 190 taxi terminals within the 10 sub-cities of Addis Ababa. Out of the total terminals, 8 terminals are found in Lideta sub-city, 11 terminals in Arada sub-city, 13 terminals in Gullele sub-city, 14 terminals in Kirkos sub-city, 18 terminals in Yeka sub-city, 21 terminals in Akaki Kality sub-city, 24 terminals in Nifas-silk Lafto sub-city, 26 terminals in Bole sub-city, and 26 terminals in Addis Ketema sub-city. Hence, the researcher has selected 10% of the total terminals which is 19 terminals. A good maximum sample size is usually 10% as long as it does not exceed 1000. Then after, based on purposive sampling,, two representative terminals were selected from those sub-cities with more than ten terminals and one terminal from those sub-cities with less than 10 terminals. This is because the transportation problem is assumed to be the same in all parts of Addis Ababa. Due to lack of knowledge about the total population (number of passengers), the researcher has

dispatched questionnaire to 200 passengers. Therefore, 20 passengers were randomly selected from each sub-city. Moreover,

semi-structured interviews were carried out with taxi drivers and/or owners, AACATA supervisors and terminals line-up facilitator (*Tera Askebariwoch*). Therefore, taxi drivers and/or owners (three taxi drivers and/or owners from each terminals), 10 supervisors (one AACATA supervisor from each sub-city) and 19 facilitators (one terminal facilitator from each terminal) were selected. Thus, the total of about 288 respondents were selected to get accurate and reliable data.

3.3. TARGET POPULATION

The target population of the study was code-3 minibus taxi passengers, code-3 minibus taxi drivers and/or owners, line-up facilitator, AACTA managers and supervisors.

3.4. DATA COLLECTION METHODS AND DATA SOURCE

The researcher used both primary and secondary data for the successful accomplishment of the study. Primary data were gathered from participants and through semi- structured personal observation. Secondary data gathered from published and unpublished documents, reports, public opinion and internet sources. To collect those data, the researcher has used open and closed-ended questionnaire and observation checklist. In addition to this, in-depth interview with key informants was carried out. The key informants were those people who live and work around public transport service giving area for a long period of time. As the majority of passengers and interview respondents were Amharic language speakers, the questionnaire was first prepared in English language and then translated into Amharic.

3.5. DATA ANALYSIS METHOD

Data gathered through questionnaire was processed by using SPSS version 20 and interpreted through descriptive statistics such as frequency table, mean, distributions and percentages. In similar ways, qualitative data gathered through key informant's interview and observation checklist were analyzed using thematic and narrative analysis.

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND DESCRIPTION

This part of the study discusses the major research findings based on the data gathered from primary and secondary sources. The discussion is broadly classified into demographic characteristics of research subjects, the current status of public transportation system, and the factors affecting public transportation in Addis Ababa, Ethiopia.

4.1 Demographic Characteristics of Respondents

4.1.1 Sex of Respondents

Table 4.1: Percentage distribution of respondents by gender

Gender	Frequency	Percent
Male	84	70.0
Female	36	30.0
Total	120	100.0

Source: Own survey data (2020)

As presented in table 4.1, Of the total of 120respondents, 70% were male And the remaining 30% were female. Most of the respondents were male in the study than female because of most of the female respondents were inconvenient at the time of data gathering. Therefore, male respondents were found to be more dominant in this study.

4.1.2. Occupation of Respondents occupation

Table 4.2 Respondents occupation

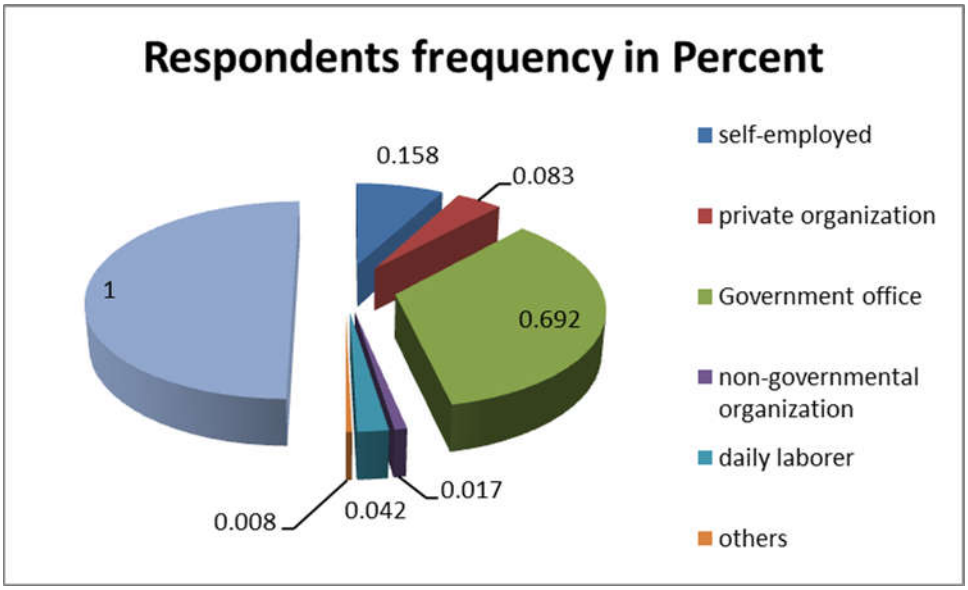
Occupation	Frequency	Percent
student	2	1.7
unemployed	9	7.5
Employed	109	90.8
Total	120	100.0

Source: Own survey data (2020)

As it is presented in table 4.2, out of 120 respondents, 109 (90.8%) were employed, 9 (7.5%) were unemployed and the remaining 2 (1.7%) were students. This shows that majority of (almost all) of the respondents who were participated in this study had job. This is obviously known that it was difficult to get students at this time because schools are closed due to the current worldwide pandemic disease (COVID-19).

4.1.3 Respondents place of occupation

Figure 4.1. Respondents place of occupation



Source: Own survey data (2020)

As it is presented on figure 4.1,out of total of survey respondents, 0.8% had no work, 1.7% were non-governmental organization employees, 4.2% were daily laborers, 8.3% were private organization employees, 15.8% were self-employed and the remaining 69.2% were working in government offices. This indicates that majority of code-3 minibus taxi users were government office employees.

4.1.4 Marital status of respondents

Table 4.3 Marital status

Marital status	Frequency	Percent
Single	60	50.0
Married	59	49.2

Divorced	1	.8
widowed		
Total	120	100.0

Source: Own survey data (2020)

Table 4.3 indicates the marital status of survey respondents. Out of 120 respondents, 50% were single, 49.2% were married and 0.8% were divorced. Accordingly, the majority of survey respondents were single.

4.1.5 Education level of respondents

Table 4.4 level of education

Respondents level of education	Frequency	Percent
Below grade 10	16	13.3
Certificate	9	7.5
Diploma	18	15.0
First degree	59	49.2
Master's degree and above	18	15.0
Total	120	100.0

Source: Own survey data (2020)

As presented in table 4.4, Out of total of survey respondents, 13.3% of them were below grade 10, 7.5% had certificate, 15% had diploma, 49.2% were first degree holder, and 15% hold master's degree and above.. The data indicate that almost half of the respondents in this study were first degree holders.

4.1.6 Monthly income of respondents

Table 4.5 Monthly income

Monthly income of respondents	Frequency	Percent
<3000 birr	33	27.5
3000-5000 birr	27	22.5
5001-7000 birr	9	7.5
7001-9000 birr	23	19.2
9001-11000 birr	10	8.3

>11000 birr	18	15.0
Total	120	100.0

Source: Own survey data (2020)

As it is presented in table 4.5, out of total of survey respondents, about 27.5% had monthly income of <3000, 22.5% earn from 3000-5000 birr, 7.5% earn from 5001-7000 birr, 19.2% earn from 7001-9000 birr, 8.3% earn from 9001-11000 birr, 15% earn >11000 birr. The data indicates that the majority of the respondents in this study Are grouped under the low income category (had monthly income of less than 3000 birr).

4.1.7 Family size of respondents

Table 4.6 Family size

Family size of respondents	Frequency	Percent
<4 members	57	47.5
4-6 members	43	35.8
7-8 members	13	10.8
9-10 members	7	5.8
Total	120	100.0

Source: Own survey data (2020)

As presented in table 4.6, Among 120 respondents, 47.5% live with less than 4 family members, 35.8% from 4-6 members, 10.8% from 7-8 members, and 5.8% from 9-10 members. This signifies that almost half of the respondents in this study had less than four (4) family members.

4.2 Factors affecting public transportation system

4.2.1. Current public transportation in Addis Ababa

Table 4.7: Current public transportation system in Addis Ababa city

Public transports	Registered	In operation	Percent	Share
Code-3 minibus taxi	8988	5133	57	55.4
Code-1 minibus taxi	5225	2733	52	29.5
Anbessa city bus	800	480	60	5.2
Sheger express bus	324	248	77	2.7
Isuzu kitkit	349	256	73	2.8
Higer bus	423	219	52	2.4

Public service	235	202	86	2.2
Total	16344	9271	57	100

Source: Addis Ababa city transport authority report (2020)

As it is presented on table 4.7, there are about 16344 registered public transports in Addis Ababa city out of which which only 9271(57%) are currently giving public transportation service. Among registered public transports, 8988 are code-3 minibus taxi out of which only 5133 (57%) are currently in operation and it shares about 55.4% of the currently operating total public transports in Addis Ababa city. Out of 5225 registered code-1 minibus taxis, only 2733 (52%) are currently giving service and it shares about 29.5% of the currently operating public transports in Addis Ababa city. Out of 800 registered Anbessa city bus, only 480 (60%) are currently in operation and it shares about 5.2% of currently operating public transports in Addis Ababa city. Out of registered 324 Sheger express bus, only 248 (77%) are currently in operation and it shares about 2.7%of currently operating public transports in Addis Ababa city. Out of registered 349 Isuzu kitkit, only 256 (73%) are currently in operation and it shares about 2.8% of currently operating public transports in Addis Ababa city. Out of registered 423 Higer bus, only 219(52%) are currently in operation and it shares about 2.4% of currently operating public transports in Addis Ababa city. Out of registered 235 Public service, only 202(86%) are currently in operation and it shares about 2.2% of currently operating public transports in Addis Ababa city.

This indicates that, more than half of public transportation service in Addis Ababa city is covered by code-3 minibus taxis. In terms of public transportation coverage in the city, code-3 minibus taxis are followed by code-1 minibus taxis, Anbessa city bus, Isuzu kitkit, Sheger express bus, Higer bus and public service. In addition to this, when we see the number of registered public transport and the number of vehicles currently in operation, Public service shares the largest portion even if their number is lowest compared to other public transports. In this regard, Public service is followed Sheger express bus, Isuzu kitkit, Anbessa city bus and code-3 minibus taxis. Whereas code-1 minibus taxis and Higer bus share equal but have the least number of registered public transport vehicles.

4.2.2. Accessibility, Affordability and comfortability related problems affecting code-3 public transportation system in Addis Ababa

4.2.1.1 Existence of public transportation problem in Addis Ababa City

Table 4.8: Existence of public transportation problem in Addis Ababa City

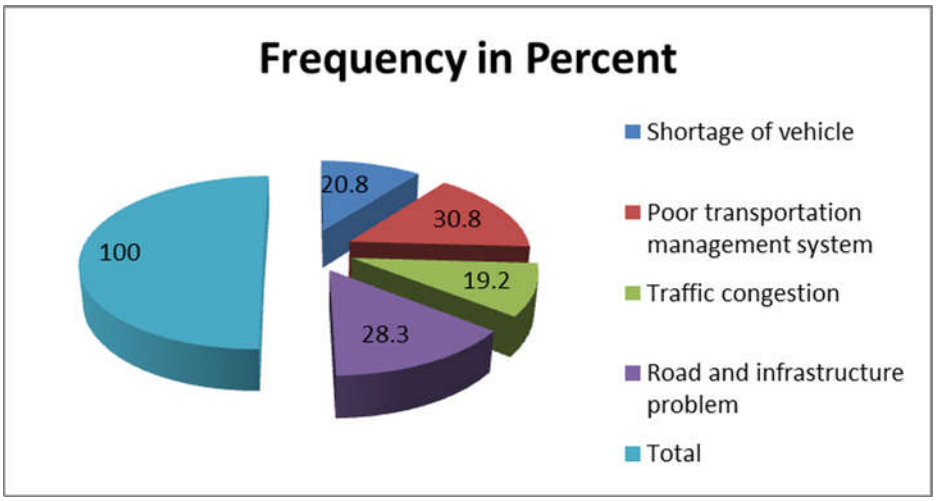
Public transportation problem	Frequency	Percent
Yes	119	99.2
No	1	.8
Total	120	100.0

Source: Own survey data (2020)

As it is presented on table 4.8, out of 120 respondents, 119 (99.2%) say that there is a problem of public transport in Addis Ababa City whereas 1(0.8%) says there is no public transport in Addis Ababa City. This indicates that almost all respondents believe that there is a problem of public transport in Addis Ababa City.

4.2.1.2. Reasons for public transportation in Addis Ababa City

Figure 4.2: Problems of public transportation in Addis Ababa City

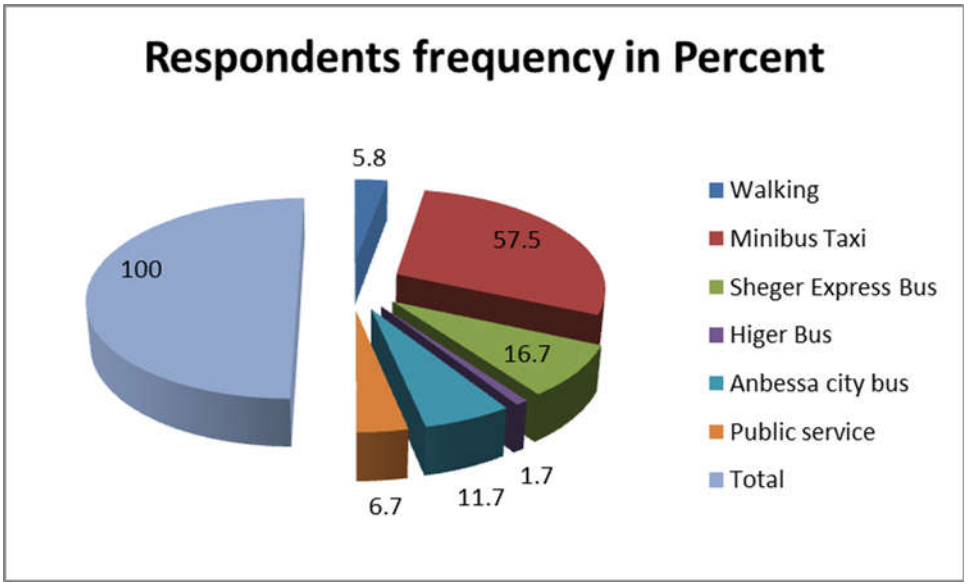


Source: Own survey data (2020)

As it is presented in figure 4.2, 25(20.8%) respondents stated shortage of vehicles, 23(19.2%) stated traffic congestion, 34(28.3%) stated road and infrastructure problem, 37(30.8%) stated poor transportation management system as the main reason for public transportation problem in Addis Ababa city. This indicates that almost all of the above stated factors play a significant roles for the existing public transportation problem even if poor transportation management system shares the highest rank followed by road and infrastructure problem, thirdly shortage of vehicles and lastly traffic congestion.

4.2.1.3. Respondents usual mode of public transport

Figure 4.3: Respondents usual mode of transport



Source: Own survey data (2020)

As presented in figure 4.3, out of total 120 respondents, 7(5.8%) Respondents preferred walking, 69(57.5%) used minibus taxi, 20(16.7%) used Sheger Express Bus, 2(1.7%) used Higer bus, 14(11.7%) used Anbessa city bus and 8(6.7%) used public service as their usual mode of public transport. This indicates that more than half of survey respondents code-3 minibus taxi as their usual mode of public transport. In other words, in terms of preference, minibus taxis are followed by Sheger Express Bus, Anbessa city bus, Public service, walking respectively.

4.2.1.4. Respondents working hours

Table 4.9: Respondents working hours

Respondents working hours	Frequency	Percent
7:00 AM-2:00 PM	14	11.7
8:00 AM-4:00 PM	13	10.8
8:30 AM-5:00 PM	80	66.7
9:00 AM-6:00PM	6	5.0
others	7	5.8
Total	120	100.0

Source: Own survey data (2020)

As presented in table 4.9, Out of total of survey respondents, 14(11.7%) have working time from 7:00 AM-2:00 PM, 13(10.8%) from 8:00 AM-4:00 PM, 80(66.7%) from 8:30 AM-5:00 PM, 6(5%) from 9:00 AM-6:00PM and the remaining 7(5.8%) have no known working time. This indicates that, The majority of survey respondents were office hour worker (8:30 AM-5:00 PM). It shows that there is high number of public transport service demand from 7:00 AM-9:00 AM at the morning and from 4:00 PM-6:00PM at afternoon.

4.2.1.5. Respondents transportation cost per day

Table 4.10: Respondents transportation cost per day

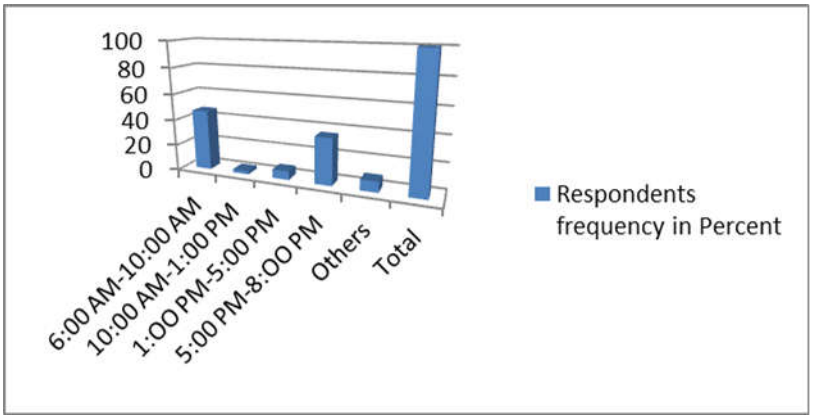
Respondents transportation cost per day	Frequency	Percent
<5 birr	7	5.8
5-9.99 birr	21	17.5
10-14.99 birr	34	28.3
15-19.99 birr	57	47.5
Total	119	100.0

Source: Own survey data (2020)

As presented in table 4.10, Out of 119 public transport users (one respondent did not use public transport), 7(5.8%) of them pay less than 5 birr, 21(17.5%) spent 5-9.99 birr, 34(28.3%) spent 10-14.99 birr, 57(47.5%) spent 15-19.99 birr for public transport per day. This indicates that almost half of the respondents participated in this study spent from 15-19.99 birr for transportation purpose per day.

4.2.1.6. Respondents difficult time to get taxi

Figure 4.4: Respondents difficult time to get taxi



Source: Own survey data (2020)

As presented in figure 4.4, Out of total 120 respondents, 56(46.7%) faces difficulties to get code-3 minibus taxi from 6:00 AM-10:00 AM, 2.5% face difficulties from 10:00 AM-1:00 PM, 6.7% face difficulties from 1:00 PM-5:00 PM, face difficulties from 5:00 PM-8:00 PM. The rest 8.3% responds that there are difficulties in getting code-3 minibus taxis all day round. This indicates that, it is hard time to get code-3 minibus taxis from 6:00 AM-10:00 AM at morning and 5:00 PM-8:00 PM at afternoon. This supports the data from personal observation in which there is long queue (long waiting time).

4.2.1.7. Respondents waiting time to get minibus taxi

Table 4.11: Respondents waiting time to get minibus taxi

Respondents waiting time to get minibus taxi	Frequency	Percent
<5 minute	11	9.2
6-10 minute	18	15.0
11-16 minute	37	30.8
>16 minute	54	45.0
Total	120	100.0

Source: Own survey data (2020)

As presented in table 4.11, out of 120 total respondents, 9.2% spent less than 5 minutes, 15% spent 6-10 minutes, 30.8% spent 11-16 minutes and 45% spent more than 16 minutes to get code-3 minibus taxi. This indicates that almost half of the respondents participated in this study spent more than 16 minutes to get code-3 minibus taxi.

4.2.1.8. Respondents time spent on movement to workplace

Table 4.12: Respondents time spent on movement to workplace

Respondents time spent on movement to workplace	Frequency	Percent
<30 minute	26	21.7
30-60 minute	41	34.2
1-1:30 hour	32	26.7
1:30-2:00 hours	12	10.0
>2:00 hours	9	7.5
Total	120	100.0

Source: Own survey data (2020)

As presented in table 4.12, Out of total 120 respondents, 21.7% spent less than 30 minutes, 34.2% spent 30-60 minutes, 26.7% spent 1-1:30 hour, 10% spent 1:30-2:00 hour and 7.5% spent more than 2:00 hours from their starting point to their destination. This shows that, majority of the respondents participated in this study spent from 30 minute to 1:30 hour to reach to their destination. This is obvious that there is a real problem on the road like traffic congestion that hinders the smooth flow of public transportation.

4.2.1.9. Respondents number of trips per day

Table 4.13: Respondents number of trips per day

Respondents number of trips per day	Frequency	Percent
2 times	97	80.8
3 times	13	10.8
4 times	6	5.0
5 and above	3	2.5
others	1	.8
Total	120	99.2

Source: Own survey data (2020)

As presented in table 4.13, Out of 120 total respondents, 80.8% made two trips, 10.8% made 3 trips, 5% made 4 trips, 2.5% made more than 5 trips per day and the remaining 0.8% did not use public transport. This indicates that, the majority of the respondents who participated in this study made two trips per day which means that the vast majority of the respondents use code-3 minibus taxis to go to work place and get back to their home.

4.2.1.10. Usefulness of code-3 minibus taxi

Table 4.14: Usefulness of code-3 minibus taxi

Usefulness of code-3 minibus taxi	Frequency	Percent
strongly disagree	6	5.0
disagree	4	3.3
Neutral	12	10.0
Agree	63	52.5
Strongly agree	35	29.2
Total	120	100.0

Source: Own survey data (2020)

As presented in table 4.14, Out of total 120 respondents, 5% strongly disagree, 3.3% disagree, 10% remained neutral, 52.5% agree, and 29.2% strongly agree with the usefulness of code-3 minibus taxis. This indicates that, majority of the respondents (about 81.7%) thought that code-3 minibus taxis are useful which means that there is strong demand for code-3 minibus taxis in Addis Ababa City.

4.2.1.11. How often respondents use code-3 minibus taxi

Table 4.15: How often respondents use code-3 minibus taxi

How often respondents use code-3 minibus taxi	Frequency	Percent
Once in a week	10	8.3
Two days per week	16	13.3
Three days per week	13	10.8
Four days per week	8	6.7
Five days per week	23	19.2
Six days per week	23	19.2
Seven days per week	26	21.7
Total	119	100.0

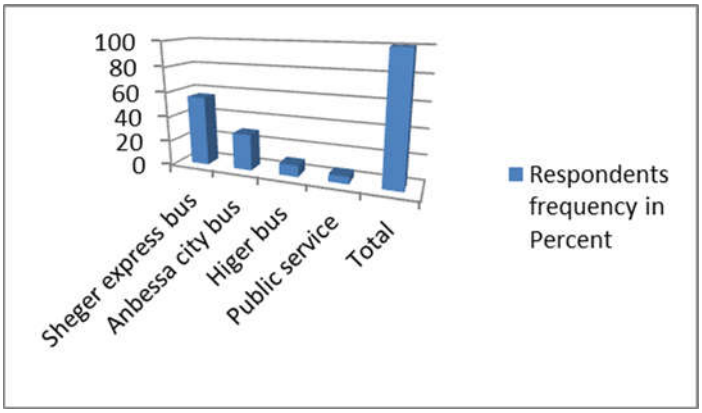
Source: Own survey data (2020)

As presented in table 4.15, out of total 119 public transport users, 8.3% used code-3 minibus taxi once in a week, 13.3% use two days per week, 10.8% use three days per week, 6.7% use four days per week, 19.2% use five days per week, 19.2% use six days per week, 21.7% use seven days per week. This indicates that, the majority of survey respondents used code-3 minibus taxi

from five to seven days which means that majority of the respondents in this study have working days from Monday to Saturday.

4.2.1.12. Respondents first choice if no minibus taxi

Figure 4.5: Respondents first choice if no minibus taxi



Source: Own survey data (2020)

As presented in figure 4.5, out of total 120 respondents, 55.8% prefer Sheger express bus, 29.2% prefer Anbessa city bus, 9.2% prefer Higer bus, 5.8% prefer Public service incase if there is no code-3 minibus taxi. This indicates that, more than half of the respondents prefer to travel by Sheger express bus next to code-3 minibus taxi.

4.2.1.13. Respondents pay more than stipulated fare

Table 4.16: Respondents pay more than stipulated fare

Respondents pay more than stipulated fare	Frequency	Percent
yes	112	93.3
No	8	6.7
Total	120	100.0

Source: Own survey data (2020)

As presented in table 4. 16, out of 120 respondents, about 93.3% pay more than the stipulated fare whereas the remaining 6.7% were not asked to pay more than stipulated fare. Based on the data, it is possible to say that almost all respondents in this study were asked to pay more than the stipulated fare.

4.2.1.14. The time Respondents pay more than stipulated fare

Table 4.17: The time Respondents pay more than the stipulated fare

The time Respondents pay more than stipulated fare	Frequency	Percent
6:00 AM-10:00 AM	23	19.2
10:00 AM-1:00 PM	3	2.5
1:OO PM-5:00 PM	3	2.5
5:00 PM-8:OO PM	43	35.8
8:00 PM and above	40	33.3
Others (not asked to pay)	8	6.7
Total	120	100.0

Source: Own survey data (2020)

As presented in table 4. 17, Out 120 respondents, 19.2% were asked to pay more than stipulated fare from 6:00 AM-10:00 AM, 2.5% from 10:00 AM-1:00 PM, 2.5% from 1:00 PM-5:00 PM, 35.8% from 5:00 PM-8:OO PM, 33.3% from 8:00 PM and above and the remaining 6.7% did not pay more than the stipulated fare. This indicates that, the majority of the respondents were asked to pay more than the stipulated fare on peak hours (6:00 AM-10:00 AM and 5:00 PM-8:00 PM) in which the demand exceeds the supply of code-3 minibus taxi.

4.2.1.15. Code-3 minibus taxi cut the trip

Table 4.18: Code-3 minibus taxi cut the trip

Code-3 minibus taxi cut the trip	Frequency	Percent
yes	110	91.7
No	10	8.3
Total	120	100.0

Source: Own survey data (2020)

As presented in table 4. 18, out of total respondents, 97.1% said code-3 minibus taxi cut trips whereas the remaining 8.3% said code-3 minibus taxi did not cut trips. It is clear that almost all respondents in this study faces difficulties with the problem of cutting the trips.

4.2.1.16. The time code-3 minibus taxi cut the trip

Table 4.19: The time code-3 minibus taxi cut the trip

The time code-3 minibus taxi cut the trip	Frequency	Percent
6:00 AM-10:00 AM	34	28.3
10:00 AM-1:00 PM	12	10.0
1:OO PM-5:00 PM	8	6.7
5:00 PM-8:OO PM	38	31.7
8:00 PM and above	18	15.0
Others(did not cut)	10	8.3
Total	120	100.0

Source: Own survey data (2020)

As presented in table 4. 19, out of total respondents, 28.3% were facing difficulties with the problem of cutting the trips from 6:00 AM-10:00 AM, 10% from 10:00 AM-1:00 PM, 6.7% from 1:00PM-5:00 PM, 31.7% from 5:00 PM-8:00PM, 15% from 8:00 PM and above and the remaining 8.3% did not see code-3 minibus taxi cutting the trip. This indicates That, most of the time, code-3 minibus taxis cut trips on peak hours (6:00 AM-10:00 AM and 5:00 PM-8:00PM) in which the demand exceeds the supply of code-3 minibus taxi.in addition to this according to the data from personal observation, it is the time code-three minibus taxis are used to load more than the carrying capacity of the vehicles.

4.2.1.17. The behavior of drivers and assistants

Table 4.20: The behavior of drivers and assistants

The behavior of drivers and assistants	Frequency	Percent
Very undisciplined	19	15.8
Undisciplined	38	31.7
Indifferent	58	48.3
Disciplined	3	2.5
Very disciplined	2	1.7
Total	120	100.0

Source: Own survey data (2020)

As presented in table 4. 20, out of total respondents, 15.8% said the drivers and their assistants are very undisciplined, 31.7% said undisciplined, 48.3% remained indifferent, 2.5% said disciplined and the remaining 1.7% said they are very disciplined. This indicates that the majority of the respondents who participated in this study thought that taxi drivers and their assistants' behavior were neither good nor bad. In addition to this, another 47% also thought as if they have no good behavior. From this data, we can recognize that the majority of taxi drivers and their assistants were not well disciplined.

General comment: supplement it with data you gathered through interview and review of secondary data sources, if any.

4.2.1.18. The importance of transport authority supervisor and line-up facilitator

Table 4.21: The importance of transport authority supervisors and line-up facilitators

The importance of transport authority supervisor and line-up facilitator	Frequency	Percent
Extremely Unhelpful	11	9.2
Unhelpful	7	5.8
Neutral	83	69.2
Helpful	16	13.3
Extremely helpful	3	2.5
Total	120	100.0

Source: Own survey data (2020)

As presented in table 4. 21, out of total respondents, 9.2% said that transport authority supervisor and line-up facilitators are extremely unhelpful, 5.8% said unhelpful, 69.2% remained indifferent, 13.3% said they are helpful, 2.5% said they are extremely helpful. This shows that more than half of the respondents in this believe that transport authority supervisor and line-up facilitators were neither good nor bad. This means that whether they are there or not things remained the same. Therefore we can say that they are not undertaking their role properly.

4.2.1.19. Respondents rate for the tariff they pay for code-3 minibus taxi

Table 4.22: Respondents rate for the tariff they pay for code-3 minibus taxi

Respondents rate for the tariff they pay for code-3 minibus taxi	Frequency	Percent
Very expensive	2	1.7
Expensive	1	.8
Average	71	59.2
Cheap	30	25.0
Very cheap	16	13.3
Total	120	100.0

Source: Own survey data (2020)

As presented in table 4. 22, Out of total respondents , 1.7% said the tariff they pay for code-3 minibus taxi are very expensive, 0.8% said it is expensive, 59.2% said it is average, 25% said it is cheap, 13.3% said it is very cheap. This indicates that more than half of the respondents believe that the tariff they pay for code-3 minibus taxi is average and it is balanced.

4.2.1.20. Accessibility of code-3 minibus taxi

Table 4.23: Accessibility of code-3 minibus taxi

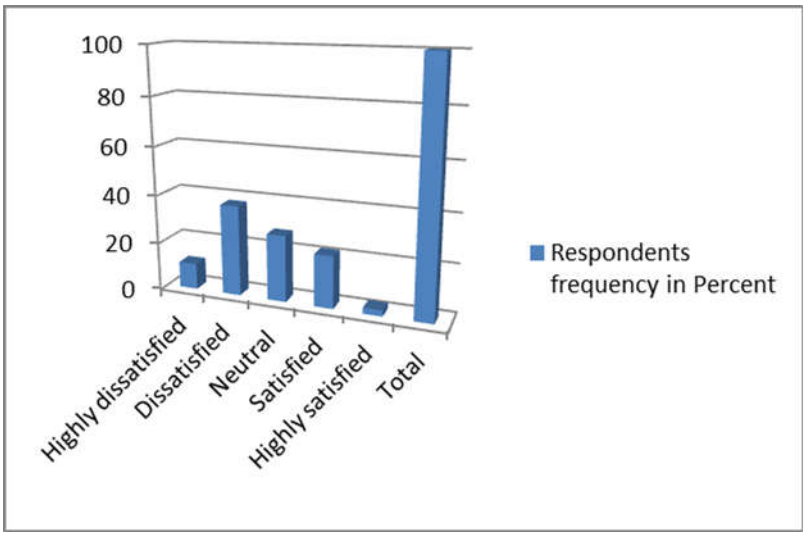
Accessibility of code-3 minibus taxi	Frequency	Percent
Highly inaccessible	17	14.2
Inaccessible	32	26.7
Neutral	46	38.3
Accessible	21	17.5
Highly Accessible	4	3.3
Total	120	100.0

Source: Own survey data (2020)

As presented in table 4. 23, out of total respondents, 14.2% said code-3 minibus taxis are highly inaccessible, 26.7% said they are inaccessible, 38.3% said they are both inaccessible and accessible, 17.5% said they are accessible, 3.3% said they are very accessible. This indicates that the majority of the respondents in this study believe that code-3 minibus taxis are inaccessible. Based on the data, it is clear that code-3 minibus taxis are mostly inaccessible.

4.2.1.21. Respondents satisfaction with quality of service by code-3 minibus taxi

Figure 4.6: Respondents satisfaction with quality of service by code-3 minibus taxi



Source: Own survey data (2020)

As presented in figure 4.6, Out of total respondents, 10.8% were highly dissatisfied with the quality of service by code-3 minibus taxi, 37.5% were dissatisfied, 27.5% remained neutral, 21.7% were satisfied and 2.5% were highly satisfied. This shows that majority of the respondents who participated in this study were not satisfied with the quality of service offered by code-3 minibus taxis. This in turn shows that majority of survey respondents are not satisfied with the quality of service given by code-3 minibus taxis.

4.2.3. Accessibility related problems affecting code-3 public transportation system in Addis Ababa

According to the data obtained from Addis Ababa City transport Authority, there are about 8988 registered code-3 minibus taxis out of which only 5133(57%) were in operation. In Addis Ababa City 55.4% of public transport service is covered by code-3 minibus taxis. As of the data from public transport distribution and supervision director, the main reasons for current public transportation problem are the imbalance of supply and demand which was caused by road and infrastructure, poor government management system, technological problem to control vehicles, different illegal works (asking above tariff, working out of their line, cutting the trip and etc.), and problem with societal awareness (do not standing for their right, do not using mass transport). In Addis Ababa City, the main problems facing code-3 minibus taxis were cutting the

trip, asking more than stipulated fare, and not working on their assigned route. As per the above data, out of registered code-3 minibus taxis only 57% were currently giving services. The director said that, “it is clear that the whole registered cars are there in the city and working in different places, but there is a gap with controlling mechanism of transport authority. For example, one vehicle might have a pointer (*Tapela*) from Kolfe Keranyo sub-city and incase he did not like the route, he would like to go to another sub-city and work illegally, literally bribery.” According to the director, the average number of trips for code-3 minibus taxi per day was from 7-8. This means that one minibus taxi is expected to serve around 168 passengers in average per day. The director also said that Addis Ababa City Transport Authority is working with different stakeholders (Traffic management agency, Road Authority, taxi associations and others) and remove it make meetings twice and/or three times a week to evaluate their works and deal on the existing problems.

The results of interview indicate that taxi drivers are not satisfied with their work due to many reasons. Among those factors the main one was related with transport authority employees working on controlling services and traffic polices. They stated that as if they undermined them and even failed to consider them as human beings. They were always asked to give them money if not they will be punished whether they made fault or not. In addition to this, almost all drivers had pointer (tapela) but they were not happy with the tapela system and their reason is that instead of controlling the movement of code-3 minibus taxi by tapela, they shall free them and order them to wherever there is passengers Moreover, the majority of taxi drivers pointed out that they work out of their assigned route, cut the trip/route, ask more than the specified tariff. The reason behind this is to earn extra income to cover their daily expense and the payment for the owners since tapela restricts them and most of the time there is long waiting time to get passengers that is why they are forced to commit fault.

Lastly, as of the interview with line-up facilitator, the main problems related with code-3 minibus taxi are similar with the above described factors. They control the operation of code-3 minibus taxis they made in queue as per their arrival. As per their response, they were working in collaboration with both transport authority operation workers and taxi drivers. Additionally, they said the integration with different stakeholders were not as it was expected to be.

4.2.4. Current efforts and future plan of A.A Transport Authority to alleviate the city's transportation problem

As per the data gathered through interview from Addis Ababa City Transport Authority, as far as public transportation is concerned, the future plan of the government is stated as follows:

- Applying mass transport lane on every route and increasing the number of mass transport.
- Installing GPS on every code-3 minibus taxis to improve the controlling system
- Conducting command post aggressively.
- Doing on road and infrastructure issues.
- Improving the supply of public transport
- Creating societal awareness towards mass transport services.

Beside the above mentioned future plan of government, when we see their applicability, the director respond that it takes several years and there are many hindrances like the reshuffling of managers and bureaucracies.

CHAPTER FIVE

SUMMARY OF RESEARCH FINDING, CONCLUSION AND RECOMMENDATIONS

5.1 FINDINGS

The major findings of the research have been summarized as follows**:**

The first problem is that the city is getting bigger all the time and the transport system has been left behind, the number of population and number of transportation is not in proportion which is the imbalance of demand and supply. The researcher found that there are different kind of problems related with code-3 minibus taxis caused by different factors. To mention some of them, long waiting time to get minibus taxis, paying more than stipulated fare, cutting the trip, not working on the assigned line, and disciplinary problem from drivers, transport authority operation workers and line-up facilitators. For the above problems to exist there are different factors. Among those factors the main one is poor management system by the government?, road and infrastructure problem, traffic congestion, lack of modern technology, lack of societal awareness or empowerment towards their right and shortage of vehicle, lack of integration among different stakeholders. The target population of the study from whom the data was gathered were passengers, Transport Authority managers and operation workers, line-up facilitator (*Tera Askebariwoch*).

For further explanation, poor traffic flow management, road infrastructure and poor maintenance, and the unpainted roads are current challenges of the transport system in the city. Water, electricity, telecommunication authorities, and road constructions should work together to solve common problem. Due to that customers may stay long time waiting for buses at stations. Besides, most of the old roads are too narrow and busy**.**

The third problem is that the acuteness of transportation problem of the city is soaring steadily from time to time. Workers and students always face challenge of transportation shortage, spoiling their morning fresh energy and getting fatigue before they carry out their daily routines

work. The transport shortage in rush hours is beyond the capacity of any services providing body, i.e the minibus taxi, Higer buses, Sheger express buses, Anbessa city buses and public services. The distribution of taxis to the city's terminals was done in 2011 and has not yet been revised. From personal observation, there is imbalance of taxi distributions at some area which means there are many taxis but small number of passenger and the opposite is true.

Demand overlap: a survey of the purposes of trips taken by the subjects indicated that there are two predominant destinations, educational institutions and work places. In Addis Ababa, currently, the working hours for the above two occupations are the same. This results in a phenomenon where by almost all of the residents demand public transport services at about the same time or for the same time period, which creates a demand overlap. Furthermore, it was observed that even residents who rely on private means of transport demand the use of the existing roads within the same periods of time of the day.

On street parking: even though the east-west axis has the provision for two lanes on each side, it was learned that on street parking dominates throughout its length, literally making it a two lane street.

Lack of empowerment of transport users: In assessing the problems of the urban transport sector, it becomes increasingly clear that the voice of the consumer is not being heard. They forced to pay more than the fixed tariff. They have no representation on development bodies, and are powerless in the face of the operating industry effectively controlled by the marshals. As a result of the latter, they are forced to access services at points that may not be convenient and to use the next available vehicle irrespective of its condition. At times of lower demand, they may be forced to wait an unreasonable time until any service is offered at all.

Finally, code-3 minibus taxis were support giving public transport. They are not the properties of Addis Ababa city transport Authority. This means that they are from neighbor regions and they have the right to stop working in Addis Ababa city and work in their region any time. The only properties of Addis Ababa city transport Authority were code-1 minibus taxis. But, when we see the current preference of the society more than half of the passengers in the city prefer to travel by code-3 minibus taxis.

5.2. CONCLUSION

As it has been discussed in depth in the history of public transport, maximization of mobility in urban areas heavily relies on the capacity of the existing public transport. In light of this fact, it can be said that the ability of the public transport system Addis Ababa as it exists now, to meet this goal of maximizing urban mobility is very limited. According to the literature review that made earlier, it can be concluded that the general causes of public transportation system in Addis Ababa are:-

The apparent demand overlap which has been discussed in detail in the findings has resulted in high peak hour traffic which in turn causes for shortage of public transportation in the city. The degree of transport provision coverage to the general traveling public is low. This is due to the lack of both effective traffic management measures as well as timely investments on the appropriate infrastructure in the right locations. This problem will be exacerbated in the near future as traffic volumes increase substantially due to the economic and demographic factors noted above. Both traffic volumes and the total amount of time people spend traveling are growing rapidly.

In addition to this, poor government management system is another core issue that creates the existing problem of public transportation service delivery.. Following this, low integration with concerned stakeholders, especially the problem of transport infrastructure was another key issue for public transport service delivery specifically code-3 minibus taxis problem by limiting their number of trips which in turn causes long waiting time to get code-3 minibus taxis and spending long time on road to arrive at their destination.

Finally, poor societal empowerment to struggle and stop those illegal works like cutting the trip, collecting more than fare, working out of the assigned line and etc. Additionally related with this the total emphasis given by the government to transport sector is low as it was the base for every organizations to achieve their goal. Lack of technology is another headache especially on code-3 minibus taxis which can help to reduce the unwanted behavior of transport Authorities operation workers and traffic polices.

Thus, based on the above literature, there is no enough access of code-3 minibus taxis in particular and transportation service in general in addis ababa city. In addition to this, from the

bigginning the tarrif(cost) of code-3 minibus taxi is not affordable for the majority of the dwellers of Addis Ababa city especially when they ask above the stipulated fair. Finally, the thing that make code-3 minibus taxi uncomfortable is that the behavior of their assistants and when they load above the loading capacity of the vehicles.

5.3 Recommendations

The study identified multitude of factors responsible for public transportation problems in Addis Ababa city specifically code-3 minibus taxis. Based on the results of this study, the following recommendations have to be taken in to consideration:

1. It is recommended that, immediate action be taken by government, private sectors and society to create awareness and how to develop to re-organize the network according to the new routes and use mass transportation systems.

2. There is a need for framing a workable public mass transport policy, which is sustainable and which provides not only finances but also sustainable institutional arrangement to meet the future needs of Addis Ababa. Given the existing financial and institutional limitations, in order to get effective mobility and accessibility, have safe, reliable and efficient public transport which meets the demand for its service, guiding principles and a set of implementation strategies should be formulated.

3. Small-scale transportation will not solve the problems of the city, and then must focusing on mass- transportation.

4. Staggered hours: It was found out from the survey conducted that various institutions demand the provision of public transport system at about the same time, with educational, civil service, financial and other institutions having similar working hours. However, it might indeed be a necessary measure to stagger the operating hours of these institutions, there by easing the demand overlap.

5. Parking and stopping places provisions: most other aspects of urban transport and road network have been subjects of various studies at one point or another, but in depth researches and studies about the provision or the lack of parking facilities are lacking. Proper supply of parking facilities, especially in transit areas is a measure that should be taken, so as to avoid the

spillover effect of the public transport. On street parking should be avoided on peak hours. Add more parking fee on private cars to discourage them from spending so much time on the street, which will help to minimize congestion. As a result people would be forced to move quickly, which would make the traffic flow smooth.

6. Transport infrastructure: Similarly, in the urban road network of Addis Ababa, intersections and drainage together with the existing road infrastructure implementation problems should be given proper attention. Lack of alternative routes, and unchannelized road functions to accommodate traffic have aggravated the road network problem. Therefore, it is firmly believed that step - by- step improvement plans must be devised to mitigate design and implementation problems of the road network.

7. Taxis that were working on routes in the lines of the LRT will be minimized and distributed to other places where the need for them is high. Thus, the small-scale transportation cannot solve the problems of the city, then government must focus on mass- transportation and there needs to be private sector investment in the transportation business, which will make it more competitive and effective.

8. In general, it has been stated in the beginning that transport is an engine for development, hence the significant role that urban transport system plays in bringing about a sustainable development and poverty reduction in the urban context cannot be overstated. It should be mentioned here too that, as it has been clearly stated in the concluding remarks, the realm of public transport in Addis Ababa is entangled with other multifaceted transport related as well as social issues. Thus the need for comprehensive studies in all the respective fields is of great importance. Such areas of interest as traffic management, transport infrastructure, transport systems and need to be studied in depth.

Appendix 1

ST MARY'S UNIVERSTITY

SCHOOL OF GRADUATES

PROGRAM OF MASTERS OF BUSINESS ADMINISTRATION (MBA)

Questionnaire Survey

Dear survey respondents,

This study is conducted in partial fulfillment for the Masters of Business Administration (MBA) in St. Mary's University. The study is entitled "Assessment of the problems of Public transportation system: The Case of Addis Ababa, Ethiopia." To this end, questionnaire survey will be conducted to collect pertinent data for the study purpose. The questionnaire is organized in three parts: Part one includes background or biographic related questions. Part two consists of questions aimed to assess the factors affecting public transportation system. Finally, part three comprises questions designed to suggest the mechanisms to improve public transportation problem. The information you provide will only be used for the study purpose and hence remain confidential. Thus, you are not required to mention your name, address and other personal information. The survey will take 15 minutes to complete. Therefore, you are kindly requested to read the questions carefully and give accurate and honest answer to the questions. I would like to thank you well in advance for your willingness to participate in this study by sparing your precious time.

General instruction:

- There is no need of writing your name, address and other personal information
- For close-ended questions, encircle on the letter of your choice from the given alternatives
- For open-ended questions, please try to give your honest explanation.
- Please give more attention and return the completed questions as fast as possible

Thank you!

Dereje Assefa

E-mail: dassefa787@gmail.com

Part I. Background or biographic questions

1. Could you specify your gender?
   A. Male
   B. Female
2. Could you select your occupation from the given alternatives?
   A. Student
   B. Unemployed
   C. Employed
3. If your answer to question number 2 is "C", where are you working?
   A. Self employed
   B. Private organization
   C. Government office
   D. Non-governmental organization (NGO)
   E. Daily laborer
   F. Other, please specify _____
4. Could you please choose your marital status from the given alternatives?
   A. Single
   B. Married
   C. Widowed
   D. Divorced
5. Could you please specify your educational level?

A. Below Grade 10

B. Certificate

C. Diploma

D. First degree

E. Master's degree and above

6. Could you please indicate your monthly income from the given options?

A. < 3000 birr

B. 3000 – 5000 birr

C. 5001 – 7000 birr

D. 7001 – 9000 birr

E. 9001–11,000 birr

F. > 11,000 birr

7. Could you please specify your family size?

A. < 4 members

B. 4 – 6 members

C. 7 – 8 members

D. 9 – 10 members

E. >10 members

Part II. Factors affecting public transportation system

8. Do you think that there is public transportation problem in Addis Ababa city?

A. Yes

B. No

9. If your answer to question number '8' is 'yes', what do you think are the main problems? Please rank the problems from the most serious to less serious (1st, 2nd, 3rd, & 4th).

☐ A. Shortage of vehicle

☐ B.Poor transportation management system

☐ C.Traffic congestion

☐ D. Road and infrastructure problem

10. Which mode of transport do you usually use?

A. Walking

B. Minibus Taxi

C. Sheger Express Bus

D. Higer Bus

E. Anbessa City Bus

F. Public Service

11. Could you please specify your working hours (from ---------- to ----------)

A. 7:00 AM – 2:00 PM

B. 8:00 AM – 4:00 PM

C. 8:30 AM– 5:00 PM

D. 9:00 AM – 6:00 PM

E. Other, please specify (from _____ to _____)

12. How much do you spend for transportation per day?

A. Less than 5 birr

B. 5 – 9.99 birr

C. 10 – 14.99 birr

D. 15 – 19.99 birr

E. 20 birr and above

13. At what time of the day it is difficult to get code-3 minibus taxis?

A. 6:00 AM- 10:00 AM

B. 10:00 AM- 1:00 PM

C. 1:00 PM- 5:00 PM

D. 5 :00 PM-8:00 PM

14. How long have you ever been waiting to get code-3 minibus taxi?

A. < 5 minutes C. 11- 15minutes

B. 6 - 10 minutes D. >16 minutes

15. How long does it take you to reach your work place from where you live, at peak hours?

A. < 30 minutes

B. 30 – 60 minutes

C. 1– 1:30 hour

D. 1:30 – 2:00 hours

E. > 2:00 hours

16. How many trips do you make per day?

A. Less than four times C. Six times

B. Five times D. Seven times and above

17. Do you agree that code-3 minibus taxis are helpful?

A. Strongly disagree C. Neutral E. Strongly agree

B. Disagree D. Agree

18. How often do you use code-3 minibus taxi?

A. Once in a week

B. Two days per week

C. Three days per week

D. Four days in a week

E. Five days per week

F. Six days per week

G. Seven days per week

19. Incase if there are no code-3 minibus taxis, what would be your first choice?

A. Sheger express bus C. Higer bus

B. Anbessa city bus D. Public service

20. Are there any instances where you are forced to pay more than the stipulated fare?

A. Yes

B. No

21. If your answer to question number '20' is 'yes', at what time you were asked mostly?

A. 6:00 AM – 10:00 AM

B. 10:00 AM- 1:00 PM

C. 1:00 PM – 5:00 PM

D. 5:00 PM – 8:00 PM

E. 8:00 PM and above

22. Have you ever seen code-3 minibus taxis cutting trips or routes?

A. Yes

B. No

23. If your answer to question number '22' is 'yes', at what time it is mostly happened to you?

A. 6:00 AM – 10:00 AM

B. 10:00 AM- 1:00 PM

C. 1:00 PM – 5:00 PM

D. 5:00 PM – 8:00 PM

E. 8:00 PM and above

24. How do you rate the behavior of code-3 minibus taxi drivers and their assistant?

A. Very undisciplined C. Indifferent

B. Undisciplined D. Disciplined E. Very disciplined

25. How do you rate the importance of transport authority operation supervisors and line-up facilitator (*Tera Askebari*)?

A. Extremely unhelpful

B. Unhelpful

C. Neutral

D. Helpful

E. Extremely helpful

26. How do you rate the transportation fare (tariff) you pay for code-3 minibus taxis?

A. Very expensive

B. Expensive

C. Average (neither cheap nor expensive)

D. Cheap

E. Very cheap

27. How do you evaluate the accessibility of code-3 minibus taxis?

A. Highly inaccessible

B. Inaccessible

C. Neutral

D. Accessible

E. Highly accessible

28. How satisfied are you with the quality of service offered by code-3 minibus taxis?

A. Highly dissatisfied

B. Dissatisfied

C. Neutral (neither satisfied nor dissatisfied)

D. Satisfied

E. Highly satisfied

29. What do you think about the current transportation services in Addis Ababa, especially in relation to tariff and waiting time?

_____
_____
_____
_____

30. What is expected from different stakeholders (government, taxi owners, taxi drivers, passengers, etc.) to improve the current public transportation problems (especially code-3 mini bus taxis) in Addis Ababa?

_____
_____
_____

Appendix 2

ቅድስት ማርያም ዩኒቨርሲቲ

የድህረ ምረቃ ፕሮግራም

በቢዝነስ አድምንስትሬሽን የማስተርስ ፕሮግራም

የመጠይቅ ሰርቬ

ይህ ጠጥናት በቅድስት ማርያም ዩኒቨርሲቲ በቢዝነስ አድምንስትሬሽን ለማስተርስ ዲግሪ(MBA) በከፊል ማሟያነት የተደረገ ነዉ።የጥናቱ ርዕስ የህዝብ ትራንስፖርት ችግርን መዳሰስ(assessment of the problem of public transportation system) ይሰኛል(ኮድ-3 ሚኒባስ ታክሲ)፡ አዲስ አበባ፤ ኢትዮጵያ።ለዚህ አላማም ይዉል ዘንድ መጠይቅ ተዘጋጅቷል።መጠይቁ በሶስት ክፍል ነዉ የተዘጋጀዉ።የመጀመርያዉ ክፍል የመላሾች አጠገቃላይ መረጃ ይሆናል።ሁለተኛዉ ክፍል የህሰዝብ ትራንስፖርት አገልግሎት ላይ ትኩረት የምየደርጉ ነገሮች ላይ ትኩረት የደርጋል።ሶስተኛ እና የመጨረሻዉ ክፍል ስለ ወደፊት አቅጣጫዎች ላይ የምያጠነጥን ይሆናል።እርስዎ የምሰጡን መረጃ ለዚህ ጥናት ጉዳይ ብቻ እንጂ ለሌላ አገልግሎት ስለማይዉል ለደህንነትዎ ምንም ስጋት አይግባዎት።ስለሆነም ስም፤ አድራሻ እና ልሎች የግል መረጃዎትን መፃፍ አይጠበቅብዎትም።መጠይቁን ለመጨረስ 15 ደቂቃ ነዉ የሚፈጀዉ።ስለዚህ ጥያቄዉን በጥንቃቄ በማንበብ ተዓማንነት ያለዉ እና ትክክለኛዉን መረጃ እንድሰጡን በትህትና እጠይቃለሁኝ።ዉድ ግዜያችሁን በመሰዋት ፈቅዳችሁ በዚህ ጥናት ላይ ስለተሳተፋችሁ በጣም ላመሰግናችሁ እወዳለሁኝ።

- ✓ አጠቃላይ መመርያ

- ስምዎትን እና ሌሎች የግል መረጃዎትን መፃፍ አይጠበቅብዎትም
- ዝግ ለሆኑ ጥያቄዎች ካሉት ምርጫዎች የመረጡትን የክብቡ
- ክፍት ለሆኑ ጥሰያቄዎች ታማኝ የሆነ መልስዎትን ለመስ|ጠት ይሞክሩ
- እባክዎትን ብዙ ትኩረት በመስጠት የተሞላዉን መጠይቅ በተቻልዎት ፍጥነት ይመልሱ

ክፍል አንድ፡ የመላሾች አጠቃላይ መረጃ

1. እባክዎ ፆታዎን ይግለፁ

   ሀ. ወንድ

   ለ. ሴት

2. እባክዎ ስራዎ ይግለፁ

   ሀ.ተማሪ

   ለ. ስራ አጥ

   ሐ.ሰራተኛ

3. ለሁለተኛ ጥያቄ መልስዎ ‘ሐ’ ከሆነ፤ የት ነዉ የምሰሩት?

   ሀ. የግል ስራ

   ለ. የግል ድርጅት

   ሐ.የመንግስት መስሪያቤት

   መ. መንግስታዊ ያልሆነ ድርጅት(NGO)

   ሰ. የቀን ሰራተኛ

4. ካሉት ምርጫዎች የእርስዎ የትድር ሁኔታ የትኛዉ ነዉ?

ሀ. ላጤ(የላገባ/ያላገባች)

ለ. የገባ/ያገባች

ሐ. የሞተችበት/የሞተባት

መ. የፈታ የፈታች

5. የትምህርት ደረጃዎ ምንድን ነዉ?

ሀ. ከ10ኛ ክፍል በታች

ለ. ሰርትፍኬት

ሐ. ዲፕሎማ

መ. የመጀመርያ ድግሪ

ሰ.ማስተርስ ድግሪ እና ከዛ በላይ

6. የወር ገቢዎ ከየትኛዉ ምርጫ ዉስጥ ይመደባል?

ሀ. ከ2,000 ብር በታች

ለ. 2,000-4,000ብር

ሐ 4,000-6,000ብር

መ. 6,000-8,000ብር

ሰ. 8001-10,000 ብር

ረ. ከ10,000 በር በላይ

7. እባክዎ ስለ ቤተሰብዎ ሁኔታ ይግለፁልን

ሀ. ከ4 ሰዉ በታች

ለ. 4-6 ሰዉ

ሐ. 7-8 ሰዉ

መ. 9-10 ሰዉ

ሰ. ከ10 ሰዉ በላይ

ክፍል ሁለት፡ የህሰዝብ ትራንስፖርት አገልግሎት ላይ ተፅዕኖ የምየደርጉ ነገሮች

8. በአዲስ አበባ ከተማ ዉስጥ የህዝብ ትራንስፖርት ችግር አለ ብለዉ ያስባሉ?

ሀ. አዎ

ለ. አይደለም

9. ለጥያቄ ቁጥር ‘8’ መልስዎ ‘ሀ’ ከሆነ እባክዎ ከምከተሉት ምርጫዎች በጣም አሳሳቢ ብሎ ከምየስቡተ ችግር ቀላል አሳሳቢ ወደሚሉት በደረጃ የስቀምጡ (1ኛ፣ 2ኛ፤ 3ኛ ፤ 4ኛ በማለት ያስቀምጡ)

☐ ሀ. የተሸከርካሪ እጥረት

☐ ለ. የመንግስት ማኔጅመንት ችግር

☐ ሐ. የትራፊክ መጨናነቅ

☐ መ. የመንገድ እና የመሰረተ ልማት ችግር

10. የትኛዉን የትራናስፖርት አማራጭ ነዉ በብዛት የምጠቀሙት?

ሀ. በእግር መራመድ

ለ. ሚኒባስ ታክሲ

ሐ. ሸገር የብዙሃን ትራንስፖርት

መ. ሃይገር ባስ

ሰ. አንበሳ የብዙሃን ትራንስፖርት

ረ. ፐብልክ ሰርቪስ

11. እባክዎ የስራ ሰዓትዎን ይግለፁልን

ሀ. 1፡00- 8፡00

ለ. 2፡00- 10፡00

ሐ. 2፡30 – 11፡00

መ. 3፡00- 12፡00

12. ለህዝብ ትራንስፖርት አገልግሎት በቀን ምን ያህል ብር ያወጣሉ?

ሀ. ከ5 ብር በታች

ለ. 5- 10 ብር

ሐ. 11- 15 ብር

መ. ከ16 ብር በላይ

13. ለኮድ-3 ሚኒባስ ታክሲ የምከፍሉትን የታሪፍ መጠን እንዴት ይለኩታል?

ሀ. በጣም ሪካሽ

ለ.. ሪካሽ

ሐ. ተመጣጣኝ

መ. ዉድ

ሰ. በጣም ዉድ

14. በኮድ-3 ሚኒባስ ታክሲ በሚሰጡዉ የአገልግሎት ጥራት ምን ያህል ደስተኛ ንዎት?

ሀ. በጣም ደስተኛ አይደለሁም

ለ. ደስተኛ አየደለሁም

ሐ. ገለልተኛ(ምንም ሃሳብ የለኝም)

መ. ደስተኛ ነኝ

ሰ. በጣም ደስተኛ ነኝ

15. በየትኛዉ ሰዓት ላይ ነዉ የኮድ-3 ሚኒባስ ታክሲ ተደራሽነቱ አስቸጋሪ የምሆነዉ?

ሀ. 12፡00-4፡00 ሰዓት ከጠዋቱ

ለ. 4፡00- 7፡00 ሰዓት ከቀኑ

ሐ. 7፡00-11፡00 ሰዓት ከቀኑ

መ. 11፡00-2፡00 ሰዓት ከምሽቱ

ሰ. ከ2፡00 ሰዓት ከምሽቱ በዋላ

16. ኮድ-3 ሚኒባስ ታክሲን ለማግኘት በአማካይ ምን ያህል ደቂቃ ይጠብቃሉ?

ሀ. ከ5 ደቂቃ በታች

ለ. 6-10 ደቂቃ

ሐ. 11-15 ደቂቃ

መ. ከ16 ደቂቃ በላይ

17. በስራ መግብያ እና መዉጫ ሰዓት ላይ ከቤት እስከ መስሪያ ቤትዎ ለመድረስ በአመካይ ምን ያህል ደቂቃ ይፈጅብዎታል?

ሀ. ከ30 ደቂቃ በታች

ለ. ከ30 – 60 ደቂቃ

ሐ. ከ1 ሰዓት – 1:30 ሰዓት

መ. 1:30 ሰዓት– 2:00ሰዓት

ሰ. ከ2:00 ሰዓት በላይ

18. በቀን ዉስጥ በአማካይ ምን ያህል ግዜ ይመላለሳሉ?

ሀ. 2 ግዜ እና ከዛ በታች

ለ. 3 ግዜ

ሐ. 4 ግዜ

መ. 5 እና ከዚያ በላይ

19. ኮድ-3 ሚኒባስ ታክሲዎች ጠቃሚ ናቸዉ ብለዉ ያስባሉ?

ሀ. እጅግ ጠቃሚ ናቸዉ

ለ. ጠቃሚ ናቸዉ

ሐ. ገለልተኛ ነኝ

መ. ጠቃሚ አይደሉም

ሰ. እጅግ ጠቃሚ አይደሉም

20. ኮዲ-3 ሚኒባስ ታክሲን በሳምንተ ዉስጥ ምን ያህል ግዜ ይጠቀማሉ?

ሀ. በሳምንት 7 ቀን

ለ. በሳምንት 6 ቀን

ሐ. በሳምንት 5 ቀን

መ. በሳምንት 4 ቀን

ሰ. በሳምንት 3 ቀን

ረ. በሳምንት 2 ቀን

ሠ. በሳምንት 1 ቀን

21. እንደ አጋጣሚ ሆኖ ኮድ-3 ሚኒባስ ታክሲ በማይኖርበት ግዜ ካሉት ሌሎች የትራንስፖርት አማራጮች የትኛዉን የመርጣሉ?

ሀ. ሸገር የብዙሃን ትራንስፖርት

ለ. አንበሳ የብዙሃን ትራንስፖርት

ሐ. ሃይገር ባስ

መ. ፐብሊክ ሰርቪስ

22. መንግስት ካስቀመጠዉ ታሪፍ በላይ እንድከፍሉ ተጠይቀዉ ያዉቃሉ?

ሀ. አዎ

ለ. አይደለም

23. ለጥያቄ ቁጥር ‘17’ መልስዎ ‘ሀ’ ከሆነ ብዙ ግዜ የምጠየቁት የትኛዉ ሰዓት ላይ ነዉ?

ሀ. 12፡00-4፡00 ሰዓት ከጠዋቱ

ለ. 4፡00- 7፡00 ሰዓት ከቀኑ

ሐ. 7፡00-11፡00 ሰዓት ከቀኑ

መ. 11፡00-2፡00 ሰዓት ከምሽቱ

ሰ. ከምሽቱ2፡00 ሰዓት በዋላ

24. ኮድ-3 ሚኒባስ ታክሲዎች መስመር ስቆርጡ አጋጥምዎት ያዉቃል?

ሀ. አዎ

ለ. አይደለም

25. ለጥየቄ ቁጥር ‘24’ መልስዎ ‘ሀ’ ከሆነ ብዙ ግዜ ያጋጠምዎት የትኛዉ ሰዓት ላይ ነዉ?

ሀ. 12፡00-4፡00 ሰዓት ከጠዋቱ

ለ. 4፡00- 7፡00 ሰዓት ከቀኑ

ሐ. 7፡00-11፡00 ሰዓት ከቀኑ

መ. 11፡00-2፡00 ሰዓት ከምሽቱ

ሰ. ከ2፡00 ሰዓት ከምሽቱ በዋላ

26. የኮድ-3 ሚኒባስ ታክሲ ሹፌር እና ረዳት በሃሪን እንዴት የገመግማሉ?

ሀ. በጣም ስነምግባር ኣላቸዉ

ለ. ስነምግባር ኣላቸዉ

ሐ. ጥሩም መጥፎም አይደሉም(ገለልተኛ)

መ. ስናምግባር የላቸዉም

ሰ. በጣም ስነምግባር የላቸዉም

27. በኣዲስ አበባ ከተማ አስተዳደር የህዝብ ትራንስፖርት ተቆጣጣሪዎችን እና ተራ አስከባሪዎችን እንዴት የገመግማሉ?

ሀ. እጅግ በጣም ጠቃሚ ናቸዉ

ለ. በጣም ጠቃሚ ናቸዉ

ሐ. ጠቃሚ ናቸዉ

መ. በጣም ጠቃሚ አይደሉም

ሰ. እጅግ በጣም አይጠቅሙም

28. በዚህ ግዜ ስለምታየዉ የህዝብ ትራንስፖርት አገልግሎት ምን ያስባሉ? በተለይም ከታሪፍ እና የመጠበቅ ግዜ ጋር በተገናኘ

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29. ከተለያዩ ባለድርሻ አካላት (መንግስት፤ የታክሲ ባለንብረቶች፤ የታኪሲ ሹፌሮች፤ ተሳፋሪዎች እና ወ.ዘ.ተ) የህዝብ ትራንስፖርት አገልግሎትን ለማሻሻል ምን ይጠበቃል ብለዉ ያስባሉ?

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Appendix 3

ST MAR'S UNIVERSTITY

SCHOOL OF GRADUATES

PROGRAM OF MASTERS OF BUSINESS ADMINISTRATION (MBA)

Interview Guide

Dear Sir/ Madam,

My name is Dereje Assefa. I am undertaking a study on the problem of Public Transportation System specifically on code-3 minibus taxi: the case of Addis Ababa city. I kindly request you to give honest answer to the interview questions. The information you provide is only used for study purpose and hence will be kept confidential. Your name or your organization (institution) will remain anonymous in the research document.

For code-3 minibus taxi drivers, Addis Ababa City Transport Authority top level manager, Addis Ababa City Transport Authority operation workers, and line-up facilitator (*Tera Askebari*), case study interview:

I. The Interview questions listed below are guiding questions. There will be probing questions based on the answers that would be provided by the Interviewee to get more information associated with the study.

II. These interview questions will be translated into Amharic. When the Researcher gets the permission of the interviewee the interview will be tape-recorded. Then the researcher will transcribe the interview and his field notes first in Amharic, then after will summaries /narrate the Amharic transcribed document into English.

III. If the interviewee is not comfortable with tape-recording, the researcher will use his field notes to transcribe the interview.

Interview questions for taxi drivers:

1. Are you satisfied with your work (being taxi driver or owner)? If not, why?
2. Do you have pointer (*Tapela*)? If not why? Do you think it is helpful?
3. If you have *Tapela*, have you ever work out of your assigned line? If your answer is yes, what is your reason and how often you go out of your line?
4. Could you please tell me the number of trips you make per day?
5. Have you ever cut the trip into smaller paths? If yes, what is your reason and how often you make this activity and at what time?
6. Have you ever collected above the stipulated fare? If yes, what is you reason? How often you make such activity? Which time is comfortable for you to do such activity?
7. Have you ever punished by the above cases? What is the principal case for your punishment?
8. What do you think are the major problems associated with code 3- minibus taxis in Addis Ababa?
9. What do you recommend to alleviate the problems associated with code 3- minibus taxis in Addis Ababa?

Interview questions for AACATA higher officials:

1. Could you please tell me the number of code-3 minibus taxis currently operating in A.A city? As compared to other public transport alternatives, how much do you think they are helpful?
2. What do you think are the problems associated with public transportation in Addis Ababa? Among these problems, which one is the major or serious one?
3. What are the major problems associated with code-3 minibus taxis in Addis Ababa?
4. Is there a standard stating the number of trips to be made by public transport service providers? How many people on average can one vehicle serve per day?
5. How do you evaluate the integration among different stakeholders to smoothly manage or run public transportation system (especially code 3 minibus taxis) in Adds Ababa?
6. What are the future plans of government to alleviate public transportation problems? How much it is applicable?
7. What do you recommend to alleviate the problems associated with code 3- minibus taxis in Addis Ababa?

Interview questions for AACATA operation workers

1. What are the major problems associated with code-3 minibus taxis in Addis Ababa? What kind of measure you have taken to solve the problem? How many transport service providers do you punish per week on average? Which case most frequently happened to you?
2. Do you conduct periodic supervision works to control the operations of code-3 minibus taxis? How frequently?
3. What mechanisms do you use to control the operations of code-3 minibus taxis?
4. What do you recommend to minimize or alleviate the problems associated with code-3 minibus taxis?
5. How do you evaluate the integration among different stakeholders to smoothly manage or run public transportation system (especially code 3 minibus taxis) in Adds Ababa?
6. What do you recommend to alleviate the problems associated with code 3- minibus taxis in Addis Ababa?

Interview questions for line-up facilitator

1. What are the major problems associated with code-3 minibus taxis in Addis Ababa?
2. What mechanisms do you use to control the operations of code-3 minibus taxis?
3. How do you evaluate your work relationship with AACATA and taxi drivers?
4. How do you evaluate the integration among different stakeholders to smoothly manage or run public transportation system (especially code 3 minibus taxis) in Adds Ababa?
5. What do you recommend to alleviate the problems associated with code 3- minibus taxis in Addis Ababa?

Appendix 4

ቅድስት ማርያም ዩኒቨርሲቲ

የድህረ ምረቃ ፕሮግራም

በቢዝነስ አድምንስትሬሽን የማስተርስ ፕሮግራም

ቃለ መጠይቅ

ክቡር/ክብርት አቶ/ወየዘሮ/ወይዘሪት

ስሜ ደረጀ አሰፋ ይባላል።በአዲሰ አበባ ከተማ የህዝብ ትራንስፖርት አገልግሎት ችግር በተለይም ኮድ-3 ሚኒባስ ታክሲ ላይ ጥናት እያካሄድኩ እገኛለሁ።ለሚከተሉ ጥያቄዎች ተዓማንነት ያለዉ መልስ እንድሰጡኝ በትህትና አየጠየኩኝ እርስዎ የሚሰጡኝ መረጃ በቢዝነስ አድምንስትሬሽን በማስተርስ ድግሪ በከፍል ማሟያነት ብቻ የምዉል መሆኑን በጥብቅ እያሳወቅኩኝ ስለ ደህንነትዎ ምንም እንዳይሰጉ ለማለት እወዳለሁኝ።

ሀ. ለኮድ-3 ሚኒባስ ታክሲ አሽከርካሪዎች

1. ኮድ-3 ሚኒባስ ታክሲ አገልግሎት ላይ ሹፌር ሆኖ ስሰሩ በስራዎ ደስተኛ ንዎት; ካልሆኑ ምክንያትዎ ምንድን ነዉ?

2. የመስመር ጠቋሚ ታፔላ አልዎት; ካሌልዎት ምክንያትዎ ምንድን ነዉ; ካልዎት ደግሞ ታፔላ ጠቃሚ ነዉ ብለዉ ያስባሉ;? ከተሰጥዎት መስመር ዉጪስ ሰርተዉ ያዉቃሉ? ሰርተዉ የምያዉቁ ከሆነ እንደዛ ለማድረግ ምክንያትዎ ምንድን ነዉ? በየትኛዉ ሰዓት ነዉ ብዙ ግዜ ከመስመርዎ ዉጪ የምሰሩት?

3. እባክዎ መነሻ እና መድረሻ ብሎ መንግስት ካስቀመጠዉ እርስዎ ቆርጦ ጭነዉ ያዉቃሉ? ቆርጠዉ የምያዉቁ ከሆነ ምክንያትዎ ምንድን ነዉ? በየትኛዉ ሰዓት ነዉ ብዙ ግዜ መስመር ለመቁረጥ የሚመቾት? በሳሚንት ዉስጥ በአማካይ ለምንያህል ግዜ መስመር ይቆርጣሉ?

4. እባክዎ መንግስት ካስቀመጠዉ ታሪፍ በላይ አስከፍሎ ያዉቃሉ? አስከፍሎ ምያዉቁ ከሆነ ምክንያትዎ ምንድን ነዉ? በየትኛዉ ሰዓት ነዉ ብዙ ግዜ ታሪፍ ለመጨመር የሚመቾት? በሳሚንት ዉስጥ በአማካይ ለምንያህል ግዜ ከታሪፍ በላይ ይጠይቃሉ?

5. ከዚህ በላይ በተጠቀሱ ጉዳዮች ተከሰዉ ያዉቃሉ? ተከሰዉ የምያዉቁ ከሆነ ብዙ ግዜ የተከሰሱት በየትኛዉ ነዉ? እባክዎ በደረጃ ያስቀምጡ

6. በሚሰሩበት መስመር ላይ በቀን ዉስጥ በአማካይ ምን ያህል ግዜ ይመላለሳሉ?

7. በአዲስ አበባ ከተማ ዉስጥ የኮድ-3 ሚኒባስ ታክሲ ዋና ዋና ችግሮች ብሎ የምያስቡት ምን ምንድን ናቸዉ?

8. ከኮድ-3 ሚኒባስ ታክሲ ጋር በተያያዘ ችግሮቹን ለመቅረፍ ምን መደረግ አለበት ብሎ ያስባሉ?

ለ. ለአዲስ አበባ ትራንስፖርት ባለስልጣን ከፍተኛ አመራሮች የተዘጋጀ

1. እባክዎ በአዲስ አበባ ከተማ ዉስጥ ምን ያህል ኮድ-3 ሚኒባስ ታክሲ ይኖራል? ከሌሎች የትራንስፖርት አማራጮች ጋር ስነፃፃሩ ጠቀሜታቸዉ ምን ያህል ነዉ?

2. በአዲስ አበባ ከተማ ዉስጥ ከኮድ-3 ሚኒባስ ታክሲ ጋር በተያያዘ ዋና ዋና ችግሮች የምባሉት ምንድን ናቸዉ?

3. አጠቃላይ ከህዝብ ትራንስፖርት ችግር ጋር በተያያዘ ዋና ዋና ችግር የሚባሉት ምንድን ናቸዉ? ከበጣም አሳሳቢ ወደ ትንሽ አሳሳቢ በደረጀ ልነግሩኝ ይችላሉ?

4. አንድ ተሸከርካሪ በቀን ዉስጥ መመላለስ አለበት ተባሎ የተቀመጠ የምልልስ ስታንዳርድ አለ? ካለስ ምን ያህል ነዉ? አንድ ተሸከርካሪስ በቀን ዉስጥ በአማካይ ምን ያህል ሰዉ የጓጉዛል ተብሎ ይጠበቃል?

5. በአዲስ አበባ ከተማ ዉስጥ ያለዉን የህዝብ ትራንስፖርት ለመቆጣጠር ከተለያዩ ባለድርሻ አካላት ጋር ያለዉን ቅንጅት እንዴት የገመግማሉ?

6. በአዲስ አበባ ከተማ ዉስጥ አጠቃላይ የህዝብ ትራንስፖርት ችግርን ለመቅረፍ የመንግስት የወደፊት አቅጣጫ ምንድን ነዉ; ምን የህልስ ተግባራዊ ይሆናል ብሎ ያስባሉ?

7. በአዲስ አበባ ከተማ ዉስጥ የኮድ-3 ሚኒባስ ታክሲ ችግርን ለመቅረፍ ምን መደረግ አለበት ብሎ ይመክራሉ?

ለ.ለአዲስ አበባ ትራንስፖርት ባለስልጣን ቁጥጥር ሰራተኞች የተዘጋጀ

1. በአዲስ አበባ ከተማ ዉስጥ ከኮድ-3 ሚኒባስ ታክሲ ጋር በተያያዘ ዋና ዋና ችግሮች የምባሉት ምንድን ናቸዉ? ችግሮቹን ለመቅረፍስ ምን ይነት እርምጃ ተወስዶ ያዉቃል? ምን ያህል ተሸከርካሪዎችስ በሳምንት ዉስጥ በአማካይ እርምጃ ተወስዶባቸዋል?

2. የኮድ-3 ሚኒባስ ታክሲን እንቅስቃሴ ለመቆጣጠር ድንገተኛ የቁጥጥር ስራ ታደርጋለችሁ? በሳምንት ምን ያህል ቀን;

3. እባክዎ የኮድ-3 ሚኒባስ ታክሲን አጠቃላይ እንቅስቃሴ ለመቆጣጠር ምን አይነት ዘዴ ነዉ የምትጠቀሙት?

4. በአዲስ አበባ ከተማ ዉስጥ የኮድ-3 ሚኒባስ ታክሲ ችግርን ለመቅረፍ ምን መደረግ አለበት ብሎ ይመክራሉ?

5. በአዲስ አበባ ከተማ ዉስጥ ያለዉን የህዝብ ትራንስፖርት ለመቆጣጠር ከተለያዩ ባለድርሻ አካላት ጋር ያለዉን ቅንጅት እንዴት የገመግማሉ?

6. በአዲስ አበባ ከተማ ዉስጥ የኮድ-3 ሚኒባስ ታክሲ ችግርን ለመቅረፍ ምን መደረግ አለበት ብሎ ይመክራሉ?

ሐ. ለተራ አስከባሪዎች የተዘጋጀ

1. በአዲስ አበባ ከተማ ዉስጥ ከኮድ-3 ሚኒባስ ታክሲ ጋር በተያያዘ ዋና ዋና ችግሮች የምባሉት ምንድን ናቸዉ?

2. እባክዎ የኮድ-3 ሚኒባስ ታክሲን አጠቃላይ እንቅስቃሴ ለመቆጣጠር ምን አይነት ዘዴ ነዉ የምትጠቀሙት?

3. ከአዲስ አበባ ከተማ ትራንስፖርት ባለስልጣን ሰራተኞች እና ከታክሲ ሹፌሮች ጋር ያላችሁን ቅንጅት እንዴት ይገመግማሉ?

4. በአዲስ አበባ ከተማ ዉስጥ ያለዉን የህዝብ ትራንስፖርት ለመቆጣጠር ከተለያዩ ባለድረሻ አካላት ጋር ያለዉን ቅንጅት እንዴት የገመግማሉ?

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