

**A Comparative Study of Institutional Responses to Sustainable Mobility for
Public Transport in cities in Ghana and Tanzania**

Dissertation

zur Erlangung des akademischen Grades

Doktor philosophie

(Dr. phil.)

im Fach Geographie

eingereicht an der

Mathematisch-Naturwissenschaftlichen Fakultät der Humboldt-Universität zu Berlin

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DECLARATION OF INDEPENDENT WORK

I declare that I have completed the thesis independently using only the aids and tools specified. I have not applied for a doctor's degree in the doctoral subject elsewhere and do not hold a corresponding doctor's degree. I have taken due note of the Faculty of Mathematics and Natural Sciences PhD Regulations, published in the Official Gazette of Humboldt-Universität zu Berlin no. 42/2018 on 11/07/2018.

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ABSTRACT

Cities play an important role in exploring and developing solutions to address the current sustainability challenges mainly instigated by environmental transformations. This places cities at the forefront of sustainable development and sustainable mobility due to the rising negative impacts of transportation to the environment. Actors and key stakeholders for sustainable mobility in cities in Sub-Sahara Africa however seem not ready for the associated challenges towards the attainment of sustainable mobility for public transport. It is against this background that this study comparatively investigates the institutional responses to sustainable mobility for public transport in Accra city-region (Ghana) and Dar es Salaam city (Tanzania) in the light of existing capacity of the institutions, coordination and communication mechanisms.

This study adopts the qualitative research design and methodological choices that are in conformity with the ideologies of this design in Social Science Research. The philosophical basis of this research is Social Constructivism framework stance on ontological beliefs, epistemological beliefs, axiological beliefs, and methodological beliefs. To this end, qualitative expert interviews with institutions in the two collective case study cities conducted remotely, in tandem with collection of documents during interviews and observations of the existing public transport provide the basis for further analysis to address the research question.

Findings from the study reveal that both cities perceive sustainable public transport as use of higher occupancy vehicles, clearly defined local goals on sustainable public transport and holistic regulation regime. The comparative overview analysis of the two cities in line with the key issue of governance indicates that in the case of Accra city region, the absence of a city council with a respective city head or champion as in the case of Dar es Salaam city is a major limiting factor retarding development programmes, plans, and projects. Inadequate coordination among institutions, on the other hand, results in duplication of efforts and dispersal of scarce resources in the case of Dar es Salaam despite the presence of a city council. The implementation of pilot bus rapid transit systems as a means of addressing the myriad of public transport challenges has been a consequence of the dominance of road-based public transport in both cities. This however has had several limitations with institutional bottlenecks as clearly indicated by the absence of a Public Transport Authority among others.

Consequently, short term policies, medium term policies, and long-term policies are proposed for development interventions in Accra city-region and Dar es Salaam city. The study contributes on the one hand to knowledge on institutions, institutional capacity, coordination and communication mechanisms of these institutions. On the other hand, it contributes to the ontology and epistemology of the theory of social constructivism regarding institutional capacity.

ZUSAMMENFASSUNG

Städte spielen eine wichtige Rolle bei der Erforschung und Entwicklung von Lösungen für die aktuellen Herausforderungen im Bereich der Nachhaltigkeit, die hauptsächlich durch Umweltveränderungen ausgelöst werden. Aufgrund der zunehmend negativen Auswirkungen des Verkehrs auf die Umwelt stehen Städte an vorderster Front der nachhaltigen Entwicklung und der nachhaltigen Mobilität. In den Städten Subsahara-Afrikas scheinen jedoch die Akteure und Hauptvertreter nachhaltiger Mobilität den Herausforderungen bei der Erreichung nachhaltiger Mobilitätsziele im öffentlichen Verkehr nicht gewachsen zu sein. Vor diesem Hintergrund untersucht diese vergleichende Studie die institutionellen Antworten auf das Erfordernis nachhaltiger Mobilitätslösungen im öffentlichen Verkehr in der Stadtregion Accra (Ghana) und der Stadt Dar es Salaam (Tansania) im Hinblick auf die vorhandenen Kapazitäten der Institutionen, Koordinations- sowie Kommunikationsmechanismen.

Die Studie folgt einem qualitativen Forschungsdesign und wendet Methoden an, die mit den wesentlichen Grundannahmen qualitativer sozialwissenschaftlicher Forschung übereinstimmen. Die philosophische Grundlage dieser Forschung ist der soziale Konstruktivismus, der sich auf bestimmte ontologische, epistemologische, axiologische und methodologische Überzeugungen stützt. Im Rahmen der Fallstudien wurden qualitative Experteninterviews mit öffentlichen Institutionen in den beiden Städten aus der Ferne durchgeführt. Die Auswertung von Dokumenten und die Beobachtung des gegenwärtigen öffentlichen Verkehrs bilden die Grundlage für die weitere Analyse zur Beantwortung der Forschungsfrage. Die Ergebnisse der Studie zeigen, dass nachhaltiger ÖPNV in beiden Städten als die Nutzung von Fahrzeugen mit höherer Auslastung, klar definierten lokalen Zielen für nachhaltigen ÖPNV und ganzheitlichen Regulierungssystemen wahrgenommen wird. Die vergleichende Analyse der beiden Städte in Bezug auf das Schlüsselthema Governance zeigt, dass im Fall der Stadt Accra das Fehlen eines Stadtrats mit einem entsprechenden Stadtoberhaupt oder einem Champion wie im Fall der Stadt Dar es Salaam ein wichtiger limitierender Faktor ist, der Entwicklungsprogramme, -pläne und -projekte verzögert. Die unzureichende Koordinierung zwischen den Institutionen wiederum führt im Fall von Dar es Salaam trotz des Vorhandenseins eines Stadtrats zu doppelten Strukturen und zur Zersplitterung der knappen Ressourcen. Die Entscheidung zur Einführung von Schnellbussystemen als Mittel zur Bewältigung der unzähligen Herausforderungen im öffentlichen Verkehr war eine Folge der Dominanz des straßengebundenen öffentlichen Verkehrs in beiden Städten. Dies führte jedoch zu verschiedenen Einschränkungen und institutionellen Engpässen, was unter anderem durch das Fehlen einer öffentlichen Verkehrsbehörde deutlich wird.

Folglich werden kurzfristige, mittelfristige und langfristige Strategien für Entwicklungsmaßnahmen in der Stadtregion Accra und der Stadt Dar es Salaam vorgeschlagen. Die Studie trägt zum einen zum Wissen über Institutionen, institutionelle Kapazitäten, Koordinations- und Kommunikationsmechanismen dieser Institutionen bei. Andererseits leistet sie einen Beitrag zur Ontologie und Epistemologie der Theorie des sozialen Konstruktivismus in Bezug auf institutionelle Kapazitäten.

ACKNOWLEDGEMENTS

I am immensely excited to finally draw the curtain down on the successful completion of my Ph.D. research. All thanks to God Almighty for wisdom and the grace that kept me on this journey.

My sincere thanks go to my husband, Ing. Samuel Bonsu who has been a solid foundation throughout this Ph.D. research, as well as my three kids - Samuel, Christine, and Davida who have been my cheer leaders to the completion of this research even at a tender age. To my mother and my late father, I cannot thank you enough as I am highly indebted to you for all your support.

This Ph.D. research would not have been possible without the consistent and continued support of my supervisor, Prof. Dr. rer. nat Barbara Lenz who always kept my research in her busy schedules without fail. Prof. Lenz, I am grateful for your constructive criticisms throughout this journey that have shaped the outcome of this monograph dissertation. Special thanks for the DLR-DAAD Doctoral Research Fellowship scholarship awarded to me by the German Aerospace Center (DLR) – Institute of Transport Research in Berlin, and the German Academic Exchange Service (DAAD) to pursue this research. To all my colleagues at the DLR, thank you for your support in diverse ways.

I would like to express my profound gratitude to all the anonymous reviewers of my research, who made review of my research a top priority and kept me on my toes to the finish line. My utmost acknowledgement goes to all the interviewees in the respective institutions in the two case study cities, without whom this research could not have progressed especially during the data collection at the second wave of the COVID-19 pandemic. A big thank you to my research assistants, Miss Winnifred Antwi in Ghana, and Mr. Amedeus Masangia in Tanzania.

Finally, a big thank you to the Kita of my three kids (Wirsi-Kids) who made them feel at home so I could concentrate on my research, as well as to all friends and family.

DEDICATION

I dedicate this research to my husband (Ing. Samuel Bonsu), my kids (Samuel, Christine, and Davida), my mother (Madam Evelyn Ayesu), and to the memory of my late father (Mr. Ebenezer Osei Asibey Antwi).

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CHAPTER ONE

GENERAL INTRODUCTION

1.1 Background of the Research

The rising negative impacts of transportation to the environment has gained considerable attention thus generating high level discourse for discussions and decision making regarding the concept of sustainable mobility on global development visions, policies, goals and long-term development plans (Banister, 2000; Intergovernmental Panel on Climate Change, 2018; International Transport Forum, 2018; United Nations Framework Convention on Climate Change, 2015; United Nations, 1987; United Nations, 2015b; United Nations, 2016c). As such, decision makers underscore the relevance of a common vision supported and ratified by all which leaves no continent behind in the quest to ensure sustainable mobility. The core focus of sustainable mobility, according to Banister (2000), is to find diverse pathways to facilitate the movement of people, goods and services in accordance with the sustainable development strategy. Woodcock et al. (2007), emphasize that sustainable mobility contributes to a clean and a healthier environment. In this regard, there is the need to ensure effective implementation of sustainable mobility solutions. This calls for the commitment of key stakeholders to comprehend and embrace the rationale behind different policy initiatives and support their introduction (Banister, 2008). In like manner, Wulfhorst and Klug (2016) assert that actors' and stakeholders' involvement are paramount to the implementation of sustainable mobility solutions in cities. Moreover Banister (2011), argues that transportation trends in cities in both developing and developed countries depict an unsustainable situation. Consequently, there is urgency for transport to contribute immensely to realizing carbon reduction targets through key stakeholders and decision makers; taking into consideration the different pathways to be followed by each city due to its transport problems to be overcome, as well as the unique characteristics of cities in the developing and developed countries (Banister, 2011). Essentially, effective sustainable mobility may not be attained if key stakeholders are not dedicated to championing this course.

Sustainable transport in the same vein is the capacity to provide the mobility needs of humanity in a manner that is least detrimental to the environment and protects the mobility needs of future generations (Rodrigue et al., 2016). In addition, it "contributes positively to the economic and social state without harming human health and the environment" (da Silva et al., 2008, p. 350). Likewise, the United Nations (2016b, p. 2) defines sustainable transport as "the provision of services and infrastructure for the mobility of people and goods advancing economic and social development to benefit today's and future generations in a

manner that is safe, affordable, accessible, efficient, and resilient, while minimizing carbon and other emissions and environmental impacts". Further, the United Nations (2016b) indicates that, to realize the promise of the 2030 Agenda for Sustainable Development and to achieve the 17 Sustainable Development Goals (SDGs), sustainable transport is critical. In this regard, decision makers and key stakeholders need to be equipped with the required institutional capacity, in order to effectively provide mobility needs for its citizenry in accordance with the principles of sustainable (public) transport.

Globally, efforts and commitments towards ensuring the attainment of sustainable transport is explicit in the transport related targets of seven out of the 17 SDGs of the 2030 Agenda for sustainable development (United Nations, 2015a; United Nations, 2016a). More specifically, the 11th Goal, "*Make cities and human settlements inclusive, safe, resilient and sustainable*", aims "*to provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport*". This requires building the planning capacities of local authorities and developing consultation with beneficiaries (Agence Française de Développement, 2015). The 13th Goal, "*Take urgent action to combat climate change and its impacts*" aims "*to integrate climate change measures into policies, strategies and planning*". Hence, to achieve this aim of the 13th Goal, the United Nations (2015a) specifies that it is pertinent to pursue comprehensive sustainable transport solutions (including prioritization of public transport, non-motorized transport, and cleaner and efficient internal combustion engine vehicles). All in all, a well-functioning public transport system in accordance with sustainable transport principles is key to the attainment of SDGs 11 and 13 (United Nations, 2015a). Contrary to the global road map noted above, in the case of cities in developing countries, sustainable public transport is developing rather slowly (World Business Council for Sustainable Development, 2007; Arndt, 2014); whereas there has been substantial growth in the number of cars, motorized two-wheelers and paratransit vehicles in the last twenty years. As a result, this has led to, among others, road traffic congestion and air pollution in cities. To further worsen the situation is the rapid motorisation (vehicle ownership rising at a rate of between 15 to 20 per cent annually in most developing countries) caused by urbanisation and growing income (Bongardt et al., 2009; Verma and Ramanayya, 2015). Furthermore, the Partnership on Sustainable Low Carbon Transport (SLoCaT) et al. (2014) avers that, global population is set to increase by one quarter by the year 2030 and coupled with growing urbanisation, sustainable transport has become vital to securing a future that aims at protecting the environment (reduce road traffic congestion and air pollution), minimise poverty, enable economic transformation and advance social justice.

According to Shell Foundation (2012), any attempts at ensuring sustainable public transport in cities, particularly in developing countries, will require a critical examination of the role and capacity of all stakeholders in the public transport service and infrastructure delivery system. In developing countries, public transport in cities is characterised by use of several low capacity paratransit vehicles such as daladala (Tanzania), jeepney (Philippines), matatu (Kenya), trotro (Ghana), and tempo (Bangladesh) (Iles, 2005, p. 49). These paratransit vehicles are predominantly privately owned and mostly operated by transport operators/unions (Iles, 2005, p. 133). However, the services provided by the paratransit industry in most developing cities are of low quality, unsafe, unsatisfactory and inadequate, impeding development and detracting from the quality of life (Iles, 2005, p. 460). To highlight the case of Ghana, one of the research study areas, public transport in the cities are characterised by old and poorly maintained paratransit vehicles (trotro/minibuses), overcrowding, inadequate and unreliable services (Adarkwa and Tamakloe, 2001; Poku-Boansi et al., 2019; Brookins, 2019). In consequence, the unreliability of these services also account for the steady increase in cars and shared-taxis; further leading to congestion of roads in the cities impacting air quality, noise, safety problems and quality of life (Poku-Boansi and Adarkwa, 2011). As an intervention, the Government of Ghana launched a pilot Bus Rapid Transit (BRT) system, popularly known as Aayalolo BRT in Accra city (Ghana's capital) in December, 2016 (Poku-Boansi and Marsden, 2018; Accra Metropolitan Assembly, 2018). The Aayalolo BRT is regulated and managed by the Greater Accra Passenger Transport Executive (GAPTE) under the Ministry of Local Government, Decentralisation and Rural Development.

Similarly, the existing public transport system in cities in Tanzania, the other research study area, has been dominated by use of 'daladala'/minibuses (paratransit vehicles), characterised by low quality of services, lack of fixed bus time schedules, overcrowding, and long waiting time at bus stops. Beyond congestion and delays due to inadequate road infrastructure, poor vehicle standards lead to the prevalence of vehicles with excessive gaseous emissions on roads, and city dwellers with private cars prefer to drive instead of using public transport (Kanyama et al., 2004; Kalugendo, 2017; Kiunsi, 2013). With reference to road traffic congestion, a study conducted by the confederation of Tanzania industries revealed that traffic congestion "eats up close to 20 per cent of business profit" (Kiunsi, 2013, p. 98). Therefore, policy and decision makers in Tanzania sought to find a solution to these urban transport challenges, even though there were other resource constraints such as staff and financial, institutional framework and statutory responsibilities (Kanyama et al., 2004). The Government of Tanzania eventually launched Phase 1 of the Dar Rapid Transit (DART); a bus-based mass transit system connecting the suburbs of Dar

es Salaam (the largest city in Tanzania) to the Central Business District in May, 2016 (Rizzo, 2018; TanzaniaInvest.com, 2017). The entire system is operated by Usafiri Dar es Salaam Rapid Transit (UDA-RT), under the surveillance of Dar es Salaam Rapid Transit Agency (DART) (TanzaniaInvest.com, 2017). A year after, Dar es Salaam was recognised as East Africa's first city to implement a bus rapid transit system; and the Tanzanian capital won the prestigious sustainable transport award in June, 2017 (Citiscopes, 2017; Institute for Transportation and Development Policy, 2017). However, according to the Transportation Research Board (2017) the Phase 1 of the DART system has not been without challenges inhibiting efficient operation of the system.

In light of all these problems with public transport in developing cities, following Iles (2005, p. 460), it is to be expected that, "most of these problems can be addressed if there is full commitment from governments in making the required institutional, legislative and regulatory changes and enforcement of same". Although "some of the required measures may be politically challenging, the potential benefits are considerable". This research therefore seeks to address the issues affecting Ghanaian and Tanzanian cities in the provision of sustainable road-based public transport by examining the institutional capacity, coordination and communication mechanisms of the stakeholders responsible in its delivery. Particular focus is on the largest city in each respective country, that is, Accra city-region in Ghana and Dar es Salaam city in Tanzania.

1.2 Research Problem

Land transport represented 70 per cent of transport related energy use and Global greenhouse gas (GHG) emissions in 2009 and they are projected to increase by approximately 50 per cent and 80 per cent by 2030 and 2050 respectively in a 'Business as Usual' scenario (Partnership on Sustainable Low Carbon Transport (SLoCaT) et al., 2014; Keyvanfar et al., 2018). As such, there is the need for innovative, pragmatic and concrete measures to reduce the projected expected (alarming) increase of energy use and global greenhouse gas emissions by land transport in the year 2030 and 2050 and to also keep with the Paris Agreement on Climate Change. Abdallah (2017), cautions that the continued combustion of fossil fuels for energy leaves the future generation a price to pay for. This in essence is due to the dependence on fossil fuels for road transport (the major mode of land transport) in developing countries and the associated effects presently felt, as well as the foreseen repercussions for future generations. Correspondingly, Murphy (2015, p. 400) argues the need to avoid "incubating unsustainability" and rather take exigent actions to mitigate air pollution and climate change. In view of the above, there is urgent need for more sustainable solutions for road transport, mainly in developing countries. An effective and

efficient sustainable road-based public transport in developing cities is seen as a vital pillar or component of sustainable transport solutions (United Nations, 2016b) to this end. Moreover, Verma and Ramanayya (2015, p. 171) postulate that a well-functioning urban transport system is very vital for a city to become competitive, livable and attractive. Presently, the state of road-based public transport in Ghanaian and Tanzanian cities is unsustainable benchmarking it against the principles and ultimate impacts of sustainable transport and sustainable mobility noted in the background of this research (Banister, 2011; United Nations, 2015a; Bongardt et al., 2013).

Cities in both Ghana and Tanzania are experiencing rapid motorisation and related negative impacts including road traffic congestion, air quality issues, energy insecurity and greenhouse gas emissions (Aidoo et al., 2013; Peprah et al., 2019; Kiunsi, 2013; Ministry of Local Government and Rural Development (MLGRD), 2017; The World Bank, 2017b). These have the potential to pose traffic management challenges in these cities as the existing roadways have not seen any significant improvements (Adarkwa and Poku-Boansi, 2011; Kiunsi, 2013; Bwire and Zengo, 2020). In the case of Ghana, cumulative total registered vehicles saw an increase of 243.1 per cent (i.e. 2,206,415) in 2017 from a base figure of 643,100 in 2003 (representing a 16.21 per cent average annual increase over the 15-year period) (Driver and Vehicle Licensing Authority (DVLA), 2018). Out of this figure, the capital city Accra, recorded cumulative total registered vehicles of 773,449 (i.e. 156 per cent cumulative increase) in the year 2017 from a base figure of 291,756 in 2003 (representing an average annual increase of 11 per cent over the 15-year period) (Driver and Vehicle Licensing Authority (DVLA), 2018). This depicts a substantial increase of registered vehicles over the timeframe giving the necessity for pragmatic efforts to address the (high) rate of motorisation and associated negative externalities in the capital city of Accra. Primarily, the Environmental Protection Agency (EPA) Ghana (2019, p. 3), notes that majority of these registered vehicles that are imported to Ghana are not brand-new vehicles but rather second-hand vehicles/used vehicles with poor internal combustion engines – “which currently dominate the drivetrains of road vehicles”. Typical of these imported second-hand vehicles/used vehicles relates to their average age of between 10 – 20years (Ministry of Transport, 2020, p. 34). It is imperative to indicate that, in terms of modal split in Accra in the year 2016, minibus/‘trotro’ accounted for the largest modal share of 62.2 per cent in comparison to private car (21.2 per cent), bus (9.9 per cent), taxi (5.6 per cent), and truck (1.2 per cent) (see Figure 1.1); thereby making ‘trotro’ the most patronised mode of transport in the Accra Metropolis (Korea International Cooperation Agency (KOICA), 2016, p. 49). However, despite the highest modal split in favour of minibus/‘trotro’, road space usage is rather low, using only 18.3 per cent of the road space in comparison to private car (60.6 per

cent), taxi (14.8 per cent), bus (1.3 per cent), and truck (5.0 per cent) (see Figure 1.1). In essence, public transport is mostly used by inhabitants in the Accra metropolis, justifying the need for a more effective and efficient sustainable public transport system to “dissuade users from switching to private cars” when possible (National Development Planning Commission (NDPC), 2017c, p. 30; Government of Ghana, 2015a). It is pertinent to indicate here that, there are barriers to the use of non-motorized transport in the Accra Metropolis in that there is inadequate proper amenities for walking which makes it much more difficult for persons particularly with reduced mobility; as well as the absence of network connectivity for cycling in Accra city (Ministry of Local Government and Rural Development (MLGRD), 2017, p. 8; The World Bank, 2017b, p. 1). This has also led to a modal shift from walking to minibuses/‘trotros’ over the past few decades.

Similarly, the average annual vehicular increase in Dar es Salaam city (in Tanzania) was 20 per cent over the 13-year period (2002-2015) (Kalugendo, 2017). The modal split in the year 2014 in Dar es Salaam showed that, minibus/‘daladala’ (public transport) accounted for 62 per cent (the largest modal share), walking (17 per cent), private car (11 per cent), boat (4 per cent), train (2 per cent), motorcycle (2 per cent), taxi (1 per cent) and carpooling (1 per cent) (see Figure 1.1) (Kalugendo, 2017, p. 4; Reudenbach and Scholz, 2012, p. 29). Therefore, public transport is the main mode of transport for commuters in Dar es Salaam city (Dar Rapid Transit Agency (DART), 2017).

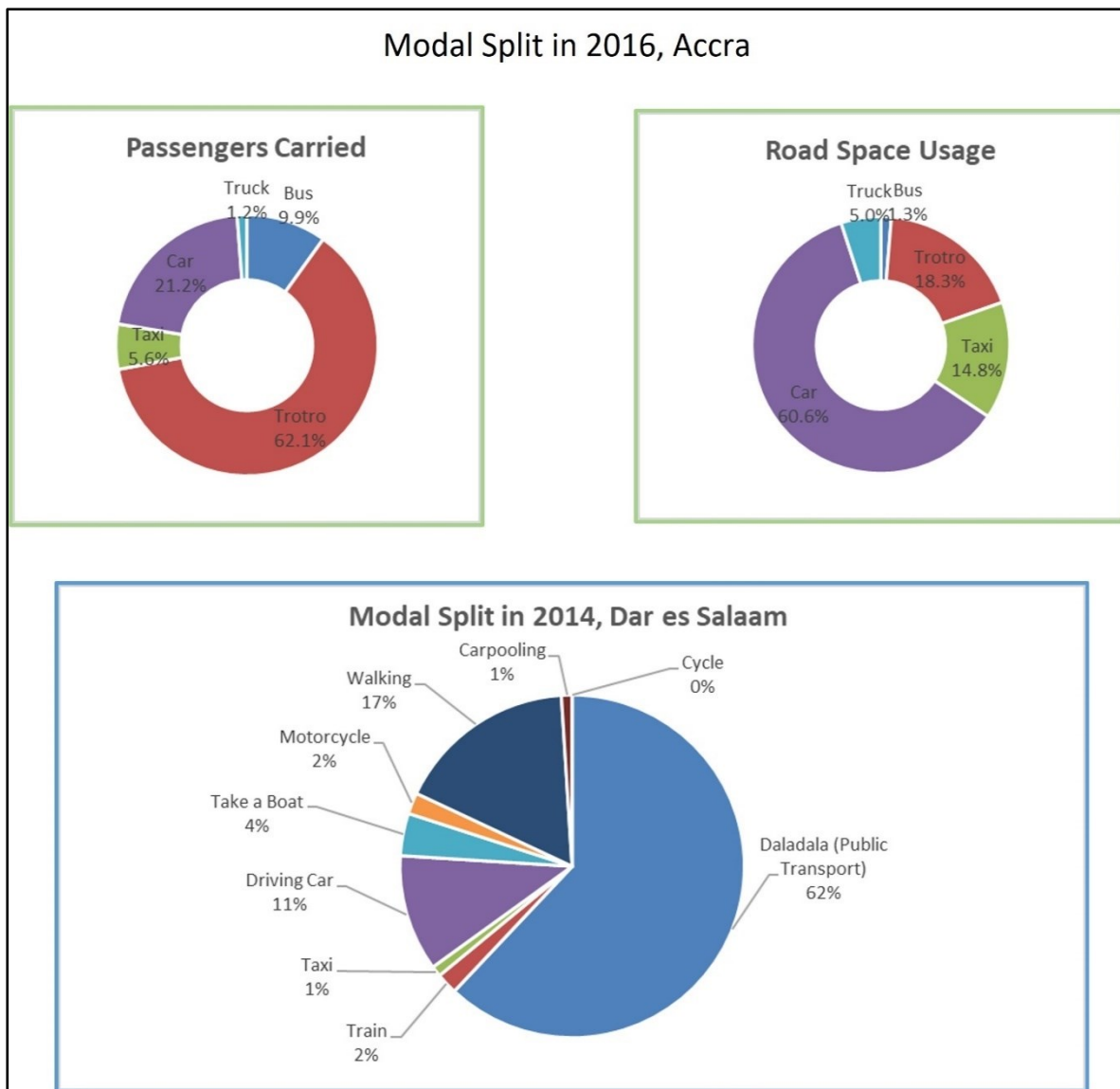


Figure 1.1 Modal split in Accra (Ghana) and Dar es Salaam (Tanzania)

Source: Korea International Cooperation Agency (KOICA) (2016, p. 49); Kalugendo (2017, p. 4)

Comparatively, cities in Ghana and Tanzania are experiencing rapid urbanisation (Kanyama et al., 2004; Cobbinah and Nimminga-Beka, 2017; Agyemang et al., 2019; Peter and Yang, 2019; Sietchiping et al., 2012; Arup International Development, 2016; Ministry of Local Government and Rural Development (MLGRD), 2017; The World Bank, 2017b; Accra Metropolitan Assembly, 2019; Reudenbach and Scholz, 2012) which is one of the reasons for the poor state of road-based public transport in these cities (Poku-Boansi and Marsden, 2018; Amoh-Gyimah and Aidoo, 2013; Kanyama et al., 2004). As has been the situation, more people live and work in cities in both Ghana and Tanzania, thereby making more trips and causing the current limited transport infrastructure to be over stretched and inadequate

to match the growing public transport demand (Antwi, 2015; Nkurunziza et al., 2012). The rate of urbanisation in the city of Accra depicts rapid urbanisation since the rate of urbanisation increased by 3.9 per cent in the year 2000 (representing 87.4 per cent) from a base figure of 83.5 per cent in the year 1984, and further increased by 3.1 per cent in the year 2010 (representing 90.5 per cent) from the rate in the year 2000 (see Figure 1.2) (Korea International Cooperation Agency (KOICA), 2016, p. 13; Ghana Statistical Service, 2012, p. 4; Yankson and Bertrand, 2012).

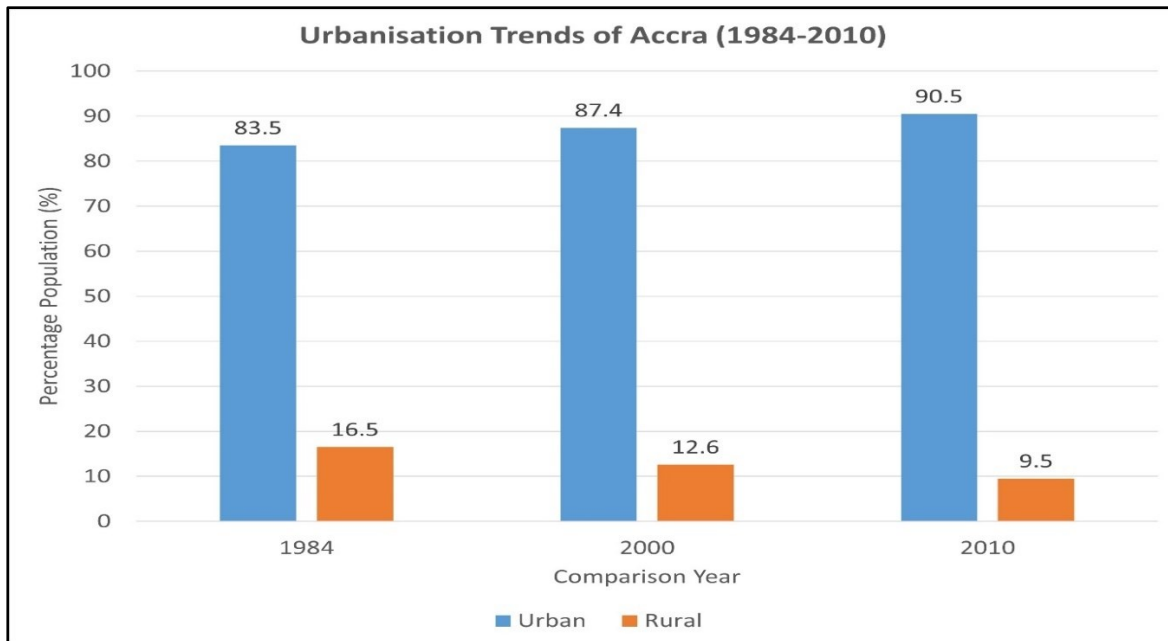


Figure 1.2 Urbanisation trends in Accra (Ghana)

Source: Ghana Statistical Service (2012, p. 4)

It can be inferred from Figure 1.2 that rural-urban migration as well as migration from smaller towns to Accra is on the increase (Yankson and Bertrand, 2012). Correspondingly, in Dar es Salaam, the average annual intercensal growth rate was 5.6 per cent from the year 2000 to 2012 (National Bureau of Statistics Tanzania, 2013, p. 4; Lukenangula, 2017, p. 107). This trend according to Kiunsi (2013, p. 99), makes Dar es Salaam one of the cities with the highest growth rate in sub-Saharan Africa.

It is noteworthy to indicate that, in Accra and Dar es Salaam, road based public transport is mainly dominated by the use of low capacity vehicles (i.e. paratransit vehicles popularly known as 'trotro'- ranging from 15 to 23-passenger capacity in Accra, and 'daladala'- ranging from 16 to 35-passenger capacity in Dar es Salaam) which induce greater travel volumes, leading to road traffic congestion (Aidoo et al., 2013; Antwi, 2015; Okyere, 2012; Chengula and Kombe, 2017; Nkurunziza et al., 2012; Korea International Cooperation Agency

(KOICA), 2016; Environmental Protection Agency (EPA) Ghana, 2019; Bwire and Zengo, 2020; Holzwarth, 2012). In effect, the social, environmental and economic characteristics of road-based public transport performance in Tanzanian and Ghanaian cities are distressing (Kanyama et al., 2004; Hart, 2016). As a solution, the Government of Ghana launched the pilot Aayalolo BRT system (i.e. Quality Bus System (QBS)) in Ghana's capital city (Accra) in December, 2016 (Peprah et al., 2019; Poku-Boansi and Marsden, 2018; Accra Metropolitan Assembly, 2018; Accra Metropolitan Assembly, 2019). Unfortunately, the services ground to a complete halt (Poku-Boansi, 2021) after barely two years of operations in November, 2018 due to institutional bottlenecks, among others cited as absence of initial capital at the start of operations, inadequate enforcement by city authorities and absence of dedicated lanes for the Aayalolo BRT buses. On the other hand, the Tanzanian Government also launched Phase 1 of its BRT system in Dar es Salaam (its largest city) in May, 2016 (Chengula and Kombe, 2017). The phase 1 of the Dar Rapid Transit (DART) has been operational since the launch but has not been without challenges inhibiting its efficient operations (to mention deterioration of operations evidenced in overcrowded buses, long ticketing queues, and unreliability of services; inadequate DART capacity; flooding along the trunk line; inadequate communication) (Mchomvu, 2018; Transportation Research Board, 2017). Matata et al. (2017), affirm that, it is imperative to improve operations of the DART BRT in Tanzania for an enhanced performance at its maximum potential.

Furthermore, road-based public transport does not adequately serve the mobility needs of the users in cities in Ghana and Tanzania due to service unreliability, uncomfortable vehicles, overloaded vehicles and inadequate fleet (i.e. inability to meet demand during peak times of the service due to use of low capacity vehicles for public transport) (Kanyama et al., 2004; Pojani and Stead, 2015; Government of Ghana, 2015b; Ministry of Local Government and Rural Development (MLGRD), 2017; Holzwarth, 2012). Again, the overall quality of public transport service in Ghanaian cities is poor due to use of mostly old and rickety vehicles, and poor maintenance culture (Poku-Boansi and Adarkwa, 2014; National Development Planning Commission (NDPC), 2017c; Poku-Boansi et al., 2019; Government of Ghana, 2015b; Environmental Protection Agency (EPA) Ghana, 2019) resulting in the safety of commuters being compromised (Yobo, 2018; Sam et al., 2018a; Accra Metropolitan Assembly, 2019). For these reasons, the existing public transport system is "unattractive to the middle class and further increases the demand for private cars" (Jones et al., 2013; Brookins, 2019). Sam et al. (2018b), note that reliability and responsiveness of the public transport service are the key factors users consider for service quality after a road-based public transport service quality evaluation in Ghana's second largest city, Kumasi.

In Tanzania, weak institutional coordination and communication among the different stakeholders for the provision of road-based public transport results in poor planning and operation of road-based public transport (Kanyama et al., 2004). Similarly in Ghana, activities of the multiple stakeholders involved in (planning, financing, implementing and operating) the provision of road-based public transport are uncoordinated (Poku-Boansi and Marsden, 2018; Agyemang, 2015) and fragmented (The World Bank, 2017b; Ministry of Local Government and Rural Development (MLGRD), 2017). In essence, there is no specific authority (i.e. public transport authority) responsible for the formulation and implementation of a coordinated strategy by the different stakeholders of road-based public transport in both countries. For instance, Kanyama et al. (2005) avers that there is insufficient coordination and communication between the various departments responsible for public transport in the City Council of Dar es Salaam in Tanzania due to the absence of clear policy statements and accountability from respective staff. Further, there is no coordination mechanism between the City Council and Regional Authorities (i.e. Dar es Salaam Region Transport Licensing Authority, Dar es Salaam Region Traffic Police Department, and sub-area councils) in Dar es Salaam for the operation of public transport. As a result, areas of overlap in the discharge of duties of these institutions are not properly managed, leading to conflicts in discharge of roles. Another institutional gap is inadequate coordination among ministries of government at the national level. In the Ghanaian context for example, there is lack of effective stakeholder coordination, communication and consultation among key institutions involved in road-based public transport provision. Such institutions, inter alia, are the Ministry of Transport (MoT), Department of Urban Roads (DUR), Department of Transport under the Metropolitan, Municipal and District Assemblies, the Greater Accra Passenger Transport Executive (GAPTE), Environmental Protection Agency (EPA) and private transport operators/transport unions (Ministry of Roads and Transport, 2016; Ministry of Local Government and Rural Development (MLGRD), 2017). Essentially, innovative ways to improve sector coordination and communication among key institutions are critical towards a sustainable road-based public transport in cities in Ghana and Tanzania (Msigwa, 2013).

Adding to the above, road-based public transport related functions in Ghana and Tanzania are spread across several agencies or institutions (including local governments) (Pojani and Stead, 2018). However, these institutions often have divergent focus areas with rare sustainable public transport visions. In effect, lack of effective coordination and communication between these sectoral institutions, limited planning capacity and weak administrative arrangements hinder the formulation of more innovative, integrated and sustainable policies for the road-based public transport industry (Pojani and Stead, 2018). Moreover, transport planning and management are mostly devolved at the local levels in

principle, but in practice, municipalities lack adequate budget (especially capital investments) to execute these transport related responsibilities. The reason being that, municipalities often collect limited local revenue than expected for developmental projects (including municipal and collective transport, passenger traffic management, environmental protection, infrastructure maintenance, promotion and development of the city) as well as low and/or late disbursement of funds from the central government (United Nations Country Team Ghana, 2018, p. 5; Staniek, 2018).

In Tanzania, sustainable public transportation is negatively affected by lack of technical capacity and institutional bottlenecks demonstrated by operations of some actors, agencies and institutions involved in the transport sector (Kanyama et al., 2004). Likewise, there is lack of functional institutional capacity, inadequate qualified and experienced technical personnel to undertake more arduous planning activities for sustainable public transport (such as effective Bus Rapid Transit) in Ghana (Ministry of Roads and Transport, 2016; Ministry of Local Government and Rural Development (MLGRD), 2017). Cities Alliance (2017), in similar vein, affirms that, there is capacity and capability deficit of institutions for better management of the growing road traffic congestion problems in cities in Ghana. In addition, there is inadequate logistics in terms of facilities, transport, and office equipment for staff of the Department of Transport, for instance, of the Accra Metropolitan Assembly to effectively execute their functions (Ministry of Local Government and Rural Development (MLGRD), 2017). For these reasons, SSATP (2017) avows the need for institutional capacity building (for effective planning and implementation) towards sustainable mobility in cities, particularly in developing countries, to address the present transport challenges in cities (the case for consideration of Ghana and Tanzania) and to contribute to attainment of SDGs 11 and 13.

As can be gleaned from the foregoing, the seeming lapse in institutions and institutional capacity and their roles, has compounded road transport challenges in cities in Ghana and Tanzania. Therefore, this research seeks to fill the current research gap in Ghanaian and Tanzanian cities by finding concrete measures to improve the institutional capacity, coordination and communication mechanisms of institutions responsible for the provision of sustainable (road-based) public transport.

1.3 Research Questions

Based on the research problem identified, the following questions will be addressed by the study.

1.3.1 Main Research Question

Why are institutional responses to sustainable mobility for public transport in Ghanaian and Tanzanian cities not effective and how can the existing capacity of the institutions, coordination and communication mechanisms be improved?

1.3.2 Sub-Research Questions

1. What are the institutions, their mandate in the provision of public transport and perception on sustainable transport in Ghana and Tanzania?
2. What are the capacity levels (legal and regulatory, financial, logistical, personnel and competence of staff) of institutions involved in the decision-making processes in planning for more sustainable public transport systems in Ghana and Tanzania?
3. What are the coordination and communication mechanisms between the various institutions responsible for the provision of public transport in Ghana and Tanzania?
4. Is the existing capacity of these institutions commensurate with the current urban transport challenges in Ghanaian and Tanzanian cities? and
5. In what ways and concrete measures can the existing capacity of the institutions, coordination and communication mechanisms be improved in order to become more responsive to the requirements of sustainable public transport in cities in Ghana and Tanzania?

1.4 Research Objectives

On the basis of the research problem and the research questions, the study comparatively investigates institutional responses to sustainable mobility for public transport in Ghanaian and Tanzanian cities. The specific objectives of the study are:

1. To identify the institutions, examine their mandate in the provision of public transport and perception on sustainable transport in cities in Ghana and Tanzania;
2. To assess the capacity levels (legal and regulatory, financial, logistical, personnel and competence of staff) of institutions involved in the decision-making processes in planning for more sustainable transport systems in Ghana and Tanzania;
3. To examine the coordination and communication mechanisms between the various institutions responsible for the provision of public transport in Ghana and Tanzania;
4. To examine how the existing capacity of these institutions are commensurate with the current urban transport challenges in Ghanaian and Tanzanian cities; and
5. To explore ways and concrete measures through which the existing capacity of the institutions, coordination and communication mechanisms can be improved, in order for them to become more responsive to the requirements of sustainable public transport in cities in Ghana and Tanzania.

1.5 Justification of selected Study Areas

Cities account for approximately 80 per cent of global Greenhouse Gas (GHG) emissions from fossil fuels, and 75 per cent of global energy consumption (Hickman and Banister, 2014). The United Nations Statistics Division (UNSD) (2020b) note that, between the year 2001 and 2014 the number of people that used public transport in cities in most regions across the world increased by nearly 20 per cent. However, “Sub-Sahara Africa lagged behind with only 18 per cent of its populace having convenient access to public transport” even as at 2018 as shown in Figure 1.3 (United Nations Statistics Division (UNSD), 2020b). Hence, it is necessary to increase the share of public transport in cities in Sub-Sahara Africa and the public transport system should be in a more sustainable manner. In essence, this will “contribute to mitigating air pollution and climate change” in cities in Ghana (Accra) and Tanzania (Dar es Salaam) juxtaposing it against the high rate of urbanisation and rapid motorisation in cities in both countries (United Nations Statistics Division (UNSD), 2020b). Further, this will contribute to the attainment of the Sustainable Development Goal 11, target 11.2 (see Table 2.4).

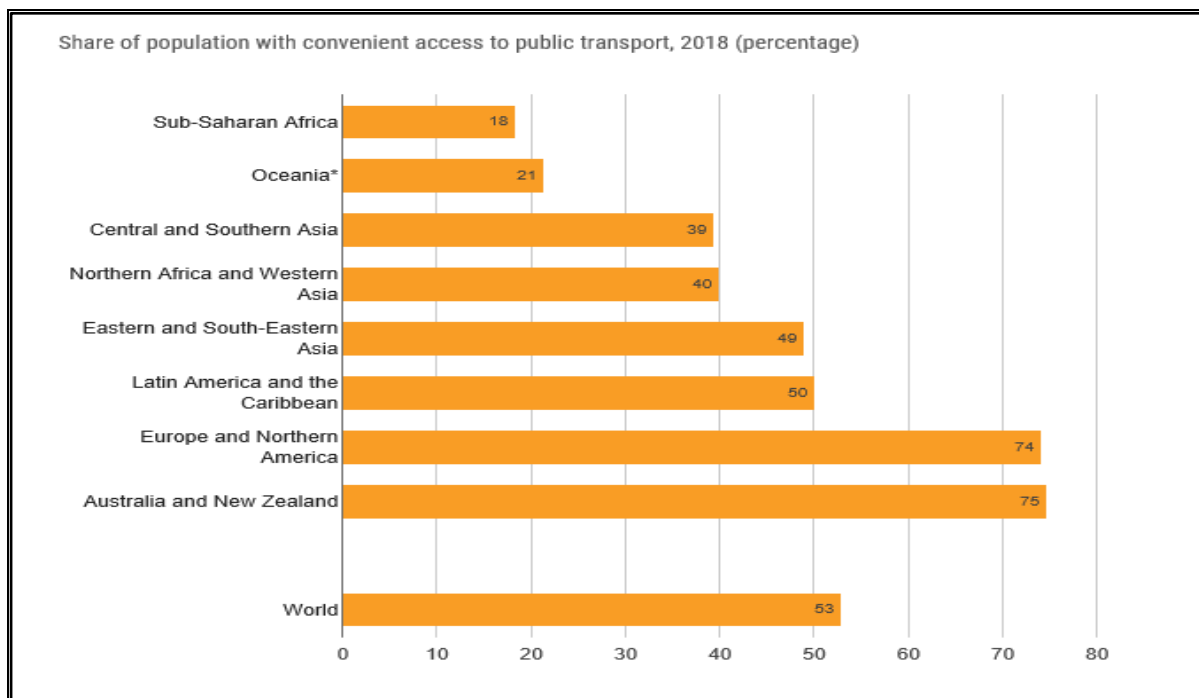


Figure 1.3 Regional share of population with convenient access to public transport in 2018

Source: United Nations Statistics Division (UNSD) (2020b)

The choice of these two Sub-Sahara African countries for comparison is informed by the fact that over a decade, cities in Ghana (Accra) and Tanzania (Dar es Salaam) have experienced similar poor characteristics and challenges with urban public transport (including rapid urbanisation and rapid motorisation) as explained in the background of the research and the

research problem. Therefore, policy and decision makers in both countries have sought to find solution(s) to address these problems. Nonetheless, these efforts though similar (i.e. implementation of Bus Rapid Transit in 2016), have been different as far as implementation processes are concerned. Obviously, the pilot Aayalolo BRT System in Accra (Ghana), among other characteristics, has very limited dedicated bus lanes whereas that of the Dar Rapid Transit Phase I in Dar es Salaam (Tanzania) has the entire corridor of dedicated bus lanes. However, the presence or limitation of adequate dedicated bus lanes has not spared either country challenges impeding efficient operations of the BRT systems at maximum potential. Comparing the situation in the two case countries with international standards for BRT systems, as well as successful BRT systems (i.e. such as that of TransMilenio in Bogota-Colombia, Rede Integrada de Transporte in Curitiba-Brazil, and Rea Vaya System in Johannesburg-South Africa) brings to bare the need to investigate the institutional capacity gap in the provision of sustainable road-based public transport in Ghanaian and Tanzanian cities. This will inform the scope of this study and the proposed recommendations for present and future interventions by policy and decision makers towards sustainable mobility for public transport.

1.6 Relevance of the Research

The research will contribute to filling the gap in understanding why cities, particularly, in developing countries are unable to provide sustainable public transport, using a comparative approach between Accra city-region in Ghana (West Africa) and Dar es Salaam city in Tanzania (East Africa). Also, the research will investigate measures to build the capacity of institutions responsible for the provision of (road-based) public transport in Accra city-region (Ghana) and Dar es Salaam city (Tanzania) in order to respond to the requirements of sustainable mobility and sustainable transport. Ultimately, this will go a long way to contribute to the overall development of cities in these countries.

Furthermore, over the next few decades, most countries will have more than 50 per cent of their population living in cities (Gabaldon-Estevan and Kaufmann, 2016; Hickman and Banister, 2014). This research will provide sustainable measures actors could adopt to ensure that users of public transport in cities can conveniently commute in a sustainable manner.

Adding to the above, findings and recommendations from the research will provide decision makers and practitioners, ways of contributing to the attainment of specific targets under the Sustainable Development Goals 11 and 13 through effective institutions that can respond to sustainable mobility needs (i.e. public transport) in cities in the case of Ghana (Accra) and Tanzania (Dar es Salaam).

1.7 Organisation of the Research

The research is organised into seven chapters. Following the introductory chapter which provides a foundation for the research, chapter two focused on the theoretical underpinnings of the research as well as concepts relevant to the research. It delved into concepts on public transport in cities (road-based), institutions, institutional capacity, concept of sustainable development, concepts of sustainable transport and sustainable mobility. A conceptual framework for the entire research is presented in this chapter.

The study approach and research methodology to undertake this research is presented in chapter three. Specifically, this chapter provides the basis for the selected research design, philosophical basis of the research, the research method and approach to inquiry, units of enquiry, data collection tools and sampling techniques, as well as methods of data analysis. In addition, this chapter presents the research positionality and reflexivity, and research ethics. The fourth chapter presents analysis and findings of the comparative overview of the two collective study areas – Accra city-region (Ghana) and Dar es Salaam city (Tanzania) by way of basic information that summarizes the profiles of these cities. These included an overview of the spatial and socio-economic context of the case study cities within which primary data were gathered.

The fifth chapter focused on qualitative content analysis of the field data and presents the data descriptively illuminating the ontological, epistemological, and axiological beliefs relating to institutions interviewed in Ghana (Accra city-region) and Tanzania (Dar es Salaam city). The next chapter of this study summarized and discussed key findings from the chapter five and chapter two of the study, and presented major findings from the comparative overview analysis of the two case study cities. The seventh and last chapter provided policy recommendations to address the findings, areas for further research, contribution to knowledge, limitations of the study, and a general conclusion of the entire study.

CHAPTER TWO

REVIEW OF RELEVANT LITERATURE

2.1 Introduction

The preceding chapter provided the background of the research highlighting the research problem, the research questions, justification of the selected study areas, and relevance of the research. This present chapter focuses on review of literature related to the research with theoretical underpinnings of the research being the New Institutional Economics (NIE). This is followed by review of eight normative and analytical concepts related to the main research question of this study. Precisely, the four normative concepts are: sustainable road-based public transport in cities, sustainable transport, effective sustainable mobility, and sustainable development. The four analytical concepts are: institutions, institutional capacity (including individual capacity/competence), coordination mechanisms, and communication mechanisms. This chapter ends with a conceptual framework for the entire research.

2.2 Theoretical Underpinnings

2.2.1 The New Institutional Economics (NIE)

The New Institutional Economics (NIE) is seen as the most relevant emerging new body of theory in economics in recent years, with proponents including Nobel Laureates Ronald Coase, Douglass C. North and Elinor Ostrom; renowned development experts Roberts Bates and John Toye (Harriss et al., 1995; Ménard, 2018). Other exponents (economists) who have greatly contributed to this theory are Oliver Williamson, Harold Demsetz, and Steven Cheung (Coase, 1998). The NIE “claims to offer a grand theory of social and economic change - a theory of development in terms of appropriate institutional change (which fosters further economic growth) in a period in which grand theory in the social sciences has generally been on the retreat” (Harriss et al., 1995, p. 1). Mainly, the NIE according to North (1995) and Coase (1984) builds on, modifies and expands neo-classical theory to include an entire range of issues hitherto beyond its ken. “What it retains and builds on is the fundamental assumption of scarcity and hence competition – the basis of the choice theoretic approach that underlies microeconomics”. However, “what the NIE abandons is instrumental rationality – the assumption of neo-classical economics that has made it an institution-free theory” (North, 1995, p. 17). It is notable to mention that proponents of the NIE have drawn on development experience of Third World countries in sub-Saharan Africa, Latin America and Asia (Harriss et al., 1995). For instance, the four stages of institutional change of the twentieth-century Uganda (i.e. colonial era; Africanisation of institutional structures in 1940s and 1950s; the dissolution of post-colonial state structures between 1964 and 1986; and successive attempts to form democratic

governance) (Brett, 1995). In the case of Indonesia, for instance, since the late nineteenth century, successive governments have moved from a predatory to a developmental state (Booth, 1995). This situation became possible due to institutional change as a result of policies to ensure development. A notable case worth mentioning is the first watershed which was constructed in Indonesia in 1901 due to the inauguration of the Ethical Policy, leading to a change in the economic role of the government (Booth, 1995).

In addition, the New Institutional Economics theory extends the components of policy alternatives by giving positive guidelines for policy interventions ignored by orthodox economists, among which are, merges with a broader body of thought such as public choice theories (Harriss et al., 1995). North (1986, p. 231), asserts that “institutions are regularities in repetitive interactions among individuals which provide a framework within which people have some confidence as to how outcomes will be determined”. Essentially, institutions are not human-beings, but rather rules, regulations and customs that give a set of incentives and sanctions to persons (North, 1986), and evolve due to human interactions. In Harriss et al. (1995) view, institutions in a society, either formal or informal, are established to serve those in possession of bargaining power, “and the effort to uphold these institutions, even in the face of changes in transaction costs, information flows and their increasing disutility, leads to the formation of dominant interest groups”. By this, Coase (1998) confirms that institutions play critical roles (i.e. governing) in the performance of an economy, and this is pertinent to the NIE theory. It is important to indicate that, individuals in positions of political power (such as government ministers, city mayors), play a vital role in institutional change (Curtis and Low, 2012) that impact the economy. For instance, in the area of ‘best practice’ transport and land use planning, political leaders namely, Enrique Peñalosa in Bogota (TransMilenio Bus Rapid Transit network), Michael Harcourt in Vancouver (Vancouver as a livable city through effective land-use planning), and Jaime Lerner in Curitiba (Curitiba Bus Rapid Transit and integrated transport network) have led the change from a typical policy pattern (Curtis and Low, 2012; Ardila, 2005). The World Bank (2003), construes institutions as the rules (informal and formal), organisations, and social norms that coordinate human behaviour (see Figure 2.1) in a society towards a sustainable and equitable development.

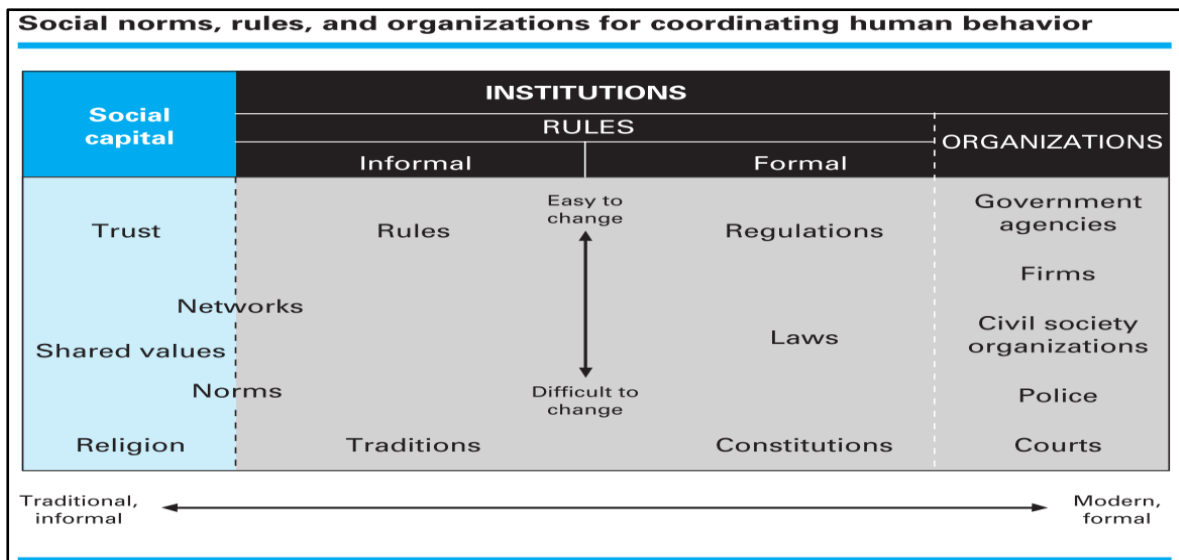


Figure 2.1 Institutions

Source: The World Bank (2003, p. 38)

From Figure 2.1, institutional rules are both formal and informal, where the informal rules span from trust, shared values, networks and norms that govern human behaviour. Formal rules on the other hand consist of a country's laid down rules, laws, constitutions, and organisations for enacting, interpreting, modifying and enforcing the rules. Informal or formal rules such as networks and regulations could be easy to change but traditions, laws and constitutions could be difficult to change.

Additionally, good urban governance needs institutions to put together and balance different interests to commit to solutions for common well-being. In this regard, it is important for certain institutional arrangements to be in place to ensure adequate performance of functions by institutions, which are (The World Bank, 2003, p. 126):

1. "Networks for communication and capacity building among practitioners and stakeholders";
2. "A structure of responsibility sharing and coordination that links the community, local government, and national levels of government and empowers the appropriate actors to address problems at each level"; and
3. "A forum for wide participation in strategic thinking, to enable common understanding and consensus, motivate actions, and assess progress".

Also, North (1995, p. 23) argues that there are five propositions that describe the required characteristics of institutional change. These are:

1. "The continuous interaction of institutions and organisations in the economic setting of scarcity, and hence competition, is the key to institutional change";
2. "Competition forces organisations continually to invest in skills and knowledge to survive. The kinds of skills and knowledge individuals and their organisations acquire will shape evolving perceptions about opportunities and hence choices that will incrementally alter institutions";
3. "The institutional framework dictates the kinds of skills and knowledge perceived to have the maximum pay-off";
4. "Perceptions are derived from the mental constructs of the players"; and
5. "The economies of scope, complementarities and network externalities of an institutional matrix make institutional change overwhelmingly incremental and path dependent".

Furthermore, the New Institutional Economics theory proposes greater focus be given to institutional capacity development as "institutions are the rules of the game in a society or, more formally, are the humanly devised constraints that shape human interaction" to ensure adherence to set collective decisions with incentives for compliance and sanctions for non-compliance (North, 1990, p. 3). In perspective of this research, institutions (including local/city authorities, public and private transport operators, private sector-vehicle makers, fuel suppliers) in Ghana and Tanzania establish the context by which either country defines the sustainable mobility prioritized goals to pursue, the levers (i.e. regulations, voluntary agreements, subsidies, change of values in a society, etc.) critical to ensure attainment of these goals, and the incentives or sanctions that might be levied on their use (World Business Council for Sustainable Development, 2004). Ostrom (1990), adds that the NIE theory gives a range of policy interventions by highlighting the role of agencies (i.e. Non-Governmental Organisations) in development other than the state or the market in developing and emerging economies. Institutional frameworks on the other hand influence mobility choices in several ways, notably the time and effort needed to reach a decision on whether and how to address a specific issue, the ability of policy and decision makers to formulate short/medium/long-term interventions and the credibility of its commitments, and the instruments that policy and decision makers use to enforce rules and norms in a country (World Business Council for Sustainable Development, 2004). In effect, institutions (both formal rules and informal rules/norms) and institutional frameworks are the ultimate determinants of whether and how sustainable mobility could be realized. Therefore, particular attention needs to be given to formal rules by local authorities (mandated to implement programmes and projects in development plans in their geographical scope of

jurisdiction) and informal rules/norms in this regard in both Ghana and Tanzania, as well as the needed institutional capacity gap in these institutions to be bridged.

It is worthwhile to indicate that collaborations (partnerships) and commitment among the different institutions (i.e. key stakeholders) to support the implementation of solutions for sustainable road-based public transport in cities in Ghana and Tanzania are critical. An interesting case in this regard worth mentioning which is underscored by the NIE theory is the increase in cooperatives (collaborations) in the German energy sector over the last ten years (Ménard, 2018). These cooperatives (collaborations) in the German energy sector have become possible due to changes in technological advancements (i.e. development of new technologies such as from solar panels to smart grids) to deliver energy; as well as changes in the institutional rules of the game (i.e. the German fiscal regime) to expedite renewable energies in Germany (Ménard, 2018). Figure 2.2 depicts the interactions between technology and institutions. From the foregoing, cooperatives (collaborations) among the various institutions and stakeholders related to the provision of road-based public transport in Ghanaian and Tanzanian cities are key towards attainment of effective sustainable mobility (public transport) in cities in these countries. Therefore, there is the need to bridge the cooperative gaps (collaborations) among the various related institutions through cooperation as was in the case of the German energy sector indicated.

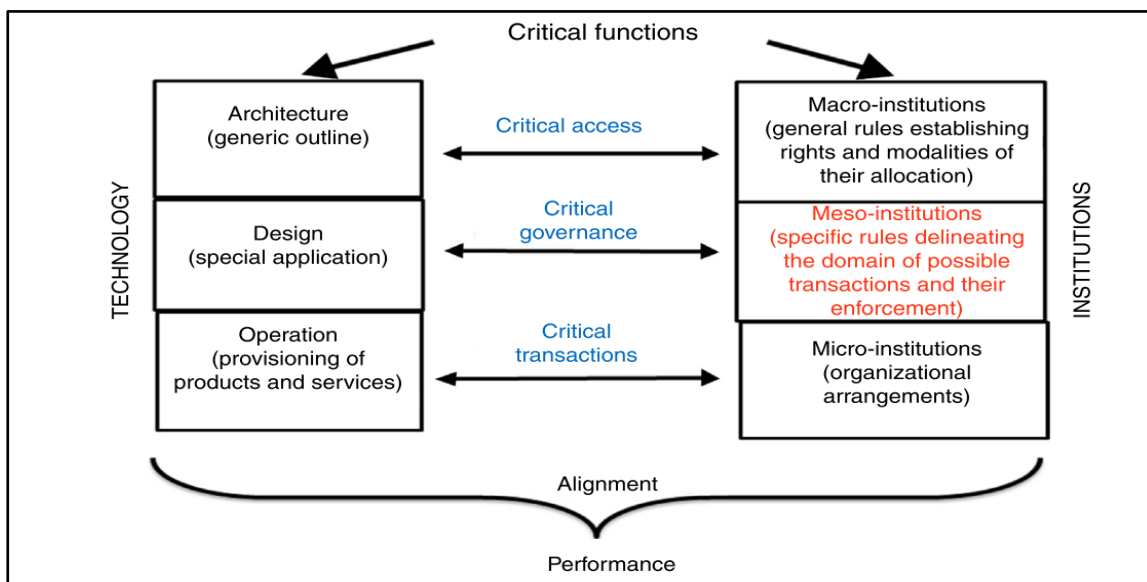


Figure 2.2 Interactions between Technology and Institutions

Source: Ménard (2018, p. 7)

It can be seen from Figure 2.2 that the role of technological dimension and the need to take into consideration developments in technologies in their interaction with institutions. Essentially, it is imperative to look at how changes in technology concur with institutional

changes. Furthermore, Figure 2.2 also depicts that these interactions occur at three different levels, namely, Macro-institutions, Meso-institutions, and Micro-institutions. Consequently, the interactions between technology and institutions contribute to institutional performance.

The next section presents review of the four normative concepts and the four analytical concepts of this study.

2.3 Concepts

2.3.1 Sustainable Road-Based Public Transport in cities

Public transportation characteristically includes buses and trains that move people in large numbers from an origin to a destination within cities (Abdallah, 2017). In addition, public transport is generally limited to “the network of those passenger-carrying services used by the public on payment of a fare” (Hutton, 2013, p. 261). “Cities are locations that have a high level of accumulation and concentration of economic activities and are complex spatial structures that are supported by transport systems” (Rodrigue et al., 2017, p. 273). Presently, traffic congestion tends to be the most predominant transport challenge in cities with a population threshold of more than 1 million inhabitants, if not well managed (Rodrigue et al., 2017). Gabaldon-Estevan and Kaufmann (2016), stress the population growth in cities, confirming that about half of the world population lived in cities in 2016 and the figure is projected to see a colossal increase of 60 per cent by the year 2030. By 2050 nearly 70 per cent of the world population will be living in cities (Hickman and Banister, 2014). To corroborate this finding, much of the world’s population growth is happening in cities in developing countries (Freeman, 2013; Bongardt et al., 2013), particularly in Africa leading to several transport challenges (Poku-Boansi and Marsden, 2018; Onatere et al., 2014). This reality therefore places cities at the forefront of sustainable development (UN-Habitat, 2016; Zegras, 2005; Poku-Boansi, 2021) and more vulnerable to changes in the environment caused by climate change, thereby making cities increasingly significant regarding sustainability.

Cities, according to Gabaldon-Estevan and Kaufmann (2016), are “seen as strategic scenarios to investigate and develop solutions to cope with the prevailing sustainability challenges driven by the major social and environmental transformations”. In light of this, Sudhakara Reddy and Balachandra (2012); D'Souza and Maheshwari (2014), recommend public transport as a response to meeting transportation needs and energy demand of cities in a sustainable way. Public transport is broadly considered as a comparably sustainable means of transport (Bakker and Konings, 2018; Paulsson, 2018). A sustainable public transport system has three components: environment, economy and society (Patlins, 2017).

Therefore, it is important that solutions to ensure sustainable public transport underscore these three components. Abdallah (2017) and Abd Rahman and Abdullah (2016), assert that, the implementation of an effective and efficient public/mass transit in cities is a major solution and opportunity to be more sustainable. In like manner D'Acierno et al. (2014), support this assertion, affirming that a vital component in managing current mobility in densely populated cities and its peripheries is an effective and efficient public transport system.

In this regard, to be able to assure people to switch to public transport in cities in developing countries when there is an available alternative to drive, the public transport system must be available (including passenger information), reliable, affordable, comfortable and safe (Abdallah, 2017; Saghapour et al., 2016; Arndt, 2014; Carrese et al., 2014) in comparison with the contemporary lifestyle of people in cities oriented towards car usage (Abdallah, 2017). Further, Iles (2005, p. 29) argues that, irrespective of the fact that many public transport services in developing countries are inefficient and inadequate, there is normally less control to discourage people to minimise use of private transport. Therefore, “unless effective bus priorities are in force, public transport suffers from the same traffic congestion as private transport”. In Singapore, efforts have been made over time to sustain and expand a suitable and comfortable public transport system alongside policies to regulate private car ownership and usage (Han, 2010). Preserving and increasing the modal share of public transport in cities is highly desirable, as it is energy efficient in comparison to individual motorised transport, for instance in the case of Chinese public transport which is over two times energy efficient as compared to individual motorised transport (Knörr and Dünnebeil, 2008). Moreover, public transport also “contributes to reducing road traffic congestion in cities” (Arndt, 2014, p. 102). Needless to say, public transport in cities is a public service which needs to be partly funded from public funds, in order to prevent high priced bus fares, limited discounted fares, scrapping of unpopular routes, among others (Madeja and Wyszomirski, 2018). Vogrin et al. (2014), note that, in order to increase the market share of public transport in cities, it is important that this mobility system fulfils the political objectives of the government in power. To Pojani and Stead (2015), an effective road-based public transport (bus and paratransit) is vital to the economic growth of cities in developing countries as majority of the populace, inter alia, depend on to access education, employment and public services.

Road-based public transport in cities in developing countries is characterised by use of mini-buses, buses, taxis, ‘para-transit’ vehicles such as motorcycle taxis, and rickshaws. The services comprise of formal and informal vehicles where fares are mostly paid by

passengers in cash before boarding or en route (Sohail et al., 2006; Iles, 2005). 'Para-transit' simply means an unconventional mode of flexible passenger transportation without fixed schedules and/routes (Verma and Ramanayya, 2015). To Heinrichs et al. (2017), 'para-transit' is known as informal transport. Informal transport services include minibuses, taxis, motorcycles, three-wheelers that illegitimately operate public transport services (road-based) in cities in developing countries whereas formal transport services include vehicles and operators, operating public transport services with 'official endorsement from public authorities' (Cervero and Golub, 2007, p. 446). Furthermore, Cervero and Golub (2007, p. 445) posit that, 'due to lack of fiscal and institutional capacity', formal public transport service is unable 'to meet the demands of the marketplace'. This has therefore led to the springing up of small-scale public transport operators to fill these gaps (i.e. plying routes poorly served by formal public transport operators, and responding hastily to shifting market demands) in developing cities. Dave (2019), corroborate this assertion indicating that, up to 85 per cent of the public/passenger transport employees in developing countries are informal. Generally, public sector monopoly in the provision of road-based public transport services has been replaced by the private sector in many cities in developing countries (Sohail et al., 2006). Finn and Walters (2010) substantiate this finding, adding that the operator-sector of public transport in cities in developing countries such as Kenya, Ghana, South Africa is mainly from the private sector, comprising several operators with few fleet of which majority of the supply is provided by minibuses. Similarly, Madeja and Wyszomirski (2018, p. 209), posit that the operator-sector of public transport services could be subcontracted to privately owned firms by public authorities, since "the organisation of urban transport by local authorities does not mean that services have to be provided by publicly owned companies".

In Ghana for instance, road transport is the most predominant mode of transport as 98 per cent of passengers depend on for their daily commute (Sam et al., 2018b; National Development Planning Commission (NDPC), 2017b; Ministry of Transport, 2020). Sam and Abane (2017), substantiate that majority of city dwellers rely on road-based public transport for their daily mobility needs. The provision of road-based public transport services in Ghanaian cities is mainly by the informal transport operators who operate a mix of vehicles/minibuses (popularly known as 'trotro' which are mostly old, rickety, unsafe and unscheduled) owned by individuals but "highly organised at route levels through transport unions" (Poku-Boansi and Marsden, 2018; Agyemang, 2020). In Accra, the capital city of Ghana, road-based public transport is predominantly provided by 'trotro' minibuses with capacities ranging from 15 to 23-passenger seats (Korea International Cooperation Agency (KOICA), 2016). It is important to mention that, 'trotro' accounts for the largest modal share of 62.2 per cent in comparison to car (21.2 per cent), bus (9.9 per cent), taxi (5.6 per cent),

truck (1.2 per cent); thereby making it the most patronised mode of transport in the Accra Metropolis (Korea International Cooperation Agency (KOICA), 2016).

Similarly, in Dar es Salaam, the largest city in Tanzania, road-based public transport is mainly provided by the private sector - 'daladala' buses, medium sized Toyota-DCM, and buses which carry between 20 to 22 people (Sohail et al., 2006; Ministry of Communications and Transport, 2003). Additionally, reckless driving and 'daladala' buses cause traffic accidents and traffic jams as vehicle operators do not obey traffic regulations and by-laws. These 'daladala' buses are usually old, unsafe and overloaded (Rizzo, 2018). In Jakarta city (Indonesia), like any other developing country, road-based public transport services are provided by a wide range of vehicles, from minibuses to human-powered pedicabs, motorcycle taxis etc; but mini-buses (10 to 25 passenger capacity) are regulated by the Jakarta City Authority regarding 'vehicle fitness, schedules, and fares' (Cervero and Golub, 2007, p. 447). It is notable to indicate that, paratransit vehicles in cities in developing countries normally operate in mixed traffic with other modes and are thus prone to traffic congestion and other negative externalities (Rodrigue et al., 2017) with the exception of route-corridors where bus rapid transit systems are operational.

Bus Rapid Transit (BRT) is a contemporary type of urban passenger transportation with proven cost-effective and flexible substitute for high-performance transit services; thus, making it progressively gain interest from decision and policy-makers in addressing urban mobility challenges in developing and emerging economies (Deng and Nelson, 2012; Mirailles, 2012). More specifically, "a typical BRT system combines exclusive busway, technologically-advanced vehicles, upgraded stations, rapid fare collection, advanced Intelligent Transport Systems (ITS) technologies and a flexible service plan"(Deng and Nelson, 2012, p. 201). In addition to the characteristics of a typical BRT system, Rodrigue et al. (2017, p. 270) avows that, the "bus rapid transit systems offer temporary or permanent rights of ways and have the advantage of unencumbered circulation". Nikitas and Karlsson (2015), argue that BRT systems are designed to fit to the markets they are implemented, taking into consideration the uniqueness of each city and its transport problem(s) to be overcome; where the implementation can be "incremental in a variety of settings and types". It is important to indicate that, positive impacts related to BRT systems implemented in cities (such as TransMilenio BRT in Bogotá-the largest and capital city of Colombia with a population of 7.8 million in 2015, Rede Integrada de Transporte BRT in Curitiba-the largest and capital city of the State of Paraná in Southern Brazil with a population of 1.86 million in 2014, Guangzhou BRT in Guangzhou-one of the largest cities in China with a population of 13.08 million in 2014, Istanbul BRT in Istanbul-the largest city in Turkey with a population of

13.8 million in 2013) which have been documented by international practice are: improvement in environmental conditions (i.e. air quality, noise reduction, energy consumption), better performance than previously replaced paratransit and/ conventional bus operations (in terms of user satisfaction, travel time gains, availability, reliability, passenger demand transported, availability of passenger information using new technology) (Nikitas and Karlsson, 2015; Hickman and Banister, 2014; United Nations Development Programme (UNDP), 2012; Transport Research Board, n.d). These have the potential to positively influence urban economic, social, and environmental development in the long-term (Nikitas and Karlsson, 2015). It is noteworthy to emphasize here that, TransMilenio BRT in Bogotá is one of “the first green economy initiatives for urban renewal that has encouraged public investments in infrastructure for sustainable mobility” (Centre for European Policy Studies, 2015, p. 3).

Amidst these highlighted positive impacts of BRT systems, several BRT systems in developing and emerging economies suffer from varying problems relating from institutional constraints to financial restrictions (i.e. rushed implementation usually leading to incomplete components of the BRT system before commissioning, tight financial planning where the system is designed not to receive operational subsidies from the government, early deterioration of infrastructure etc.) rather than inherent issues of BRT system concepts (Nikitas and Karlsson, 2015). Examples of such BRT cases are the partial success of the BRT in the city of Bandung (Indonesia) and the failed attempt to implement BRT in the city of Surabaya (Indonesia) (Wijaya and Imran, 2019). However, other cities in Indonesia have implemented successful BRTs which have received international recognition for their environmental and transport impacts, namely, the Jakarta and Ahmedabad BRTs (Wijaya and Imran, 2019). Invariably, these problems are usually local problems peculiar to the city where they are observed; therefore, similar good examples of BRT schemes cannot be automatically “copied and pasted” in other developing cities to yield similar successes unless the peculiar local formal and informal constraints are critically looked at and addressed entirely. In a nutshell, “what may be appropriate in a specific successful BRT city case” according to Iles (2005, p. 2) “may not be workable in another, and therefore solutions need to be tailored to effectively work within the prevailing environment for the intended results”. Largely, Holzwarth (2012, p. 33) notes that although there are successful BRT systems in Latin and Asian cities as mentioned afore, “BRT systems in comparable African cities are still limited in number”.

The situation in the capital city Accra (in Ghana) with an estimated population of 2,036,889 in 2018 (Accra Metropolitan Assembly (AMA), 2020; Ghana Statistical Service, 2012) and

the largest city Dar es Salaam (in Tanzania) with a population of 4,364,541 in 2012 (National Bureau of Statistics Tanzania, 2013) are no different with reference to the noted observations in developing countries highlighted above. Precisely, both the city of Accra and Dar es Salaam have implemented BRT systems in the year 2016 but unfortunately the systems have been bedevilled with formal and informal institutional constraints limiting the BRT systems to operate at their maximum potential. Consequently, Pojani and Stead (2015) recommend that, experience with BRT in developing cities show that, the combination of private sector competition with robust public sector oversight yields the best BRT results in these cities. To them, this type of business model is mostly suitable for public transport in developing cities as both “fully regulated sectors” and “completely deregulated sectors” have failed over the years. Also, Kumar et al. (2012, p. 6) found that, after examining the implementation of several BRT systems it is imperative “to coordinate activities of all the multiple stakeholders involved in planning, financing, implementing, and operating or regulating various aspects of the public transport system”; as well as the need to undertake new functions no institution has been doing”. Furthermore, in order for BRT systems to be more sustainable, BRT buses can run on alternative fuels such as electricity, biofuels or natural gas to avoid over dependence on fossil fuels (Pojani and Stead, 2015). Again, cities globally are at the moment pursuing transport related technological solutions including alternative-fuel vehicles and intelligent transport systems to help address some transport-related problems, such as, traffic congestion, oil dependency, air pollution and accidents (Pojani and Stead, 2015).

Finn and Walters (2010), posit that there are important factors that are critical for the workability of strategies for effective sustainable public transport in cities in developing countries. These are, political leadership/championship, setting realistic goals and objectives, willingness to persevere when challenges arise as time is pertinent to introducing change, setting-up and maintaining existing collaboration with all key stakeholders ‘in order to understand their needs and to solicit their inputs into desired strategies’ (Finn and Walters, 2010, p. 358). The World Bank (2017b), corroborates this finding in its suggested minimum prerequisites for the successful implementation of BRT projects in Ghanaian cities after an evaluation of the project. These are:

- “Strong, high-level political commitment and a champion preferably for the entire project life to lead the process”;
- “Institutional arrangements with clear mandate, staffing, and budgets to regulate, manage, and operate the system, and coordinate among different stakeholders”;

- “Inclusive planning with citizens and existing public transport operators, both formal and informal, to build support for the BRT system and creating incentives for local operators (for example, through operating feeder lines or other routes, technical assistance, training programs)”;
- “Communications with the public to explain the BRT system’s benefits, for example to users as an affordable, fast, reliable, and comfortable transport system, to society by improving people movement in congested corridors, and creating opportunities for sustainable urban development around transit points”;
- “Development and endorsement of a multimodal public transport network and service plan integrated with land use planning to ensure the accessibility and intermodal connectivity”; and
- “Adequate technical assessment and completion of the BRT designs and bus operations for the target area, including well-adapted plans for maintenance of traffic, traffic management systems, and an Intelligent Transportation System” (The World Bank, 2017b, p. 15).

It is imperative to indicate that, the inadequate budgets of local/municipal authorities mandated to plan, regulate and manage public transport in developing cities could be addressed considering the two approaches postulated by D’Acierno et al. (2014, p. 77), for re-planning public transport services in the event of budget limitations. The first approach, ‘Change the Least Possible’ (CLP) could be used when the existing public transport services meet user needs and in some time schedules there are surpluses to the required. More specifically, CLP seeks to change the existing public transport services in line with budget constraints (“without modifying the network framework or routes”) using the following interventions (but not limited to) (D’Acierno et al., 2014, p. 80):

- “cutting runs with lower utility, reducing line frequency; usually some nocturnal and off-peak runs can be cut, rescheduling services so as to save veh-kms; the same intervention can be adopted on Sundays and during public holidays”;
- “shortening the path of some runs on a line, ensuring current frequencies only where demand is higher and reducing frequencies where demand is lower, so that supply matches demand more closely”;
- “if there is a rail/metro system, proposing feeder lines so as to maximise use of the rail/metro network; this intervention allows some lines or parts of them to be eliminated even if the users in question have to make a transfer”; and
- “eliminating services in low-demand areas, perhaps only in off-peak hours, and replacing them with a ‘Dial-A-Ride’ (DAR) system”.

Essentially, this approach tactfully intervenes with reduction in the level of services when the demand is low (i.e. during off-peak times, during holidays, and at night-time) without adversely impacting the service quality of the public transport system for commuters. This approach, according to D'Acierno et al. (2014) is well accepted by policy and decision makers since there is little or no negative impact to all the stakeholders.

The second approach, 'Change the Framework' (CFR) could be adopted if the existing public transport services do not meet user needs/demand (inadequate) in the city (D'Acierno et al., 2014, p. 77). In detail, CFR plans and considerably change the whole network service framework of the existing public transport. Therefore, the new network framework needs to maximise service levels where (and when) user demand is higher, serving all the origin-destination (OD) pairs previously served before the following interventions (but not limited to):

- "provision of main lines serving the OD pairs where demand is higher; the level of service of these lines should be as high as possible (high frequencies);
- "provision of feeder lines towards main lines and (if any) rail/metro lines; and
- "provision of 'Dial-A-ride' (DAR) systems in low-demand areas, at least at off-peak times.

These two approaches according to D'Acierno et al. (2014), have been implemented in the provinces of Avellino and Naples (in southern Italy) in the re-planning of bus services. All in all, based on a specific city case, a hybrid approach that merges features of the two approaches could be used.

Finn and Walters (2010), propose strategies to be used to address relevant factors and their impacts in the public transport industry in cities in developing countries in comparison to developed countries (see Table 2.1).

Table 2.1 Strategies for addressing relevant factors and their impacts on public transport provision in developing countries to developed countries.

S/N	Differences with developed countries (relevant factors)	Impact of these differences (“problem statement”)	Strategies currently being used or attempted
1.	<p>Capacity</p> <p>The capacities of developing countries are usually weaker in terms of:</p> <ul style="list-style-type: none"> • Institutional and implementation structures, capacity, location, etc. • Ability to plan, regulate, monitor, enforce, adapt/respond, learn from own experience and that of others • R & D, know-how, experience, ... <p>The level of involvement of (central) government is often much lower and less consistent:</p> <p>Availability of subsidies and fiscal resources is a major factor</p> <p>Policy, planning, guidance and legal frameworks are usually weaker</p> <p>There are many cases of Government failure to keep up its side of commitments and expectations:</p> <ul style="list-style-type: none"> • This is usually due to fiscal/capacity/regulatory reasons • Also occurs due to change 	<p>Capacity of government and institutions often suffer from the following:</p> <ul style="list-style-type: none"> • Institutions have not been adequately or clearly mandated and are not structured with appropriate capacity to lead/respond • Fragmentation of authorities and institutions, leading to weak/unclear relations among them, and either inertia or turf-wars • Lack of effective regulatory and enforcement frameworks • Lack of transportation planning, guidance and development • Lack of knowledge or understanding of travel demand, poor responsiveness to user needs • Lack of robust, implementable strategic frameworks and transport plans, or those which exist have not been formally approved and endorsed by the authorised stakeholders 	<p>Improve Capacity of Governments and Institutions:</p> <ul style="list-style-type: none"> • Strengthening the institutions and their governance • Implement and strengthen capacity building, human resources, know-how, etc. • Develop the regulatory framework and supporting legal/enforcement framework • Develop funding strands for institutions, transport services and investments

S/N	Differences with developed countries (relevant factors)	Impact of these differences (“problem statement”)	Strategies currently being used or attempted
	of government and policies		
2.	<p>Structure of the Transportation system</p> <p>Informal transport is usually a major supplier of passenger transport, and often the dominant mode. Sufficiency and condition of infrastructure is lower:</p> <ul style="list-style-type: none"> • In many cases it is inadequate, run-down and highly variable in availability and quality. • Infrastructure maintenance is usually weaker. 	<p>Transportation systems often experience the following:</p> <ul style="list-style-type: none"> • The formal sector fails to meet the market need, and in some cases becomes weak or collapses entirely. • Informal transport fills gaps due to failure of government or the formal sector, or to the ability of Government to provide consistent support to the formal sector. • Problems of the informal system (quality, safety, unlawfulness, outside taxation structures). • Difficulty to direct the transportation outcome or integrate it with other public transport. • Residual/legacy formal passenger transport which is inadequate, but efforts to protect it stifle other initiatives. 	<p>Improve and upgrade the transportation system and the industry sector:</p> <ul style="list-style-type: none"> • Formalise the informal sector (i.e. Licence it,). • Implement or strengthen control/conditions/formalisation of the market entry/exit. • Ensure compliance with vehicle and driver licencing, inspection, road traffic law • Promote and support corporatisation/transformation of the informal/individual operators to more formal businesses. • Improve the working/labour conditions for drivers and other workers. • Use larger vehicles (where appropriate) and generate the financial capacity to do so. • Encourage and support recapitalisation of the sector and fleet renewal. • Invest in BRT, bus priority, and support facilities. • Upgrade the quality of the minibus/taxi/paratransit vehicles and services. • Integrate the network services, implement ticketing systems, move to cashless payment systems.

Source: Finn and Walters (2010, p. 359)

The next sub-section presents review of the analytical concept institutions.

2.3.2 Institutions

Institutions consist of formal rules (common law, statute law, regulations) that human beings enact, informal norms (norms of behaviour, conventions and self-imposed codes of conduct) (North, 1995; Servillo and Van Den Broeck, 2012; Wind, 2001), and the enforcement characteristics of both; whereby the combination of formal rules, informal norms, and their enforcement contribute to the economic performance of a country (North, 1995). To Curtis and Low (2012), institutions encompass sets of formal rules that form and empower organisations (an organisational domain), and sets of values and beliefs that “shape policy and the process of public choice” (a discursive domain). Salet (2018), sees institutions as routine (defining different positions, responsibilities of its members, duties and rights, as well as the composition of the rules of the game) or material (comprising shared fundamental norms); and refers to institutional thought as a normative ‘orientation’. In like manner, Streeck and Thelen (2005, p. 9), construe institutions as “building blocks of social order” in a society. North (1995), further argues that formal rules can be changed overnight whereas informal norms change gradually, and the norms give the essential legitimacy to the set of formal rules in a specific jurisdiction. Essentially, the informal norms of every country is very critical to the set of formal rules and hence, the unique characteristics of each country (i.e. informal norms/culture) should be very well considered in formulating formal rules to ensure absolute compliance by the people. In effect, transferring the formal economic and political rules of successful developed countries to developing and emerging economies is not a sufficient condition for good economic performance due to different informal norms and enforcement characteristics. For instance, Latin American countries adopted constitutions comparable to the United States of America (U.S.A) but have had very different economic performance from the U.S.A due to the different informal norms and enforcement characteristics. All in all, institutions give a pathway to everyday life, thereby reducing possible uncertainties and proposing mitigation measures for unforeseen impacts where need be, taking into consideration the availability of resources (North, 1990).

Salet (2018), notes that institutions are not carved in stone but do change in processes of action. In this regard, the (gradual) change occurs within social norms that are put in action by actors. Thus, ‘socially constructed’ as Servillo and Van Den Broeck (2012, p. 45) elaborates. In addition, the processes of institutional innovation could be filled by political and cultural articulation. To Rodríguez-Pose (2013, p. 1044), “institutional intervention is most likely to take hold in areas with already developed and relatively well-functioning formal and informal institutions”, since all kinds of costs are already minimised in these areas and

these areas also have the advantage of high participation and commitment. Therefore, in any eventuality of institutional bottlenecks, targeted institutional intervention would suffice. It is notable to mention that, institutions are critical for economic performance as they shape (i.e. define and enforce) economic rules of the game (North, 1995). Moreover, institutions and the type of technology used influence total production cost (i.e. transaction and transformation), thus affecting the economic performance of a city/country (North, 1990).

Findings from a study by Rye et al. (2018, p. 196) revealed that, “informal institutions smooth the critical interfaces where formal institutions were providing sub-optimal public transport, thus giving evidence that the two modes of governance are, in fact, highly complementary”. This means that, the public transport industry needs both formal and informal institutions to thrive, especially in the era of innovation and sustainable development. As was found in this study, the absence of better collaboration between formal and informal institutions in some countries, has led to more fragmented public transport operations on the ground (i.e. critical interfaces); and to worsen the situation has been coordination and integration challenges in public transport governance. Along a similar line, it was found in a study by Poku-Boansi and Marsden (2018, p. 200) that, “the Bus Rapid Transit implementation in Ghana, Tanzania, Nigeria and South Africa is in fact a stimulus for wider institution/governance reforms; and without such reforms, the ability of the BRT systems to challenge the dominance of the informal public transport sector is threatened”. In addition, Rye et al. (2018, p. 205) recommend, based on a comparative study using four case countries in Europe (i.e. Britain, the Netherlands, Germany and Sweden) that to be able to improve public transport there is the need for both formal and informal institutions to be highly complementary. According to them, “certain public transport projects would not have gone ahead or would have been further heavily delayed without the commitment of these informal institutions”. Furthermore, Wijaya and Imran (2019, p. xvi) support the need to critically examine “details and contextual factors in developing cities before implementing transport projects such as BRT”. To them, the work international development agencies do on BRT at the local level/cities needs to inculcate the existing peculiar local transport systems in developing cities “before promoting BRT as a global response to climate change” (Wijaya and Imran, 2019, p. xvi).

Paulsson et al. (2018, p. 377) argue that, collaboration is a means through which Public Transport Authorities (PTAs) engage with local/municipal authorities to establish joint agreements relating to sustainable public transport priorities, a means to build a common identity with the existing public transport operators, and also create the opportunity for the “ability of coordinating actors to put in place processes where the feasibility of plans can be constructed as well as a sense of common identity created”. Vogrin et al. (2014, p. 36),

emphasize the case of cities in Croatia noting that even though public transport management has been delegated to local/municipal authorities, the “municipal authorities have no autonomy of action in the regulation of transport”. Besides, there is absence of integration within the different divisions of planning, management, monitoring and controlling of public transport in cities (Zagreb, Split) in Croatia (Vogrin et al., 2014). With reference to the issue of coordination among key stakeholders in the public transport industry, Sørensen and Longva (2011, p. 117) confirm that, coordination appears to receive augmented attention after many years of “New Public Management (NPM)” reforms within the public transport industry. Consequently, they suggest four distinct mechanisms to be employed to improve coordination among key stakeholders in the provision of public transport in Denmark, Sweden and the UK. These are organisational coordination, contractual coordination, partnership coordination and discursive coordination (see Table 2.2).

Table 2.2: Characteristics of the four mechanisms used to improve coordination between stakeholders in public transport

	Organisational coordination			Contractual coordination	Partnership coordination	Discursive coordination
	Remerge organisations	New joint organisation	Adapt organisations			
Definition	Coordination achieved by remerging organisations into one large organisation	Coordination achieved by establishing new, cooperating organisations	Coordination achieved by adapting organisational structures to other organisations	Coordination achieved through a contract specifying how coordination is to take place	Coordination achieved through establishing voluntary partnerships	Coordination achieved through changing negative images, and verbally stressing the need of coordination
Key to coordination	Commands	Commands and trust	Trust and contract	Contracts – resort to court	Trust	Trust
Related concepts	Hierarchy	Hierarchy and Network	Network and Market	Market	Network	Network

Source: Sørensen and Longva (2011, p. 119)

Table 2.2 outlines characteristics of the four mechanisms employed to improve coordination between key stakeholders in the provision of public transport (i.e. bus services and rail services). It can be seen from Table 2.2 that organisational coordination is further divided into three different forms (i.e. remerging organisations into one large organisation, establishment of a new joint organisation, and adapting the organisational structures of the existing organisations to one another). Organisational coordination is defined as “the application of and change in organisational structures to achieve coordination” whereas contractual coordination is defined as “coordination achieved through a contract specifying how coordination is to take place” (Sørensen and Longva, 2011, p. 120). Partnership coordination on the other hand is defined as “coordination achieved through establishing voluntary partnerships” and discursive coordination is “coordination achieved through

changing negative images, and verbally stressing the need of coordination” (Sørensen and Longva, 2011, p. 120). A choice of any of these four mechanisms to increase coordination between the different stakeholders in the public transport industry has its strengths and weaknesses but adoption of any of them could also be combined based on the context of application. A typical example is seen in the creation of a new joint organisation called “integrated control centres consisting of the infrastructure manager and operators”. Another example within the bus industry with reference to new joint organisation “refers to the set-up of an inter-organisational steering committee and inter-organisational working groups”.

Like in Europe, the most dominant form of tendering procedure in the local bus industry is tendering with gross cost contracts, where the Public Transport Authority (PTA) regulates service levels and qualities (i.e. route, timetable, ticket, equipment), whilst the providers/bus operators make operational decisions in order to minimise their production costs and deliver the specified quality (Sørensen and Longva, 2011). In line with partnership coordination used in the deregulated framework of local bus services in the UK (outside London) for instance, there are two different types of partnerships that are used to address the challenge of coordination, namely voluntary and statutory bus quality partnerships. Partnerships generally include the PTA (known as ITA=Integrated Transport Authorities in the UK), the operators and the local Road Administrations. Essentially, the coordination mechanisms discussed can be seen as “steps on a ladder on which organisations can climb in order to improve coordination” between key stakeholders in the public transport industry in cities in developing countries (Sørensen and Longva, 2011, p. 124).

Generally, Fouracre et al. (2006, p. 317) assert that, stakeholders in public transport in developing cities such as Accra comprise of users, suppliers, and regulators/administrators of public transport. Additionally, there are other stakeholders worth considering:

- Users -.the city in general (i.e. various groups in the city). Specifically, women, men, opinion leaders, youth, community-based organisations (CBOs), vulnerable groups, school children, and people with disability;
- Suppliers - operators, such as drivers’ associations/transport unions, transport owners’ associations, bus companies (i.e. Scania West Africa), among others;
- Regulators/administrators of public transport - primarily the transport ministry concerned (i.e. Ministry of Transport) and other government agencies (i.e. Department of Urban Roads, Land Use and Spatial Planning Authority, Environmental Protection Agency), private bus companies, Metropolitan Assembly

(i.e. Metropolitan Transport Department, Traffic Department, City Traffic Police) and licensing authorities (i.e. Driver and Vehicle Licencing Authority); and

- Other stakeholders – including Academic Universities/Researchers, Local Consultants, Financiers with dedicated green funds (i.e. The World Bank, C40 cities), and International organisations related to transport (i.e. The African Association of Public Transport (UATP)).

Communication mechanisms on the other hand, are also critical with reference to communication among the multiple key stakeholders or institutions pertaining to road-based public transport in cities in developing countries.

The next sub-section presents review of the analytical concept institutional capacity.

2.3.3 Institutional Capacity

Institutional capacity is defined by Bhagavan and Virgin (2004, p. 3), “to encompass on the one hand, the functions (i.e. tasks) that institutions need to have the competence (i.e. ability) to perform, and on the other hand, the resources (i.e. human, financial and technical) and structures (i.e. rules, values, relations, behaviour) they require to that end”. To Polk (2011, p. 187), institutional capacity is the ability of administrative, government and non-governmental organisations, departments and agencies’ readiness to address and manage the present environmental and social challenges through ‘decision-making, planning and implementation processes’. Institutional capacity development is “commonly defined as the process by which institutions and organisations improve their ability to perform functions, identify and solve problems efficiently and to understand and deal with their development need in a broader context and in a sustainable manner” (United Nations Development Programme (UNDP), 2005, p. 3). Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) (2013, p. 3), defines institutional capacity development in a similar way as, “a process through which institutions and organisations as a whole unleash, strengthen, create, adapt, and maintain capacity over time and continuously realign it with changing conditions”. Therefore, in order to improve the existing capacity of institutions, there is the need to measure/assess the current ability and know-how, due to the fact that resources (particularly financial) are scarce and would be better to strengthen existing capabilities rather than starting from scratch.

Institutional capacity assessment is the “appraisal of the existing capacity of institutions to perform key functions and deliver expected results” (United Nations Development Programme (UNDP), 2005, p. 3). In this regard, institutional capacity assessment is a fundamental and central part of any institutional capacity development process. This

assessment can be done as an ad-hoc event or part of ongoing management processes by an external person (assessor) or as an internalised standard management practice. The United Nations Development Programme (UNDP) (2008, p. 6), notes that capacity assessment can provide the baseline for “formulating a capacity development response, confirm priorities for action, or act as a catalyst for action”. There are several tools used for capacity assessment, including Change Management, SWOT Analysis, Corporate or Organisational Management, Visioning and Forward Planning Techniques. In line with the research objective of ‘to assess the institutional capacity levels (legal and regulatory, financial, logistical, personnel and competence of staff) of institutions involved in the decision-making processes in planning for more sustainable road-based public transport systems in cities in Ghana and Tanzania’, the SWOT Analysis would be considered and reviewed in detail. It is relevant to note that in conducting capacity assessment, information and data to be collected on existing and desired capacities can be gathered through various means, including “interviews, focus groups, and self-assessment” (United Nations Development Programme (UNDP), 2008, p. 7). Also important for consideration are institutional capacity indicators which will be used to “describe and specify actions and steps of capacity building process or to gauge the resulting state of increased capacity” (United Nations Development Programme (UNDP), 2005, p. 6).

SWOT Analysis “(sometimes referred to as a situational assessment) involves the compilation of current information about an organisation’s strengths and weaknesses (internal factors) and performance information that highlights critical external factors (opportunities and threats) which need to be addressed” (Steiss, 2003, p. 74). ‘Strengths’ refer to the internal attributes of the organisation that facilitate attainment of set objectives while ‘weaknesses’ are the internal attributes of the organisation that militate against the attainment of set objectives (Hay and Castilla, 2006). Also, ‘opportunities’ are the external conditions that facilitate the attainment of set objectives whereas ‘threats’ are external conditions that militate against the attainment of set objectives. In context of this study, the SWOT Analysis would be used to ascertain the current/existing capacity levels of institutions responsible for the provision of sustainable road-based public transport in cities in Ghana (Accra) and Tanzania (Dar es Salaam). To do this, the quadrants of Figure 2.3 will be filled in by listing the internal factors (strengths and weaknesses) and the external factors (opportunities and threats) of each institution. Eventually, favourable factors (strengths and opportunities) and unfavourable factors (weaknesses and threats) of each institution would be established as the basis of existing capacity development (Valentin, 2001, p. 54).

	Internal Factors	External Factors
Favorable Factors	STRENGTHS	OPPORTUNITIES
Unfavorable Factors	WEAKNESSES	THREATS

Figure 2.3 Conceptual Structure of the SWOT Framework

Source: Valentin (2001, p. 54)

Institutional Capacity Indicators based on legal, logistical, human and financial structures of institutions are outlined in Table 2.3.

Table 2.3: Institutional Capacity Indicators

S/N	Institutional Stock	Human Resources	Financial Resources
1.	The institution's legal framework, policies, rules, and procedures provide a consistent referent for operations.	The institution has adequate staff in all key positions.	The institution has access to resources in line with planning budgets (including credit, where appropriate).
2.	Appropriate facilities and equipment are available to support operations.	Compensation is adequate and equitable.	The institution has control over its own budget.
3.	The institution has access to logistical and communications needs (vehicles, telephone, computers, etc.)	Monetary and non-monetary incentives support targeted behaviour.	The institution has awareness of its future resource needs.
4.	The organizational structure meets needs of efficiency and control.	The staff turnover rate is low.	Effective financial management and accounting procedures are in place.
5.	Organizational subsystems for	Opportunities exist for staff professional development	Budgets are used as a planning and

S/N	Institutional Stock	Human Resources	Financial Resources
	administration, production, financial management, and other operations operate efficiently.	and on-the-job training.	monitoring tool.
6.	The institution possesses needed technological resources.	Staff are held accountable for getting work done according to clear performance standards.	-
7.	-	Staff needs are analysed in the planning process.	-
8.	-	Recruitment and promotion policies provide for internal and external staff growth.	-
9.	-	Fiscal data are up-to-date and accurate.	-

Source: Author's Construct based on United Nations Development Programme (UNDP) (2005, p. 7)

From Table 2.3, the institutional capacity indicators categorised under legal, logistical, human and financial resources served as benchmarks for information and field data collected on the existing capacity of institutions involved in the decision-making processes in planning for more sustainable public transport systems in cities in Ghana and Tanzania, which were weighed against the desired capacity. Here, a ranking scheme from 1 to 5 (where 1 is the least and 5 is the highest) were assigned to each of the indicator-questions based on narrative from the institutions during interviews. Specifically, according to the United Nations Development Programme (UNDP) (2008, p. 13) a ranking scheme of 1-no evidence of relevant capacity, 2-anecdotal evidence of capacity, 3-partially developed capacity, 4-widespread but not comprehensive evidence of capacity, and 5-fully developed capacity was used. Subsequently, results from the comparison of the existing capacity against the desired capacity determined the gap that needs to be bridged and to also inform the capacity development response. The UNDP capacity assessment supporting tool was adapted and used in this regard.

The processes of institutional capacity development according to Bhagavan and Virgin (2004, p. 5) are as follows:

- i. To collect and analyse baseline information about the existing capacity in a given institution. Here, the information to collect include functions, resources and structures (capacity system) of the given institution as well as other relevant questions on the key actors and stakeholders in the capacity system, the ownership and commitment of these key stakeholders in this regard, the actual priorities of these key stakeholders as shown in their decisions and actions undertaken, among others.
- ii. Outline list of performance indicators (quantitative and qualitative), then juxtapose the current levels of performance against the expected/desirable levels of performance indicators to come up with the performance gap. Measures would then have to be devised for redressing the performance gap.
- iii. Capacity development/creation
- iv. Sustainability of the institutional capacity and its continued development. Here, the given institution's capacity can be considered as sustainable if, over a long timeframe, both internal and external conditions persist that make it possible for the institution to execute its critical functions reasonably well.

As a sequel to the processes of institutional capacity development, Figure 2.4 indicates the pathways through which capacity development in a given institution contributes to the attainment of overall goals and objectives of the institution relating to sustainable transport and sustainable mobility.

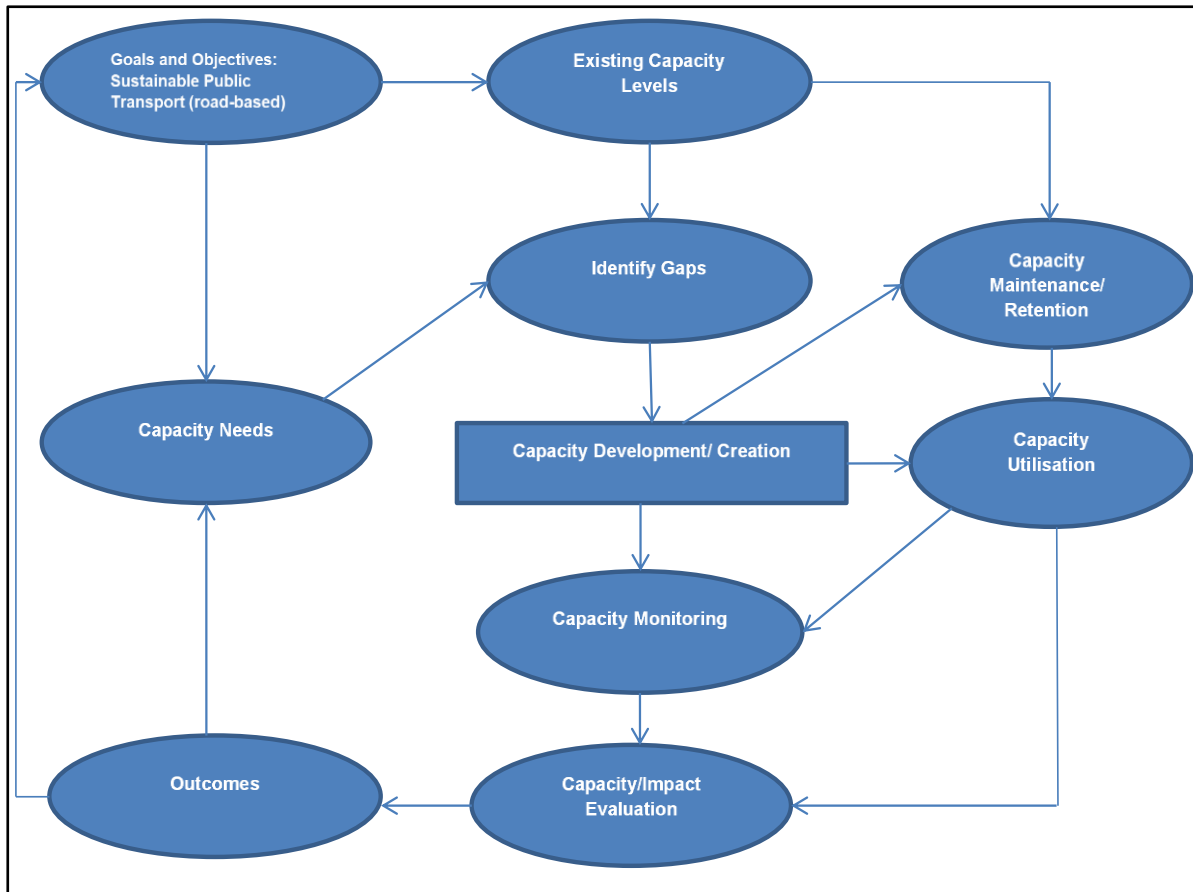


Figure 2.4 Process of Institutional Capacity Development

Source: Author's Construct based on Babu and Sengupta (2006, p. 25)

It can be inferred from Figure 2.4 that in building the capacity of a given institution, there is the need to investigate the existing capacity and come up with strategic measures to retain the existing capacity. The new capacity to be developed should complement the existing capacity, bearing in mind the motivation and work environment these capacities are to be utilised. Capacity utilisation will subsequently translate the set goals and objectives into the expected outcomes, while monitoring the use of the existing capacity and the developed capacity by the key stakeholders in the given institution. An impact evaluation of the capacity developed is very essential to establish attained outcomes on the ground against the set goals and objectives of the institution towards sustainable public transport.

In the case of sustainable road-based public transport in Accra city-region (Ghana) and Dar es Salaam city (Tanzania), it is important to assess the individual capacities/competences required to execute the necessary tasks within specific institutions in line with objective two of this research. Individual capacity can be categorized into two main dimensions, namely, technical capacity and behavioural capacity (see Figure 2.5) (Merino and Carmenado, 2012). Mainly, technical capacity is required in specific institutions for the execution of all

necessary tasks whereas behavioural capacity refers to attitudes of individuals and skills required in the relationships among people and multiple stakeholders (see Figure 2.5). Technical capacity/competence include planning skills, management skills, technology skills, political skills (i.e. communication and organisational), financial skills. Behavioural capacity encompasses leadership and entrepreneurship needed in the relationships among people and stakeholders. It is essential to indicate that any changes in individual capacity can be analysed based on changes in execution of tasks against outcomes (Merino and Carmenado, 2012).

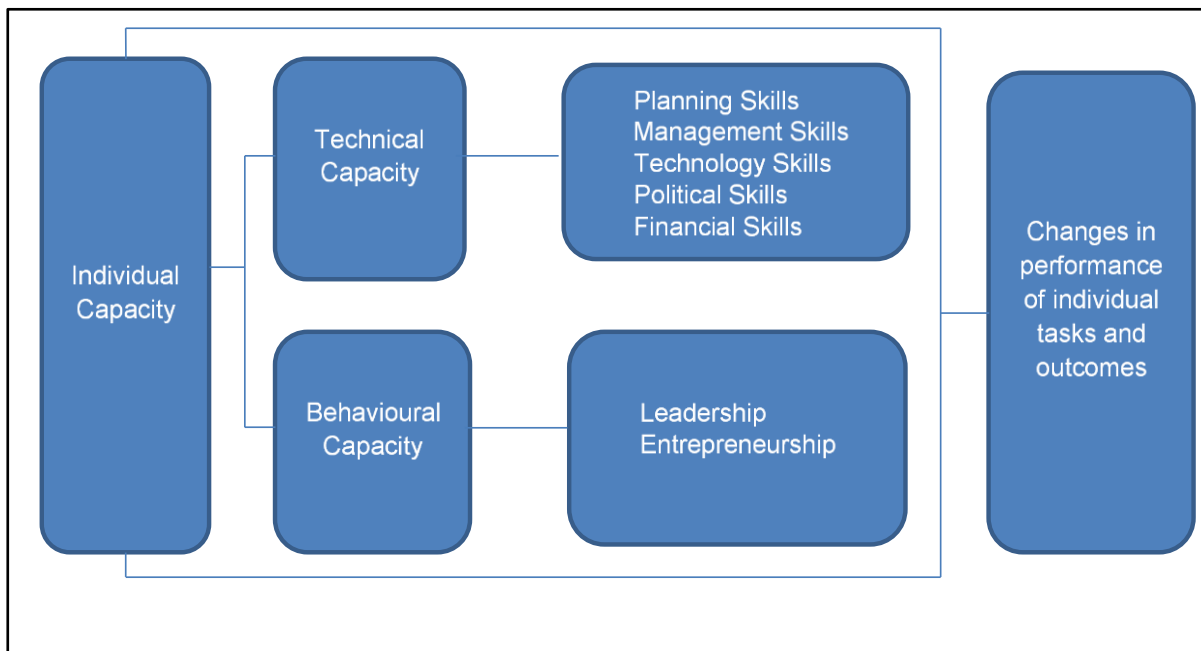


Figure 2.5 Individual capacity/competence characteristics

Source: Author's Construct based on Merino and Carmenado (2012)

The next sub-section presents the normative concept of sustainable development.

2.3.4 Concept of Sustainable Development

The concept of sustainable development has received considerable attention at negotiations internationally, policy measures locally, and scientific discourses. However, several recent trends globally are unsustainable looking at increasing contributions to climate change among others (Enders and Remig, 2015; Bongardt et al., 2013). Likewise, the sustainable development concept connotes an on-going “transformation in the environmental discourse” (Redclift and Springett, 2015, p. 7; Collin and Collin, 2015). To Banister (2000, p. 178), an attempt to find a suitable definition of sustainability or sustainable development is not an easy task. However, the generally accepted definition of sustainable development by the

United Nations-World Commission on Environment and Development (Brundtland Commission Report) is “development that meets the needs of the present without compromising the ability of the future generations to meet their own needs” (United Nations, 1987, p. 43). Enders and Remig (2015, p. 1), emphasise that “prosperity for all within the limits of the carrying capacity of our planet is what sustainable development aims to achieve”. Therefore, solutions to the problems of interrelated environmental, economic, and social issues need to encompass social innovations, institutions, and innovative governance mechanisms, in addition to the already existing technical solutions in engineering (Enders and Remig, 2015). Additionally, Bedrunka (2020) posit the necessity for cities to implement activities (solutions) in plans or projects in accordance with the sustainable development concept as this underscores the basis of effective implementation of such developmental activities. Michelangeli (2015, p. 110), affirms that sustainability covers three spheres namely society, environment, and economics. Therefore, there are several ways to operationalise this concept of sustainability as it is multidimensional.

Specifically, ‘urban sustainability’ focuses on the nature of cities and more importantly, increasing urbanisation and its related problems in cities (Michelangeli, 2015). Accordingly, the concept of sustainable development is of importance when studying global cities (Newman et al., 2015). To Verma and Ramanayya (2015, p. 6), sustainability in the context of transportation “would mean developing better transportation systems, options, and expectations consistent with the objective of securing future social and economic development within a sustainable environment that ensures community well-being”. Transportation, according to Wulforth and Klug (2016, p. 6) is a vital component of sustainable development due to the following reasons:

1. “It is a constitutional element within our economic system (aside the need to transport people and goods to participate in a market, there is also a huge relevance and impact of related industries and energy markets)”;
2. “It creates, by its very nature, social equities and inequities (related to network configuration, access conditions, costs, and impacts on social inclusion or exclusion)”;
3. “It produces environmental damage (including air pollution, CO₂ emissions, noise, fine particles and land cover change)”.

Holden et al. (2014), argue that, sustainable development encompasses both primary dimensions and secondary dimensions, where the dimensions have appropriate indicators with allocated minimum/maximum thresholds for each indicator. The primary dimensions are categorised into four, namely, “safeguarding long-term ecological sustainability, satisfying basic human needs, promoting intragenerational and intergenerational equity” whereas the

secondary dimensions include “preserving nature’s intrinsic value, promoting protection of the environment, promoting public participation, and satisfying aspirations for an improved standard of living or quality of life” (Holden et al., 2014, p. 131). They conclude that, the secondary dimensions are subordinate to the primary dimensions; thus, a secondary dimension (i.e. satisfying aspirations for an improved standard of living) must give way when a primary dimension (i.e. safeguarding long-term ecological sustainability) is threatened. To Lawrence (2019), indicators of sustainability are significant as they aid individuals, institutions, communities and societies to make better informed decisions and choices about their futures.

On the other hand, sustainability indicators according to Spangenberg (2015, p. 308), are “technical means for monitoring trends relevant to sustainable development, and if combined with politically set targets, to assess distance to the target and the progress in getting closer to it”. Simply put, “sustainability indicators are intended to answer the question: How might I know objectively whether things are getting better or getting worse?”; as well as “providing the quantitative or qualitative measures from which we can deduce the current state, direction and rate of change for the attributes of our existence” (Lawrence, 2019, pp. 181-182). There are different types of sustainable development indicators and Spangenberg (2015) categorise them into three, namely, nominal or binary indicators, ordinal indicators, and cardinal indicators. Specifically, Spangenberg (2015, pp. 309-310), defines the three categories of indicators as follows:

- Nominal or binary indicators “can only assume one of two given values: a certain characteristic is either given or not (yes/no)”. “They are only of limited value for the purpose of policy evaluation and steering, but are often the easiest to agree upon in policy-making”;
- Ordinal indicators “are based on qualitative concerns”. “They give information on the factor reported by locating it within a specific class of cases which would be considered better or worse than other classes, thus referring to a hierarchy of qualitative states”; and
- Cardinal indicators “give quantitative information”. “This can be absolute or relative data on stocks or flows, or ratios of these”. “However, without an explicit target, the data remain quite meaningless”.

The universal adoption of the United Nations (UN) 2030 Agenda for Sustainable Development (Transforming our world) and the 17 Sustainable Development Goals (SDGs) (with 169 associated targets and 232 indicators) by UN Member states in the year 2015 is an

indication of a collective global concern to incorporate environmental, economic, and social considerations in development aspirations (Moallemi et al., 2019; United Nations, 2015b; Barbier and Burgess, 2019; Dang and Serajuddin, 2020). For this reason, it is imperative for a united effort and commitment from key stakeholders including city authorities, local community leaders, and businesses in this regard, although the SDGs were adopted by heads of state (Moallemi et al., 2019). The 17 SDGs according to the United Nations (2015b, p. 1), “are integrated and indivisible and balance the three dimensions of sustainable development; that is, environmental, economic, and social” (see Figure 2.6). Barbier and Burgess (2019), note that analysing trade-offs and complementarities of the sustainable development goal indicators show simultaneous progress towards goals that are mainly associated with economic or social dimensions, but less success towards achieving goals related to the environmental dimension. Consequently, this calls for urgent action at the international, national, and local levels tailored towards attainment of environmental SDGs (Barbier and Burgess, 2019).

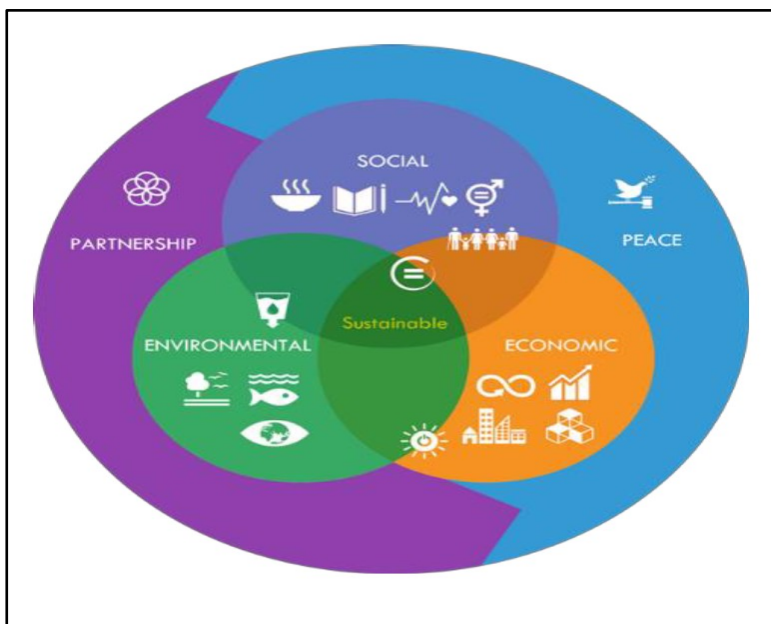


Figure 2.6 The Three Dimensions of Sustainable Development

Source: UN Communications Group (UNCG) and CSO Platform on SDGs (2017, p. 39)

Among the 17 SDGs (see Figure 2.7) the 11th Goal-‘*Make cities and human settlements inclusive, safe, resilient and sustainable*’ and 13th Goal-‘*Take urgent action to combat climate change and its impacts*’ together with their associated targets and indicators align closely to the objective of this research.



Figure 2.7 The 17 Sustainable Development Goals

Source: UN Communications Group (UNCG) and CSO Platform on SDGs (2017, p. 3)

Specifically, targets and indicators of the 11th and 13th SDGs are outlined in Table 2.4

Table 2.4 Targets and indicators of SDGs 11 and 13

Goal 11: Make cities and human settlements inclusive, safe, resilient and sustainable	
Targets	Indicators
11.1 By 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums	11.1.1 Proportion of urban population living in slums, informal settlements or inadequate housing
11.2 By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons	11.2.1 Proportion of population that has convenient access to public transport, by sex, age and persons with disabilities
11.3 By 2030, enhance inclusive and sustainable urbanization and capacity for participatory, integrated and sustainable human settlement planning and management in all countries	11.3.1 Ratio of land consumption rate to population growth rate
	11.3.2 Proportion of cities with a direct participation structure of civil society in urban planning and management that operate regularly and democratically
11.4 Strengthen efforts to protect and safeguard the world's cultural and natural heritage	11.4.1 Total expenditure (public and private) per capita spent on the preservation, protection and conservation of all cultural and natural heritage, by type of heritage (cultural, natural, mixed and World Heritage Centre designation), level of government (national, regional and

	local/municipal), type of expenditure (operating expenditure/investment) and type of private funding (donations in kind, private non-profit sector and sponsorship)
11.5 By 2030, significantly reduce the number of deaths and the number of people affected and substantially decrease the direct economic losses relative to global gross domestic product caused by disasters, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations	11.5.1 Number of deaths, missing persons and directly affected persons attributed to disasters per 100,000 population
	11.5.2 Direct economic loss in relation to global GDP, damage to critical infrastructure and number of disruptions to basic services, attributed to disasters
11.6 By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management	11.6.1 Proportion of urban solid waste regularly collected and with adequate final discharge out of total urban solid waste generated, by cities
	11.6.2 Annual mean levels of fine particulate matter (e.g. PM2.5 and PM10) in cities (population weighted)
11.7 By 2030, provide universal access to safe, inclusive and accessible, green and public spaces, in particular for women and children, older persons and persons with disabilities	11.7.1 Average share of the built-up area of cities that is open space for public use for all, by sex, age and persons with disabilities
	11.7.2 Proportion of persons victim of physical or sexual harassment, by sex, age, disability status and place of occurrence, in the previous 12 months
11.a Support positive economic, social and environmental links between urban, peri-urban and rural areas by strengthening national and regional development planning	11.a.1 Proportion of population living in cities that implement urban and regional development plans integrating population projections and resource needs, by size of city
11.b By 2020, substantially increase the number of cities and human settlements adopting and implementing integrated policies and plans towards inclusion, resource efficiency, mitigation and adaptation to climate change, resilience to disasters, and develop and implement, in line with the Sendai Framework for Disaster Risk Reduction 2015–2030, holistic disaster risk management at all levels	11.b.1 Number of countries that adopt and implement national disaster risk reduction strategies in line with the Sendai Framework for Disaster Risk Reduction 2015–2030
	11.b.2 Proportion of local governments that adopt and implement local disaster risk reduction strategies in line with national disaster risk reduction strategies
11.c Support least developed countries, including through financial and technical assistance, in building sustainable and resilient buildings utilizing local materials”	11.c.1 Proportion of financial support to the least developed countries that is allocated to the construction and retrofitting of sustainable, resilient and resource-efficient buildings utilizing local materials
Goal 13. Take urgent action to combat climate change and its impacts	
Targets	Indicators
13.1 Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries	13.1.1 Number of deaths, missing persons and directly affected persons attributed to disasters per 100,000 population
	13.1.2 Number of countries that adopt and implement national disaster risk reduction strategies in line with the Sendai Framework for

	Disaster Risk Reduction 2015–2030
	13.1.3 Proportion of local governments that adopt and implement local disaster risk reduction strategies in line with national disaster risk reduction strategies
13.2 Integrate climate change measures into national policies, strategies and planning	13.2.1 Number of countries that have communicated the establishment or operationalization of an integrated policy/strategy/plan which increases their ability to adapt to the adverse impacts of climate change, and foster climate resilience and low greenhouse gas emissions development in a manner that does not threaten food production (including a national adaptation plan, nationally determined contribution, national communication, biennial update report or other)
13.3 Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning	13.3.1 Number of countries that have integrated mitigation, adaptation, impact reduction and early warning into primary, secondary and tertiary curricula
	13.3.2 Number of countries that have communicated the strengthening of institutional, systemic and individual capacity-building to implement adaptation, mitigation and technology transfer, and development actions
13.a Implement the commitment undertaken by developed-country parties to the United Nations Framework Convention on Climate Change to a goal of mobilizing jointly \$100 billion annually by 2020 from all sources to address the needs of developing countries in the context of meaningful mitigation actions and transparency on implementation and fully operationalize the Green Climate Fund through its capitalization as soon as possible	13.a.1 Mobilized amount of United States dollars per year between 2020 and 2025 accountable towards the \$100 billion commitment
13.b Promote mechanisms for raising capacity for effective climate change-related planning and management in least developed countries and small island developing states, including focusing on women, youth and local and marginalized communities	13.b.1 Number of least developed countries and small island developing States that are receiving specialized support, and amount of support, including finance, technology and capacity-building, for mechanisms for raising capacities for effective climate change-related planning and management, including focusing on women, youth and local and marginalized communities

Source: United Nations (2015b); United Nations Statistics Division (UNSD) (2020a, pp. 11-14)

In light of SDGs 11 and 13, UN Member countries as well as its cities have developed policies; programmes and projects in line with these global goals to contribute to their

attainment. In sub-Saharan Africa for instance, Ghana is “aligning its development priorities in collaboration with civil society organisations (CSOs) and the private sector to achieve the SDGs jointly” (UN Communications Group (UNCG) and CSO Platform on SDGs, 2017, p. 3). It is notable to mention that, based on the analysis of findings by the Ministry of Environment Science and Technology (2012, p. 5) on the three dimensions of sustainability in Ghana, it was found that, Ghana has made some gains in the economic and social spheres. Nonetheless, “a lot remains to be done on the environmental sphere where pollution and degradation are still a major challenge”. As has already been established in the previous chapter, major cities in Ghana (Accra, Kumasi) are experiencing rapid motorisation and urbanisation with more than 50 per cent of the populace residing in urban areas, leading to several challenges in cities to improve resource use and reduce pollution. Accordingly, Ghana’s national urban and housing policies, among others, place increasing relevance on “building up resilience to extreme weather conditions through the implementation of transportation infrastructure, private sector growth, housing, and environmental protection plans” (UN Communications Group (UNCG) and CSO Platform on SDGs, 2017, p. 24).

In addition, the National Development Planning Commission (NDPC) in Ghana is responsible for coordinating and reporting on activities pertaining to the SDGs, as well as incorporating the SDGs in national and regional development plans. Essentially, since the national development planning system in Ghana is decentralised, activities relating to the SDGs are reflected in plans at the district level (District Planning Authorities), at the regional level (Regional Co-ordinating Councils), plans of sector agencies, ministries and the NDPC at the national level. It is notable to indicate that, the SDGs form an integral part of Ghana’s long-term national development plan, upon which, the NDPC formulates guidelines for MDAs (Ministries, Departments, and Agencies) development plans, and MMDAs (Metropolitan, Municipal, and District Assemblies) development plans. All district and sector plans are therefore expected to conform to these guidelines as it is upon this basis that the NDPC approves plans for budgetary allocation (UN Communications Group (UNCG) and CSO Platform on SDGs, 2017). Other governmental organisations involved in formulating and implementing sustainable development strategies in Ghana are the Ministry of Environment, Science, Technology and Innovation (MESTI) and the Environmental Protection Agency (EPA). Specifically, MESTI is responsible for policy issues relating to environment and science, with supervisory authority over six statutory organisations (including EPA, and Land Use and Spatial Planning Authority), whereas the EPA is the main agency responsible for implementing issues pertaining to environmental management and protection (Ministry of Environment Science and Technology, 2012).

In the context of the city of Accra (Ghana), the Accra Metropolitan Assembly (City Authority) has as its vision to create “a smart, sustainable and resilient city”. The Assembly therefore seeks to realise this vision statement through the five thematic goals of the Medium-Term National Development Policy Framework for 2018-2021, which includes a goal to ‘safeguard the natural environment and ensure a resilient built environment’, based on the development problems and challenges confronting the Accra Metropolis (Accra Metropolitan Assembly, 2018, p. xvi). Furthermore, as a regulator of public transport services within the Accra Metropolis, the Accra Metropolitan Assembly is responsible for ensuring safety, comfortable and reliable passenger transportation for the vast majority of commuters who rely on public transport (Accra Metropolitan Assembly, 2018). This led to the inauguration of the Aayalolo Bus Rapid Transit in 2016 in Accra. Other project initiatives the Accra Metropolitan Assembly is handling include the Ghana Urban Mobility and Accessibility Project (GUMAP), with the project objective being, “to build local capacity in transport and urban planning in order to improve the transportation and urban space development landscape of the Assemblies involved” (Accra Metropolitan Assembly, 2018, p. 44).

In the case of the United Republic of Tanzania, the country has mainstreamed the SDGs into the framework of Tanzania Development Vision 2025 and its mid-term five-year development plans for implementation (United Nations Association of Tanzania, 2018; Ministry of Finance and Planning, 2019). At the moment, Tanzania is in the second phase of its Five-Year Development Plan II (FYDP II - 2016/17-2020/21) and the outlined priorities in this plan is in synergy with the three dimensions of sustainable development (i.e. environmental, economic, and social) and the SDGs. The institutions that have endorsed the implementation of the SDGs in Tanzania are the Ministry of Finance and Planning (MoFP), the Planning Commission, the National Bureau of Statistics (NBS), the National Parliament and the Poverty Eradication Program (PEP), and the President’s Office Regional Administration (PRO-RALG) (United Nations Association of Tanzania, 2018). It is worthwhile to mention that, a periodic voluntary national review of progress in line with the 2030 Agenda for sustainable development by the Ministry of Finance and Planning (2019, pp. xv-xvi) in Tanzania, found that, the country is performing reasonably well in addressing eight goals (2, 3, 4, 5, 6, 8, 10, 16). However, these four goals (7, 9, 11, 12), with commensurate local partnerships, efforts and international support are likely to be attained by the target year 2030, whereas, the rest of the five goals (1, 13, 14, 15, 17) require additional efforts to be attained. Against this backdrop, programmes and projects initiated in line with SDGs 11 and 13 in Tanzania include the setting up of the National Carbon Monitoring Centres to monitor environmental outcomes (Ministry of Finance and Planning, 2019). With this project, Civil Society Organisations work through different initiatives to address climate change

challenges. Also, the implementation of the phase I of the Dar Rapid Transit (DART) in the year 2016 in Dar es Salaam is in synergy with SDG 11. Furthermore, Tanzania has developed a National Climate Change Strategy (2012), National Adaptation Programme of Action (NAPA), National Strategy for REDD+ and is presently developing a National Adaptation Plan (NAP).

The next sub-section presents review of the normative concept sustainable mobility.

2.3.5 Concept of Sustainable Mobility

The concept of sustainable mobility is three decades old since its foremost appearance in the “1992 EU Green Paper on the Impact of Transport on the Environment” (Holden et al., 2019, p. 1). It is therefore pertinent to mention the fact that, transportation and mobility are essential for the development of global cities (Wulforth and Klug, 2016; Okraszewska et al., 2019). Kopp et al. (2013, p. xi), in similar vein assert that ‘growth and development are primarily a matter of mobility’; considering the mobility of people to access education, work, health, among others and the mobility of goods ‘to supply markets that ensure the dynamism of economic activities’. Daly (1991, p. 256), asserts that three clear conditions fit appropriately for sustainable mobility and need to be met for physical sustainability. These are:

1. “Its rates of use of renewable resources do not exceed their rates of regeneration”;
2. “Its rates of use of non-renewable resources do not exceed the rate at which sustainable renewable substitutes are developed”; and
3. “Its rates of pollution emissions do not exceed the assimilative capacity of the environment”.

According to Banister (2000, p. 181), there appears to be resilient support for the principles of sustainable mobility; however stakeholders seem not ready to take on the challenges of the real change. It is imperative to indicate that, in implementing policies required to drive the shift towards sustainable mobility there is the need for attitudinal change in favour of values in line with sustainable development (Banister, 2000, p. 181). Likewise, Hasselqvist and Hesselgren (2019) emphasise that the transitions to more sustainable mobility are critical and requires commitment from stakeholders to change the multifaceted system of mobility related-practices moving forward, for instance, attitudinal change to car free living by city inhabitants. Further, the three critical conditions for the successful implementation of policies on sustainable mobility are acceptance of the transport case, acceptance of the environmental case and acceptance of the political case (see Figure 2.8). Essentially, these

three conditions have an interconnected relationship as seen in Figure 2.8. Therefore, a harmonious cohabitation of all three is paramount for a successful implementation of policies on sustainable mobility.

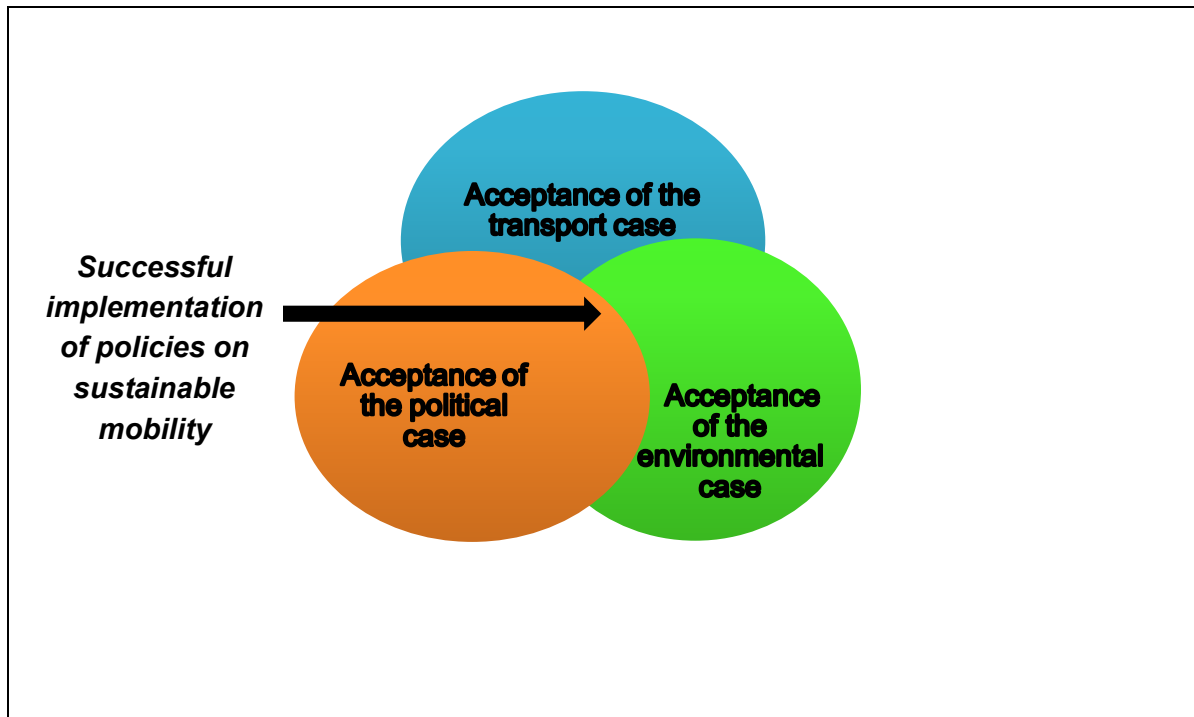


Figure 2.8 Necessary conditions for successful implementation of sustainable mobility policies

Source: Author's construct, based on Banister (2000, p. 181)

It is noteworthy to indicate that new institutional and organisational structures could be relevant to attain sustainable mobility (Banister, 2000, p. 184). Among others are: partnerships between the public and private sectors to expedite technological innovation, partnerships at all levels taking cognisance of the general public to stimulate support for change, and innovative ways to disseminate best practice. Additionally, sustainable mobility gives an alternative paradigm to examine the complex nature of cities, as well as firming the relationships between land use and transport (Banister, 2008, p. 73). Sudhakara Reddy and Balachandra (2012, p. 152), assert that sustainable mobility can be attained through less travel and better travel (with regards to cost, access, congestion, among others) using fewer resources.

Banister et al. (2000, p. 120), outline some potential indicators for sustainable mobility with reference to key issues under the three dimensions of sustainable development (see Table 2.5). Precisely, environmental indicators could be energy consumption and CO₂ emissions whereas economic indicators could be road vehicle-kilometres as a result of congestion.

Social indicators on the other hand could encompass walking distances to local services, number of air quality days, and road accidents rates.

Table 2.5 Potential Indicators of Sustainable Mobility

Dimensions of Sustainable Development	Key Issues	Potential Indicators of Sustainable Mobility
Environmental	<ul style="list-style-type: none"> • Resource depletion • Climate change 	<ul style="list-style-type: none"> • Energy consumption • CO₂ emissions
Economic	<ul style="list-style-type: none"> • Congestion 	<ul style="list-style-type: none"> • Road vehicle-kilometres/road length
Social	<ul style="list-style-type: none"> • Accessibility • Health • Safety 	<ul style="list-style-type: none"> • Walk distances to local services/facilities • Report incidences of transport-related illnesses • Number of poor air quality days • Road accident rates (casualties and deaths)

Source: Banister et al. (2000, p. 120)

Shell Foundation (2012), posit six groups of actors and stakeholders involved in mobility provision in cities; namely: government agencies, private sector organisations, financial institutions, public transport operators, private transport operators, and civil society groups (see Figure 2.9 which was adapted from this proposition). Therefore, it is important to indicate that the commitment of all the multiple actors is essential for the design, finance and effective implementation of sustainable mobility solutions in cities (Shell Foundation, 2012).

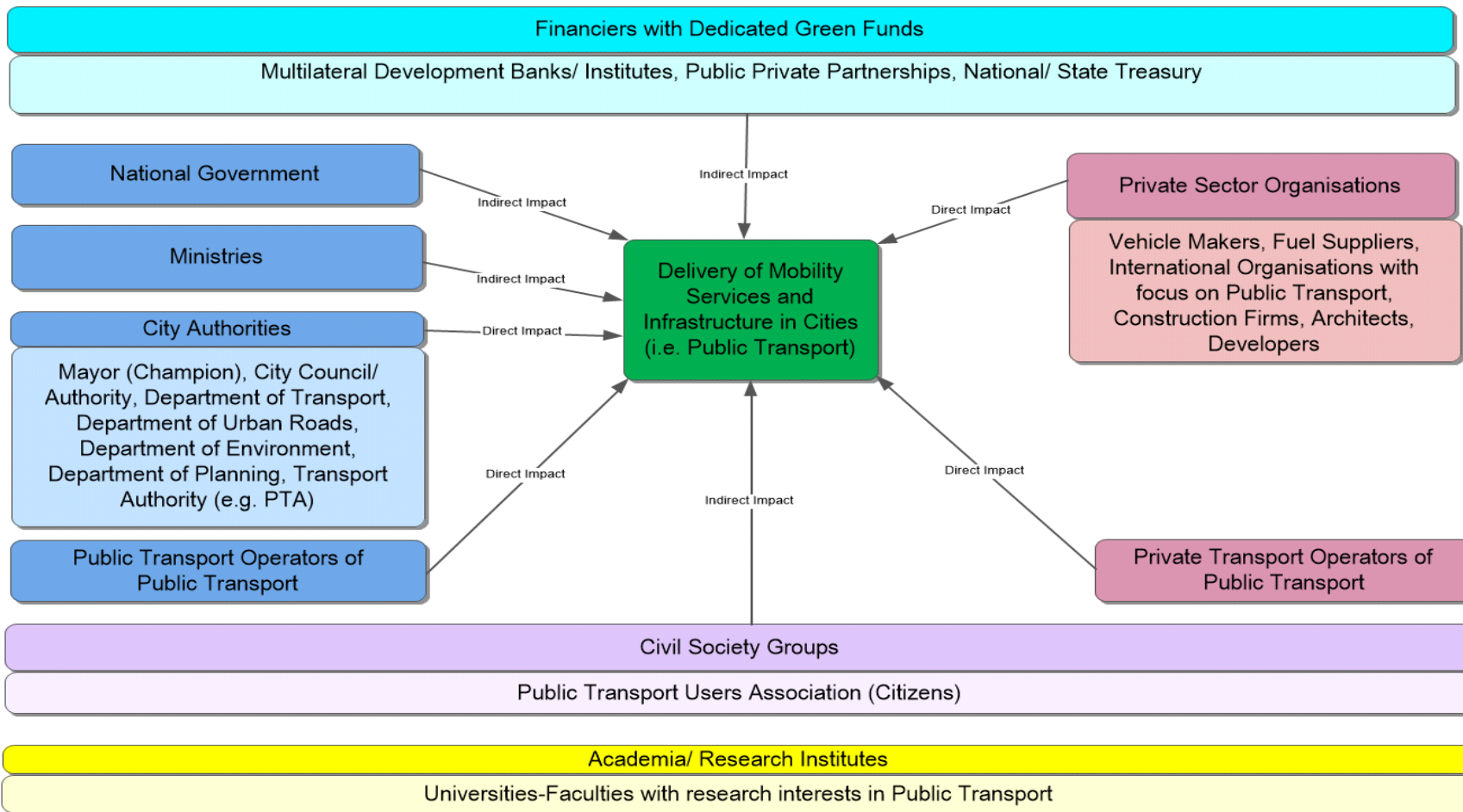


Figure 2.9 Typical Actors involved in mobility provision in cities

Source: Author's construct, based on Shell Foundation (2012)

From Figure 2.9 government agencies such as the national government and ministries have indirect impact whereas city authorities in cities have direct impact on the provision of mobility services and infrastructure in cities. Such agencies under city authorities in Ghana and Tanzania include the Accra Metropolitan Assembly (AMA), Dar es Salaam City Council, Metro Transport Department under the AMA, the Greater Accra Passenger Transport Executive (GAPTE), Dar Rapid Transit Agency (DART), the Environmental Protection Agency (EPA), National Environment Management Council (NEMC), and the Department of Urban Roads. These departments prepare their plans, programmes and projects in line with mobility provision based on national government and ministry policies indirectly. Such national government institutions and ministries are the National Development Planning Commission (NDPC) and the Ministry of Transport. This ensures synergy and coherence in policies from the central government to the local authorities for city development. Public transport operators and private transport operators on the other hand also directly influence the provision of mobility services and infrastructure. Another key actor that directly impacts the provision of mobility services and infrastructure in cities is the private sector such as vehicle makers, fuel suppliers, construction firms, and international organisations with focus on public transport (i.e the African Association of Public Transport-UATP/UITP). Other key actors that indirectly influence the provision of mobility services and infrastructure in cities are the civil society groups in cities such as public transport users' associations (citizens). In addition, financiers with dedicated green funds including multilateral development banks (i.e. the World Bank and Institute for Transportation and Development Policy (ITDP)) is an important actor that indirectly impact mobility service delivery and its associated infrastructure in cities. Besides, another and seventh pertinent actor referred to as academia/research institutions that indirectly impact the delivery of mobility services and infrastructure in cities was identified and indicated in Figure 2.9.

As a point of departure, emerging economies are crucial to the climate change policy (the Paris Agreement on Climate Change ratified by 187 parties out of the 197 parties to the convention as at February, 2020), in which the transport system plays a significant role (Vieira do Nascimento, 2014; United Nations Framework Convention on Climate Change, 2020). Nonetheless, countries in emerging economies still have many of their traffic infrastructure based on individual-mobility since public transport and other alternative means of transport are not yet a priority due to several reasons (Vieira do Nascimento, 2014). Therefore, the "increasing CO₂ emissions remain an important limitation towards sustainability in these countries" (Vieira do Nascimento, 2014, p. 545). For instance, cities in Brazil depict high level of individual vehicle use due to the existence of incentives tailored towards individual mobility with limited investments in public transport and other sustainable

means of commuting (Vieira do Nascimento, 2014). Arguably, carbon emissions from the transport sector in cities in Brazil remain relatively low due to the development of flex-fuel vehicles (FFV) based on bioethanol fuel in the country and the substantial use of FFVs by patrons, though cities streets are denser. It is notable to mention that, in Brazil, automakers and their suppliers are key stakeholders in the transport sector, and are mainly involved with the development of mitigation technologies (Vieira do Nascimento, 2014).

Correspondingly, cities in Ghana such as Accra city show rapid increase in cumulative total registered vehicles as espoused in the research problem. In the case of the city of Accra (Ghana), cumulative total registered vehicles saw an average annual vehicular increase of 11 per cent over a 15-year period (from the year 2003 to 2017) (Driver and Vehicle Licensing Authority (DVLA), 2018). Needless to say, the public transport system in Accra is largely dominated by use of low capacity vehicles ('trotro'- 15 to 23 passenger capacities) which induce greater travel volumes, leading to road traffic congestion (Aidoo et al., 2013; Korea International Cooperation Agency (KOICA), 2016; Antwi, 2015). Inference from Figure 1.2 indicates that although 'trotro'/mini-bus accounted for the highest modal share (62.2 per cent) in Accra in 2016, it utilised relatively low road space (18.3 per cent) in comparison with the other modes of transit (see Figure 1.1) (Korea International Cooperation Agency (KOICA), 2016). Particularly, the increasing use of private cars in Accra (National Development Planning Commission (NDPC), 2017c) exacerbate the road traffic congestion situation since it accounted for only 21.2 per cent of the modal share in 2016 but utilised as high as 60.6 per cent of the road space (see Figure 1.1) (Korea International Cooperation Agency (KOICA), 2016). By implication, public transport is largely patronised by residents in the Accra metropolis and makes efficient use of the existing road space but there is the need for a more suitable, effective and sustainable public transport system to encourage modal shift from private car usage to public transport and maintain the existing users. Similarly, in the case of the city of Dar es Salaam (Tanzania), average annual vehicular increase was 20 per cent over a 13-year period (from the year 2002 to 2015) (Kalugendo, 2017). Evidently, public transport (minibus/'daladala') accounted for the highest modal share (62 per cent) in Dar es Salaam in the year 2014 as depicted in Figure 1.1, but the vehicles in use are of low capacity – ranging from 16 to 35 passenger capacities (Chengula and Kombe, 2017; Nkurunziza et al., 2012) and its attendant challenges already discussed in the research problem. Therefore, it is pertinent for the introduction of a more effective sustainable public transport owing to the fact that public transport is predominantly used by inhabitants in the city of Dar es Salaam, makes efficient use of road space and to maintain the existing users of public transport. In addition, the need for promotion of the Dar es Salaam Rapid Transit

and modal shift to the DAR BRT is critical to this end (Japan International Cooperation Agency (JICA), 2018, p. 15).

As a way for Ghanaian cities to prepare for sustainable mobility on a strategic level, the Government of Ghana adopted a National Transport Policy (in the year 2008 which was revised in the year 2020) as a blueprint for a sustainable transport system in Ghana (Ministry of Transport, 2008; Ministry of Transport, 2020). In this policy, “mass transportation will be prioritised in urban areas, aiming to move at least 80 per cent of passengers”, with a specific strategy to implement Bus Rapid Transit (BRT) under the Ghana Urban Transport Project (GUTP) (Ministry of Transport, 2008, p. 45; Finn et al., 2009; Ministry of Transport, 2020, p. 44 and 87). To realise this policy strategy or objective, the Government of Ghana launched a pilot BRT system in Accra city in December 2016 but the system has been bedevilled with institutional bottlenecks since its inception as explained in the research problem (Peprah et al., 2019; Hart, 2016; Poku-Boansi and Marsden, 2018; Cobbinah et al., 2020). Another indication of sustainable mobility preparedness on a strategic level in Ghanaian cities is seen in the vision of public transport of the Greater Accra Metropolitan Area (GAMA) by 2020 – bus priority measures, high occupancy vehicles, dedicated bus stops, dedicated terminals, and dedicated depots (Bonsu, 2016, p. 19). Also, the Greater Accra Metropolitan Assembly in its District Medium Term Development Plan (DMTDP) for 2018 to 2021 has a specific objective to “create and sustain an efficient and effective transport system that meets user needs” – with a strategy to promote Bus Rapid Transit (BRT) in Accra (Accra Metropolitan Assembly, 2018, p. 115). Additionally, Ghana has adopted a 40-Year Long-Term National Development Plan from 2018 to 2057 and a 30-Year Ghana Infrastructure Plan from 2018 to 2047 (within the context of the 40-Year Plan) with their implementation aligned to the United Nations 2030 Agenda for Sustainable Development (Abubakari et al., 2018; National Development Planning Commission (NDPC), 2017c; National Development Planning Commission (NDPC), 2017a). Moreover, a 20-Year Ghana National Spatial Development Framework (2015-2035) has also been adopted by Ghana to guide the country’s spatial development (Government of Ghana, 2015a; Government of Ghana, 2015b).

In line with Tanzanian cities preparedness for sustainable mobility on a strategic level, the Tanzanian Government adopted a National Transport Policy in the year 2003 with a mission to “develop safe, reliable, effective, efficient and fully integrated transport infrastructure and operations which will best meet the needs of travel and transport improving levels of service at lower costs in a manner which supports government strategies for socio-economic development whilst being economically and environmentally sustainable” (Ministry of Communications and Transport, 2003, p. 1). In line with the transport policy and as a way of

improving urban mobility in cities in Tanzania, the government projected to commence Phase II of the Dar Rapid Transit (DART Phase II) in Dar es Salaam in December 2018 to further reduce road traffic congestion in the city, while “providing a quality, accessible, and affordable mass transport system” (Peter and Yang, 2019, p. 368; The World Bank, 2017a). It is important to indicate that the Tanzanian government implemented the Phase I of the Dar Rapid Transit (Dar Phase I) in Dar es Salaam in May 2016 (Rizzo, 2018). Other indications of sustainable mobility preparedness on a strategic level in Tanzanian cities can be seen in the adopted Tanzania Development Vision 2025, the Transport Sector Investment Programme (TSIP), the implementation strategy of the transport policy (from 2011 to 2025), the Local Government Transport Programme (LGTP), and the Five Year Development Plan II (FYDP II – 2016/17 to 2020/21) (African Development Bank (AfDB), 2013; United Nations Association of Tanzania, 2018; Ministry of Finance and Planning, 2019).

All in all, the growing demand for mobility in developing and emerging economies should not impede the attainment of sustainable mobility and the sustainable development goals (Chakwizira et al., 2014).

The next sub-section presents review of the normative concept sustainable transport.

2.3.6 Concept of Sustainable Transport

A sustainable transport system can be defined as “a system that offers the highest degree of mobility for a specific place consistent with the maintenance of a stable global climate under the first principle of environmental justice” (Curtis and Low, 2012, p. 15). Black (2000, p. 141), defines sustainable transport as “satisfying current transport needs without jeopardizing the ability of future generations to meet these needs”. Primarily, a sustainable urban transport system “is one that meets a variety of goals other than simple mobility” (Curtis and Low, 2012, p. 13). Such goals include improved quality of urban space (intangible goal), and distributional equity in transport. Curtis and Low (2012), further argue that, the focus on traffic congestion or impeded mobility shifts attention from critical challenges facing transport (such as climate change, oil depletion) in the twenty-first century. To Verma and Ramanayya (2015, p. 1), a sustainable transport system “must offer mobility and accessibility to all urban residents in a secure and eco-friendly mode of transport”. The United Nations (2016b, p. 2) asserts that, sustainable transport contributes to job creation, poverty reduction, inclusive growth, women empowerment, the well-being of persons with disability among others. In addition, advances in sustainable transport (i.e. policy development and implementation, technological innovation, and financing) will influence the attainment of the Sustainable Development Goals (United Nations, 2016b, pp. 6-10).

Specifically, policy development and implementation rely on integrated and coordinated institutions to develop suitable context specific policies, short-medium-long term plans aligned with the business case for sustainable transport and development, tailor-made capacity building that fits specific context, involvement of key stakeholders, monitoring and evaluation (United Nations, 2016a).

Technological innovation on the other hand from an environmental perspective - offers new and improved opportunities for more cleaner and climate-friendly transport; from an economic perspective – “more efficient transport technology and systems lead to cutting down on waste and wait times that have a potential for economic growth”; from a social perspective – technology “can improve the safety and affordability of transport options and can enhance transport accessibility for people with reduced mobility due to disability, age or other factors” (United Nations, 2016a, p. 33). Financing looks at policy makers, multi-lateral development banks, and other financial institutions ability to drive development towards sustainable transport.

It is important to mention that due to the relevance of sustainable transport to the society, seven out of the 17 SDGs are directly or indirectly linked to sustainable transport through targets and indicators (see Figure 2.10) (United Nations, 2016a).

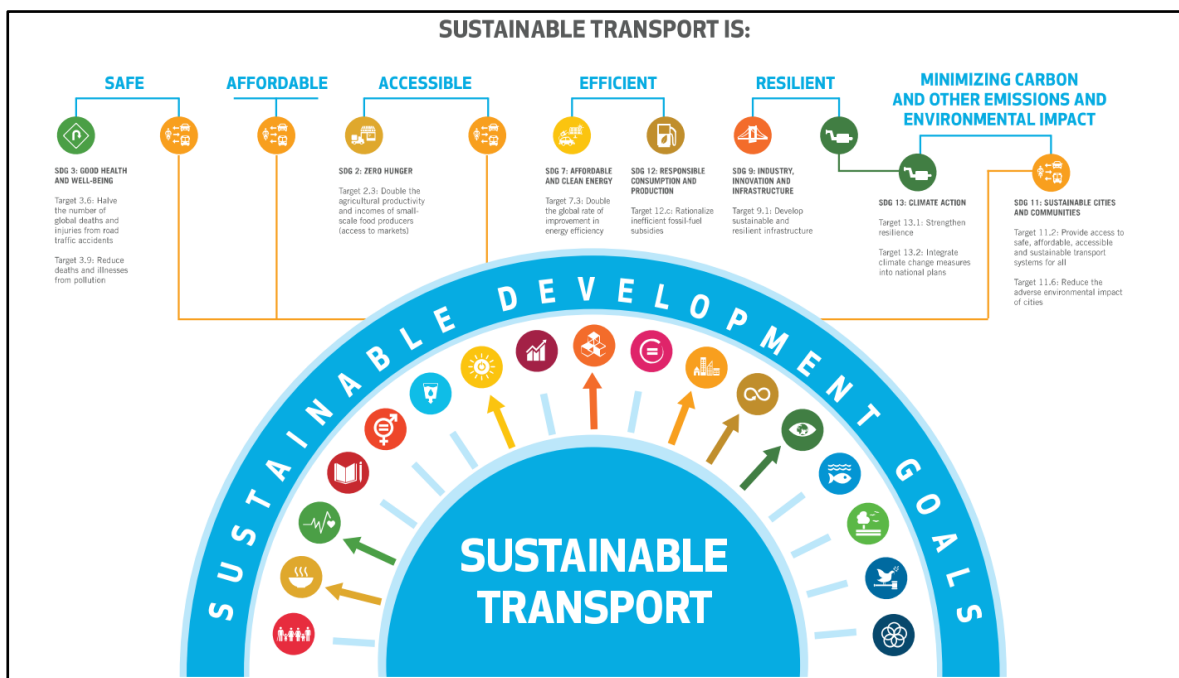


Figure 2.10 Sustainable transport impacts on achieving the SDGs

Source: United Nations (2016a, p. 11)

These seven SDGs are SDG 3-Good Health and Well-Being, SDG 2-Zero Hunger, SDG 7-Affordable and Clean Energy, SDG 12-Responsible Consumption and Production, SDG 9-Industry, Innovation and Infrastructure, SDG 13-Climate Action, SDG 11-Sustainable Cities and Communities.

For instance, from Figure 2.10 it can be seen that sustainable transport contributes to minimising carbon and other emissions as well as environmental impacts. Therefore, juxtaposing this aim against all the 17 SDGs; SDG 13-Climate Action and SDG 11-Sustainable Cities and Communities directly contribute to realising this aim through some targets. Specifically, target 13.1-Strengthen resilience and target 13.2-Integrate climate change measures into national plans under SDG 13. For SDG 11, target 11.2-Provide access to safe, affordable, accessible and sustainable transport systems for all and target 11.6-Reduce the adverse environmental impact of cities.

Dura and Weil (2014), postulate that the three key components necessary to ensure more sustainable transport in cities are technology, modal shift, and reduction of transport volume (see Figure 2.11). To realise the contribution of these components to sustainable passenger transport, an integrated approach is recommended.

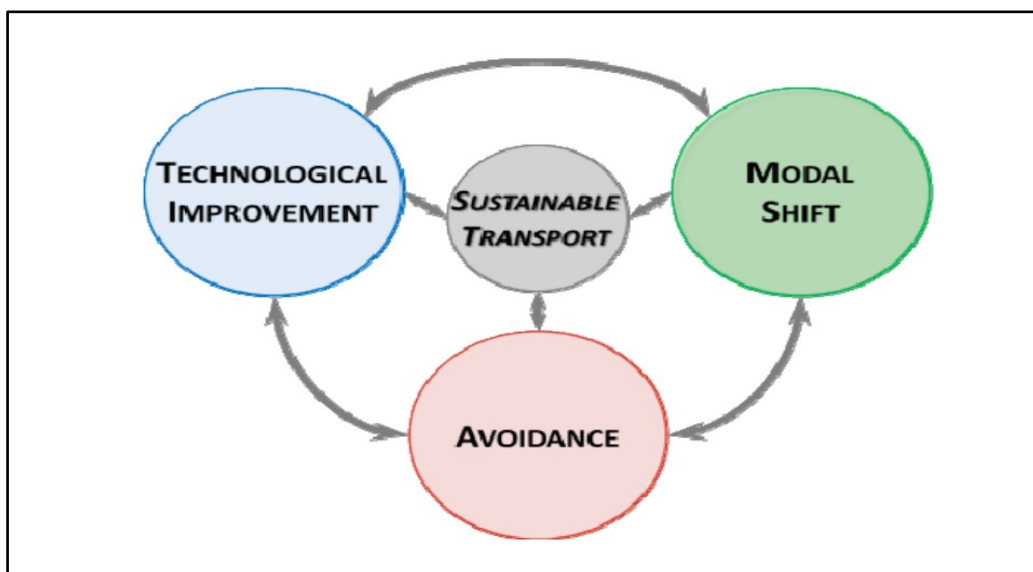


Figure 2.11 Components of sustainable transport

Source: Dura and Weil (2014, p. 335)

From Figure 2.11 technological improvement specifically refers to the “variety of technologies that combine vehicle types, propulsion systems, energy storage devices, and fuel types existing today” (Dura and Weil, 2014, p. 337). Likewise, Rodrigue et al. (2017) and

Bongardt et al. (2013) affirm the need for a shift to use of non-crude oil resources in the form of alternative fuels (biofuels, hydrogen, electricity, hybrid vehicles) in road transport due to the urgent need to lessen local harmful emissions from fossil fuels (non-renewable). Murphy (2015, p. 393), supports this assertion avowing that the dependence on fossil fuels mainly threaten sustainability due to depletion and pollution of the environment, even though fossil fuels have “powered modern development”. Modal shift as a component of sustainable transport entails the modal split of commuters’ choice of transport mode used to realize their physical mobility need. Essentially, a modal shift from private car usage to public transport, cycling, and walking is encouraged (Verma and Ramanayya, 2015). Transport avoidance “may be attained through avoidance of physical travel or the reduction of travel distances” (Dura and Weil, 2014). The reduction of travel distances (i.e. shift to “virtual transport”) includes the use of intelligent transport systems (ITS), urban planning of building infrastructure, information and communication technology (i.e. tele-shopping, tele-communication and tele-working). Additionally, Dura and Weil (2014) further note that, political and decision makers are steadily developing plans (i.e. action plans, short-medium term plans) and incentives to encourage more sustainable public transport in cities due to the significance of mobility in environmental, economic and social terms.

Verma and Ramanayya (2015, p. 6), argue that measures relating to “transportation system management, energy management, capacity management, and environmental management can help attain sustainable transport” (see Figure 2.12).

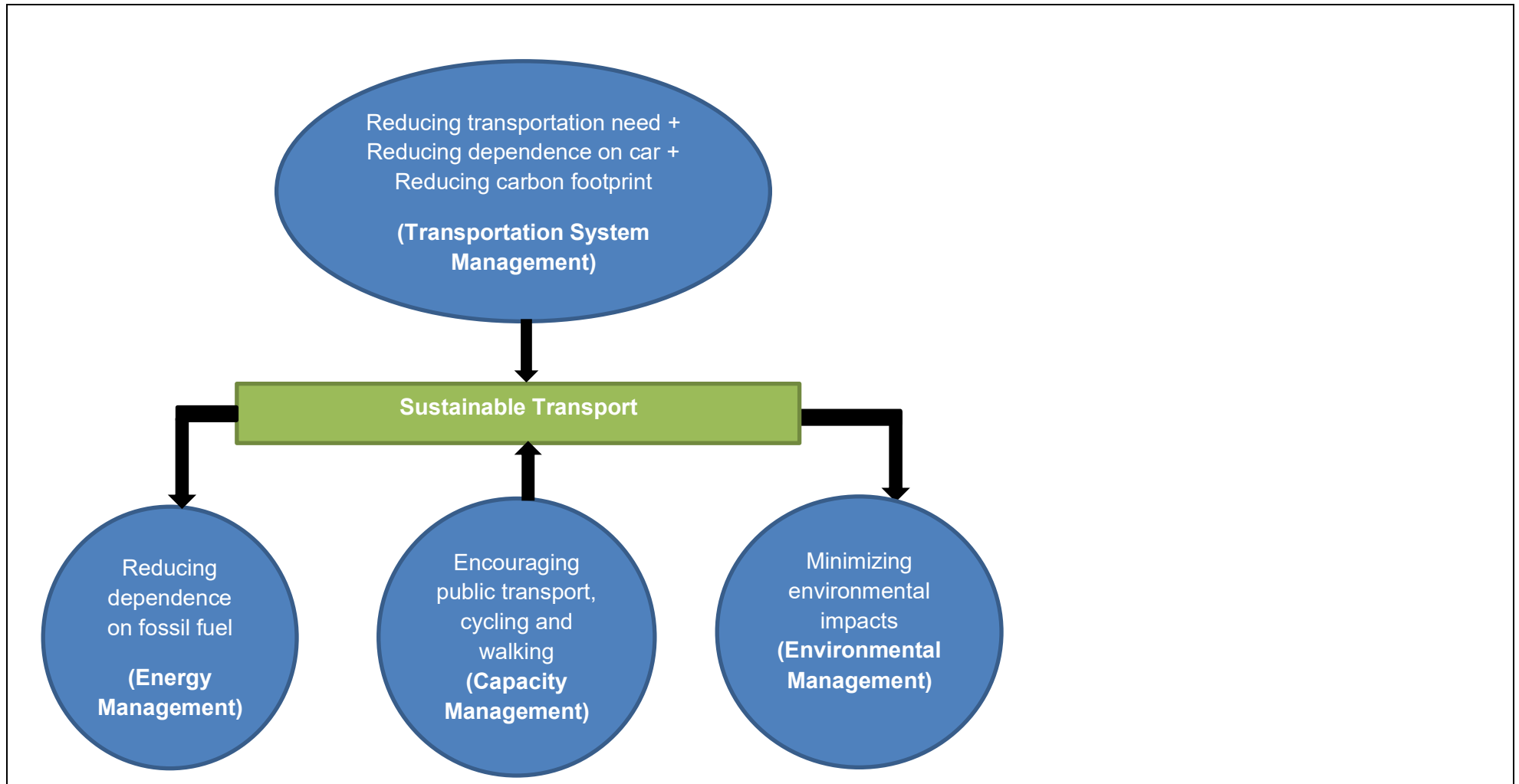


Figure 2.12 Components of Sustainable Transport

Source: Verma and Ramanayya (2015, p. 7)

From Figure 2.12 it can be seen that the four components of sustainable transport according to Verma and Ramanayya (2015), include capacity management (i.e. encouraging use of public transport) and this is an underlying focus of this research considering cities in Ghana and Tanzania as discussed in the research problem.

Curtis and Low (2012), assert that the reason for unsustainable transport is not the lack of policies but failure to implement policies on sustainable transport. Correspondingly, Chakwizira et al. (2014), note the need to implement sustainable transport solutions in cities in developing countries due to the reasons already explained in the previous section. Therefore, decision makers and key stakeholders in the provision of public transport can consider the following eight sustainable transport solutions intervention and options in Figure 2.13.



Figure 2.13 Overview of sustainable transport solutions intervention options

Source: Chakwizira et al. (2014, p. 599)

These intervention options (shown in Figure 2.13) partly overlap and it is recommended that public transport champions in cities in developing countries in partnership and collaboration with other key stakeholders (both internal and external) address these options (Chakwizira et al., 2014). Primarily, it is important that the implementation of sustainable public transport solution interventions is backed by the necessary improved transport infrastructure and services (see Figure 2.13), since “most of economic processes are dependent on the transport sector” (Chakwizira et al., 2014, p. 598). Also, as indicated in Figure 2.13, the

implementation of sustainable transport solutions interventions should contribute to reducing climate change, poverty, and wealth creation. Additionally, it is pertinent for proactive research and continued technology innovation towards sustainable transport solution intervention options.

Hickman and Banister (2014), note that each city has the potential to develop innovative scenarios of desirable low carbon futures based on its transport problems to overcome and religiously work towards the attainment of the selected future scenario. To them, there are several future pathways peculiar to each city, but possibly there are some ‘meta narratives in transport’ that encapsulate major future directions. To this end, Hickman and Banister (2014, p. 325), propose four scenarios for consideration by policy and decision makers towards sustainable transport in cities (using timescales to either 2030 or 2041) after examining and analysing the baseline transport situation in five case study cities (London, Oxfordshire, Delhi, Jinan, and Auckland) (see Figure 2.14). Primarily, the case study scenarios shown in Figure 2.14 “have common dimensions of technological change and environmental stewardship – to highlight the common choices faced in different contexts”(Hickman and Banister, 2014).

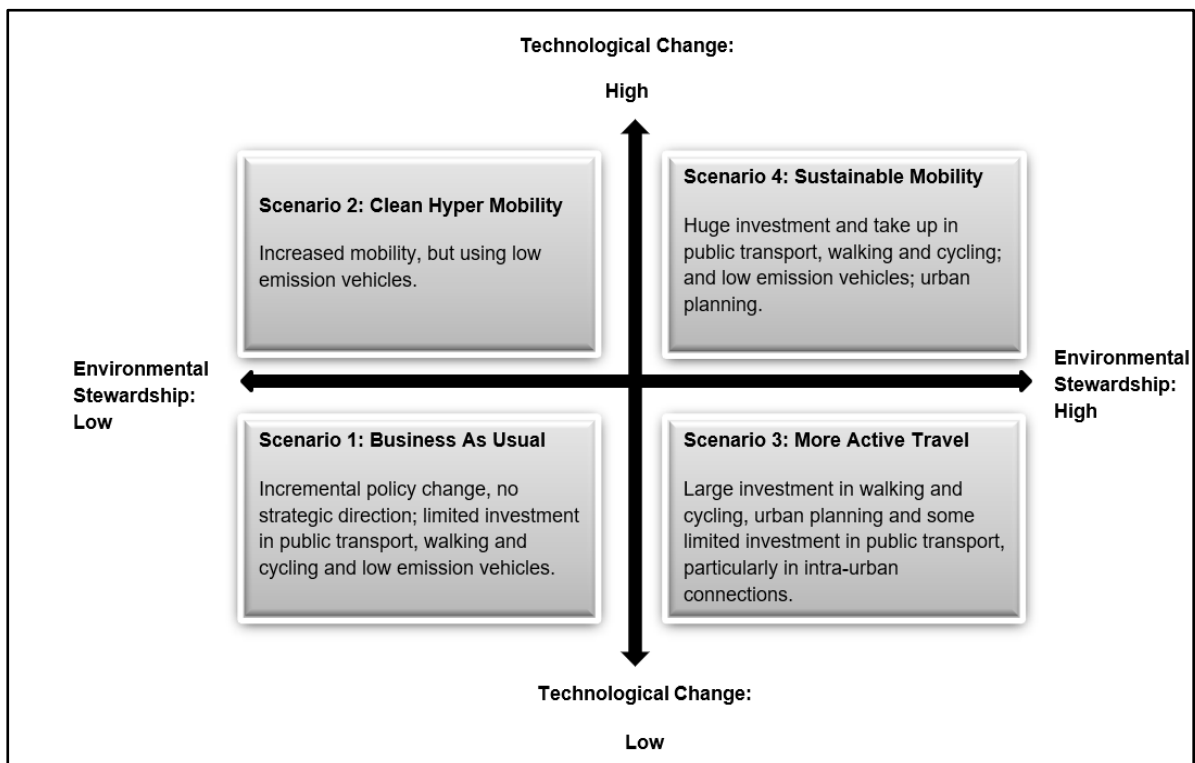


Figure 2.14 Meta Narratives in Transport (Case Study Scenarios)

Source: Hickman and Banister (2014, p. 325)

It can be seen from Figure 2.14 that, in scenario 1 (Business as Usual) policy changes are gradual with no strategic policy direction. Also, there is limited investment in public transport, low emission vehicles, walking and cycling. Moreover, there is low technological change and low environmental stewardship. Environmental stewardship is “viewed in terms of the intensity of interventions” such as the significance of reducing mobility mainly by car, petrol or diesel based; the level of stewardship in terms of governance; and the effects of this for individual and societal behaviours (Hickman et al., 2013, p. 211). On the other hand, Scenario 2 (Clean Hyper Mobility) has high technology change – using low emission vehicles for the increased mobility, but environmental stewardship is low. Scenario 3 (More Active Travel) focuses on large investment in walking and cycling, urban planning and limited investments in public transport, predominantly in intra-urban connections. In essence, there is high environmental stewardship in Scenario 3 but low technological change. In Scenario 4 (Sustainable Mobility) there is high technological change and high environmental stewardship. Basically, there is huge investment and take up in public transport, cycling and walking; low emission vehicles; and urban planning. It is pertinent to mention that scenario analysis offers “a rich background against which” to reflect on the future of cities and how cities can effectively respond to climate change (Hickman and Banister, 2014, p. 331) but it does not control the future (Eriksson and Weber, 2008) . In context of this research and on the basis of the objective of this research – *‘to comparatively investigate institutional responses to sustainable mobility for public transport in Ghanaian and Tanzanian cities’*, scenario 4 is the desired scenario of this study. It is recommended that scenario 4 is backed by political will to overcome any institutional impediments eventually (Bakker and Konings, 2018).

The Organisation for Economic Cooperation and Development (OECD) (2004, p. 121) recommend key conclusions to policy makers on the use of soft measures in obtaining progress towards Environmentally Sustainable Transport (EST) after the end of a workshop entitled ‘Communicating Environmentally Sustainable Transport-the Role of Soft Measures’. These soft measures are also underscored by Mirailles (2012, p. 11) as vital and present desirable options to mega transport projects. These include the following:

1. “Soft measures-including information provision, education, and marketing can and do have productive roles in the essential work of making progress towards Environmentally Sustainable Transport (EST)”;
2. “Soft measures complement hard measures such as taxes, regulations, and the provision of infrastructure and public transport services. Soft measures can be used to facilitate the acceptance of hard measures, and to enhance their effectiveness. Use of soft and hard measures should be carefully coordinated and integrated”;

3. “Soft measures should be used to provide an appealing vision of EST, illustrate its benefits, and promote its acceptance. Doing these things may require presentation of realistic portrayals of the effects of continuing with ‘business as usual’”;
4. “Soft measures have important roles in facilitating public participation in the characterisation of transport problems and in the specification, development, and implementation of solutions to the problems”;
5. “Soft measures are similarly important in shaping the actions of decision-makers, in part so that they gain better understanding of public attitudes and perceptions”;
6. “Development of expertise in the use of soft measures should be part of the training of transport professionals”; and
7. “Soft measures have their more obvious roles in changing individual transport activity, as in the promotion of public transport. Above all, they can help create a climate in which progress towards EST becomes easier”.

In essence, the above outlined justifications for inclusion of soft measures by policy makers (in addition to already existing hard measures) in decisions or policies towards the attainment of Environmentally Sustainable Transport is significant and worth considering by policy makers (particularly in developing countries-in the case of Ghana (Accra) and Tanzania (Dar es Salaam), bearing in mind the different context specific issues that needs to be addressed in this regard.

The last sub-section of this chapter presents the conceptual framework of this study.

2.4 Conceptual Framework

A conceptual framework is defined as “a network or a plane of interlinked concepts that collectively provide a comprehensive understanding of a phenomenon” (Jabareen, 2009, p. 49 and 51; Ravitch and Riggan, 2017, p. 5). Additionally, Jabareen (2009, p. 51) notes that, the concepts that form a conceptual framework communicate their corresponding phenomena, support each other, and establish a framework-specific philosophy. This framework-specific philosophy indicates the ontological, epistemological, and methodological beliefs that are reflected by each concept in the conceptual framework. As this research is underpinned by the philosophy of social constructivism, the philosophical beliefs reflected by each of the analytical concepts of the conceptual framework will be indicated and used in the analysis of field data. It is pertinent to highlight that all the (analytical) concepts in a conceptual framework “play an ontological and epistemological role, while the methodological beliefs focus on the process of building the conceptual framework and assessing what it can tell us about the real world” (Jabareen, 2009, p. 51). In the view of Ravitch and Riggan (2017, p. 5) and Ravitch and Carl (2021, p. 33), they define a

conceptual framework to have two building blocks: firstly as “an argument about why the topic one wishes to study matters”, and secondly “why the means proposed to study it are appropriate and rigorous”. In this sense, the conceptual framework is an argument for the study’s relevance, thus, it “provides evidence that the study has potential significance for practice and policy and is likely to contribute to the ongoing discourse about the topic (often referred to as contributing to knowledge)” (Marshall and Rossman, 2011, p. 58; Ravitch and Riggan, 2017, p. 7; Ravitch and Carl, 2021, p. 33). What Ravitch and Riggan (2017, p. 5) mean by appropriate and rigorous encompass four elements: “the research questions are an outgrowth of the argument for relevance; the research design maps onto the study goals, questions, and context(s); the data to be collected provide the researcher with the raw material needed to explore the research questions; and the analytic approach allows the researcher to effectively address (if not always answer) those questions”.

It is important to highlight as noted by Maxwell (2013, p. 39), that the core importance of a conceptual framework lies with its fundamental ability of “a conception or a model of what is out there that you plan to study, and of what is going on with these things and why – a tentative framework/theory of the phenomenon that you are investigating”. Essentially, Maxwell (2013, p. 40), stresses that the conceptual framework of a research is a theory, although at times it is tentative or incomplete. In essence, Anfara and Mertz (2015, p. 5), illuminate the conceptual framework as a theory, highlighting that a relevant theory needs to “tell an enlightening story” relating to a specific phenomenon of study and also unravel additional “insights that broadens further understanding of that phenomenon”. Ravitch and Riggan (2017, p. 9), argue that the conceptual framework is “the superstructure or overarching argument of the study, with sub-components of this superstructure formed from the literature review (i.e. topical research and theoretical frameworks) of the study, the researcher’s identity and positionality, and personal interests and goals”. Furthermore, Ravitch and Carl (2021, p. 34), postulate that when a conceptual framework is “conceptualized holistically, it serves as the connective tissue of a research study in that it helps you integrate your understanding of the various influences on and aspects of a specific research study to create a more intentional and systematic processes of connecting the various parts of the study.

Characteristically, a conceptual framework “provides an interpretive approach to social reality and not a causal/analytic setting” (Jabareen, 2009). Further, in qualitative research, a conceptual framework “provides an understanding rather than a theoretical explanation as in the case of quantitative models” (Jabareen, 2009, p. 51). Maxwell (2013, p. 41) and Marshall and Rossman (2011, p. 57), note that in qualitative research a conceptual

framework is “something that is constructed, rather than found”, and “incorporates pieces that are borrowed from elsewhere, but most importantly the structure as well as the overall coherence is mainly built” by the researcher from scratch. Also important in conceptual framework analysis is the need to ensure that selected texts effectively portray the pertinent “environmental, social, political, and cultural phenomenon” in relation to the phenomenon under study (Jabareen, 2009, p. 53). Ravitch and Riggan (2017, p. 4), note that a conceptual framework has the ability on the one hand to shape a study’s research design and pathway, and on the other hand, guide the study’s systematic progress. Mainly, the merits of conceptual framework analysis include among others, “its capacity for modification, its flexibility, and its emphasis on understanding in lieu of prediction” (Jabareen, 2009, p. 49). All in all, as opined by Ravitch and Carl (2021, p. 39), the guiding sources for constructing a conceptual framework include among others: “the researcher, the goal(s) of the study, the study setting and context, tacit theory and working conceptualizations, and formal or established theory.

This Ph.D. research in sum draws from all these definitions, characteristics, values, roles and relevance of the conceptual framework indicated above to guide the construction of the conceptual framework for this research. Therefore, from Figure 2.15, thus the conceptual framework of this research, to realise the aim/desired outcome of effective sustainable mobility (precisely road-based public transport) in cities, it is important to critically consider all the key issues of the eight interrelated concepts, of which, four are normative concepts and the other four are analytical concepts. Also, key issues on ‘Cities’, which represent the geographical location and boundary of the study areas of this Ph.D. research need to be taken note of.

From Figure 2.15, ‘cities’ is connected to all the eight concepts and the ultimate desired outcome of this research. Notably, cities are “seen as strategic scenarios to investigate and develop solutions to cope with the prevailing sustainability challenges driven by the major social and environmental transformations” (Gabaldon-Estevan and Kaufmann, 2016); cities are at the forefront of sustainable development (UN-Habitat, 2016); much of the world’s population growth is happening in cities in developing countries (Freeman, 2013) particularly in Africa leading to several transport challenges (Poku-Boansi and Marsden, 2018; Onatere et al., 2014); and “Cities are locations that have a high level of accumulation and concentration of economic activities and are complex spatial structures that are supported by transport systems” (Rodrigue et al., 2017, p. 273).

From Figure 2.15, it can be seen that all the four normative concepts directly impact the desired outcome of this Ph.D. Research. The first normative concept is sustainable road-based public transport in cities. Therefore, these key issues need to be highlighted and taken note of as indicated in Figure 2.15: Public transport is characterised by use of buses, trams and trains that move people in large numbers from an origin to a destination within cities (Abdallah, 2017); public transport is a response to meeting transportation needs and energy demand of cities in a sustainable way (D'Souza and Maheshwari, 2014; Sudhakara Reddy and Balachandra, 2012); an example of a sustainable public transport solution in cities in developing and emerging economies is Bus Rapid Transit (BRT) – which is a contemporary type of urban passenger transportation with proven cost-effective and flexible substitute for high-performance transit services - thus, making it progressively gain interest from decision and policy-makers in addressing urban mobility challenges in developing and emerging economies (Deng and Nelson, 2012). As has been established earlier, public transport in the cities of Accra and Dar es Salaam have the highest modal share in comparison with the other modes of transit in these cities. Therefore, there is the need to maintain the existing public transport users and encourage a modal shift from private car users to public transport - which is likely to be possible in the two cities if there is an effective sustainable road-based public transport such as a BRT.

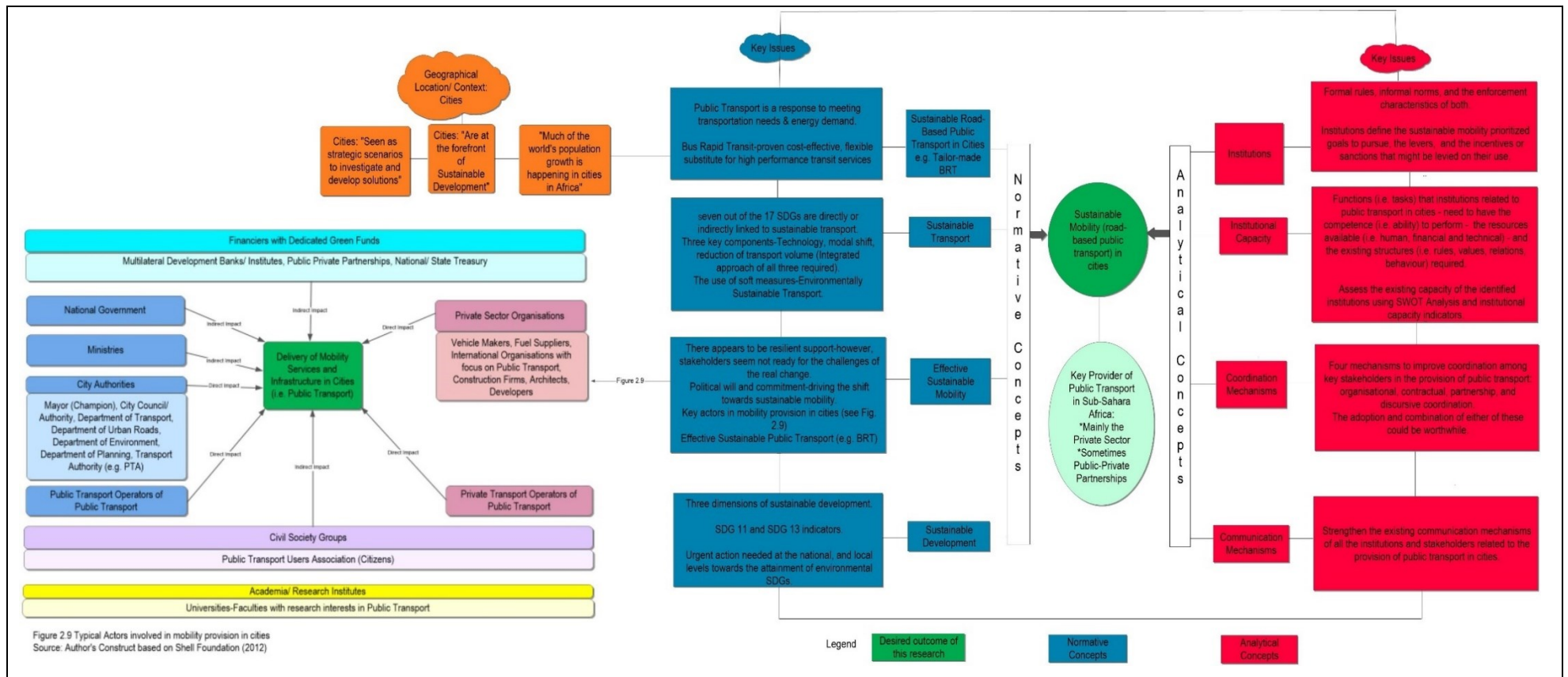


Figure 2.15 The Conceptual Framework of Sustainable Mobility for Road-Based Public Transport in Cities

Source: Author's Construct, based on reviewed literature (March, 2020)

In addition, Nikitas and Karlsson (2015) argue that BRT systems are designed to fit to the markets they are implemented, taking into consideration the uniqueness of each city and its transport problem(s) to be overcome. This is corroborated by Holzwarth (2012, p. 32), noting that Bus Rapid Transit is one of the sustainable road-based public transport solutions urgently needed in these cities to this end to ameliorate increasing road traffic problems, projected increase in private motorisation rates, reduce projected expected increase in social exclusion and emissions. Notably, Pojani and Stead (2015) recommend that, experience with BRT in developing cities depict that, the combination of private sector competition with robust public sector oversight yields the best BRT results in these cities. The reason being that, this type of business model is largely suitable for public transport in developing cities as both “fully regulated sectors” and “completely deregulated sectors” have failed over the years. Essentially, an effective sustainable road-based public transport such as BRT systems in cities that is tailor-made rather than copying and pasting exactly the successful BRTs to other contexts is important towards the desired outcome of this Ph.D. research.

The second normative concept from Figure 2.15, which its key issues are pertinent, is sustainable transport. A sustainable transport system “offers the highest degree of mobility for a specific place consistent with the maintenance of a stable global climate under the first principle of environmental justice” (Curtis and Low, 2012, p. 15). Also, owing to the relevance of sustainable transport to the society, seven out of the 17 SDGs are directly or indirectly linked to sustainable transport through targets and indicators (see Figure 2.10) (United Nations, 2016a) as indicated in Figure 2.15. Further, a sustainable transport system “must offer mobility and accessibility to all urban residents in a secure and eco-friendly mode of transport” (Verma and Ramanayya, 2015, p. 1). Dura and Weil (2014), note that the three key components necessary to ensure more sustainable transport in cities are technology, modal shift, and reduction of transport volume and this is pertinent as highlighted in Figure 2.15. To realise the contribution of these components to sustainable passenger transport, an integrated approach is recommended. In view of this, bearing in mind the desired outcome of this research, there is the need to encourage modal shift to an effective sustainable public transport such as BRT in the cities of Accra (Ghana) and Dar es Salaam (Tanzania). Accordingly, the necessary interventions to make this attainable need to be outlined based on the issues discussed in the research problem. It is important to mention that measures relating to “transportation system management, energy management, capacity management, and environmental management can help attain sustainable transport” (Verma and Ramanayya, 2015, p. 6) in Accra city and Dar es Salaam city as depicted in the conceptual framework of Figure 2.15. Additionally, Figure 2.15 gives an overview of sustainable transport solutions intervention options which needs to be tailor made that could be

considered by public transport champions, policy and decision makers in collaboration with other key stakeholders in cities towards effective sustainable public transport. Also pertinent to the already existing hard measures to ensuring environmentally sustainable transport as indicated in Figure 2.15, is the inclusion of soft measures towards the attainment of environmentally sustainable transport in cities. This is necessary in the implementation of environmentally sustainable project solutions such as BRT implementation in cities in developing and emerging economies in this regard. In context of this research, such soft measures include marketing, education of actors like the civil society, and involving the key stakeholders in the project solution to facilitate ownership of the project solution and sustainability of the project.

Effective sustainable mobility is the third normative concept from Figure 2.15. Key issues of this concept that need to be highlighted are: there appears to be resilient support for the principles of sustainable mobility, however stakeholders seem not ready to take on the challenges of the real change (Banister, 2000, p. 181); in implementing policies required to drive the shift towards sustainable mobility there is the need for attitudinal change in favour of values in line with sustainable development (Banister, 2000, p. 181); Hasselqvist and Hesselgren (2019), emphasise that the transitions to more sustainable mobility are critical and requires commitment from stakeholders to change the multifaceted system of mobility related-practices moving forward (for instance attitudinal change to car free living by city inhabitants); and noting the three critical conditions for the successful implementation of policies on sustainable mobility which are acceptance of the transport case, acceptance of the environmental case and acceptance of the political case seen in Figure 2.8. Furthermore, the indicators of sustainable mobility in Table 2.5 need to be taken note of with reference to interventions in line with the desired outcome of this research. More importantly, the key actors or stakeholders in mobility provision in cities indicated in the conceptual framework 2.15 need to be identified and examined in cities in Ghana (Accra city) and Tanzania (Dar es Salaam city) in line with sub-research question one of this Ph.D. research. The examination of these seven categories of actors in Figure 2.15 will unravel the specific institutions under each of these seven categories of actors and their direct or indirect impact related to the provision of sustainable mobility in cities and ultimately the desired outcome of this research. Consequently, the sub-research questions two, three, and four of this research take their roots from the output of the examination of the identified seven categories of actors in mobility provision in cities in line with sub-research question one.

The preparedness of the city of Accra (Ghana) and Dar es Salaam (Tanzania) towards sustainable mobility on a strategic level is essential and this is seen in the indicated policies, programmes, and projects in both cities in the previous sections. Also important is

knowledge on the different pathways towards the attainment of sustainable mobility in cities considering scarce resources as indicated in Figure 2.15. One of such pathways from Figure 2.15 is effective sustainable public transport in cities, such as, the solution of tailor-made bus rapid transport in cities in developing and emerging economies.

The last normative concept from Figure 2.15 is Sustainable Development. Mainly, the key issues of this concept that are pertinent to the central aim of this research that needs to be taken note of are: the definition of sustainable development adopted in this research is “development that meets the needs of the present without compromising the ability of the future generations to meet their own needs” (United Nations, 1987, p. 43). Therefore, the three dimensions of sustainable development (see Figure 2.6) are pertinent to be looked at as indicated in Figure 2.15. Among the 17 SDGs (see Figure 2.7) the 11th Goal - ‘*Make cities and human settlements inclusive, safe, resilient and sustainable*’ and the 13th Goal - ‘*Take urgent action to combat climate change and its impacts*’ together with their associated targets and indicators align closely to the aim of this research. Also important as noted by Barbier and Burgess (2019), in analysing trade-offs and complementarities of the sustainable development goal indicators showed simultaneous progress towards goals that are mainly associated with economic or social dimensions, but less success towards achieving goals related to the environmental dimension. This therefore necessitate urgent action at the international, national, and local levels tailored towards attainment of environmental SDGs (Barbier and Burgess, 2019). In context of this research, as already mentioned in previous sections of this dissertation, a lot of interventions are needed in terms of the environmental dimension of sustainable development in both cities in Ghana (Accra city) and Tanzania (Dar es Salaam city) which are the two collective or comparative case studies of this research. For instance, as noted by the Ministry of Environment Science and Technology (2012, p. 5), Ghana has made some gains in the economic and social spheres dimension of sustainable development, nonetheless, “a lot remains to be done on the environmental dimension”. Likewise, in terms of progress towards the 2030 Agenda for sustainable development in Tanzania, the Ministry of Finance and Planning (2019, pp. xv-xvi) note that the country is performing reasonably well in addressing eight goals (2, 3, 4, 5, 6, 8, 10, 16). Nevertheless, the rest of the SDGs including SDG 11 and SDG 13 necessitate further efforts to be attained.

It can be seen from Figure 2.15 that there are four analytical concepts in the conceptual framework that directly impact the desired outcome of this Ph.D. research. Therefore, the key issues of these concepts, namely, institutions, institutional capacity, coordination mechanisms, and communication mechanisms are important to be noted.

Accordingly, the first analytical concept to be highlighted with reference to its key issues are institutions. Specifically, since institutions are formal rules (common law, statute law, regulations) that human beings enact, informal norms (norms of behaviour, conventions and self-imposed codes of conduct), and the enforcement characteristics of both (North, 1995), there is the need to explore the existing formal rules of institutions related to public transport in cities in Ghana and Tanzania as well as the informal norms and how these rules are enforced by the respective institutions. Knowledge and analysis of this information is very useful for the desired outcome of this research shown in Figure 2.15. In effect, any developed solutions for implementation in this regard will directly impact the central aim of this research.

In perspective of this research, institutions (including local/city authorities, private sector vehicle makers, private transport operators, public transport operators etc) in Ghana and Tanzania establish the context by which either country defines the sustainable mobility prioritized goals to pursue, the levers (i.e. regulations, voluntary agreements, subsidies, change of values in a society, etc.) critical to ensure attainment of these goals, and the incentives or sanctions that might be levied on their use (World Business Council for Sustainable Development, 2004). Essentially, institutions (both formal rules and informal rules/norms) and institutional frameworks are the ultimate determinants of whether and how sustainable mobility could be realised. Therefore, particular attention needs to be given to formal rules and informal rules/norms of local authorities as well as other institutions under the seven categories of actors related to mobility provision in cities as depicted in Figure 2.15 in this regard, for instance in the case of both Ghana and Tanzania, as well as the needed institutional capacity gap in these institutions to be bridged. Additionally, collaboration among and between the different stakeholders related to public transport in cities in Ghana (Accra city) and Tanzania (Dar es Salaam city) is very significant towards the desired outcome of this research. This is noted by Paulsson et al. (2018, p. 377) that, collaboration is a means through which Public Transport Authorities (PTAs) engage with local authorities (municipalities) to establish joint agreements relating to sustainable public transport priorities, a means to build a common identity with the existing public transport operators, and also creates the opportunity for the “ability of coordinating actors to put in place processes where the feasibility of plans can be constructed as well as a sense of common identity created”.

The second analytical concept from Figure 2.15 is institutional capacity which is a vital component towards the desired outcome of this research. Therefore, it is important to explore and analyse the functions (i.e. tasks) that institutions related to public transport in

cities in Ghana and Tanzania need to have the competence (i.e. ability) to perform, the resources available (i.e. human, financial and technical) and the existing structures (i.e. rules, values, relations, behaviour) required. Further, it is essential to assess the existing capacity of the identified institutions as this is fundamental and a central part of any institutional capacity development process (see Figure 2.4). Hence, the SWOT Analysis (see Figure 2.3) and institutional capacity indicators (see Table 2.3) could be used for the institutional capacity assessment of the identified institutions. Individual capacities/competence (see Figure 2.5) required to execute the necessary tasks within the identified institutions related to public transport in Ghana (Accra city) and Tanzania (Dar es Salaam city) need to be assessed in line with research question two of this research.

From Figure 2.15, coordination mechanism is the third analytical concept that directly impact the desired outcome of this research. Therefore, coordination mechanisms of institutions related to public transport as well as key stakeholders of public transport in cities in Ghana (Accra) and Tanzania (Dar es Salaam) are also important to be examined in line with the aim of this research as well as key issues of the concept of coordination mechanisms. Mainly, pertaining to coordination among key stakeholders in the public transport industry, Sørensen and Longva (2011, p. 117) affirm that, coordination seems to receive increased attention after several years of “New Public Management (NPM)” reforms within the public transport industry. Essentially, four distinct mechanisms are suggested by Sørensen and Longva (2011, p. 119) to improve coordination among key stakeholders in the provision of public transport based on the cases of Denmark, Sweden and the UK. These are organisational coordination, contractual coordination, partnership coordination and discursive coordination (see Table 2.2). It is important to highlight that the adoption of any of these coordination mechanisms to improve coordination between the fragmented stakeholders in the public transport industry in cities, largely in developing countries, has its merits and demerits but based on conditions of a specific context, the combination of either of them could be worthwhile.

The last analytical concept that directly impact the desired outcome of this research is communication mechanisms as indicated in Figure 2.15. It is important to note that communication mechanisms of all the institutions and stakeholders related to the provision of public transport in cities in Ghana (Accra city-region) and Tanzania (Dar es Salaam city) are necessary to be examined towards the aim of this research.

From Figure 2.15, it can be seen that the key provider of public transport in sub-Saharan Africa presently is mainly by the private sector and somewhat public-private partnerships. It

is notable to highlight here that public sector monopoly in the provision of road-based public transport services over the years has been replaced by the private sector in many cities in developing countries (Sohail et al., 2006). Thus, Finn and Walters (2010) have added to this finding that, the operator-sector of public transport in cities in developing countries (such as Kenya, Ghana, South Africa) is mainly from the private sector, encompassing numerous operators with few fleet (of which majority of the supply is provided by minibuses). Also important to note according to Madeja and Wyszomirski (2018, p. 209), is the fact that the operator-sector of public transport services are sometimes subcontracted to privately owned firms by public authorities (i.e. District/ Metropolitan Assemblies) who by law are mandated to provide public transport within their geographical scope of jurisdiction. Essentially, on the basis that “the organisation of urban transport by local authorities does not mean that services have to be provided by publicly owned companies”, the operator-sector of public transport services in cities in developing countries are sometimes sub-contracted to private entities.

All in all, the eight inter-related normative and analytical concepts and their associated key issues depicted in the conceptual framework are paramount due to their direct impact on the objective of this research: *‘to comparatively investigate institutional responses to sustainable mobility for public transport in Ghanaian and Tanzanian cities’*. Furthermore, these concepts focus and depict practices associated with the phenomenon under study and are interdisciplinary (Jabareen, 2009, p. 53). Finally, taking cognizance of the perspectives on cities as well as the seven key actors in mobility provision in cities from Figure 2.15 in relation to the objective of this research is important.

2.5 Summary of Chapter

This chapter has provided the theoretical basis of this research - the New Institutional Economics (NIE) theory. It has also provided extensive review of the four normative concepts; namely: sustainable road-based public transport in cities, sustainable transport, effective sustainable mobility, and sustainable development. In addition, it has provided extensive review of the four analytical concepts; namely: institutions, institutional capacity (including individual capacity/competence), coordination mechanisms, and communication mechanisms in line with the main and sub-research questions of this study. A vital component of this chapter is the comparison of key issues under each of the eight indicated concepts in the case of Ghana (Accra city) and Tanzania (Dar es Salaam city), as well as other country perspectives on each of these eight concepts. Finally, a conceptual framework of sustainable mobility for road-based public transport in cities is developed. The next

chapter presents the study approach to inquiry and research methodology as well as the philosophical basis of this research.

CHAPTER THREE

STUDY APPROACH AND RESEARCH METHODOLOGY

3.1 Introduction

The previous chapter presented review of relevant literature in line with this research as well as a conceptual framework for the entire research. This chapter provides the methodology for undertaking this research. It presents the research design of this study, the philosophical basis of this research, the research method and approach to inquiry, the units of enquiry, as well as the data collection tools and sampling techniques employed to gather data for this study and subsequent data analysis methods. In addition, this chapter presents the research positionality and reflexivity, and research ethics.

3.2 Research Design and Justification

Generally, research design encompasses the process from the conceptualization of a research problem to the formulation of the research questions, through to the strategy and tactics of science employed to guide the collection and analysis of data, interpretation and presentation of results in social science research (Gray, 2007; Creswell, 2013; Farthing, 2016; Ragin and Amoroso, 2011; Denzin and Lincoln, 2005). Accordingly, the research design could be either qualitative, quantitative or mixed method design to conduct a research. The researcher adopted qualitative research design from the conception of the research problem which informed the research questions needed to be addressed, to the collection of primary and secondary data and analysis of the data collected, to the results of this research.

Precisely, the main research question of this study - Why are institutional responses to sustainable mobility for public transport in Ghanaian and Tanzanian cities not effective and how can the existing capacity of the institutions, coordination and communication mechanisms be improved? – and the five sub-research questions, of which the first four are analytical questions in a logical manner and one action-oriented as the fifth question – necessitates a qualitative research design. This helped to explain and describe in-depth the specific institutions related to the provision of road-based public transport in Accra city-region (Ghana) and Dar es Salaam city (Tanzania), the perception of these institutions on sustainable transport, and the existing institutional capacity of these institutions in the decision-making processes in planning for more sustainable road-based public transport in these cities. Additionally, the use of qualitative research design helped to describe in-depth and to explain the coordination and communication mechanisms between these institutions related to the provision of public transport in both cities. This gave the backdrop and impetus

to recommended concrete measures to improve the existing capacity, coordination and communication mechanisms of these institutions to provide effective sustainable road-based public transport in these cities. In essence, the type of research questions (main-why? and sub-what? research questions) of this study are founded in the ideals of qualitative research design espoused by Creswell (2013); Lichtman (2014); Rojon and Saunders (2012); Yin (2014); Vogt et al. (2012).

To add to the above, the theoretical underpinning of this research - New Institutional Economics Theory and the six interrelated concepts that undergird this research were informed by the research questions of this study. Furthermore, qualitative research can be identified characteristically by three main features, namely: context-sensitivity of data collection, multivocality of the writing, and details-focalization (Cardano, 2020). Context-sensitivity of the data collection procedures from a practical standpoint entails the uniqueness of the 'flexibility' and 'openness' of the research path, where the "conceptual tools used to guide the research is flexible to allow their adaptability to the changing contexts of qualitative research" (Cardano, 2020, p. 29; Flick, 2018a, p. 4; Creswell, 2013; Denzin and Lincoln, 2005). Details-focalization, the second feature of qualitative research highlights its main cognitive purpose to grasp "how things work in particular contexts" (Mason, 2002, p. 1; Creswell, 2013). Here, attention is focused on a handful of cases acknowledged as predominantly eloquent rather than vast population samples (Cardano, 2020). The third characteristic of qualitative research, multivocality of the writing is identified in the textualization of the results of the research, as well as the "organization of the dialogue between empirical materials and theory" (Cardano, 2020, p. 31). In essence, a significant part of the texts presented as results of qualitative research are written "through the combination of the voice of the researcher with the voices of the participants", where the voices of the participants in the text are seen in the quotations presented by the researcher from an interview, focus group transcripts or field notes (Cardano, 2020, p. 31; Creswell, 2013).

These justifications and standpoints informed the adoption of qualitative research design for this study. Consequently, the adoption of qualitative research design for this study propelled further methodological options that are in conformity with the ideologies of this design. Such options are the philosophical assumptions and interpretive frameworks of this study presented as the philosophical basis of this study, the research method/ approach to inquiry, method of data collection, sampling strategies, method of data analysis, and interpretation.

3.3 Philosophical Basis of the Research

The philosophical basis of this study is social constructivism (or interpretivism) interpretive framework stance on ontological beliefs, epistemological beliefs, axiological beliefs, and methodological beliefs that inform qualitative research in social sciences. Precisely, the relevance of the philosophical basis of this research as opined by Patton (2015b, p. 722) in qualitative research inquiry is its usefulness as “a prime determinant of credibility”. The philosophy of social constructivism interpretive framework is a “a view about the social nature of science” (Detel, 2001, p. 14264), which Creswell (2013, p. 24), similarly affirms as “another worldview”, where researchers who employ this interpretive framework pursue an understanding of the world they live and work. Lincoln (1990, p. 77) corroborates this premise avowing that, this “worldview” pertains to “human world/social world” rather than “the physical, natural world and needs to be studied differently”. Essentially, these researchers expound subjective meanings of their experiences, noting that these meanings are diverse and multiple (Creswell, 2013; Jennings, 2005a; Saunders et al., 2019, p. 148; Lincoln, 1990, p. 72). This leads the researcher to seek for “the complexity of views rather than narrow the meanings into few ideas” (Creswell, 2013, p. 24; Saunders et al., 2019). Ultimately, the researcher depends on the views of participants in a given situation, which are constructed in their minds through interactions (thus social construction) (Guba, 1990, p. 27; Creswell, 2013) as well as historical and cultural norms embedded in the lives of these participants (Creswell, 2013). Holistically, Saunders et al. (2019), note that social constructivist research seeks to construct “new, richer understandings and interpretations of the social world in context”.

Precisely, social constructivism philosophical beliefs on ontology maintain that “multiple realities are constructed in the mind through interactions with others and our lived experiences, therefore relative”; and that of epistemology is subjective, that is to say, “how reality is co-constructed between the researcher and the researched and shaped by individual experiences” (Creswell, 2013, p. 36; Guba, 1990, p. 27; Denzin and Lincoln, 2005, p. 27). Epistemologically social constructivists contend that, “subjectivity is not only forced on us by the human condition as the postpositivist avow, but rather it is the only means of unlocking the social constructions held by participants if reality only exist in the minds of these participants, then subjective interactions appear to be the only means to unlock them” (Guba, 1990, p. 26). In essence, a social constructivist ontological and epistemological approach specifically to institutions (Carlsnaes, 1992, p. 247; Wind, 2001, p. 63) are based on the belief that “human action in general is rule-governed, which means that – with the exception of pure reflexes or unthinking conditioned behaviour – it becomes understandable against the background of norms embodied in conventions and rules which give meaning to

an action...". "Accordingly, not only must an actor refer to rules and norms when he/she wants to make a choice, but the observer, as well, must understand the normative structure underlying the action in order to interpret and appraise choices" (Kratochwil, 1989, p. 11; Wind, 2001). Considering axiological beliefs of social constructivism philosophy, values of participants are held in high esteem and discussed among participants (Creswell, 2013, p. 36; Saunders et al., 2019, p. 145; Lincoln, 1990, p. 78); and methodologically the social constructivist "proceeds in ways that aim to identify the variety of social constructions that exist among participants and bring them as much into consensus as possible" (Guba, 1990, p. 26) or as Creswell (2013, p. 36) puts it, "the use of inductive method of emergent ideas (through consensus) obtained through methods such as interviewing, observing, and analysis of texts" and "the literary style of writing used".

In context of this study which is underpinned by the philosophy of social constructivism, the research, with regards to ontological beliefs, gives account on the multiple viewpoints between the six categories of actors which constitute the unit of analysis/institutions (that have been grouped under these six units of analysis) related to the provision of road based public transport in Accra city-region (Ghana) and that of Dar es Salaam city (Tanzania) as themes developed inductively from the content analysis as findings with the view of answering the research questions. As Patton (2015a, p. 131) asserts, bearing in mind the six category of actors, it is pertinent to embrace the fact that "human beings are actors in the social world rather than reacting like objects in the natural world". Furthermore, Hay (2016, p. 532) adds to the ontology of social constructivism in this regard, positing that, the nature of reality is reflectively institutional – in that "it is institutions that characterize social as distinct from natural reality". In light of epistemological beliefs, subjective quotes from the units of analysis/the six category of actors/institutions related to the provision of road-based public transport in Accra city-region (Ghana) and Dar es Salaam city (Tanzania) were relied on as evidence and considerable time was spent in the field with these actors during data collection (in the case of this research, it was undertaken remotely – see section on method of data collection in this chapter), to become an insider. Considering axiological beliefs, all biases are conscientiously accepted and worked with to ensure that findings and conclusions are a true reflection of the phenomenon of interest under study. Methodologically, this study is pursued with an inductive mode of reasoning informed by the philosophy of social constructivism in the field of social sciences. See Appendix 3.10 for a summary of the philosophical basis of this research.

3.4 Research Method and Approach

Following from the qualitative research design and the philosophy of social constructivism that undergird this study, Denzin and Lincoln (2005, p. 29) note that, the method and approach to inquiry sets the research philosophy in motion from abstract to the empirical world – while linking the inquirer to precise methods for data collection and analysis of empirical/ field data. Accordingly, qualitative research approaches to inquiry that have evolved with time include case studies, narrative research, phenomenological research, ethnographic research and grounded theory (Creswell, 2013). The researcher therefore adopted qualitative case study research method in the social sciences based on the following reasons.

First and foremost, with the lens of the philosophy of social constructivism, Jennings (2005b, p. 226), argues that case studies make it possible to study a case or similar cases broadly across time or space to ascertain comprehensive information pertaining to the case or cases through various methods including interviews, observations, and documents. Epistemologically and ontologically, Yin (2014, p. 17), although from a realist/postpositivist perspective, adds that case study research method is also feasible with the social constructivist philosophical belief: multiple realities with various meanings as well as observer dependent results. Stake (2003, pp. 145-146), asserts that case study researchers aid “readers in the construction of knowledge” as knowledge is socially constructed through lived experiences and interactions with others in specific geographical and contextual scope in line with the philosophy of social constructivism.

Further, case study research method is defined by Yin (2014, pp. 16-17) to cover twofold, namely, “scope of a case study” and “features of a case study” that clearly distinct it from other research methods. The first - “scope of a case study” encompasses “an empirical inquiry that investigates a contemporary phenomenon (the case) in-depth and within its real-world context, mainly when the boundaries between phenomenon and context may not be clearly evident” (Yin, 2014, p. 16). The later – “features of a case study” include “reliance on multiple sources of evidence where data need to converge in a triangulation fashion, and benefits from prior development of theoretical propositions to guide data collection and analysis” (Yin, 2014, p. 17). That said, case study research typically asks “why” or “how” questions on “contemporary set of events” where the researcher has “little or no control” (Yin, 2014, p. 14). Contemporary events as construed by Yin (2014) encapsulate the notion of researching on present and recent past events, where participants involved in the events being researched on can be interviewed and the events can directly be observed. In line with this research, preliminary literature was reviewed extensively to find a gap in research as

well as existing research problem in the case study cities, leading to the topic of this dissertation that underscores contemporary events. Besides, the preliminary literature review and the existing research problem in the two case study cities informed the five sub-research questions of this study with the main research question being - *'why are institutional responses to sustainable mobility of public transport in Ghanaian and Tanzanian cities not effective and how can the existing capacity of the institutions, coordination and communication mechanisms be improved?'*. It is important to indicate that the literature review for the introductory chapter and for the review of relevant literature chapter of this dissertation largely contributed to gaining much insight about the research topic of this dissertation as well as fine-tuning of the main research question of this dissertation and the five sub-research questions.

Additionally, owing to the fact that the study sought to gain an in-depth understanding (Yin, 2014; Creswell, 2013; Lichtman, 2014) on the specific institutions related to the provision of effective sustainable road-based public transport in Accra city (Ghana) and Dar es Salaam city (Tanzania) and their perception on sustainable transport; the institutional capacity (legal and regulatory, financial, logistical, technical) of these institutions in the decision-making processes in planning for more sustainable public transport in these two cities; as well as the coordination and communication mechanisms among these institutions in line with the provision of road-based public transport in these cities, the case study research method was appropriate. Specifically, this method helped to undertake in-depth interviews with all the identified institutions in Accra city and Dar es Salaam city with regards to the afore on the ground. In the case of this research – the expert interviews were conducted remotely – which has been explicitly detailed in the sub-section on method of data collection in this chapter. It was also possible to collect relevant documents from the institutions interviewed, as well as observation of the current road-based public transport (most importantly the pilot Bus Rapid Transit systems) in both cities for purposes of triangulation. Observations as has been explained in detail in the sub-section on the method of data collection were undertaken with the assistance of a research assistant resident in each of these cities. Furthermore, it was possible to gather (additional) information from the field in relation to the research problem of this study to be able to validate issues from reviewed literature.

Fourthly, critics of case study research method claim that case study is “less rigorous than quantitative hypothetico-deductive” methods, but as argued by Flyvbjerg (2006, pp. 18-19), this is a misunderstanding, in that case study “has its own rigour, although different, certainly not less strict than the rigour of quantitative methods”. Key to highlight is that, case study “can close-in on real life situations and test views directly in relation to the phenomena as

they unfold in practice”. This study is a collective case study (Stake, 2003) or multiple case study/comparative case study (Yin, 2014) - cases of Accra city region and Dar es Salaam city - of institutions related to the provision of road-based public transport. As such, these institutions in each city are categorized into six, representing the embedded unit of analysis upon which data was gathered – Government Agencies/City Authorities, Public Transport Operators of public transport, Private Transport Operators of public transport, Private Sector Organisations, Financiers with Dedicated Green Funds, and Academia. In view of this, data analysis for similarities and differences on these comparative cases are made within and among each case relating to the six categories of institutions/units of analysis, and also across the two case cities. Notably, results of multiple/comparative case studies are considered as robust and captivating (Herriott and Firestone, 1983; Baxter and Jack, 2008; Yin, 2014; Stake, 2003). It is relevant to mention here that the justification for the selected two cases – Accra city region (Ghana) and Dar es Salaam city (Tanzania) for comparison has already been presented in the introductory chapter of this dissertation.

Lastly, it is pertinent to highlight that case studies seek to “broaden and generalize theories (analytic generalization) but not to extrapolate probabilities (statistical generalizations)” (Yin, 2014, p. 21). In essence, case(s) enable the researcher the possibility to expound empirical/field interpretations with regards to certain “theoretical concepts” and philosophies, thus, analytic generalization/theoretical generalization (Yin, 2014, p. 40). Specific to this research are the two comparative cases, Accra city-region (Ghana) and Dar es Salaam city (Tanzania), which in line with the research questions of this study present the opportunity to empirically elucidate on the Theory of New Institutional Economics, the concept of sustainable road-based public transport in cities, concept of institutions, concept of institutional capacity, concept of sustainable development, concept of sustainable mobility and concept of sustainable transport, as well as the conceptual framework of this study in the lens of social constructivism. Ultimately, the study findings add to knowledge/build theory on these theoretical concepts (by way of validating, rejecting, or modifying) and as noted by Yin (2014, p. 41) “generalize to these other concrete situations”.

3.5 Units of Enquiry

In line with the seven categories of actors and stakeholders involved in mobility provision in cities in the conceptual framework-Figure 2.15 of this study already discussed in the previous chapters, the identified institutions to interview related to the provision of road-based public transport in cities in Ghana (Accra city-region) and Tanzania (Dar es Salaam city) were grouped under these actors in Table 3.1. Essentially, these categories of actors constitute the units of enquiry depicted in Table 3.1. Throughout this chapter, the terms 'Categories of Actors', 'Units of Enquiry', 'Units of Analysis', 'Institutions' grouped under each of the six Categories of Actors will be used analogously.

Table 3.1 Units of Enquiry in cities in Ghana and Tanzania

S/N	Category of Actors/ Units of Enquiry	Institutions in Ghana (Accra city)	Institutions in Tanzania (Dar es Salaam city)
1.	Government Agencies/ City Authorities	Metro Transport Department under AMA	Dar es Salaam City Council
		Department of Urban Roads	Tanzania National Roads Agency (TANROADS)
		Greater Accra Passenger Transport Executive (GAPTE) under MLGRD	Dar Rapid Transit Agency (DART)
		Environmental Protection Agency (EPA) under MESTI	National Environment Management Council (NEMC)
		Land Use and Spatial Planning Authority (LUSPA) under MESTI	Ministry of Lands, Housing and Human Settlement Development
		Ministry of Transport (MoT)	Ministry of Works, Transport and Communication
		Ministry of Local Government and Rural Development (MLGRD)	Land Transport Regulatory Authority (LATRA)
2.	Public Transport Operators	Metro Mass Transit Ltd (MMT)	UDA Rapid Transit Public Limited Company (UDART PLC)
3.	Private Transport Operators of PT	Ghana Private Road Transport Union (GPRTU)	Dar-es-Salaam Commuter Bus Owners'

S/N	Category of Actors/ Units of Enquiry	Institutions in Ghana (Accra city)	Institutions in Tanzania (Dar es Salaam city)
			Association (DARCOBOA)
		Ghana Cooperative Transport Association	-
		Ghana Road Transport Coordinating Council (GRTCC)	-
		Ghana Co-Operative Bus Rapid Transit Services Ltd.	-
		Accra GPRTU Rapid Bus Services Ltd.	-
		Amalgamated Bus Rapid Transit Services Ltd.	-
4.	Private Sector Organisations	Scania West Africa Ltd.	-
		African Association of Public Transport (UATP/UITP)	African Association of Public Transport (UATP/UITP)
5.	Civil Society Groups (Public Transport Users Association)	-	-
6.	Financiers with dedicated green funds	The World Bank Group	The World Bank Group
		-	Institute for Transportation and Development Policy (ITDP)
7.	Academia/Research Institutes	Kwame Nkrumah University of Science and Technology (KNUST)	University of Dar es Salaam (UDSM)
Total number of institutions		16	13

Source: Author's Construct, July 2020

The total number of institutions across the seven different Categories of Actors/ Units of Enquiry seen in Table 3.1 were 29. Precisely, 16 institutions in Ghana and 13 institutions in Tanzania. In the case of Tanzania under the Government Agencies/ City Authorities, seven

institutions were scheduled to be interviewed, as well as one additional Government Agency identified, but at the end of the remote data collection, the additional institution - President's Office, Regional Administration and Local Government (PO-RALG)) Ministry could not be interviewed upon several months of follow-ups. The researcher therefore relied on responses from the Ministry of Works, Transport and Communication and the Dar Rapid Transit Agency (DART) to fill this gap. Furthermore, under the Private Transport Operators of public transport in Dar es Salaam city an institution was planned to be interviewed. Another institution was identified to be interviewed, however, this institution - Association of Transporters in Dar es Salaam (UWADAR) – could not be interviewed. Accordingly, the researcher relied on responses from the other public transport operator and other related institutions to address this gap.

Generally, in both Ghana and Tanzania the study sought to interview Civil Society Organisations such as users of public transport associations but such institutions were not found in the literature reviewed and also during the remote data collection upon cross-referencing from interviewees during interviews. Ultimately, this depicts a gap and brings the Category of Actors interviewed to six which form the Units of Analysis.

3.6 Data Collection Tools and Sampling Techniques

3.6.1 Primary and Secondary Data Sources

The research used both primary and secondary sources to collect the required data to respond to the main and sub-research questions. Primary data was intended to be collected from the field physically but this was impossible at the time due to COVID-19 pandemic. Therefore, primary data was gathered remotely from the field whereas secondary data was collected through review of relevant literature from journal articles, books, collected works, conference proceedings, institutional reports, published and unpublished thesis among others.

Secondary data collected covered relevant literature on the theoretical underpinning of the research being the New Institutional Economics Theory (NIE), and the eight interrelated concepts relevant to the research with reference to the research questions of this study. Specifically, the concepts of public transport in cities, institutions, institutional capacity, coordination mechanisms, communication mechanisms, concept of sustainable development, concept of sustainable transport and concept of sustainable mobility were thoroughly reviewed taking into consideration the research questions of this study as well as the documentation on the comparison of key issues found in each of the two study countries. A conceptual framework towards sustainable mobility for road-based public transport in cities

was ultimately developed. These provided the theoretical and conceptual framework within which the study was pursued.

With reference to primary data collected, it is pertinent to indicate that, due to COVID-19 pandemic and border closures in countries, it was impossible to travel to Ghana and Tanzania which are the case study areas of this research for primary data planned for 25th July, 2020 to 7th August, 2020 in Ghana (Accra city) and 12th September, 2020 to 29th September, 2020 in Tanzania (Dar es Salaam city). It is important to indicate here that, in Tanzania the institutions related to the provision of road-based public transport in Dar es Salaam city are split or located in Dar es Salaam city and Dodoma city, hence the need to conduct interviews with institutions in both cities. In relation to the limitation regarding COVID-19 and to continue with this research amidst the limitations due to the COVID-19 pandemic and uncertainties, vis-à-vis the duration of this research which is time bound, primary data from the field was collected remotely as the only possible option. Therefore, this impacted the timeframe (start and end) for the primary data collected due to a number of reasons presented in the next sub-section. See Table 3.2 for the comprehensive overview of the research questions, data required and tools for field data collection remotely. The method of primary data collected is also presented in the next sub-section.

Table 3.2 Comprehensive Overview of Research Questions, Data Required and Tools for Field Data Collection

Sub-Research Questions	Key Elements	Required Data	Data Sources	Remote Field Data Collection Instruments
1. What are the institutions, their mandate in the provision of public transport and perception on sustainable transport in Ghana and Tanzania?	i. Institutions ii. Mandate of the institutions iii. Perception of the institutions on sustainable public transport in Ghanaian cities and Tanzania cities	i. State of road-based public transport in Accra city and Dar es Salaam city (sustainable/unsustainable) ii. Institutions related to the provision of public transport in Accra and Dar es Salaam cities. iii. Mandate of the institutions in the provision of public transport in Accra and Dar es Salaam cities. iv. Perception of institutions on sustainable public transport in Accra and Dar es Salaam cities.	i. Government Agencies/City Authorities ii. Public transport operators of road-based public transport iii. Private transport operators of road-based public transport iv. Private sector organisations related to public transport v. Financiers with dedicated green funds	i. Semi-structured interview guide ii. Institutional questionnaire
2. What are the capacity levels (legal and regulatory, financial, logistics, personnel and competence of staff) of institutions involved in the decision-making processes in planning for more sustainable public transport systems in Ghana and Tanzania?	i. Institutional capacity of institutions	i. Existing institutional capacity levels of institutions in planning for more sustainable public transport in Accra and Dar es Salaam cities: - legal and regulatory capacity - financial resource capacity - logistical capacity - technical capacity (personnel and competence of staff)	i. Government Agencies/City Authorities ii. Public transport operators of road-based public transport iii. Private transport operators of road-based public transport	i. Semi-structured interview guide ii. Institutional questionnaire
3. What are the coordination and communication mechanisms between the various	i. Coordination mechanisms ii. Communication mechanisms	i. Coordination mechanisms between the institutions for the provision of public transport in Accra and Dar es Salaam. ii. Communication mechanisms between the institutions for the provision of public	i. Government Agencies/City Authorities ii. Public transport operators of road-based public transport iii. Private transport operators	i. Semi-structured interview guide ii. Institutional questionnaire

Sub-Research Questions	Key Elements	Required Data	Data Sources	Remote Field Data Collection Instruments
institutions responsible for the provision of public transport in Ghana and Tanzania?		transport.	of road-based public transport iv. Private sector organisations related to public transport v. Financiers with dedicated green funds	
4. Is the existing capacity of these institutions commensurate with the current urban transport challenges in Ghanaian and Tanzanian cities?	i. Current public transport challenges in Accra and Dar es Salaam cities ii. Existing institutional capacity lapses	i. Current public transport challenges in Accra and Dar es Salaam cities. ii. Existing capacity (lapses) of institutions contribute to the current public transport challenges in Accra and Dar es Salaam cities.	i. Civil Society Groups (public transport users association) ii. Academia iii. Government Agencies/City Authorities iv. Public transport operators of road-based public transport v. Private transport operators of road-based public transport vi. Private sector organisations related to public transport vii. Financiers with dedicated green funds	ii. Semi-structured interview guide iii. Institutional questionnaire
5. In what ways and concrete measures can the existing capacity of the institutions be improved in order to become more responsive to the requirements of sustainable public transport in Ghana and Tanzania?	I. Measures to improve existing capacity of institutions, coordination mechanisms and communication mechanisms	i. Measures to improve the existing capacity of institutions to be more responsive to the requirements of sustainable public transport. ii. Measures to improve the coordination mechanisms between institutions. iii. Measures to improve the communication mechanisms between institutions.	i. Government Agencies/City Authorities ii. Public transport operators of road-based public transport iii. Private transport operators of road-based public transport iv. Private sector organisations related to public transport v. Financiers with dedicated green funds vi. Academia	i. Semi-structured interview guide ii. Institutional questionnaire

Source: Author's Construct, August 2020

3.6.2 Method of Primary Data Collection

Primary data were gathered from the field remotely through qualitative expert interviews with specific identified institutions in Ghana and Tanzania. Collection of documents from these institutions during interviews, and observation of the current state/condition of road-based public transport system in Accra city (Ghana) and Dar es Salaam city (Tanzania) were executed with assistance from research assistants in respective countries. Specifically, these methods are explained as follows:

i. Qualitative expert interviews (remotely) in Ghana and Tanzania

As noted by Rädiker and Kuckartz (2020), interviews, among other methods of qualitative data collection (such as focused groups, observations, documents), are undoubtedly the most commonly used in empirical research. Accordingly, the expert interviews conducted remotely with semi-structured interview guides served as the main method for gathering the required data from the field (see Appendices 3.1 to 3.6 for samples of these instruments). Experts as construed by Bogner et al. (2018, p. 4), are persons who “possess specific knowledge” pertaining to clearly delineated problems and “play authoritative role in decision-making” in this regard. As a precursor to conducting these interviews, it was imperative to establish contacts and book remote interview appointments with all specified institutions in Ghana and Tanzania (see Table 3.1). Since the interviews were not going to be conducted in physical presence in the case study countries, it took a lot of efforts from August 2020 to September 2020 in contacting these institutions for interview appointments. Precisely, there were several emails, phone calls, Skype calls, WhatsApp calls, and follow-ups to these institutions in order to secure interview appointments in this regard. As a Ghanaian, known local connections and networks particularly in Ghana were of great use in securing interview appointments with the required institutions. In the case of Tanzania, it was a bit challenging in securing these interview appointments since the interviews had to be conducted remotely. Nonetheless, with assistance from some of the institutions where interview appointments had already been secured, it was possible to get contact details of experts in institutions where appointments were yet to be secured. It is notable to mention that, the assistance of a student assistant in Tanzania was also helpful in line with visiting some of the institutions in person with letters to be able to secure interview appointments. Generally, it is important to indicate that, some interview appointments were secured after September 2020 when the main phase of the expert interviews were being conducted until March, 2021 when all interviews were executed.

The main interview phase to be conducted remotely with the specified institutions in Ghana and Tanzania was planned for October 2020 to December 2020. Nonetheless, the interviews were undertaken from 21st September, 2020 to 30th March, 2021. Specifically, the interviews in Ghana with 16 institutions relating to the provision of road-based public transport in Accra city were conducted remotely from 21st September, 2020 to 5th December, 2020 (see Appendix 3.7). It is pertinent to indicate that all the interviews across the six different categories of actors as seen in Appendix 3.7 were undertaken from 21st September, 2020 to 27th October, 2020, with the exception of the last interview which was conducted on 5th December, 2020. Although interviews were earlier scheduled with experts in the institutions, due to official work schedules and the availability of the interviewees, interviews sometimes had to be rescheduled to different dates and sometimes held over different times within the same day to be completed (see Appendix 3.7). All interviews with the interviewees were conducted remotely with semi-structured interview guides and recorded with Sony-IC-recorder with consent from the interviewees. The time taken to complete interviews ranged from at least one and half hour to at most three hours. The interviews were executed over several media including telephone calls, Skype for Business meetings, Skype calls, and Zoom Meeting depending on the preference of the interviewees and what would work in their context (see Appendix 3.7). Recorded interviews were transcribed manually with f4transkript version 7 and also with Microsoft office 365 Word auto-transcribe. Transcriptions generally took four to five times more relative to the duration of the interviews. For instance, interviews with Government Agencies/ City Authorities in Ghana and Tanzania took two hours on the average. Therefore, transcriptions of these interviews required about four times (i.e. eight hours) or five times (i.e. ten hours) of the time taken for each interview. The duration of time taken for transcriptions is similar as noted by Dresing et al. (2015) in literature. It is important to mention that since all the interviews were conducted remotely there were instances of internet and network connectivity challenges affecting the duration of the interviews and transcriptions.

In the case of Tanzania, interviews with the 13 institutions relating to road-based public transport provision in Dar es Salaam city were undertaken remotely from 29th September, 2020 to 30th March, 2021 (see Appendix 3.8). It is important to indicate that the first interview on the 29th September, 2020 was with the Private Sector Organisation, African Association of Public Transport (UATP/UITP) which rendered two interviews for Ghana and Tanzania since both countries fall within its regional scope of work. The second interview was conducted on 18th November, 2020 and the last interview was completed on 30th March, 2021 (see Appendix 3.8). Furthermore, scheduled interviews were sometimes rescheduled to different dates and some interviews undertaken in two or three days at short time intervals due to official work of the interviewees (see Appendix 3.8). Most interviews were conducted

with semi-structured interview guides with a few institutions (upon request) using questionnaires before a follow-up interview based on responses to the questionnaires for further clarity. All these interviews were conducted over different media including Skype for Business meetings, WebEx Meeting, telephone calls, and WhatsApp calls and recorded with Sony-IC-recorder with prior consent from the interviewees (see Appendix 3.8). Subsequently, recorded interviews were transcribed manually with f4transkript version 7 and Microsoft office 365 word auto-transcribe. Also, in the case of Tanzania, there were frequent instances of internet and network challenges during interviews which impacted the time taken to complete interviews as well as transcriptions. The duration of interviews ranged from an hour to three hours (see Appendix 3.8). It is critical to mention that, it took a lot of efforts and time to actually get some of the institutions in Tanzania to cooperate for an interview, which largely delayed the completion of interviews in Tanzania. For instance, with some institutions it took a little over three months before finally interviews were granted (see Appendix 3.8).

Generally, all the 29 institutions interviewed in both Ghana and Tanzania in line with the six categories of actors involved in the provision of public transport in cities as shown in the conceptual framework in Figure 2.15 and Appendices 3.7 and 3.8 of this study, responded to similar questions for each category of actor in line with the research questions. Government Agencies/City Authorities responded to questions on the road-based public transport in Accra city or Dar es Salaam city, mandate of the institution and the institution's perception on sustainable public transport in Accra city or Dar es Salaam city, institutional capacity in decision making processes in planning for more sustainable public transport in Accra city or Dar es Salaam city, coordination and communication mechanisms between institutions for the provision of public transport in Accra city or Dar es Salaam city, current public transport challenges in Accra city or Dar es Salaam city and measures to improve the existing capacity, coordination and communication mechanisms in either city. Public Transport Operators of road-based public transport in both cities and Private Transport Operators of road-based public transport in both cities responded to the same questions to the Government Agencies/City Authorities. These three categories of actors directly impact the provision of road-based public transport in these cities. Private sector organisations also responded to questions on road-based public transport in Accra city or Dar es Salaam city, related mandate of the institution with respect to the provision of public transport in Accra city or Dar es Salaam city and perception on sustainable public transport, coordination and communication mechanisms between institutions for the provision of public transport in either city, current public transport challenges in Accra city or Dar es Salaam city, and measures to improve coordination and communication mechanisms between institutions for

the provision of sustainable road-based public transport in either city. Financiers with Dedicated Green Funds also responded to similar questions to Private Sector Organisations but in addition to questions on financing the pilot Bus Rapid Transits in Accra city and Dar es Salaam city. Academia in each city also responded to questions on road-based public transport in Accra city or Dar es Salaam city respectively, related mandate for the provision of public transport and perception on sustainable public transport in Accra city or Dar es Salaam city respectively, coordination and communication mechanisms between institutions for the provision of road based public transport in Accra city or Dar es Salaam city correspondingly, current public transport challenges in either cities, and measures to improve coordination and communication mechanisms.

ii. Document collection as data during interviews

During the interviews conducted remotely with all the 29 institutions in Ghana and Tanzania, several documents were requested and collected as primary data in line with research question one- *‘What are the institutions, their mandate in the provision of public transport and perception on sustainable transport in Ghana and Tanzania?’* and research question two-*‘What are the capacity levels (legal and regulatory, financial, logistical, personnel and competence of staff) of institutions involved in the decision-making processes in planning for more sustainable public transport systems in Ghana and Tanzania?’*. Mainly, with respect to research question one, documents were collected to be reviewed for additional information in line with responses from interviewees on the institution’s mandate and perception on sustainable road-based public transport in their respective cities. Additionally, these documents reviewed served as means to validate some findings in literature as well as triangulate responses from interviewees related to research question one.

With regards to research question two, in line with assessing the existing institutional capacity levels of the institutions directly involved in the decision-making processes in planning for more sustainable road-based public transport in their respective cities, questions based on institutional capacity indicators under Legal and Regulatory Capacity, Financial Resource Capacity, Logistical Capacity, and Technical Capacity were asked. Responses from interviewees were ranked using a ranking scheme and these responses or narratives were substantiated by requested documents as evidence.

In both Ghana and Tanzania, unpublished documents collected from Government Agencies/ City Authorities include current Medium-Term Development Plan of Accra city (2018-2021), Urban Transport Master Plan of Dar es Salaam city (2018), Sector Medium Term Plans of Ministries, National Transport Policy, Operational Manual of Departments, and Strategic Plans. With reference to Public Transport Operators and Private Transport Operators of

public transport in Accra city and Dar es Salaam city, documents collected include Strategic Plans, Policies, and Corporate Plans. It is important to indicate that all the documents collected took an appreciable amount of time to be received from the interviewees after interviews. Specifically, several emails and phone calls had to be made over time, with some taking as long as two months before documents were received. There were however some requested information and documents which the interviewees in some of the institutions deemed as 'classified' and could not be shared with a researcher and therefore had to rely on the responses from the interviewees and cross referenced with other related institutions where possible.

iii. Observation

Observation of the present state of road-based public transport in Accra city (Ghana) and Dar es Salaam city (Tanzania) was intended to be undertaken during field data collection in person. However, due to COVID-19 pandemic and travel restrictions leading to collecting field data remotely, the researcher employed the assistance of a research assistant in each city in this regard. Specifically, the research assistants observed specific issues such as congestion on roads, state of the pilot Bus Rapid Transit in each of the cities and taking of relevant pictures for this research. To achieve this, the researcher had series of discussions with the research assistants on phone and on WhatsApp to inform the needed action particularly relating to the relevant pictures. These observations which were substantiated by associated pictures were essential to validate key issues noted in the research problem from literature.

3.6.3 Sampling Techniques/Strategies

Generally, sampling strategies are grouped into three types, namely: random sampling, purposive sampling and convenience sampling (Schreier, 2018, p. 4). The existing methodological literature on sampling strategies in qualitative research concerned with 'case selection' in order to gain 'an eloquent sample' are termed as purposive sampling strategies (Cardano, 2020, p. 71; Schreier, 2018; Rapley, 2014; Flick, 2009). Purposive sampling strategies are underpinned by selecting units that are information-rich in line with answering the research questions of a study (Flick, 2009; Schreier, 2018; Mason, 2002; Patton, 2015c, p. 264). Schreier (2018, p. 2) further avows that sampling strategies in qualitative research normally confine itself to a few units, that could vary from a specific "single case study to a sample size of about 20 to 40 units of analysis" due to its in-depth approach, even though in some instances it could be bigger. To this end, among the various purposive sampling strategies, including, snowball sampling, theoretical sampling, homogeneous sampling, heterogeneous sampling, criterion sampling, stratified purposive sampling, selecting specific

cases, the researcher adopted criterion purposive sampling and stratified purposive sampling strategies for field data collected remotely. On the one hand, criterion purposive sampling was adopted since the focus of this sampling strategy is to ensure the inclusion of units in the sample which match a predetermined profile made in advance in order to undertake in depth investigation of the phenomenon of interest (Schreier, 2018; Coyne, 1997; Patton, 2015c, p. 281) - in this case institutions. On the other hand, stratified purposive sampling leads to a heterogeneous sample that depicts the diverse manifestations of the phenomenon of interest to be investigated, which is normally predefined before undertaking data collection (Schreier, 2018, p. 8; Patton, 2015c, p. 272) – for the case of this research - the seven categories of actors/institutions/units of enquiry. In essence, as noted by Schreier (2018, p. 8), stratified purposive sampling is vital for investigating the similarities and differences of the different manifestations of the phenomenon of interest.

Accordingly, in line with these two adopted sampling strategies with the view of answering the research questions of this study, institutions in Ghana and Tanzania related to the provision of road-based public transport in Accra city and Dar es Salaam city were identified and grouped under the predetermined seven categories of actors/institutions/units of enquiry from the conceptual framework of Figure 2.15 and as indicated in Table 3.1 for qualitative expert interviews. It is pertinent to highlight as previously mentioned that among the seven categories of actors from literature, the category of actors referred to as Civil Society Organisation that represent users of public transport was not found, reducing the category of actors to six. As such, with these six categories of actors, a person considered as an expert in each of the 29 institutions in both Ghana and Tanzania was interviewed (see Table 3.1). As noted by Bogner et al. (2018, p. 2), expert interviews are necessary if the experts are “key to practical insider knowledge”. Primarily, each of these experts were seen as the ones suitable to speak to themes highlighted in the semi-structured interview guide (based on the research questions) which were briefly discussed on phone calls and themes/focus of the interview sent through emails to each of these institutions ahead of securing remote interview appointments. All persons interviewed representing each of the institutions were in the top and middle management positions. Ultimately, the sample size (n) for the qualitative expert interviews in Ghana and Tanzania with the view of answering the research questions was 29. Notably, the sample size of this research is within the common range (20-30) of sample size of Qualitative Ph.D. Dissertations that utilised qualitative interviews as data collection method found by Mason (2010, p. 13).

In the Case of Ghana, 16 institutions were interviewed (n=16). Of these institutions, Government Agencies/ City Authorities interviewed were seven (n=7), Public Transport

Operators of road-based public transport in Accra city was one (n=1), Private Transport Operators of road-based public transport in Accra city were four (n=4), Private Sector Organisations were two (n=2), Financiers with Dedicated Green Funds was one (n=1), and Academia was one (n=1). See Table 3.1. It is important to indicate that Civil Society Organisation that represents users of road-based public transport in the city of Accra was not found or there was no such institution in this regard to be interviewed.

In the case of Tanzania, 13 institutions were interviewed (n=13). Mainly, Government Agencies/ City Authorities were seven (n=7), Public Transport Operator of road-based public transport in Dar es Salaam city was one (n=1), Private Transport operator of road-based public transport in Dar es Salaam city was one (n=1), Private Sector Organisation was one (n=1), Financiers with Dedicated Green Funds were two (n=2), and Academia was one (n=1). Similarly, in the case of Tanzania, no Civil Society Organisation which represents public transport users in Dar es Salaam city was found to be interviewed. All in all, it is critical to highlight as noted by Mason (2002, p. 135), that the six categories of actors/institutions under which the expert interviews were conducted (i.e. range), were relevant to generate data on similarities and differences, to test theory (i.e. NIE theory) and explanation that account for those similarities and differences in Ghanaian and Tanzania contexts with the view of answering the research questions, “rather than to make statistical comparisons between these categories” of actors/institutions.

3.7 Methods of Data Analysis and Presentation of Data

As a sequel to the data collected remotely in Ghana and Tanzania, this section presents the methods of data analysis employed. As noted by Jennings (2005b, p. 228), “the qualitative method of data analysis of the social constructivist reifies the ontological, epistemological, and axiological beliefs” in a study. Accordingly, Qualitative Content Analysis (QCA) was used to analyse expert interviews conducted with specific institutions in Ghana (Accra city) and Tanzania (Dar es Salaam city) related to the provision of road-based public transport in Accra city and Dar es Salaam city with the view of answering the research questions. Primarily, a Qualitative Data Analysis (QDA) software (also referred to as Computer Aided Qualitative Data Analysis (CAQDA)), in this case MAXQDA 2020 standard version 20.0.8 was used to aid in the Qualitative Content Analysis of interview transcripts. MAXQDA 2020 software was chosen as it allowed for the systematic analysis of interview transcripts as well as the broad-spectrum of analytical options (Rädiker and Kuckartz, 2020).

It is pertinent to indicate that, in line with sub-research question two which seeks to examine the institutional capacity (i.e. legal and regulatory capacity, financial resource capacity, logistical capacity, technical capacity-personnel and competence of staff) of the institutions involved in the decision-making processes in planning for more sustainable road-based

public transport in these cities, several documents were requested during the interviews to support narratives given and as evidence for analysis in this regard. These collected documents were analysed accordingly.

3.7.1 Qualitative Content Analysis

Methodologically, Qualitative Content Analysis (QCA) is a method used to “systematically describe the meaning of qualitative data” through “assigning successive parts of the material to the categories of a coding frame” (Schreier, 2014, p. 2; Mayring, 2000; Schreier, 2012). As such, it is important to emphasize that the coding frame is at the heart of this method (Schreier, 2014; Rädiker and Kuckartz, 2020). Furthermore, Qualitative Content Analysis is characterised by its ability to reduce data, its flexibility and the fact that it is highly systematic. Specifically, QCA enjoins the researcher to focus on selected aspects of the text material which relate to the main research question, thereby helping to reduce the amount of data/ text material (Schreier, 2014). In terms of the second characteristic of QCA, it is flexible since the “coding frame should always be matched to the text material” (Schreier, 2014, p. 2). On the third characteristic, QCA is highly systematic in that it “requires the examination of every single part of the material that is in any way relevant to the research question”. “Also, the method requires a certain sequence of steps, regardless of the exact research question and text material, thus, the iterative process of going through some of these steps repeatedly and modifying the coding frame in the process”. Furthermore, “the method requires coding-assigning segments of the material to the categories of a coding frame, which needs to be carried out at least twice (basic coding and fine coding) for parts of the text material” (Schreier, 2014, p. 2).

Mayring (2000, p. 3) posit two fundamental procedures of Qualitative Content Analysis- “inductive category development and deductive category application”. Deductive category application considers prior theory and conceptualizations related to the research questions, which in the case of this research, informed the interview guide for qualitative expert interviews. Therefore, the main assigned categories to text passages of the interview transcripts for this research were in consonance with deductive category application procedure as opined by Patton (2015d) and (Mayring, 2000). Essentially, this led to ascertaining the extent to which the qualitative data of this research support prior conceptualizations, theory, and explanations pertaining to this research. On the other hand, inductive category development relates to generating sub-categories to the main-categories from the interview transcripts or the qualitative data which culminate into new concepts, theories, or explanations from the data. Additionally, Patton (2015d) note that inductive category analysis necessitate discovering patterns and themes in the qualitative data. This

procedure was used to generate sub-categories to each of the main categories of the qualitative data, as well as determining patterns and themes for the content analysis of the data based on the research questions of this research. All in all, the qualitative content analysis of the qualitative data of this research utilised both inductive category development and deductive category application.

3.7.1.1 Steps in Qualitative Content Analysis

The steps in undertaking Qualitative Content Analysis (QCA) according to Schreier (2014) which was adopted for this research in analysing interview transcripts of interviews conducted remotely during data collection in Ghana and Tanzania are outlined and explained as follows:

i. Data Preparation

Data preparation is a step primarily important to ensure that all transcripts are complete. In view of this, this step ensured that all interview transcripts of interviews conducted with respondents in all the specified institutions in Ghana and Tanzania are complete and ready for analysis. In doing this, during the remote data collection phase, some interviews were transcribed after the interview whereas other interviews had to be transcribed later due to changes of scheduled interviews with interviewees. Therefore, it was not possible to transcribe some interviews immediately after the interview since other interviews had to be conducted on the same day or the next day due to the availability of interviewees as already indicated in the previous section. In essence, this step was used to complete and transcribe all interviews which had not been transcribed as well as reading through all the interview transcripts and highlighting striking comments by interviewees, making them ready for the subsequent steps of the analysis.

ii. Building a Coding Frame

- The Coding Frame

Coding simply means 'assigning a category or code to a text passage of an interview or interview transcripts' (Rädiker and Kuckartz, 2020, p. 14). Building the coding frame encompasses steps of selecting interview transcripts to be used, structuring and generating main categories and sub-categories with regards to these main categories, defining these categories, and finally revising and expanding the coding frame in case the coding frame hitherto has only been based on some part of the data so as to include the rest of the data (Schreier, 2014).

Following-up from the prepared data, in building the coding frame in context of this research with MAXQDA 2020 standard version 20.0.8, an interview transcript that mirrors the full variety of data sources was selected from each of the six Categories of Actors/Institutions/Unit of Analysis and imported to MAXQDA 2020 software together with their respective recorded audio files. As noted by Schreier (2014), when the data comprise interviews with various stakeholder groups, it is imperative to select at least one interview from each group to build the coding frame. Subsequently, the imported interview transcripts in the MAXQDA 2020 software were structured-creating the main categories/codes based on the interview guide (i.e. concept-driven way). Sub-categories/sub-codes under each of the main categories were generated by subsuming responses from interviewees in the interview transcripts under emerging sub-codes while reading each interview transcript (data-driven way). This was a continuous process till a point of saturation was reached. The MAXQDA software afforded the opportunity to organise all the imported interview transcripts under each of the six Categories of Actors/Institutions for both Ghana (16 interview transcripts) and Tanzania (13 interview transcripts) in the 'Documents System' (i.e. Unit of Analysis). Additionally, activated documents could easily be read in the 'Document Browser', at the same time, structuring of main codes and generation of sub-codes in the 'Code System'. This step was followed by defining the categories/codes by giving them a name and description of what is meant by the name in the coding frame. Precisely, the main codes were given a brief description covering their scope whereas the sub-codes had descriptions and examples to guide texts in the interview transcripts to be coded in each sub-code. In the coding frame in the MAXQDA 2020 software, all the names of the codes as well as their descriptions are depicted in the Code System. It is important to mention that the descriptions and examples of the codes were put in Code Memos next to each code. This function (i.e. Code Memos) in the MAXQDA 2020 software presented the possibility to quickly read the definition and examples of each sub-code to code texts in interview transcripts which fit those sub-codes. Having structured, generated and defined all codes, it was essential to "take a step back and look at the structure of the coding frame once again to tidy up any loose ends" (Schreier, 2014, p. 9) in line with revising and expanding the coding frame. Therefore, the other interview transcripts under each of the six Category of Actors/Institutions/Unit of Analysis were also considered by repeating the afore mentioned steps to revise and expand the coding frame.

iii. Segmentation

Segmentation in a way is also a part of building the coding frame and it involves dividing the text material into parts that fit under each of the main codes or sub-codes (Schreier, 2014). In context of this research, it is important to mention that the interview guide used for the

interviews were already segmented under specific themes for each section in line with the research questions. Accordingly, responses received from the interviewees and transcribed were already divided into segments to fit the main codes of the coding frame. In essence all the sub-codes generated were specifically placed under each of their respective main codes in the coding frame. This was preceded by coding all the responses of the interview transcripts under the main codes during building the coding frame in the MAXQDA 2020 software.

iv. The Pilot Phase (Trial Coding)

In this step, the coding frame was applied to part of the interview transcripts in the Documents System/Unit of Analysis/Institutions in the coding frame in the MAXQDA 2020 software, as noted by Schreier (2014) that it is critical in realizing and modifying any lapses with the coding frame ahead of the main analysis. Here, two rounds of coding were undertaken during the trial coding of all the codes on the selected interview transcripts.

v. Evaluating and Modifying the Coding Frame

The relevance of evaluating the coding frame here is to ensure validity, as to the extent to which all the codes sufficiently describe the interview transcripts as well as the research questions and concepts that underpin the research. After undertaking this step with no modification to the coding frame, the frame was set for the main analysis phase of the research. See Appendix 3.9 for the coding frame built for analysis.

vi. Main Analysis Phase

In this step, all the interview transcripts are expected to have been coded since the coding frame cannot be modified at this point. This is primarily necessary to ensure that the coding frame is adequately valid and reliable for the main analysis stage. Accordingly, the results of the coding from the coding frame need to be extracted from the MAXQDA 2020 software in line with answering the research questions. These include comparing cases or responses of whether the current road-based public transport in Accra city (Ghana) and Dar es Salaam city (Dar es Salaam city) is sustainable (environmentally), examining the mandate of all the six units of analysis/categories of actors/institutions related to the provision of road-based public transport in these cities and the perception of these institutions on sustainable transport in Ghana and Tanzania, assessing the capacity (legal and regulatory, financial, logistics, technical capacity) of these institutions involved in the decision making processes in planning for more sustainable road-based public transport in Ghanaian and Tanzanian cities, examining the coordination and coordination mechanisms between the various institutions/category of actors/unit of analysis in Accra city and Dar es Salaam city and

compare and contrast the results for both cities, and examining how the existing capacities of the institutions/category of actors/unit of analysis commensurate to the current urban transport challenges in Accra city and Dar es Salaam city. In essence this main analysis phase focused on making inferences (inductive reasoning) and triangulation with the view of answering the research questions of this study.

vii. Presenting and Interpreting the Findings

Schreier (2014) asserts that the coding frame can be the core result of qualitative content analysis. This said, the findings would include the coding frame (see Appendix 3.9) and explaining it through quotations. Additionally, tabular matrices that encompass text and or numbers can also be used to illustrate results of the comparison and contrast with the view of answering the research questions. Specifically, for the purpose of triangulation responses from interviewees from the interview transcripts pertaining to each research question were compared and contrasted to ascertain similarities and differences. Additionally, cooccurrences and patterns of selected main or sub-codes were also examined. Moreover, results from the main analysis informed findings (and validate previous findings in literature) and conclusions drawn for development interventions at the micro-level (i.e. institutions) in Accra city-region (Ghana) and Dar es Salaam city.

3.7.2 Document Analysis

All documents collected from institutions/category of actors in Ghana and Tanzania in line with research questions one and two as presented in the previous sub-section (see 3.6.2) were analysed by way of getting additional information and to triangulate responses from the interviewees in the interview transcripts. Analysis of these documents additionally served as a means to cross reference and substantiate narratives (evidence) from the interviewees in line with research question two, as well as to validate previous findings in literature. Moreover, relevant documents (unpublished) collected were reviewed to update sections of the chapter two of this dissertation for which data was not available from secondary sources.

3.8 Triangulation

Triangulation in qualitative research and qualitative data collection in the field of social science is seen as an implicit and explicit concept historically (Flick, 2018b). By implicit, Flick (2018b), asserts that the concept of triangulation had been in use even before the concept itself was introduced in social science research. On the other hand, triangulation is seen as an explicit concept as introduced by Campbell and Fiske in the year 1959, Webb et al in the year 1966, and Norman Denzin in the year 1970 (Flick, 2018b, p. 2). Essentially, “good research practice obligates the researcher to triangulate, that is, to use multiple methods,

and data sources to enhance the validity of research findings” and for the purpose of “gaining extra knowledge on the phenomenon under study” (Flick, 2018b, pp. 3-4). In this Ph.D. research, the researcher employed multiple methods to collect data from the field remotely. These include qualitative expert interviews, document collection and observations that have been explicitly explained in the method of primary data collection section of this chapter of this dissertation. Additionally, this research also utilized various data sources to gather the needed data with the view of answering the main and sub-research questions of this research. Thus, both primary and secondary sources which have been discussed in the section on primary and secondary data sources of this chapter. Furthermore, for instance, with the view of answering sub-research question two of this research, during the qualitative expert interviews conducted remotely on the field, documents were requested and gathered from the interviewees to substantiate and cross-reference responses given during the interviews and to further gain knowledge on the respective institution(s) interviewed. Accordingly, this Ph.D. research consciously and unconsciously employed the principle of triangulation both implicitly and explicitly in line with the ideologies of this concept and its relevance to qualitative research as opined by Norman Denzin, Campbell and Fiske, Fielding and Fielding, Uwe Flick, and Webb et al discussed in the book section by Uwe Flick (2018) on ‘Triangulation in Data Collection’.

3.9 Research Reflexivity and Positionality

Reflexivity as noted by May and Perry (2014, p. 2) and Patton (2015d), entail looking back on a researcher’s self in order that the processes involved in the creation of knowledge become the subject of investigation. That said, “authors have argued that common sense stock of knowledge orientates people to apply meaning to their own actions, those of others and the events that they encounter (May and Perry, 2014, p. 2). It is important to highlight here that, reflexivity is not a method in itself, but rather, “a way of thinking or critical ethos to aid interpretation, translation and interpretation..., essentially, reflexivity is an iterative and continuous characteristic of good research practice” (May and Perry, 2014, p. 4; Patton, 2015d, p. 604). Research Positionality on the other hand as avowed by Ravitch and Riggan (2017, p. 10), encompass who the researcher is as this play a significant role in shaping the researcher’s work, thus, ideological beliefs of the researcher, the researcher’s curiosity, biases, as well as the position of the researcher pertaining to the research setting.

In view of these notions, as a development planner with keen research interest in public transport particularly in developing and emerging economies, the experience of an effective public transport system in Germany in the year 2013 while undertaking Master’s Degree in Technische Universität, Dortmund (MSc. SPRING programme – Spatial Planning for Regions in Growing Economies) brought to the fore thought-provoking questions on how to

contribute to having an effective sustainable public transport in cities in Ghana. This experience-turned passion was heightened after the joint Master of Science Programme while working with Scania West Africa Ltd. as a Transport Planner and subsequently as a Sustainable Transport Solutions Manager for the West African Sub-Region. The work at Scania brought to the realisation that there was a gap among all the fragmented key stakeholders related to the provision of public transport in the major cities in Ghana. In this vein, the capital city of Ghana, Accra, was brought in focus largely due to the fact that the pilot BRT project initiated in the city in the year 2016 had been bedevilled with a myriad of interrelated issues. As a start, together with the African Association of Public Transport (UATP/UITP), a conference was organised in July 2018 with Scania West Africa Ltd. taking the lead to bring together all the key stakeholders and institutions in the public transport sector to discuss and brain storm in line with having a sustainable public transport system and the road-map as to how the pilot BRT in Accra city could be revived as one of the solutions to that end (see Plates 3.1 and 3.2).

Additionally, with the focus of reviving the pilot BRT in Accra city, key international successful players of public transport were also invited to Ghana by Scania West Africa Ltd. As part of the afore-mentioned efforts related to the position of Sustainable Transport Solutions Manager. Primarily, the Spanish public transport operator, ALSA Morocco (Automóviles Luarca, S.A.) was invited on a mission for discussions with the key stakeholders and institutions related to public transport in Ghana in March 2018 (see Plate 3.3). Another international organisation that was invited on a mission discussion with same key stakeholders of public transport in Ghana was the RATP Group in France (Régie Autonome des Transports Parisiens) in February 2018 (see Plate 3.4). Furthermore, some stakeholder meetings were continued with the Ministries involved in transportation in Ghana. These activities continued till the decision to pursue a Ph.D. in the year 2018 to critically research in this area of found gap that could be filled with the conduct of appropriate research and contribute to knowledge. Co-incidentally, a good match was made with the then Head of DLR as Ph.D. supervisor in fine-tuning the research proposal and agreeing to investigate this research problem comparatively. Literature review in this regard as well as the preliminary situational analysis pertaining to Accra city in Ghana and Dar es Salaam city in Tanzania informed the decision to compare the two country cases in sub-Saharan Africa upon several considerable justifications.

Plate 3.1 Round Table Discussion led by the Sustainable Transport solutions Manager of Scania West Africa Ltd.



Source: Scania West Africa and UATP Extra Ordinary Conference in Accra, Ghana, July 2018 (Credit: Dzidzor Fotos)

Plate 3.2 Key Stakeholders and Institutions at the Scania and UATP Conference in Accra, Ghana



Source: Bonsu (2018a) (Credit: Dzidzor Fotos, July 2018)

Plate 3.3 ALSA Morocco Team visit to Scania West Africa Ltd. in Accra Ghana



Source: Bonsu (2018b) (Credit Scania Staff, March 2018)

Plate 3.4 Scania Presentation to RATP Group Team visit to Ghana



Source: Bonsu (2018c) (Credit: Christine Bonsu, February 2018)

Essentially, reflecting on the practical events that have contributed immensely to this Ph.D. research and its position as a sub-set of the aim of this research is germane. From the divide of research and practice in context of this Ph.D. research, it can be safely concluded that research and practice are two sides of the same coin which need to be carefully handled to co-habit harmoniously in the same space to ultimately attain, among others, such as the overall Global Agenda 2030 that lives no continent behind.

In a reflective mode and reflecting on the pictures in this section of this dissertation, attention is also drawn to the fact that there is a considerably high gender imbalance as far as participation and contribution to the various discussions on several levels (see plates 3.1, 3.2, 3.3, and 3.4). This, of course, brings to mind other things which have shaped the orientation and notions on pursuing and focusing on attaining the goal and not necessarily focussing on gender biases in career and educational pursuits. The massive impact of losing a father on 12th May, 2020 while working on review feedback on the literature review chapter of this Ph.D. Dissertation cannot be over-stated. Here was losing one who had been a great influence in pursuing higher education, (with the saying that “pursuing higher education is one of the keys to finding yourself at the decision-making table irrespective of your gender to ensure policies, programmes, and projects that need urgent action for implementation could be discussed for implementation at the local level to ensure development in all areas of life and to speak for the voiceless”) to death at a critical stage in the research. Together with a loving and industrious mother, the training to be a disciplined woman who would one day be married to support her husband for a successful family life, had been well grounded. To this end, these life experiences, notions, ideologies and unanticipated occurrences in the Ph.D. journey have not only shaped the way of thinking and how issues are perceived and interpreted both objectively and subjectively, but most importantly, being focused and fixated on the ultimate goal.

Lastly, the data collection of this Ph.D. research was met with challenges due to the COVID-19 pandemic which have already been explained in detail under the method of data collection section of this chapter. Despite the loss of a father, support systems among others from family and friends provided the means to keep the research on-track. Undertaking the data collection for this Ph.D. remotely at the time was a good decision made, since without the field data collected, this Ph.D. could not have progressed. The enthusiasm after the field data collection and seeing light at the end of the tunnel with reference to the data gathered and data analysis with the view of answering the main and sub-research questions of this Ph.D. research have had a positive impact on both career life as a development planner and also to successfully complete this research. By this, there is the confidence that findings and

recommendations of this Ph.D. research are very pertinent on a personal note professionally, psychologically, and also to the city authorities of Accra city and Dar es Salaam city, as well as all the units of analysis of this research and to the global community at large.

3.10 Research Ethics

Mertens (2014), emphasizes the relevance of ethics in qualitative research. Specifically, Mertens (2014) stresses the need for qualitative researchers to consider the rigour and ethical nature of the research activities that are necessary to be executed before the commencement of the actual research, during data collection for the research, during data analysis of the research regarding the use of the data and findings, as well as its implications for the whole research process. Accordingly, the “potential uses of qualitative data and findings depend on the purpose of the research and the philosophical positioning of the researcher” (Mertens, 2014, p. 2). Therefore, underpinned by the philosophy of social constructivism for this Ph.D. research, axiological beliefs of this philosophy have been considered through the research process on ethical issues. These are explained as follows.

First and foremost, as a precursor to the remote field data collection in Ghana (Accra city-region) and Tanzania (Dar es Salaam city and Dodoma city), it was imperative to establish contacts and have discussions with all the units of enquiry needed. In view of this, one critical document to facilitate these discussions with the relevant institutions was an introductory letter from the affiliated institute, DLR (German Aerospace Centre) – Institute of Transport Research, Berlin for the research with Prof. Dr. Barbara Lenz (also a Professor at the Humboldt University of Berlin, Geography Department) as the then Director and research supervisor for this Ph.D. The introductory letter was a valuable document that mainly described the purpose of the Ph.D. Research, its relevance, the intended institutions to be interviewed, and a description of the interviewer. Largely, this document enhanced and facilitated the acceptance of the units of enquiry to respond to emails for further discussions. Furthermore, it is important to mention here that, in the case of Tanzania, an additional mandatory document called ‘Research Permit’ had to be applied for at the Tanzania Commission for Science and Technology (COSTECH) to be presented to all the Units of Enquiry before interviews, collection of documents, observation of the existing road-based public transport system was allowed. Essentially, this was an important document for the citizens of Tanzania before any researcher can conduct research. In itself, the research permit document took a considerable amount of time to be approved from the application process until the final research permit document was received. For this research, the research permit application and its procedure until receipt of the research permit document

took nearly four months. It is pertinent to highlight here that the receipt of this research permit made it possible to undertake the remote data collection in Tanzania as this document was requested for by all the institutions the researcher contacted prior to the data collection. In essence, adhering to this requested document on the one hand satisfies the axiological beliefs of the philosophy of social constructivism (see Appendix 3.10).

Secondly, during the data collection such as the qualitative expert interviews with the Units of Enquiry, all interviewees were made aware and reminded of the type of research, the purpose of the interview, and therefore the need to record the interview for further transcription and analysis and interpretation. On the other hand, based on the axiological beliefs of the philosophy of social constructivism, the values and ethics of the interviewees were of utmost importance and were discussed to have common grounds before interviews could be conducted. Such values include getting a research permit for interviews, collection of documents, and observations in Tanzania. It also includes undertaking interviews at different times and multiple days. For instance, in the case of Ghana, an interviewee expressed the need to reschedule the continuation of an interview to a different time since there were people in queue at his office and it was not proper for him to be talking on a Skype call where there was no physical human being sitting in front of him. To the interviewee, it was culturally and morally not right for him to keep the physical human beings waiting since the people might have the perception that the interviewee was just having a personal private call. Essentially, this had to be discussed and negotiated.

Lastly, the personality and assertions of all interviewees for the data analysed had to be anonymised for the sake of confidentiality and to protect the integrity of the interviewees. This ensured that interviewees gave responses to questions openly for the needed data with the view of answering the main and sub-research questions of this Ph.D. research. On the one hand, some information was deemed sensitive and classified and therefore were not given by some of the Units of Enquiry in both Ghana and Tanzania. Therefore, underscored by the axiological beliefs of the philosophy of social constructivism, it was imperative to accept these stance and work with the information that was given after applying several tactical communication skills. In effect, this was useful to gain the confidence of the interviewees to respect their stance and values in that regard. All in all, working with the needed data collected from the field and analysing it thoroughly ensured that findings and conclusions are a true reflection of the phenomenon of interest of this Ph.D. research.

3.11 Summary of Chapter

This chapter has thoroughly discussed the usage of qualitative research design for undertaking this Ph.D. research and justifiable reasons for the selection of this research design. It has also provided the philosophical basis of this research – the philosophy of social constructivism and the associated philosophical beliefs/assumptions – and related and discussed these associated beliefs on ontology, epistemology, axiology, and methodology in context of this research. The research method and approach to inquiry, that is, collective case study or comparative/multiple case study has been discussed and justified in this chapter.

In addition, the units of enquiry in both Ghana (Accra city-region) and Tanzania (Dar es Salaam city); data collection tools and sampling techniques: pertaining to primary and secondary sources of data, method of primary data collection, and sampling strategies; methods of data analysis and presentation of data have been provided in this chapter.

Lastly, this chapter has discussed the research positionality and reflexivity, and the research ethics.

The next chapter presents a comparative overview analysis of Accra city-region and Dar es Salaam city which are the two collective or comparative/multiple case study cities of this research.

CHAPTER FOUR

COMPARATIVE OVERVIEW ANALYSIS OF ACCRA CITY AND DAR ES SALAAM CITY

4.1 Introduction

Chapter Three of this research provided the study approach and research methodology for undertaking this study, by specifically presenting the use of a collective/multiple/comparative case study research method (Stake, 2003; Yin, 2014) as its approach to inquiry. In addition, the previous chapter categorically highlighted the context of this research as one based on the collective/multiple/comparative case study research method to inquiry and sets the philosophy of social constructivism that underpins this research (Denzin and Lincoln, 2005, p. 29). Accordingly, it is also pertinent to comparatively expound and analyse the basic and pertinent key issues related to the two collective case study cities of this research. This chapter therefore presents analysis and findings of a comparative overview of the two study areas – Accra city region (Ghana) and Dar es Salaam city (Tanzania) by way of basic information that encapsulates the profiles of these cities. Specifically, it provides an overview of the spatial and socio-economic context of the case study cities within which primary/field data were gathered for this research in terms of physical and natural characteristics of the respective cities, demographic characteristics, economic characteristics, governance of the respective cities (institutions), and sustainable mobility particularly road-based public transport.

4.2 Accra city (Ghana)

4.2.1 Physical and Natural Characteristics of Accra city

In international context, Accra city is located in Ghana - notably north of the equator in West Africa in the sub-Saharan Africa region (Arup International Development, 2016; GIBB, 2017), and bordered to the North by Burkina Faso, South by the Gulf of Guinea and the Atlantic Ocean, East by Togo, and to the west by Côte d'Ivoire. This is shown in Figure 4.1. Precisely, in the national context of Ghana, Accra city is bounded to the North by Eastern Region, to the South by the Gulf of Guinea, to the East by Central Region, and to the West by Volta Region. This is depicted in Figure 4.2. In regional context from Figure 4.3, Accra Metropolis is bordered to the North by La Nkwantana Madina, to the South by the Gulf of Guinea, to the East by La Dade Kotopon, and to the West by Ga Central and Ga South (Accra Metropolitan Assembly, 2018). Accra Metropolis is located on Longitude 05°35'N and Latitude 00°06'W (Accra Metropolitan Assembly, 2018) and covers a total land area of 139.674 Km² (Ghana Statistical Service, 2014a).

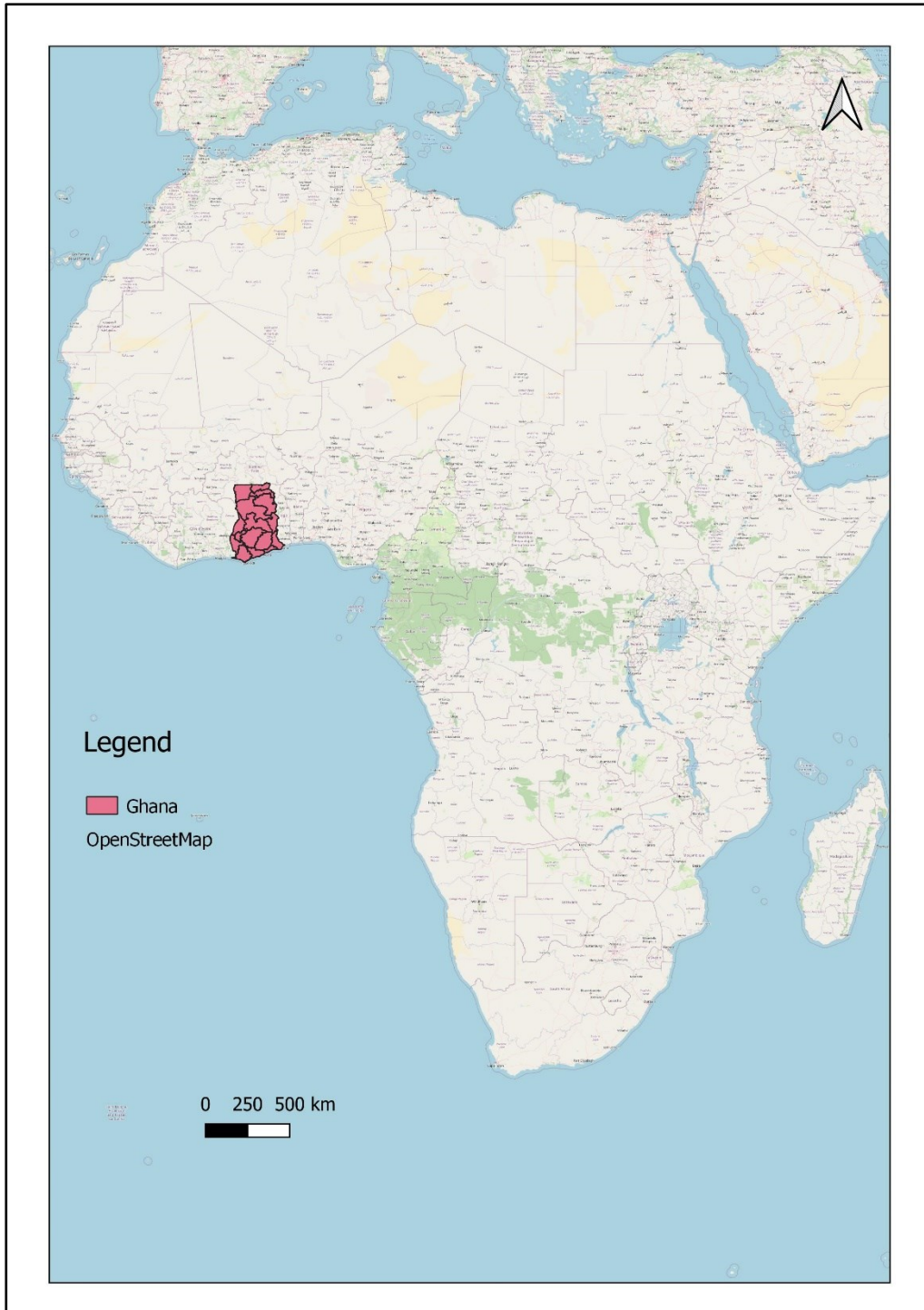


Figure 4.1 Accra-City in International Context

Source: Author's Construct based on OpenStreetMap, July 2021

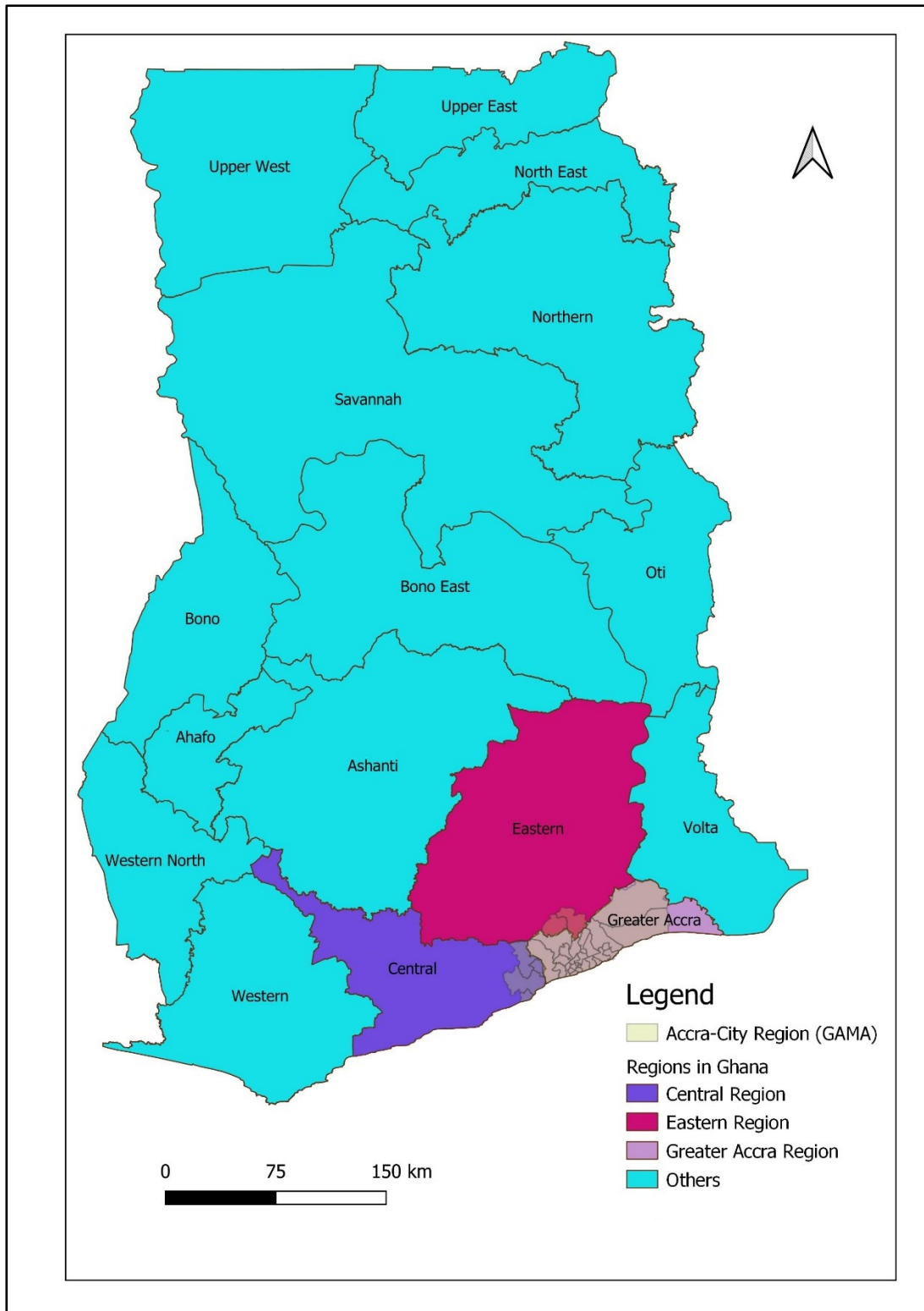


Figure 4.2 Accra-City in National Context

Source: Author's Construct based on Land Use and Spatial Planning Authority, July 2021

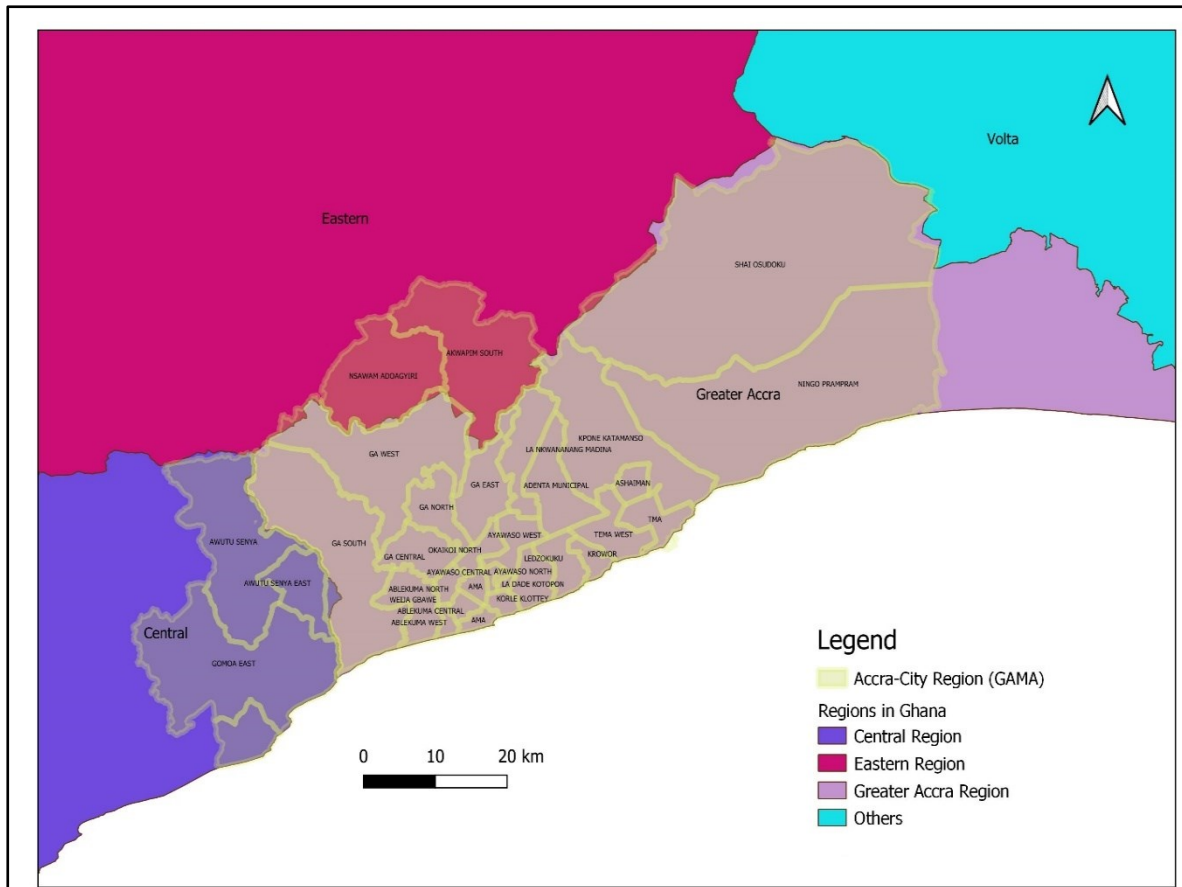


Figure 4.3 Accra-City in Regional Context

Source: Author’s Construct based on Land Use and Spatial Planning Authority, July 2021

The geology comprises of Granites Gneiss, Precambrian Dahomeyan Schists, Amphibolites, and Granodiorites. In terms of climate, it lies in the Coastal Savannah Zone with average annual rainfall of approximately 730mm within two rainy seasons with three main vegetation zones which consist of grassland, shrub land and coastal lands (Accra Metropolitan Assembly, 2018).

Accra is the administrative and commercial capital of Ghana (GIBB, 2017; Agyemang, 2015; Government of Ghana, 2015b) and one of the populous mushrooming cities in Africa (National Development Planning Commission (NDPC), 2017c). It is one of the 12 districts/municipal/metropolitan that constitute the conurbation of Greater Accra Metropolitan Area (GAMA) which is also referred to as Accra city-region (Government of Ghana, 2015a, p. 30) in terms of the jurisdiction of public transport in GAMA (see Figure 4.4). These 12 Districts according to Government of Ghana (2015a, p. 30), and based on year-2010 Districts are located in three regions. Nine are in the Greater Accra Region: Accra Metropolitan Area (currently includes Ablekuma North, Ablekuma West, Ablekuma Central, Okaikoi North, Ayawaso Central, Korle Klottey, Ayawaso West, Ayawaso Central, Ayawaso

commute to the city for diverse socio-economic activities. Therefore, the city is estimated to have approximately four million people, including residents and visitors, on a daily basis (Accra Metropolitan Assembly (AMA), 2020). In essence, this certainly has implication on the movement of people as the city becomes chocked with congestion and the ripple effects on road-based public transport.

GAMA/ Accra city-region as already established in line with road-based public transport comprises these 12 districts/municipal/metropolitan with their geographical scope of jurisdiction as of year 2010-situated in three regions in Ghana: “Nine can be found in the Greater Accra Region, namely: Accra Metropolitan Area (presently include Ablekuma North, Ablekuma West, Ablekuma Central, Okaikoi North, Ayawaso Central, Korle Klottey, Ayawaso West, Ayawaso Central, Ayawaso North, Ayawaso East), Tema (currently include Kpong Katamanso, Tema West and Krowor), Ledzokuku Krowor, Adentan, Ashaiman, Ga East, Ga West (currently include Ga Central and Ga North), Ga South (presently include Weija Gbawe), and Dangme West (currently comprise Shai Osudoku and Ningo Prampram); two are located in the Central Region, namely, Awutu Senya (currently includes Awutu Senya East) and Gomoa East; and one in the Eastern Region; that is, Akwapim South (currently includes Awutu Senya East)” (Government of Ghana, 2015a, p. 30) as shown in Figure 4.4. Among these 12 districts, AMA and Tema are Metropolitan Assemblies whereas Ashaiman, Ga West, Ga East and Ledzokuku Krowor and Akwapim South are Municipal Assemblies, with the rest being District Assemblies (Government of Ghana, 2015a). GAMA had an estimated total population of 4.3 million inhabitants in the year 2015 with an average annual intercensal growth rate of 3.54 per cent between years 2000 and 2010 (Government of Ghana, 2015a, p. 30; Ghana Statistical Service, 2012; Agyemang, 2015). Of this total population 51.7 per cent are females and 48.3 per cent are males (Ghana Statistical Service, 2014b, p. 8). GAMA/ Accra-city region covers a total land area of 439 km² (Government of Ghana, 2015a, p. 30).

In line with the age-sex distribution of the population of GAMA/ Accra-city region as presented in Table 4.1, it can be seen that across all age-sex cohorts females are higher than males, with the exception of the age-sex cohort 0-4years and 5-9years. In essence, the dominance of females in the population distribution of GAMA/ Accra-city is similar to that of Ghana as a whole and other developing and emerging economies. The implication for planning with respect to the provision of a sustainable road-based public transport hovers on the need for policy and decision makers to take into consideration these characteristics of the age-sex distribution of the population of Accra-city that is largely dominated by females and their needs in this regard.

Table 4.1 Age-Sex Distribution of Accra city-region/GAMA population

Age Group	Male		Female	
	Male Population	Male Percentage (%)	Female Population	Female Percentage (%)
65+	47,384	1.5	50,543	1.6
60-64	22,113	0.7	34,748	1.1
55-59	37,907	1.2	34,748	1.1
50-54	56,861	1.8	60,020	1.9
45-49	69,497	2.2	78,974	2.5
40-44	91,610	2.9	107,404	3.4
35-39	116,881	3.7	120,040	3.8
30-34	123,199	3.9	142,153	4.5
25-29	145,312	4.6	176,901	5.6
20-24	116,881	3.7	113,722	3.6
15-19	148,471	4.7	199,014	6.3
10-14	183,219	5.8	199,014	6.3
5-9	173,742	5.5	148,471	4.7
0-4	192,696	6.1	170,583	5.4
All Ages	1,525,772	48.3	1,636,336	51.8

Source: Ghana Statistical Service (2014b, p. 8)

4.2.3 Economic characteristics of Accra city

Accra city-region or Greater Accra Metropolitan Area (GAMA) is the most significant urban region in Ghana accounting for 80 per cent of foreign direct investment in the country (Arup International Development, 2016). Furthermore, GAMA accounts for nearly 25 per cent of the Gross Domestic Product of Ghana and the epicentre for investment and archway for international trade into the country (Government of Ghana, 2015a). The significance of GAMA is pivotal as it is approximately at the heart of the West African regional economic corridor - “spanning from Lagos to Abidjan - an economic powerhouse” (Government of Ghana, 2015a, p. 30).

Mainly, Accra Metropolis has a greater number of manufacturing industries (such as water storage tanks manufacturing companies, Unilever, Coca-Cola), financial institutions, oil companies, telecommunication institutions, health institutions, educational institutions, tourism establishments, and other relevant organisations located in the city (Ghana Statistical Service, 2014a), with most of the head offices of these institutions located in Accra city (Government of Ghana, 2015b). Accordingly, these institutions provide employment opportunities for inhabitants in Accra, and also serve as a pull-factor attracting several individuals across the country and beyond the borders of Ghana to transact businesses (Ghana Statistical Service, 2014a; Arup International Development, 2016). Particularly, most of the inhabitants of Accra city are engaged in the primary, secondary and tertiary sectors of

the economy – in professions including manufacturing, fishing, construction, trading, services, and farming – where the natives of Accra were formerly mainly engaged in fishing but currently they also work in other sectors of the economy (Ghana Statistical Service, 2014a). The Ghana Statistical Service (2014a) further indicates that the private sector comprising formal and informal institutions account for the major share of employment in the Accra Metropolis.

4.2.4 Governance of Accra city (institutions)

The Accra Metropolitan Assembly (AMA) is one of the 16 Metropolitan/Municipal/District Assemblies (MMDAs) in the Greater Accra Region out of the 216 MMDAs in Ghana (Ghana Statistical Service, 2014a; Accra Metropolitan Assembly, 2018; Accra Metropolitan Assembly (AMA), 2020). The Metropolitan Chief Executive who is the Mayor, is the political head of the Metropolis whereas the Metropolitan Coordinating Director is the administrative head but in order of hierarchy, the Mayor is the overall head of the Assembly (see Figure 4.5) (Accra Metropolitan Assembly, 2018; Ghana Statistical Service, 2014a). Specifically, the AMA has 16 Departments with their respective heads who in performance of their roles and functions report directly to the Metro Coordinating Director and eventually to the Mayor (Metro Chief Executive) as depicted in Figure 4.5. By law, the Accra Metropolitan Assembly is the regulator of public transport services in the Accra Metropolis (Accra Metropolitan Assembly, 2018) and likewise the Municipal or District Assemblies in the other 11 districts that form GAMA are also mandated to perform similar functions in their jurisdictions. As a way to ensure harmony since intra-city public transport transcends borders of these adjoining districts, GAMA was created to, among other functions, facilitate the movement of people pertaining to public transport. Therefore, this necessitated the need for an institution as a regulator of public transport in all these 12 districts in GAMA – and this led to the establishment of the Greater Accra Passenger Transport Executive (GAPTE). One of GAPTE's core functions is to regulate the pilot Type B-Bus Rapid Transit (BRT) in GAMA. In view of this, operations of the Aayalolo BRT is regulated by GAPTE under a Route Service Contract Management Agreement with the 12 MMDAs of GAMA (Accra Metropolitan Assembly, 2018).

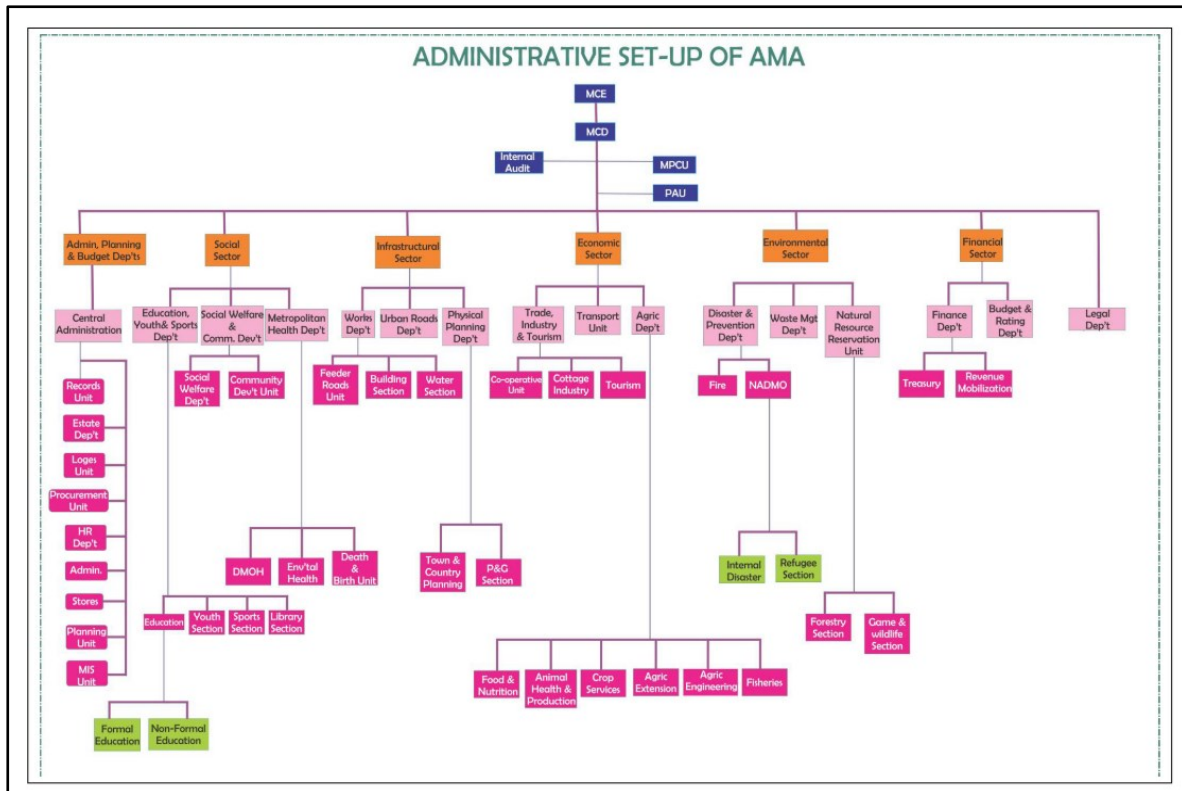


Figure 4.5 Organogram/ Administrative Set-Up of AMA

Source: Accra Metropolitan Assembly (2018, p. 48)

4.2.5 Sustainable Mobility (road-based public transport) in Accra city

Sustainable mobility, precisely sustainable road-based public transport in Accra city in this study pertains to the geographical scope of Accra Metropolis and the other 11 MMDAs (or GAMA) as depicted in Figure 4.4 due to the cross jurisdictional nature of road-based public transport in these adjoining MMDAs as mentioned in the earlier sub-section. It is the objective of the Government of Ghana to use mass transport as the major mode of movement and controlling the growth of vehicles in Ghanaian cities (National Development Planning Commission (NDPC), 2017c, p. 8). Accordingly, measures including wide-ranging bus routes and sub-urban railway systems are expected to be implemented to link major cities throughout the country (National Development Planning Commission (NDPC), 2017c). Notably, the National Transport Policy of 2008 and the Revised National Transport Policy of 2020 explicitly outlines strategic goals and objectives of the transport sector in Ghana, and this policy undergirds the Transport Infrastructure Plan component of the 30-year Ghana Infrastructure Plan (2018-2047) that has other development priorities according to the National Development Planning Commission (NDPC) (2017c, p. 11) as: “Create a sustainable, accessible, affordable, reliable, effective, efficient, safe and secure transport system that meets user needs”; “Develop and implement a comprehensive and integrated

policy, governance and institutional framework”; and “Ensure sustainable development in the transport sector”. Additionally, the Ghana Infrastructure Plan guides the development of an integrated inter-modal transport system in the country (National Development Planning Commission (NDPC), 2017c).

GAMA’s urban transport is challenged by several factors including increasing vehicle ownership and urban sprawl, traffic congestion and urban challenges (Ministry of Local Government and Rural Development (MLGRD), 2017; The World Bank, 2017b). More specifically, the National Development Planning Commission (NDPC) (2017c) indicates that Accra city’s fastest growth comprises largely of urban sprawl which negatively impacts the supply of adequate public transport services, reduced accessibility to trip destinations, thereby, encouraging vehicle/private car dependence. For instance, private vehicle ownership in Accra Metropolis has increased tremendously over the past few years and the total number of registered private vehicles as at the year 2014 was 890,511 (National Development Planning Commission (NDPC), 2017c, p. 27) from a base figure of approximately 265,000 vehicles in the year 2000, representing a high growth rate of 9 per cent (Ministry of Local Government and Rural Development (MLGRD), 2017, p. 6; Korea International Cooperation Agency (KOICA), 2016). Ultimately, the ripple effect of this is high traffic congestion which hinders urban productivity as well as urban development in Accra city (National Development Planning Commission (NDPC), 2017c, p. 28; Ministry of Local Government and Rural Development (MLGRD), 2017, p. 6).

In GAMA as already indicated in the research problem of this study, road-based public transport – predominantly dominated by use of minibuses or low occupancy vehicles (‘trotros’) – is the most patronised mode of transport. Nevertheless, this existing public transport system as noted by the National Development Planning Commission (NDPC) (2017c) is bedevilled with major constraints in comparison with those of other major cities worldwide in terms of the types of vehicles used for public transport, the capacity of vehicles used for public transport and road density; among others. The average age of ‘trotros’/minibuses in GAMA is 17 years, coupled with poor maintenance culture (Ministry of Local Government and Rural Development (MLGRD), 2017). In view of these, the National Development Planning Commission (NDPC) (2017c, p. 29) emphasizes, based on the Transport Infrastructure Framework of the 30-year Ghana Infrastructure Plan, that “GAMA needs to introduce about 2,400 big buses as public transport vehicles, and construct about 246 km of public transport routes, 230 km of railway routes and about 11,000 km of roads and city authorities can consider boosting the city’s competitiveness by introducing Bus

Rapid Transit and a Hub and Spoke system, while refurbishing existing public transport facilities in the meantime”.

As an upshot to this road map in line with the Transport Policy of Ghana (2008 and 2020), the Ghana Infrastructure Plan (2018-2047), the Ghana Urban Transport Project (2007-2015), and the Medium-Term National Development Policy Framework: Ghana Shared Growth and Development Agenda (GSGDA) II (2014 -2017); the Government of Ghana launched the pilot Type-B BRT in Accra city in the year 2016 on the Amasaman-Tudu CBD corridor (see Figure 4.6). It is pertinent to indicate that, full scale BRT in GAMA was originally planned for six major routes/corridors but due to several constraints, implementation has therefore delayed (National Development Planning Commission (NDPC), 2017c). See Figure 4.6 for the six major planned routes for BRT in GAMA of which only one route (i.e. Route 2 – Amasaman – CBD) is currently still being piloted since 2016. It is worthwhile to indicate that, this route 2, covering 24.9 km does not have a full dedicated bus lane, but rather queue jumps at some sections of the corridor (see Plate 4.1). As noted by Government of Ghana (2015b, p. 222), Type B-Bus System operates in mixed traffic where possible, rather than exclusive bus lanes, making it more economical.

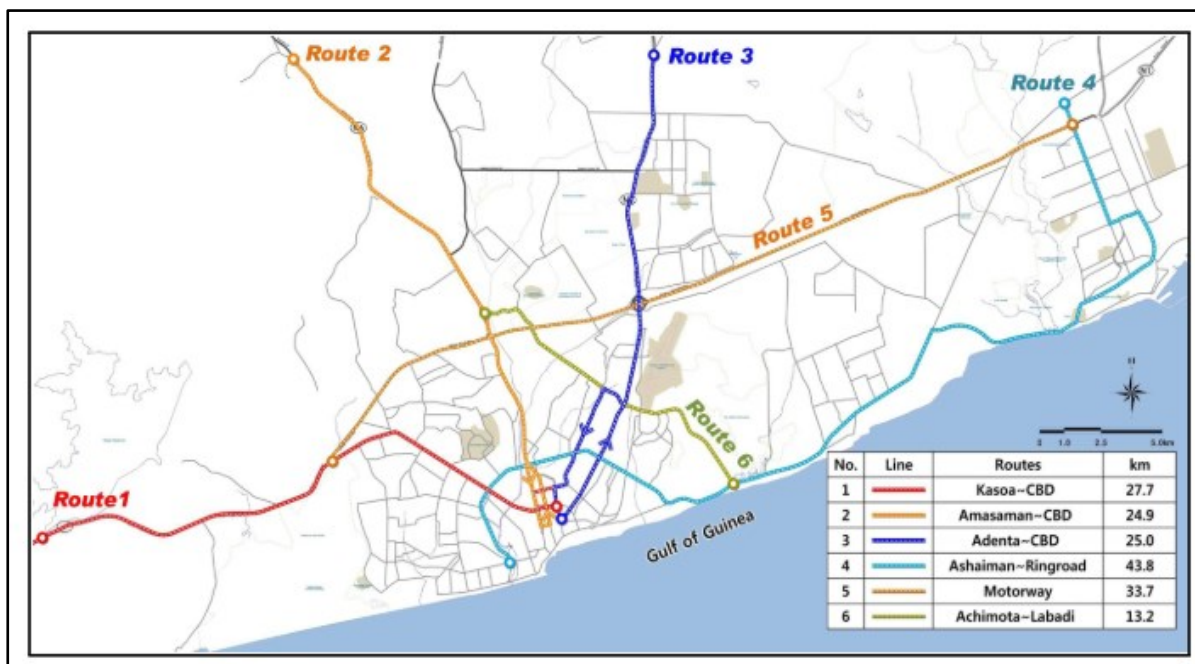


Figure 4.6 GAMA BRT Route Plan

Source: Korea International Cooperation Agency (KOICA) (2016, p. 159)

Plate 4.1 Queue jump on a section of the Amasaman-Tudu CBD corridor (Aayalolo BRT)



Source: Bonsu (2017, p. 15)

The Greater Accra Passenger Transport Executive (GAPTE) created in the year 2014 is mandated “to develop and implement systems for urban transport management, network planning, permitting, and service contract management”, and as part of its functions is to regulate public transport in GAMA (Ministry of Local Government and Rural Development (MLGRD), 2017, p. 15). This regulatory function includes the pilot Type B-Bus Rapid Transit (i.e. Aayalolo BRT) on the Amasaman-Tudu CBD corridor and it also oversees its operations under a Route Service Contract Management Agreement with three companies on behalf of the 12 MMDAs of GAMA (Accra Metropolitan Assembly, 2018; Bonsu, 2016). GAPTE has taken over the operations of the Aayalolo BRT on the Amasaman-Tudu CBD corridor due to the deficiencies of the three operator companies (Ministry of Local Government and Rural Development (MLGRD), 2017, p. 15). It is important to mention here that these three formal operator companies were created from the existing informal ‘trotro’/minibus operators on the Amasaman-Tudu CBD route who were providing public transport services (Bonsu, 2016). See Plate 4.2 for the type of buses used on the Amasaman-Tudu CBD for the Type B-BRT operations (HOVs with better emission standards) and that of the informal transport/ ‘trotro’s (LOVs with poor emission standards) on the same corridor.

Plate 4.2 Type B-BRT Bus (on the left) and Minibus/'Trotro' (on the right) on the Amasaman-Tudu CBD corridor



Source: Bonsu (2016, p. 68); Ministry of Local Government and Rural Development (MLGRD) (2017, p. 6)

Nonetheless, as already mentioned in the research problem of this study, the pilot Type B-Bus Rapid Transit (i.e. Aayalolo BRT) on the Amasaman-Tudu CBD corridor “is in danger of failing because of poor ridership and unsustainable financial situation” (Ministry of Local Government and Rural Development (MLGRD), 2017, p. 10). As was the case in the year 2017, the Aayalolo BRT buses carried nearly 250 passengers/day each on the Amasaman-Tudu CBD corridor, although it should have carried about 700 passengers/day for operations to financially break even (Ministry of Local Government and Rural Development (MLGRD), 2017). More importantly, these deficits are not borne by the three operating companies on the corridor as should be the case. Rather, the Greater Accra Passenger Transport Executive overseeing its operations and “de facto running the buses” keeps accruing these deficits which do not augur well for its sustenance (Ministry of Local Government and Rural Development (MLGRD), 2017). Simply put, the Accra Metropolitan Assembly (2019, p. 48), notes that the Aayalolo BRT has undesirably grappled to operate successfully, resulting in its failure to attain set prospects including “new large buses operating on dedicated bus lanes with better emission standards to improve mobility, provision of access to more job opportunities, reduction in the use of private cars, and contribution to a reduction in CO² emissions”.

Other policy options with regards to sustainable mobility relating to road-based public transport in Accra city and Ghana as a whole is the consideration of electric mobility in

Ghana. Precisely, the Environmental Protection Agency (EPA) Ghana (2019, p. 1), notes that mobility in urban areas and for that matter cities including Accra city in Ghana presently are bedevilled with congestion, accessibility, safety challenges, emissions and energy efficiency. Hence, solutions including intelligent transport systems (ITS), connected vehicles, and appropriate infrastructure are seen as key ingredients to address these mobility challenges in these cities (Environmental Protection Agency (EPA) Ghana, 2019). To this end, the Environmental Protection Agency (EPA) Ghana (2019), emphasizes that any of or a combination of any of these solutions require the adoption of a tailor-made appropriate technology accordingly. Essentially, “electrification of the mobility and transport system”, for instance, pertaining to road-based public transport in Accra city is a critical component of the “new urban mobility eco-system and alternative fuel mobility mix” (Environmental Protection Agency (EPA) Ghana, 2019, p. 1), which is a step in the right direction in line with the environmental dimension of sustainable development, the principles of sustainable mobility and the UN sustainable development goals. In this regard, electric vehicles appear to be one of the preferred alternative solutions towards improved urban mobility by “lowering emissions, increasing efficiency and improving safety” (Environmental Protection Agency (EPA) Ghana, 2019, p. 1). Consequently, the policy consideration to include alternative vehicle technology - Electric Vehicles (EVs) as a solution towards the shift to sustainable mobility in Ghanaian cities - can be seen in the market analysis of electric mobility in Ghana in a survey undertaken by the Environmental Protection Agency in Ghana. Precisely, the study results pertaining to “EVs touted as a key driving force for reducing the dependency of the transport sector on fossil fuels” showed that “over a third of the survey respondents, representing 73.4 per cent wanted EVs to be introduced in Ghana”, in terms of the timeline for the introduction of this solution, “73.7 per cent of the survey respondents preferred electric mobility is introduced in Ghana within the medium term (i.e. five years), depicting the enthusiasm of Ghanaians to shift to the use of up-to-date technologies upon their availability in the country” (Environmental Protection Agency (EPA) Ghana, 2019, p. 17). However, the rest of the 26.3 per cent of the respondents of the survey who mentioned that “the concept of electric mobility is still emerging and therefore can only be introduced in Ghana in the long term (i.e after five years)”, attributed the reasons to “the fact that the power sector in Ghana is unstable and vehicles may run out of power, and concerns of possible increases in electricity tariffs which could increase operating cost of the EVs” (Environmental Protection Agency (EPA) Ghana, 2019, p. 18). The study further revealed with regards to the respondents in favour of EVs that, “there was the need to develop guaranteed charging infrastructure and reliable power supply”. Essentially, amidst the above identified challenges and barriers of EV development in Ghana, it is pertinent that these are taken note of and concrete measures/steps taken to identify the diverse path-ways these challenges could be

ameliorated if they cannot be eliminated taking into the consideration the context of the Ghanaian terrain. Above all, it is important to highlight that, “there exist local automobile vehicle manufacturer in Ghana known as Kantanka Automobile which planned to test and introduce its electric power-driven car to the market in the year 2018, as well as efforts by other firms to assemble electric tricycles and motorbikes in Ghana” (Environmental Protection Agency (EPA) Ghana, 2019, p. 17).

The next section presents overview of basic information on the profile of Dar es Salaam city in line with the five key issues already mentioned.

4.3 Dar es Salaam city (Tanzania)

4.3.1 Physical and Natural Characteristics of Dar es Salaam city

Dar es Salaam city is located in Tanzania, East Africa in the sub-Saharan Africa region. This is shown in Figure 4.7. Specifically, in the national context of Tanzania, Dar es Salaam city borders the Indian Ocean to the East, and the Coast Region to the North, South and West as depicted in Figure 4.8 (Ministry of Lands Housing and Human Settlements Development, 2016, p. 6). In regional context, Dar es Salaam is one of the 30 regions in Tanzania (of which 25 are in Tanzania Mainland and five in Tanzania Zanzibar as shown in Figure 4.9 (National Bureau of Statistics Tanzania, 2013).

Dar es Salaam city is located on the Indian Ocean coast, detached from the Zanzibar island by the Zanzibar Channel, between longitude 39°E and 39°55'E and latitude 6°45'S and 7°25'S (Ministry of Lands Housing and Human Settlements Development, 2016, p. i and 6; Dar es Salaam City Council, 2017, p. 4); and covers a total land area of approximately 1590.5 km² (Bwire and Zengo, 2020).

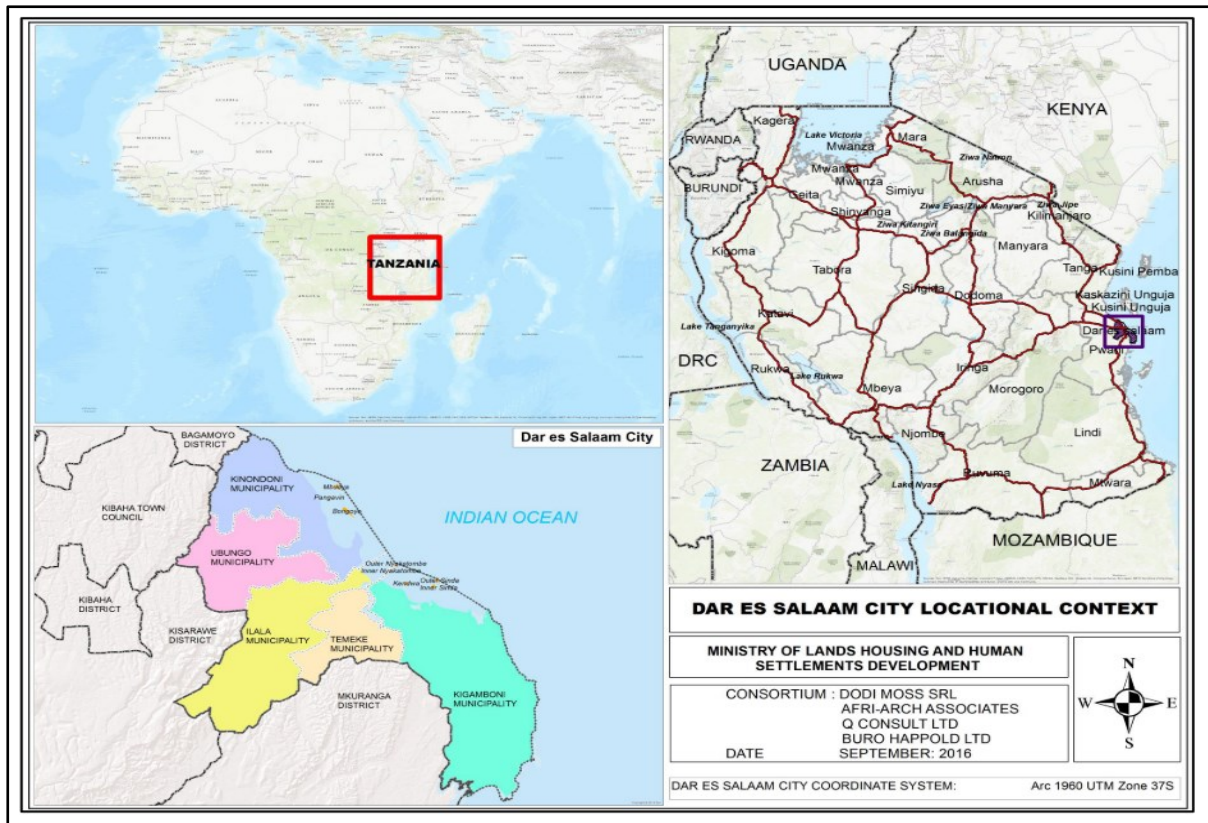


Figure 4.7 Dar es Salaam city in International Context

Source: Ministry of Lands Housing and Human Settlements Development (2016, p. 6)



Figure 4.8 Dar es Salaam city in National Context

Source: Ministry of Lands Housing and Human Settlements Development (2016, p. 7)

Dar es Salaam city region in terms of physical features is made up of two contrasting regions, namely: the inland plateau and the coastal plain (Ministry of Lands Housing and Human Settlements Development, 2016; Dar es Salaam City Council, 2017). Natural characteristics of Dar es Salaam city pertaining to geology is “a succession of flat tertiary, quaternary and upper Mesozoic strata; and the Upper Mesozoic strata features lime stones, sand stones, with gypsum, coal and salt intrusions near the coast” (Ministry of Lands Housing and Human Settlements Development, 2016, p. 24). On climatic conditions, the city experiences an average annual temperature of 28° Centigrade, with an average daily sunshine hours ranging from 6.5 hours (in April) to 10 hours (in September) and an average annual rainfall of approximately 869mm (Ministry of Lands Housing and Human Settlements Development, 2016). There are two rainy seasons all year round in the city, March to May is the first and the second is from October to December (Dar es Salaam City Council, 2017).

Dar es Salaam city is the former national capital of Tanzania (“up till 1973 when Dodoma was made the capital”) but continues to be the prime city and the largest city of the country (Bwire and Zengo, 2020, p. 2; Ministry of Lands Housing and Human Settlements Development, 2016, p. i; Dar es Salaam City Council, 2017).

4.3.2 Demographic characteristics of Dar es Salaam city

Dar es Salaam city is among the fastest growing cities in sub-Saharan Africa and one of the largest cities in Africa (Ministry of Lands Housing and Human Settlements Development, 2016). According to the 2012 Population and Housing Census Report, Dar es Salaam city accounted for 10 per cent of the total Tanzania Mainland population, representing 4,364,541 inhabitants in the year 2012 with an average annual intercensal growth rate of 5.6 per cent (National Bureau of Statistics Tanzania, 2013, p. 2 and 4; Dar es Salaam City Council, 2017). Of this population, 51.3 per cent (2,238,755) were females and 48.7 per cent (2,125,786) were males, depicting a common trend with most African cities (National Bureau of Statistics Tanzania, 2013, p. 10). In the year 2016, the city accommodated a total population of 5,382,352, and in the year 2017 the city’s population was 5.8 million which is projected to reach nearly 13 million inhabitants by the year 2036 and 15 million in the year 2040 (Ministry of Lands Housing and Human Settlements Development, 2016, p. i; Japan International Cooperation Agency (JICA), 2018, p. 1).

In line with the population of Dar es Salaam city in the year 2016 (5,382,352 inhabitants), the population pyramid of the city depicted in Figure 4.10, shows that the Age-Sex structure composition of Dar es Salaam city population is largely youthful as seen in the broad-base of the population pyramid. By implication, this is dominated by children and young persons from ages 0–44 years (Ministry of Lands Housing and Human Settlements Development,

2016, p. 39). In addition, Figure 4.10 as noted by the Ministry of Lands Housing and Human Settlements Development (2016, p. 39) depicts “a high proportion of the working age population (i.e. ages 15-64 years) which is consistent with Dar es Salaam city’s role as an attractive location for young working age people”. The major challenge of the high rate of population growth of Dar es Salaam city highlighted by the Ministry of Lands Housing and Human Settlements Development (2016, p. 39), relates to the ripple effect of the rapid population growth on the existing capacity of the Dar es Salaam local government authorities. Specifically, this is seen in the Dar es Salaam local government authorities’ inability to provide adequate social services and required infrastructure to match the increase in population. Another pertinent challenge is the in-migration of the young population from other regions in Tanzania to the Dar es Salaam city, which migrants are largely unable to secure jobs in the formal sector resulting in “rapid growth of low paying informal sector activities” (Ministry of Lands Housing and Human Settlements Development, 2016). On the other side of the coin, an opportunity of the high population growth in Dar es Salaam city which the local government authorities could leverage on pertains to the “supply of a large pool of labour base that could be harnessed to boost industrial development in the city” (Ministry of Lands Housing and Human Settlements Development, 2016, p. 40).

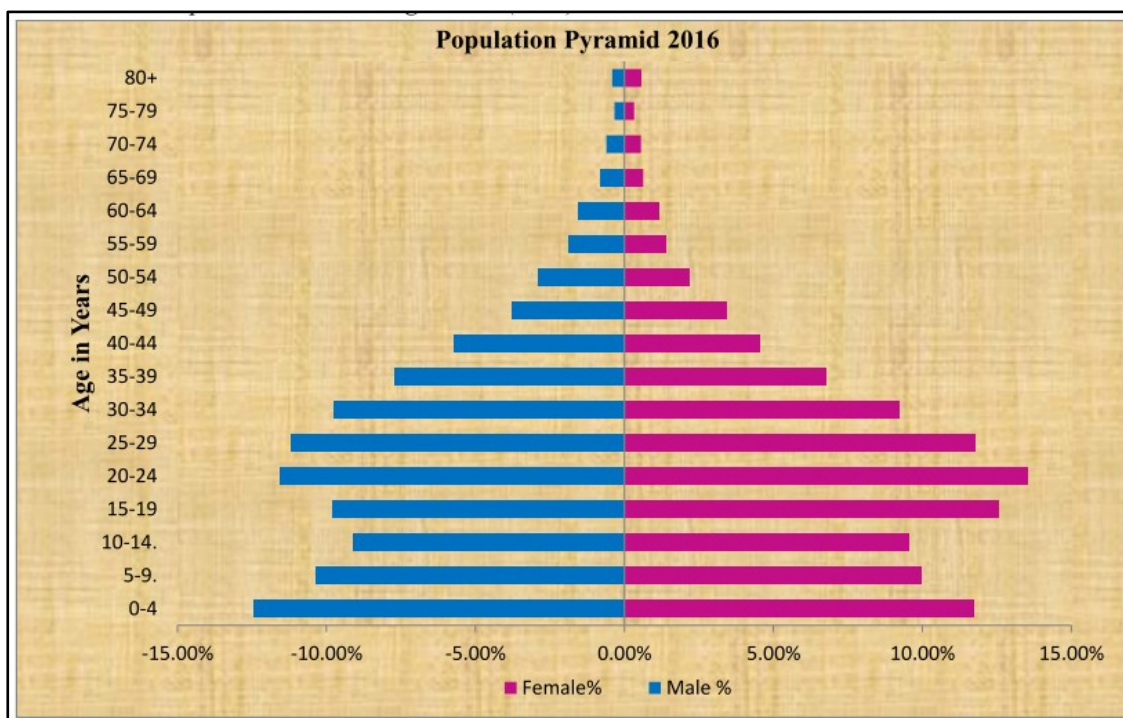


Figure 4.10 Population Pyramid of Dar es Salaam city in 2016 (Five-Year Age Cohorts by Sex)

Source: Ministry of Lands Housing and Human Settlements Development (2016, p. 39) based on 2012 Population and Housing Census Result

4.3.3 Economic characteristics of Dar es Salaam city

Dar es Salaam city is the hub of industry, commerce, manufacturing and banking activities in Tanzania (Bwire and Zengo, 2020; Ministry of Lands Housing and Human Settlements Development, 2016; Dar es Salaam City Council, 2017). Notably, Dar es Salaam city by its location is the central gateway to the international markets for the “Tripartite East African Community (EAC), Southern Africa Development Community (SADC), and Common Market for Eastern and Southern Africa (COMESA) regional economic groupings” (see Figure 4.11) (Ministry of Finance and Planning, 2016, p. 34; Ministry of Lands Housing and Human Settlements Development, 2016, p. 9).

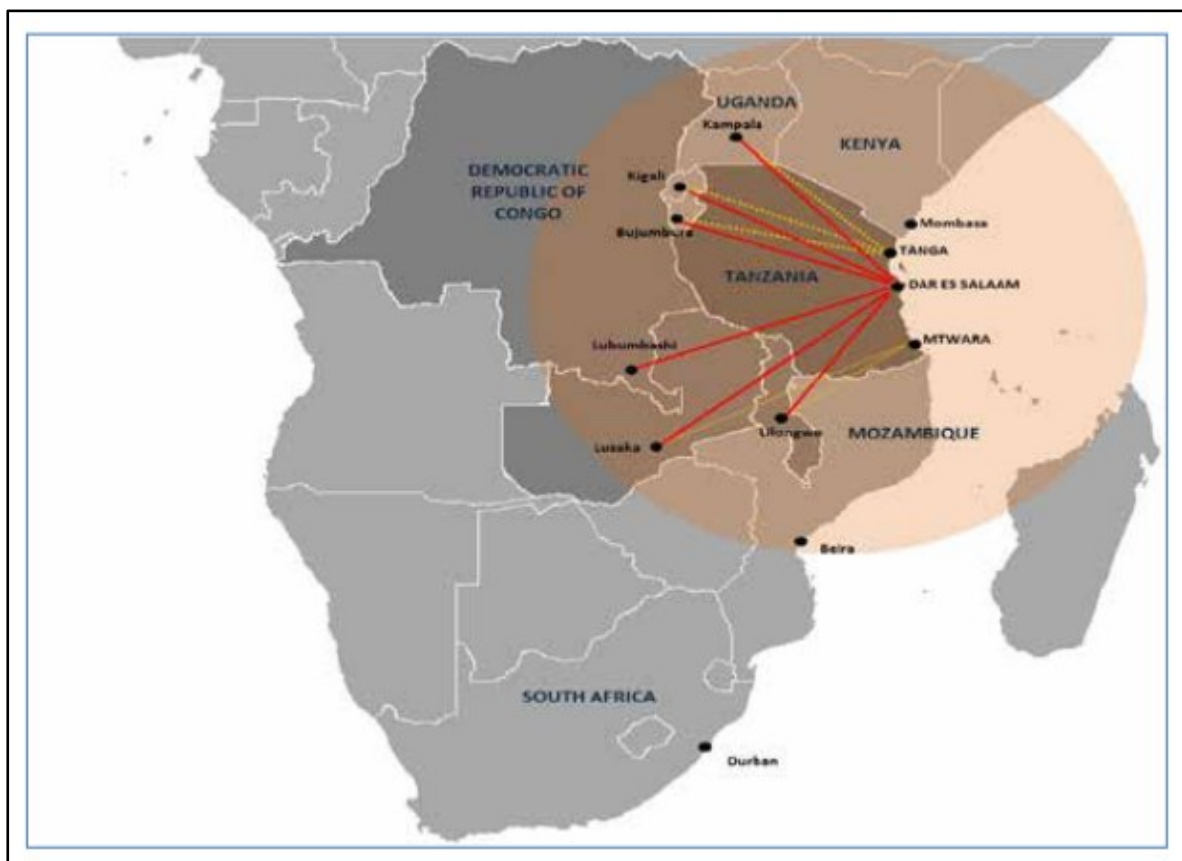


Figure 4.11 Strategic Location of Dar es Salaam city as an International Shipping and Trade Gateway

Source: Ministry of Lands Housing and Human Settlements Development (2016, p. 34)

Precisely, with Dar es Salaam city’s importance as the major engine of economic growth in Tanzania, the city also houses the main harbour of the country, thereby making Dar es Salaam city attractive in terms of transportation activities and commerce from both formal

and informal sectors of the economy (Ministry of Lands Housing and Human Settlements Development, 2016, p. 42). Additionally, the port serves as transit to land-locked neighbouring countries including Malawi and Zambia. Regarding the major economic activities, Dar es Salaam city is the main industrial hub of Tanzania covering small, medium and large-scale enterprises. In addition, the biggest manufacturing industries (such as light manufacturing industries that produce various goods for domestic use and international markets) in Tanzania are concentrated in Dar es Salaam city. It is noteworthy to mention that Dar es Salaam city accounts for nearly 40 per cent of the total industrial manufacturing companies in Tanzania as well as 45 per cent of the overall industrial manufacturing output (Ministry of Lands Housing and Human Settlements Development, 2016, p. 42; Dar es Salaam City Council, 2017, p. 8).

Primarily, the major manufacturing activities in Dar es Salaam city including textiles, light manufacturing, publishing, glass and beverages are mainly located along the major transport routes, namely: Nyerere, Morogoro, Nelson Mandela and Bagamoyo Roads (Ministry of Lands Housing and Human Settlements Development, 2016, p. 42). Commerce and trade also account for a major part of the sectors of Dar es Salaam city's economy like in other larger cities in developing and emerging economies (Ministry of Lands Housing and Human Settlements Development, 2016, p. 43). The commercial activities include transportation, banking and finance, legal services, wholesale and retail, computer and information and technology services among others.

4.3.4 Governance of Dar es Salaam city (institutions)

Dar es Salaam city is one of the 30 regions in Tanzania, and the city comprises five municipalities, namely: Kigamboni Municipality, Ubungo Municipality, Ilala Municipality, Temeke Municipality, and Kinondoni Municipality, as well as 90 wards (Ministry of Lands Housing and Human Settlements Development, 2016; Dar es Salaam City Council, 2017). This is depicted in Figure 4.12.

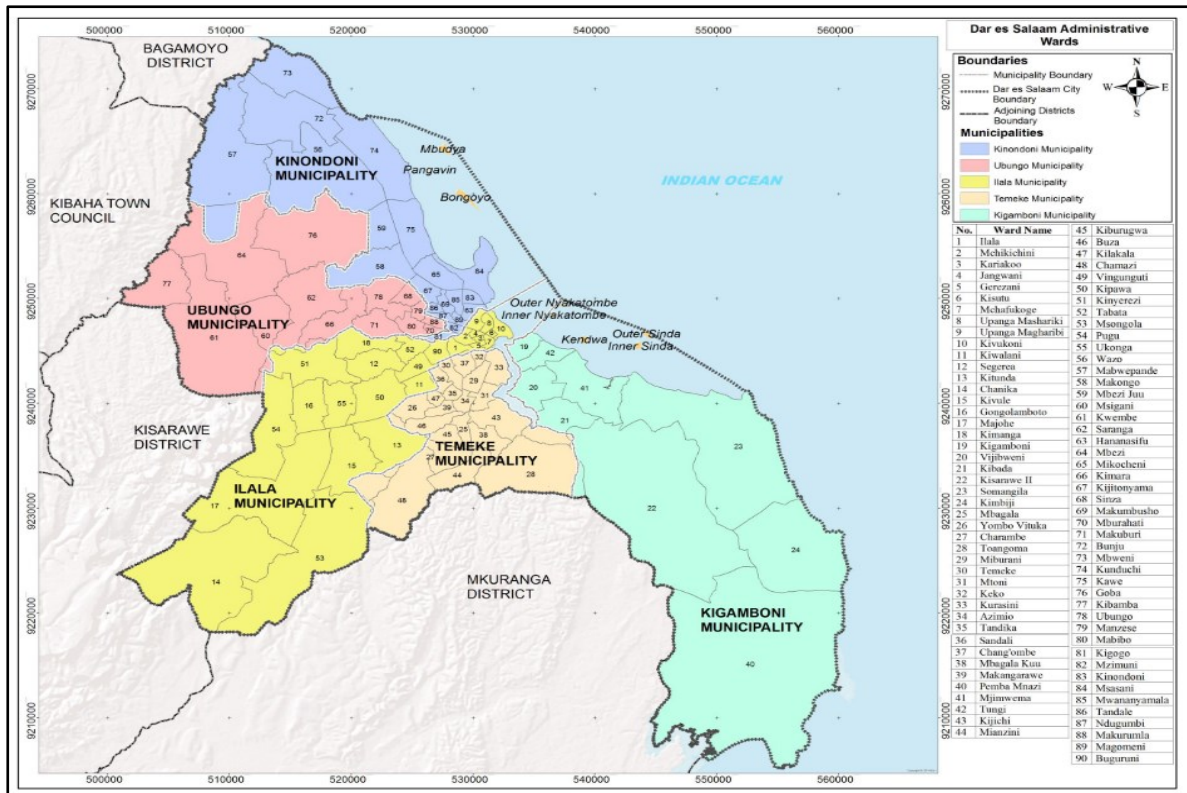


Figure 4.12 Composition of Dar es Salaam City

Source: Ministry of Lands Housing and Human Settlements Development (2016, p. 19)

With reference to the organogram of Dar es Salaam city (see Figure 4.13), the City Council has a City Director, four staff units – Planning, Monitoring, and Statistics Unit, Legal and Safety Unit, Public Relations and Protocol Unit, Internal Auditor Unit who report directly to the City Director; and five line departments who also report directly to the City Director - Finance, Administration and Personnel Department, Works and Fire Rescue Department, Waste Management Department, Urban Planning, Environmental and Transportation Department, Health Services Department. It is noteworthy to mention that, the Dar es Salaam City Council as shown in Figure 4.13 has a specific Department dedicated to Urban Planning, Environment and Transportation which has a specific Transportation section. Essentially, this Transportation Section deals with cross-cutting transport projects in the city, which is made up of five municipalities and 90 wards. One of such projects is the Dar es Salaam Rapid Transit. The organogram of the five Municipal Councils is presented in Figure 4.14.

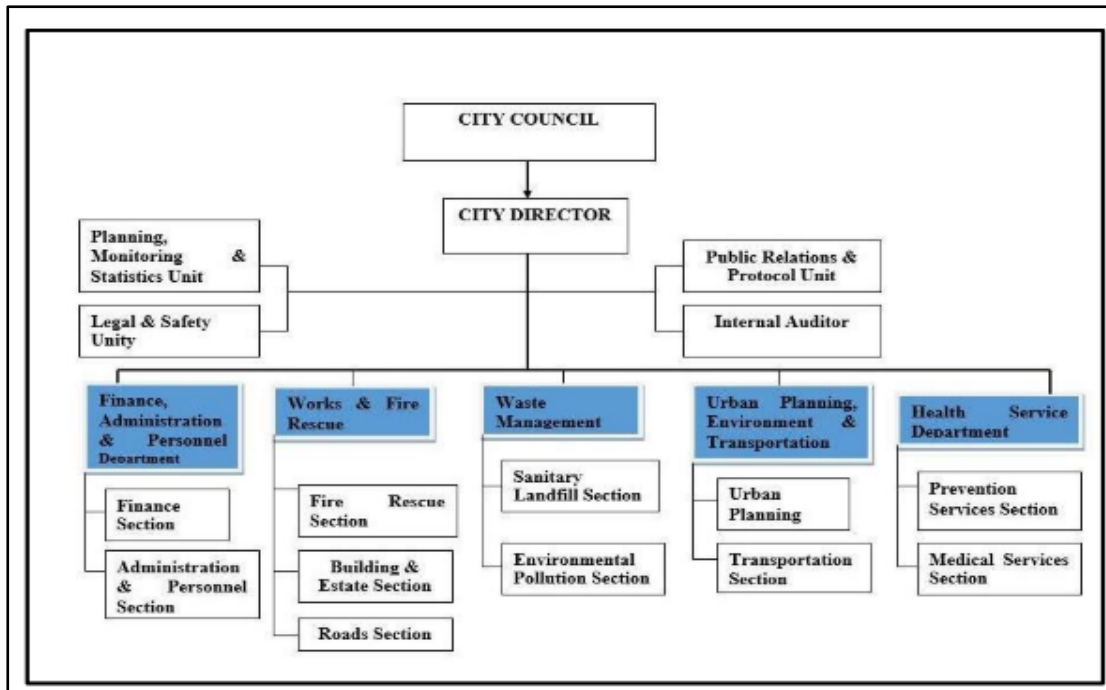


Figure 4.13 Organogram of Dar es Salaam City

Source: Ministry of Lands Housing and Human Settlements Development (2016, p. 20)

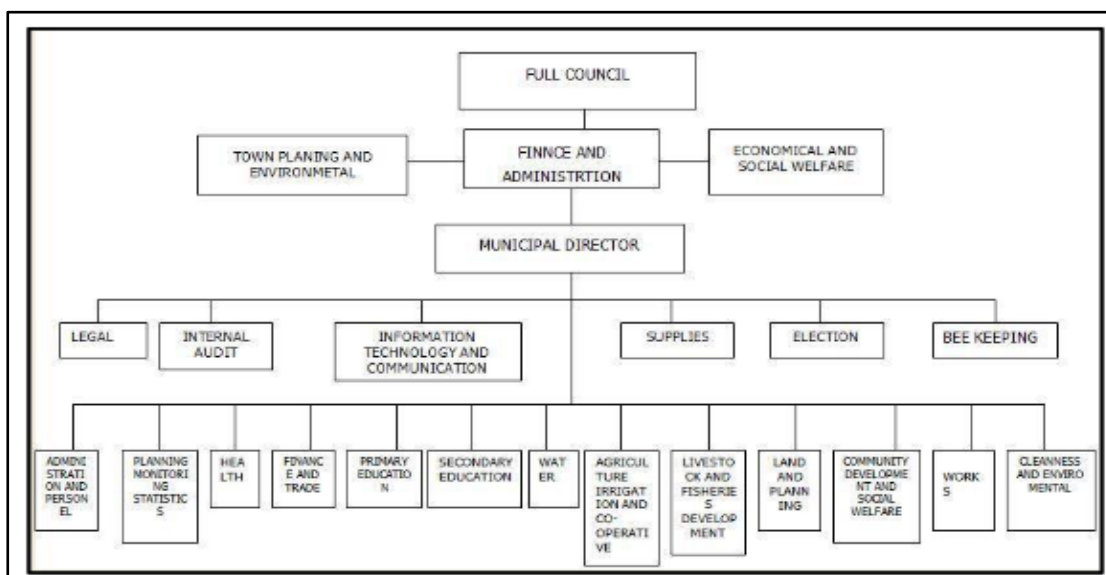


Figure 4.14 Organogram of the Five Municipal Councils and Committee Structure

Source: Ministry of Lands Housing and Human Settlements Development (2016, p. 20)

Specifically, the core function of the Dar es Salaam city council is to act as a coordinating entity to ensure the implementation of projects that are cross jurisdictional across the five Municipalities. These are outlined as follows (Ministry of Lands Housing and Human Settlements Development, 2016, pp. 20-21; Dar es Salaam City Council, 2017, p. 7):

- i. “To coordinate the powers and functions of the five Municipal Authorities regarding infrastructure”;
- ii. “To prepare a coherent City-wide framework for the purpose of enhancing sustainable development”;
- iii. “To promote cooperation between the City Council and amongst local government authorities within the City areas”;
- iv. “To deal with all matters for which there is interdependency among the Municipalities”;
- v. “To support and facilitate the overall performance of the authorities”;
- vi. “To provide peace and security and emergency services such as fire prevention, and control ambulance and auxiliary police”; and
- vii. “To perform major functions relating to protocol at ceremonies”.

Despite these outlined roles and functions of the Dar es Salaam City Council which largely pertains to coordination, there are critical setbacks with the current administrative structure of the City Council noted by the Ministry of Lands Housing and Human Settlements Development (2016, p. 21) as follows:

- i. “The Dar es Salaam City Council does not have administrative authority over the five municipal councils, which weakens its capacity to coordinate planning activities of these councils”;
- ii. “Neither the Municipalities nor the City Council have a clear mandate for citywide planning and coordination of development activities”;
- iii. “The Dar es `salaam City Council does not have any mandate over the government agencies operating within its area of jurisdiction and therefore cannot exercise control over the plans and activities of those agencies”;
- iv. “There is no coordination among the utility agencies when they implement infrastructure projects in the city. This often leads to duplication of effort and wastage of scarce resources, when for instance Tanzania Roads Agency (TANROADS) builds a new road only to have Dar es Salaam Water Supply Company Ltd. (DAWASA) dig it up to repair existing underground water and wastewater infrastructure or lay down new infrastructure”;
- v. “Investment plans of the utility agencies do not always conform to urban development plans of the Local Government Authority (LGAs), leading to a mismatch between planned development of the city and the construction investment of infrastructure facilities by the utility and other government agencies. Some housing projects for example, remain unoccupied for lack of water, electricity or both while the utility agencies wait to have customers occupy the houses before connecting the services”;

- vi. “Conflicts frequently arise regarding the management of roads and roadside advertising between the LGAs, TANROADS and the Ministry of Works”;
- vii. “The Tanzania Building Agency (TBA) and the Tanzania Ports Authority (TPA) have independent jurisdiction on building permits over specified areas of the city, resulting in conflicts and unclear lines of accountability regarding development control activities”;
- viii. “Despite tightly knit relations between the Dar es Salaam city and the surrounding districts and towns of Bagamoyo, Kibaha, Kisarawe and Mkuranga, there is no mechanism to manage transboundary land use, economic, infrastructure and service delivery issues”; and
- ix. “The grassroots ‘Mtaa’ administration and the Ward Executive Committees, which could provide forums for effective local level participatory planning and strengthen development control, have no statutory planning powers”.

4.3.5 Sustainable Mobility (road-based public transport) in Dar es Salaam city

Bwire and Zengo (2020), note that public transport demand in Dar es Salaam city has outgrown its supply with regards to the available resources required to meet the demand. They further emphasize that, there are several factors that account for this, including rapid population growth in Dar es Salaam city, and “growth in the size of the city due to uncontrolled land use development” (Bwire and Zengo, 2020, p. 2). Additionally, the core road network of Dar es Salaam city radiates along four key arterial roads from the city centre, namely, Bagamoyo Road Corridor, Morogoro Road Corridor, Nyerere Road Corridor and Kilwa Road Corridor shown in Figure 4.15 (Ministry of Lands Housing and Human Settlements Development, 2016). However, the Ministry of Lands Housing and Human Settlements Development (2016) emphasizes that the fast pace of the city’s growth is seen along these four major arterial road networks which contribute to vehicular traffic and severe traffic congestion along these road networks, that is further compounded by the mono-centric spatial development of the city.

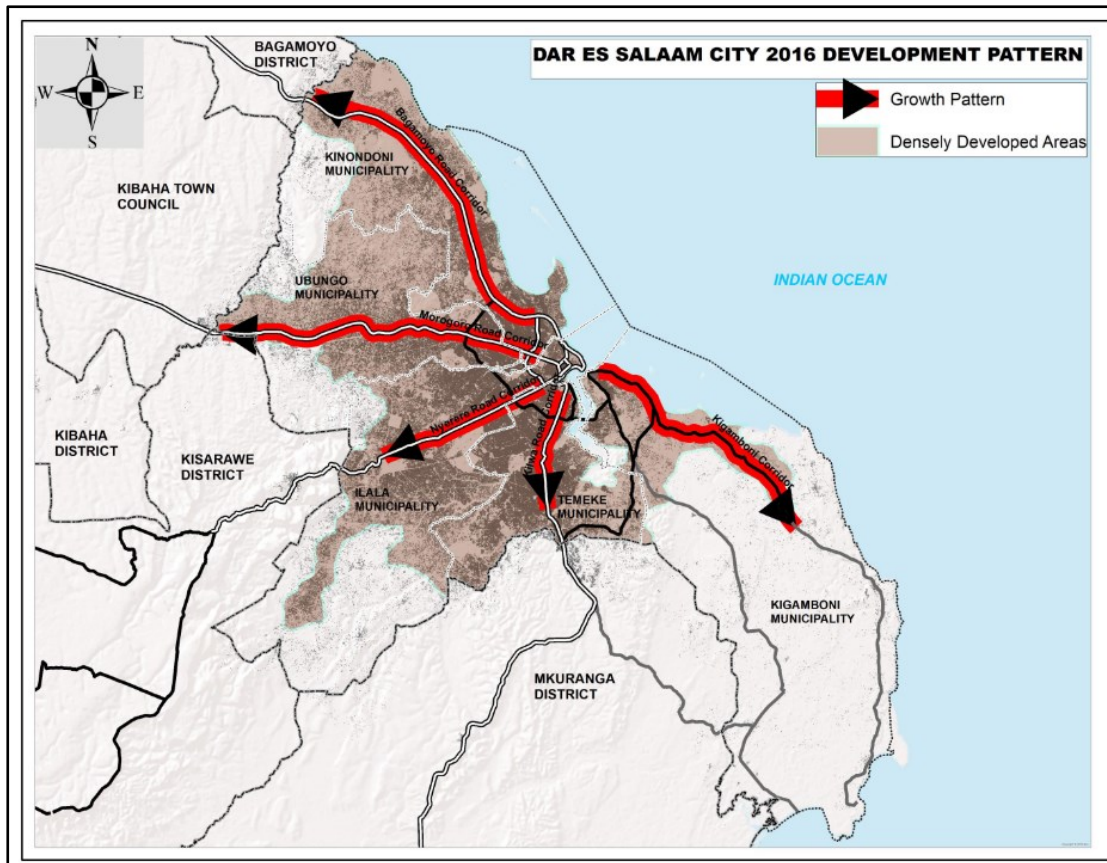


Figure 4.15 Dar es Salaam City Four Core Road Network from the city centre

Source: Ministry of Lands Housing and Human Settlements Development (2016, p. 11)

Accordingly, the ripple effect of the rapid population and city growth of Dar es Salaam city as well as the uncontrolled spatial development of the city and its attendant severe road traffic congestion along the four major arterial road networks which radiate from the city centre indicated in Figure 15, the Ministry of Lands Housing and Human Settlements Development (2016, p. 27) notes that the city is negatively affected by air pollution. Specifically, the Ministry avows that, there is “increased levels of pollutants in some parts of Dar es Salaam city, including Kariakoo and Gerezani that is above the pollution ceiling set by the World Health Organisation (WHO) guidelines based on urban air quality monitoring conducted in Dar es Salaam city where inhalable particulate matter of PM10 were reported” in these afore named areas in Dar es Salaam city (Ministry of Lands Housing and Human Settlements Development, 2016, p. 27). Furthermore, inhabitants living around the four major arterial roads indicated in Figure 4.15 (i.e. Morogoro Road, Julius Nyerere Road, Bagamoyo Road and Nelson Mandela Road) “are probably exposed to long-term concentrations of Nitrogen dioxide (NO₂), PM10 and other air pollutants that exceed WHO limits” (Ministry of Lands Housing and Human Settlements Development, 2016, p. 27).

The Ministry of Lands Housing and Human Settlements Development (2016, p. 101), emphasizes that Dar es Salaam city is presently overwhelmed by road traffic congestion levels that have reached unsustainable proportions coupled with inadequate and poor facilities for pedestrians as well as an over-stretched public transport system. This is underscored in a study conducted by Japan International Cooperation Association (JICA) in the year 2017 which showed that in terms of traffic to and from Dar es Salaam city, Morogoro Road, Bagamoyo Road, Nyerere Road, and Kilwa Road (see Figure 4.15) accounted for 45 per cent, 36.5 per cent, 25.3 per cent, and 16.3 per cent respectively (Ministry of Lands Housing and Human Settlements Development, 2016, p. 101). Furthermore, based on the road traffic congestion levels in Dar es Salaam city, “workers lose an average of 2.48 hours to traffic congestion while some spend up to 5 hours per day stuck in traffic jams”. “Consequently, it is probable that workers spend valuable time commuting rather than working; hence, a disadvantage to their productivity” (Ministry of Lands Housing and Human Settlements Development, 2016, p. 111). Additionally, the negative effect of the intense road traffic congestion in Dar es Salaam city has been found to lead to the city losing TZS 1.44 trillion (or Euro 528,119,581.97) annually, which is a huge burden on the economy and potentially contributes to discouraging attempts towards better quality of life for residents in the city (Ministry of Lands Housing and Human Settlements Development, 2016). Essentially, the current situation of Dar es Salaam city is further compounded by the increasing vehicle ownership rates mainly dominated by low occupancy/capacity vehicles. For instance, with regards to public transport in the city this is dominated by minibuses/ ‘Daladalas’ with vehicle capacity ranging from 25-45 passengers per vehicle which accumulates more buses on the available road space that increase traffic volume (Ministry of Lands Housing and Human Settlements Development, 2016). Therefore a combination of an effective public transport system with corresponding required extension of road networks and facilities is critical to enhance and reach acceptable traffic levels across the city’s road network (Ministry of Lands Housing and Human Settlements Development, 2016, p. 111). As a result, a Bus Rapid Transit (BRT) was launched in the year 2016 and still being implemented in phases in Dar es Salaam city as a solution to these outlined issues and as explicitly discussed in the research problem of this study. Notably, the phase one of the BRT system in Dar es Salaam city accounts for 5-10 per cent of public transport in the city since its implementation (Ministry of Lands Housing and Human Settlements Development, 2016, p. 111).

The Bus Rapid Transit (BRT) in Dar es Salaam city, known as Dar es Salaam Rapid Transit (DART) was considered by decision-makers as a solution to address and ameliorate the intense traffic congestion on major arterial roads in the city, provide affordable transport

system in the city, and provide better living conditions for inhabitants of the city (Ministry of Lands Housing and Human Settlements Development, 2016, p. 114). In view of this, some key institutions related to the provision of public transport in Dar es Salaam city; namely, the Dar es Salaam City Council in collaboration with the Institute of Transport and Development Policy (ITDP) and the Prime Minister's Office-Regional Administration and Local Government (PMO-RALG) - (i.e Urban Authority Support Unit) prepared the project proposal for the DART BRT which was endorsed by the Global Environmental Facility (GEF) National Focal Point (Dar Rapid Transit Agency (DART), 2017, p. 4). The entire planned network of the Dar es Salaam Rapid Transit is 141.1 kilometres with 228 stations and 18 terminals, to be implemented in six phases (Ministry of Lands Housing and Human Settlements Development, 2016, p. 115; Dar Rapid Transit Agency (DART), 2017, p. vii). These six phases as depicted in Figure 4.16 according to Dar Rapid Transit Agency (DART) (2017, p. 63) are:

- i. Phase 1 – Morogoro (Kimara – Kivukoni), Kawawa (Morocco – Magomeni), and Msimbazi (Fire to Kariakoo Gerezani), Sokoine, Zanaki and Mansfield street – 20.9 kilometres;
- ii. Phase 2 – Kilwa, Sokoine, Gerezani, Bandari, Kawawa roads (Magomeni – Nyerere Road), and Chang'ombe - 20.3 Kilometres;
- iii. Phase 3 – Nyerere, Uhuru, Bibi Titi, Azikiwe, Shaurimoyo, Lindi and Maktaba – 23.6 Kilometres;
- iv. Phase 4 – Sam Nujoma - Bagamoyo to Tegeta, Bibi Titi and Ali Hassan Mwinyi – 25.9 Kilometres;
- v. Phase 5 – Mandela, new roads – 22.8 Kilometres; and
- vi. Phase 6 – Mwai Kibaki, and two new roads – 27.6 Kilometres.

Also, the DART network is a trunk-feeder system, which is similar to successful BRT schemes worldwide such as that of Rede Integrada de Transporte in Curitiba, Brazil and TransMilenio in Bogota, Colombia, where the main trunk routes which operate high capacity and high-frequency services are fed by a network of conventional buses (Ministry of Lands Housing and Human Settlements Development, 2016, p. 115). It is pertinent to mention that since the launch of the Dar es Salaam Rapid Transit (DART) in the year 2016, it is only the Phase 1 of the system (i.e. Phase 1 – Morogoro (Kimara – Kivukoni), Kawawa (Morocco – Magomeni), and Msimbazi (Fire to Kariakoo Gerezani), Sokoine, Zanaki and Mansfield street – 20.9 kilometres) that has been implemented and currently operational. In contrast to the Quality Bus System in Accra city-region, the Phase 1 of the DART system operates on

dedicated bus lanes. And as has already been explicitly discussed in the research problem of this research, the Phase 1 of the DART system has not been without challenges inhibiting its efficient operations and needs to be critically looked at so that the DART system can operate at its maximum potential. Therefore, the realisation of this potential is very paramount as BRT is expected to be the major public transport mode in Dar es Salaam city for short-medium distance travel until the year 2031 (Japan International Cooperation Agency (JICA), 2018).

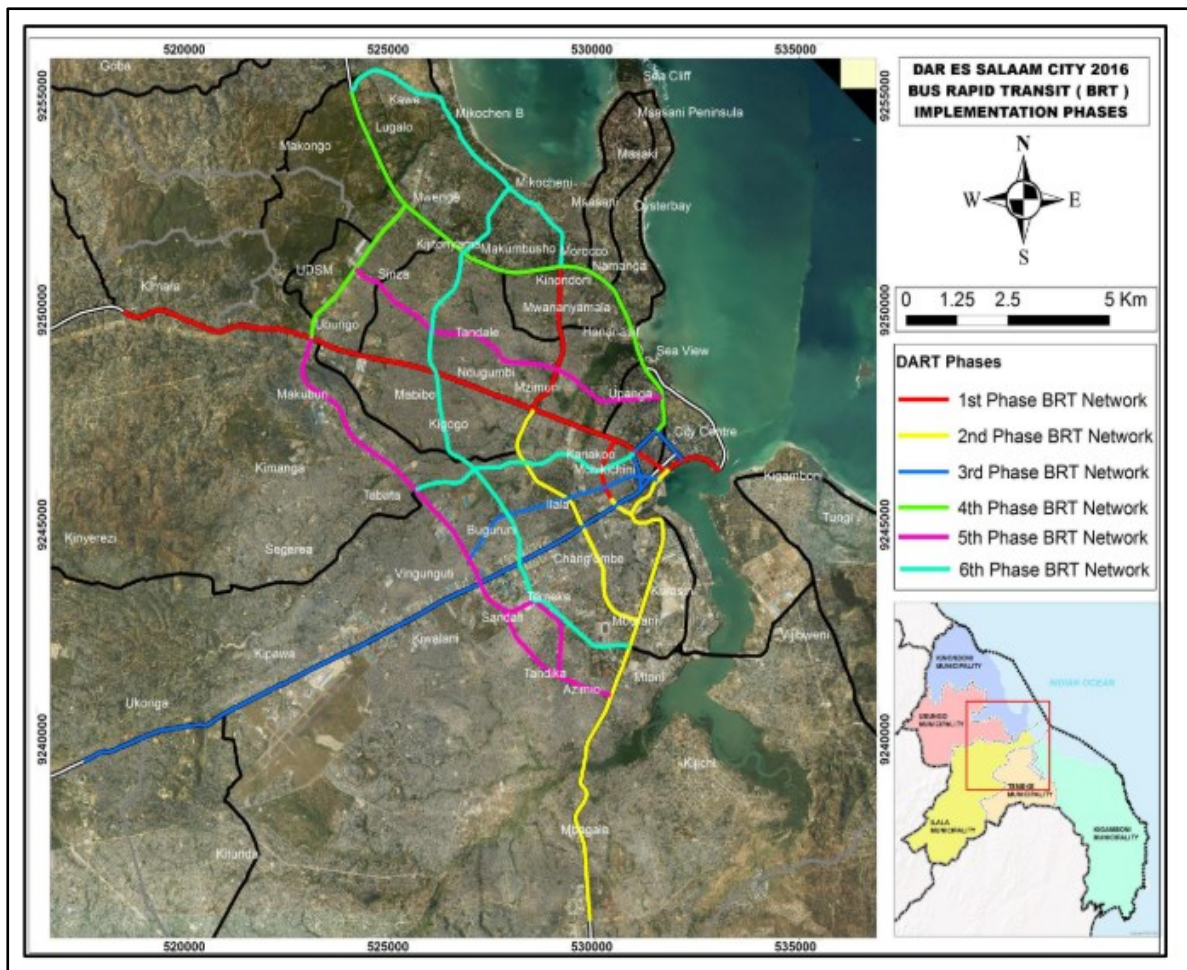


Figure 4.16 Six Phase Implementation of Dar es Salaam Rapid Transit

Source: Ministry of Lands Housing and Human Settlements Development (2016, p. 117)

In line with the six-phase implementation of the Dar es Salaam Rapid Transit, it is pertinent to highlight that the construction of phases 2 and 3 of the DART BRT are expected to be financed by the World Bank under the Dar es Salaam Urban Transport Project (DUTP) within the financial year 2017/2018, as well as the construction of an interchange at Ubungo intersection and undertaking detailed designs of the rest of the other three phases (Dar Rapid Transit Agency (DART), 2017, p. vii). It is pertinent to mention that since the planning

of DART BRT, it had been scheduled that there would be a Dar es Salaam Urban Transport Authority (DUTA) established (Ministry of Lands Housing and Human Settlements Development, 2016, p. 116) but presently this Authority has not yet seen the light of day.

Mainly, the responsibility of regulating the services and routes of the Dar es Salaam Rapid Transit (DART) is within the mandate of the Land Transport Regulatory Authority (LATRA) while coordination with DART services is the responsibility of the Dar Rapid Transit Agency (DART Agency) (Ministry of Lands Housing and Human Settlements Development, 2016). The DART Agency is “an Executive Agency established through GN.120 of 25th May, 2007 under the Executive Agency Act 30 of 1997 and its amendments, and was created in the spirit of Act of No. 30 of 1997, which was to improve services and increase both effectiveness and efficiency of its operations” (Dar Rapid Transit Agency (DART), 2017, p. viii). Specifically, the following are some of the roles and functions of the Dar es Salaam Rapid Transit (DART) Agency according to (Dar Rapid Transit Agency (DART), 2017, p. 5):

- i. Work closely with other key players to ensure better delivery of DART system and its services;
- ii. Appoint and manage effectively employees of the DART in accordance with Public Service Act and its Regulations;
- iii. Ensure that all aspects of the management and organisation are kept under review and those that best suit DART’s business requirements;
- iv. Organise and manage all Executive Agency’s resources allocated to it efficiently, economically and in accordance with the principles of fairness and impartiality as outlined in Government policies and Financial Regulations;
- v. Ensure DART system is managed efficiently taking into consideration relevant National Policies and Legal requirements;
- vi. Ensure delivery of DART system and services to customers and, on schedule and to the expected standards; and
- vii. Ensure the development and implementation of DART system succeeds, negotiate and monitor support provided by Development Partners for the implementation of the DART system.

The existing phase 1 of the DART is depicted in Plates 4.3 and 4.4. The daladalas that act as feeders to these BRT buses are shown in Plate 4.5 and 4.6.

Plate 4.3 Dar es Salaam Rapid Transit and the normal traffic flow



Source: <https://www.flickr.com/photos/worldbank/32737785713/sizes/>

Plate 4.4 Passengers enroute the Dar Rapid Transit



Source: <https://www.flickr.com/photos/worldbank/32782209974/in/photostream/>

Plate 4.5 Daladalas that act as feeders for the DART BRT



Source: <https://theconversation.com/dar-es-salaams-new-rapid-bus-system-won-international-acclaim-but-it-excludes-the-poor-109987>

Plate 4.6 Passengers boarding Daladala at peak time



Source: <http://eonyango.blogspot.com/2008/09/what-actually-happens-in-dar-es-salaam.html>

4.4 Summary of Chapter

This chapter has provided analysis and findings from a comparative overview of Accra city-region and Dar es Salaam city regarding similarities and differences in line with these key issues: physical and natural characteristics of the respective cities, demographic characteristics, economic characteristics, governance of the respective cities (institutions), and sustainable mobility (precisely road-based public transport) in these two cities.

The ensuing chapter presents the analysis and presentation of field data with the view of answering the research questions of this study.

CHAPTER FIVE

ANALYSIS AND PRESENTATION OF FIELD DATA

5.1 Introduction

The preceding chapter provided a comparative overview analysis and findings of Accra city-region and Dar es Salaam city based on five key issues. This chapter presents the analysis of remote field data through “detailed descriptions, interpretations, and rich quotations” (Patton, 2015d, p. 533) which is underpinned by the beliefs or assumptions of the philosophy of social constructivism pertaining to collective case study research method by Stake (2003) and as referred to as multiple/comparative case study by Yin (2014) with the view of answering the main and sub-research questions of this study. In this regard, it is also important to emphasize that, the four analytical concepts from the conceptual framework of Figure 2.15 are seen across all the main and five sub-research questions of this study. Hence, in particular attention was paid to the key issues indicated under each of these analytical concepts from the conceptual framework in Figure 2.15 during the data analysis for each sub-research question.

Primarily, this chapter presents the Qualitative Content Analysis of interview-transcripts as data and presents the data descriptively illuminating the ontological (the nature of reality), epistemological (how reality is known), and axiological (role of values) beliefs relating to institutions interviewed in Ghana (Accra city-region) and Tanzania (Dar es Salaam city). To this end, MAXQDA 2020 standard version 20.0.8 was used to aid the Qualitative Content Analysis of these interview transcripts systematically and for wide-ranging analytical options. Additionally, documents collected from the field as data were analysed with the view of answering sub-research questions one and two, for further information, as evidence and for triangulation purposes.

Specifically, this chapter presents the multiple realities within each category of the six units of analysis/categories of actors/institutions in each city in a comparative manner with the view of answering the research questions of this study (i.e. ontology). Thus, case analysis of each unit interviewed as opined by Patton (2015d). In addition, it presents the multiple realities across and between each category of the six units of analysis to elucidate similarities and differences across the two case study cities in answering the research questions of this study. This represents cross-case analysis of “grouping together answers from the different institutions interviewed in both cities to common questions” (Patton, 2015d) in line with the interview guide for field data collected.

This chapter also highlights subjective quotes from each of the six units of analysis/categories of actors/institutions within each respective city and across both cities comparatively to underscore the multivocality of the voices of each of the six unit of analysis in combination with the voice of the researcher with the view of answering the research questions of this study. Furthermore, this chapter presents conscientiously any biases accepted in the analysis of the field data to ensure that findings and conclusions are a true reflection of the phenomenon under study (i.e. axiology).

Finally, this chapter presents key issues highlighted in the research problem section of this study which needed to be verified from the field, including the current state and sustainability of road-based public transport in each city.

5.2 Units of Analysis in Accra city-region (Ghana) and Dar es Salaam city (Tanzania)

As a precursor to commence analysis of the remote field data from Accra city-region (Ghana) and Dar es Salaam city (Tanzania) with the view of answering research question one, it is pertinent to indicate the units of analysis in this regard. The Units of Analysis refer to the category of each of the six categories of actors/institutions, namely: Government Agencies/ City Authorities, Public Transport Operators of Public Transport, Private Transport Operators of Public Transport, Private Sector Organisations, Financiers with Dedicated Green Funds, and Academia/ Research Institutes, depicted in Table 5.1. Precisely, each of these six units of analysis encompass several institutions that have been grouped under each category.

Table 5.1 Six Units of Analysis

S/N	Units of Analysis/ Categories of Actors	Institutions in Ghana (Accra city-region)	Institutions in Tanzania (Dar es Salaam city)
1.	Government Agencies/ City Authorities	Metro Transport Department under AMA	Dar es Salaam City Council
		Department of Urban Roads	Tanzania National Roads Agency (TANROADS)
		Greater Accra Passenger Transport Executive (GAPTE) under MLGRD	Dar Rapid Transit Agency (DART)
		Environmental Protection Agency (EPA) under MESTI	National Environment Management Council (NEMC)

S/N	Units of Analysis/ Categories of Actors	Institutions in Ghana (Accra city-region)	Institutions in Tanzania (Dar es Salaam city)
		Land Use and Spatial Planning Authority (LUSPA) under MESTI	Ministry of Lands, Housing and Human Settlement Development
		Ministry of Transport (MoT)	Ministry of Works, Transport and Communication
		Ministry of Local Government, Decentralisation and Rural Development (MLGRD)	Land Transport Regulatory Authority (LATRA)
2.	Public Transport Operators	Metro Mass Transit Ltd (MMT)	UDA Rapid Transit Public Limited Company (UDART PLC)
3.	Private Transport Operators of PT	(a). Ghana Private Road Transport Union (GPRTU)	Dar-es-Salaam Commuter Bus Owners' Association (DARCOBOA)
		(b). Ghana Cooperative Transport Association	-
		Ghana Road Transport Coordinating Council (GRTCC)	-
		(b). Ghana Co-Operative Bus Rapid Transit Services Ltd.	-
		(a). Accra GPRTU Rapid Bus Services Ltd.	-
		Amalgamated Bus Rapid Transit Services Ltd.	-
4.	Private Sector Organisations	Scania West Africa Ltd.	-
		African Association of Public Transport (UATP/UITP)	African Association of Public Transport (UATP/UITP)

S/N	Units of Analysis/ Categories of Actors	Institutions in Ghana (Accra city-region)	Institutions in Tanzania (Dar es Salaam city)
5.	Financiers with dedicated green funds	The World Bank Group	The World Bank Group
		-	Institute for Transportation and Development Policy (ITDP)
6.	Academia/Research Institutes	Kwame Nkrumah University of Science and Technology (KNUST)	University of Dar es Salaam (UDSM)
Total number of institutions		16	13

Note: Private Transport Operators of PT (a) and (b) were two-in-one interviews

Source: Author's Construct, March 2021

With reference to these six units of analysis in Table 5.1, and juxtaposing them against the conceptual framework of Figure 2.15 in relation to the typical actors involved in mobility provision in cities, it will be seen that each of these six units of analysis or categories of actors exist in both Accra city-region and Dar es Salaam city towards the provision of road-based public transport. However, the seventh category of actor referred to as Civil Society Groups such as Public Transport Users Associations are not available in either Accra city or Dar es Salaam city. This was confirmed by Government Agencies/City Authorities, and Academia/Research Institutes in a question asked during the remote field data collection: “are you aware of any Civil Society Organisations, NGOs or pressure groups that represent public transport users in your city?”

A response from the Government Agencies/City Authorities was:

“No, not at all. I think this is one of the weak areas in the industry. And it is so because of the nature/history of transport services in the country. It has always been a central government role and then at worst, you have informal groups which are unionised. And those unionised groups would have some form of central support to be able to acquire vehicles to render public transport services. So, the absence of civil society organisations may be because it was not an open area for public participation, and individuals would need to solve their own transport problems” (Government Agency/City Authority in Ghana, Remote Field Data in September 2020).

Interviewee from Academia/Research Institutes remarked that:

“I myself, now I'm actually also baffled by the fact that there is no known association for public transport users. And then this actually comes back to the point where we started at. Since the very beginning of the institutional arrangement transport has been overshadowed by the road infrastructure. People think that once they create the roads they have solved the transport problems. But which is not the case. Transport is like a service, and as you are saying now, we do not have an association of consumers of this service. So, I think it is something I had not thought about but it is missing” (Academia/Research Institute in Tanzania, Remote Field Data in February 2021).

In essence, as this Civil Society Organisation category of actors indirectly impact the delivery of road-based public transport services in both cities, it can be inferred that this presents a gap pertaining to one of the key actors/stakeholders in mobility provision and service delivery in Accra city-region and Dar es Salaam city. This therefore validates relevant reviewed literature on the non-existence of Civil Society Organisations that represent users of public transport in cities in Ghana and Tanzania.

5.3 Background of Respondents

The total number of institutions interviewed in Ghana regarding public transport in Accra city-region were 16 across the six units of analysis as shown in Figure 5.1, whereas that of Tanzania on public transport in Dar es Salaam city were 13 as indicated in Figure 5.2. In line with the background of each of the interviewees in each of the institutions in both countries, the main category/code of position in terms of level management inductively unravelled 12 sub-categories/sub-codes ranging from Academic Staff, Senior Transport Specialist, Chief Executive Officer, Director, Head of Department, among others as depicted in Figures 5.1 and 5.2.

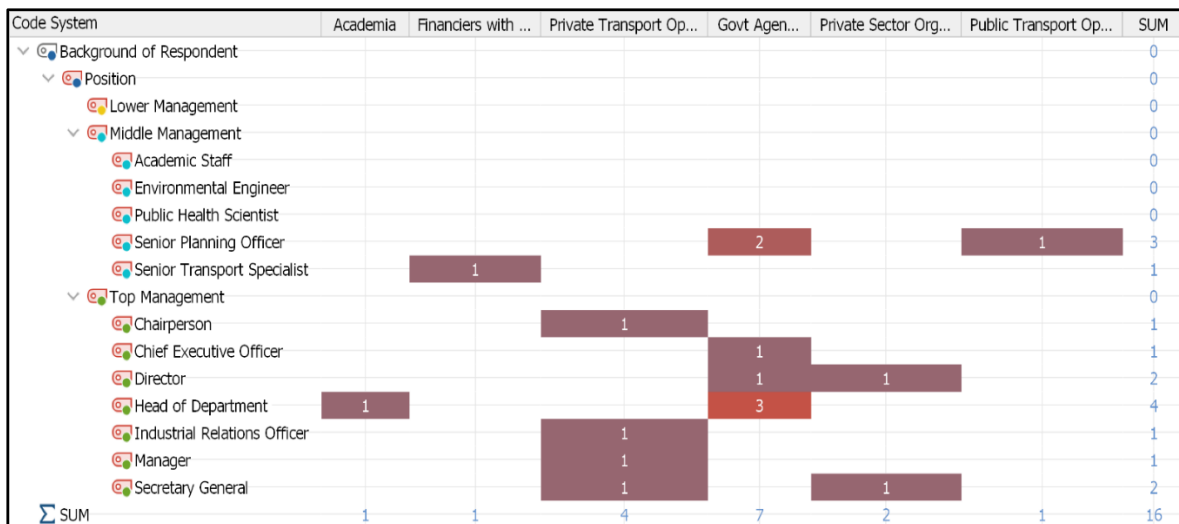


Figure 5.1 Heatmap of Levels of Management Position of interviewees in Ghana (Accra city region)

Source: Remote Field Data, September 2020 – December 2020



Figure 5.2 Heatmap of Levels of Management Position of interviewees in Tanzania (Dar es Salaam)

Source: Remote Field Data, September 2020 – March 2021

Subsequently, these 12 sub-categories/sub-codes were deductively grouped under the three categories/codes: Lower Management, Middle Management, and Top Management from literature. From Figure 5.1 in the case of Ghana, it can be inferred that the unit of analysis Government Agencies/City Authorities pertaining to Top Management interviewees were largely Head of Departments (three in number) whereas the others were Chief Executive Officer (one) and Director (one). In the Case of Tanzania from Figure 5.1, it can be inferred that in the same unit of analysis of Government Agencies/City Authorities with reference to

Top Management interviewees were largely Managers (two in number) while the rest were Chief Executive Officer (one) and Director (one).

A comparison of the Government Agencies/City Authorities in Top Management Position in both Ghana and Tanzania interviewed reveals that the nature of reality within this unit of analysis is multiple in the case of Ghana (i.e. Head of Department, Chief Executive Officer, Director); as well as in the case of Tanzania (i.e. Manager, Chief Executive Officer, Director). Furthermore, across both countries under the same unit of analysis the nature of reality is multiple with similarities (i.e. Chief Executive Officer, Director) and differences (i.e. Head of Department or Manager).

It can be ascertained from Figure 5.1 in the case of Ghana with reference to all the six units of analysis regarding the Middle Management level of interviewees with the position of Senior Planning Officer that, there were two interviewees in the Government Agencies/City Authorities with this position, and there was one interviewee in the Public Transport Operators of Public Transport with this position. Nevertheless, there was no interviewee in the units of analysis in Academia/Research Institutes, Financiers with Dedicated Green Funds, Private Transport Operators of Public Transport, and Private Sector Organisations, with this position of Senior Planning Officer. On the contrary, it can be inferred from Figure 5.2 in the case of Tanzania that, considering all the six units of analysis in Middle Management level with the position of Senior Planning Officer, there was no interviewee with this position.

Comparatively, the nature of reality from the view of interviewees with the position of Senior Planning Officer is multiple (i.e. Government Agencies and Public Transport Operators of Public Transport).

It is notable to mention that among and across all the six units of analysis in Ghana (Accra city-region) and Tanzania (Dar es Salaam city), nearly two-thirds of the interviewees (21 in total) worked in the Top Management Level Positions while a third of the interviewees (eight in total) worked in Middle Management Level Positions (see Figure 5.3). In all there was no interviewee with a Lower Level Management Position.

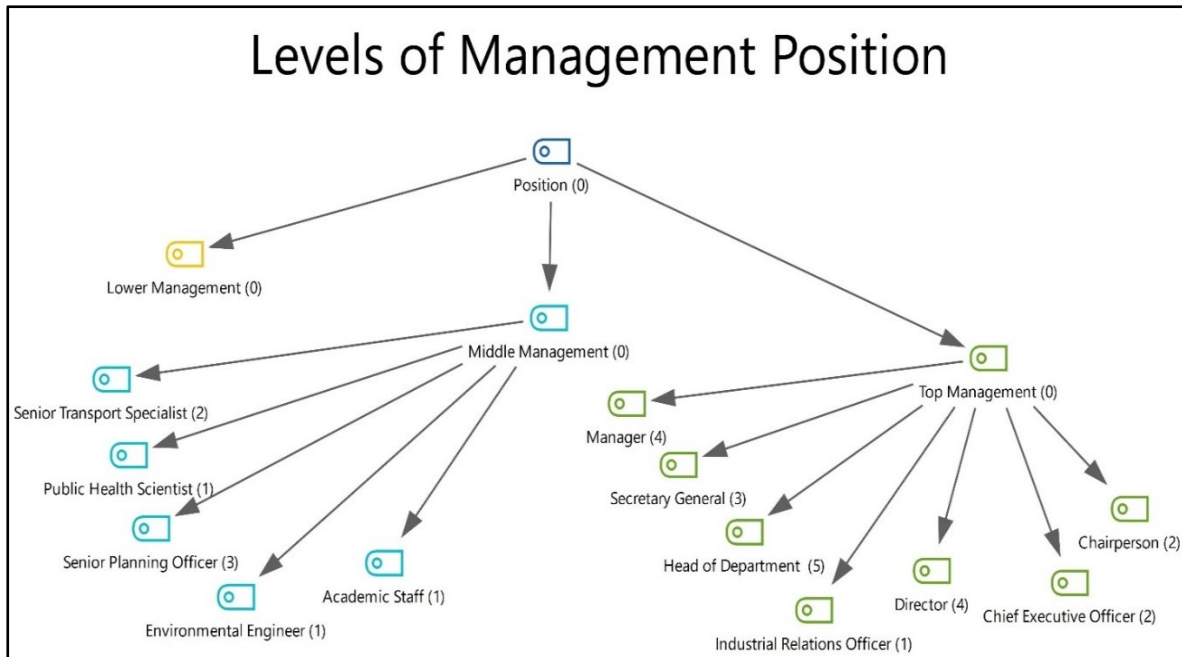


Figure 5.3 Aggregated Number in the Three Categories of Positions in Ghana and Tanzania
 Source: Remote Field Data, September 2020 – March 2021

5.4 State of road-based public transport in Accra city-region (Ghana) and Dar es Salaam city (Tanzania)

5.4.1 Public Transport Sustainability in Accra city-region and Dar es Salaam city

As a way to corroborate issues discussed in the research problem of this study, Figure 5.4 indicates the sustainability of road-based public transport in Accra city-region (Ghana) and Dar es Salaam city (Tanzania).

Among the six units of analysis comprising of 13 institutions interviewed in Tanzania regarding the current state of road-based public transport in the city of Dar es Salaam, it can be seen from Figure 5.4 that nearly two-thirds of them (seven in number) stated that the public transport system in the city is sustainable, whereas almost a third-of the interviewees (four in number) mentioned that the system is environmentally unsustainable, and less than a third of the interviewees (2 in number) indicated that the public transport system in Dar es Salaam city is both sustainable (i.e. economically and socially) and environmentally unsustainable.

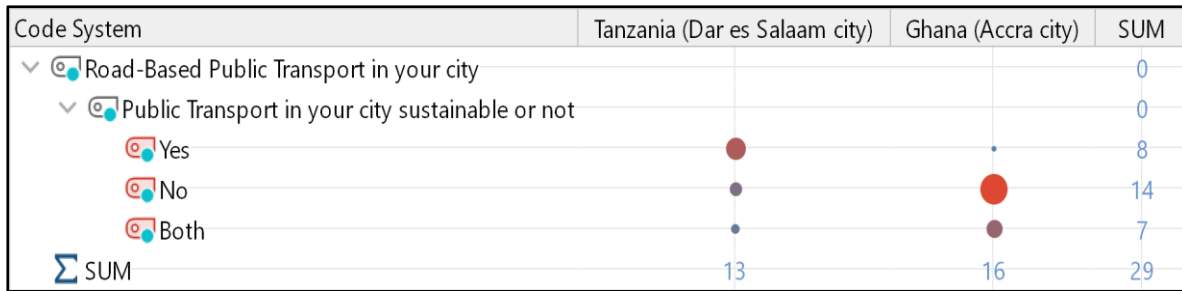


Figure 5.4 Sustainability of Public Transport in Accra city-region and Dar es Salaam city

Source: Remote Field Data, September 2020 – March 2021

From Figure 5.4, it can be seen that considering all the six units of analysis interviewed on the present state of the road-based public transport system in Accra-city Region, nearly two-thirds of the interviewees (10 in number) indicated that the system is environmentally unsustainable in the city, while nearly a third of the interviewees (five in number) mentioned that the public transport system in the city is both sustainable (i.e. economically and socially) and environmentally unsustainable, and only one person said that the system in Accra city-region is sustainable.

Comparatively, the current state of road-based public transport in Dar es Salaam city as revealed by the content analysis of this study is largely sustainable (seven respondents) as against that of Accra city-region which is slightly sustainable (only one respondent) (see Figure 5.4). In addition, Figure 5.4 depicts that the road-based public transport in Accra city-region is mainly environmentally unsustainable (10 respondents) as against the case of Dar es Salaam city which is marginally environmentally unsustainable (four respondents). Also, five respondents in Ghana indicated that the public transport system in Accra city-region is both sustainable and unsustainable, whereas two respondents in Tanzania stated that the public transport system in Dar es Salaam city is on the one hand sustainable and on the other hand unsustainable.

This in a way but not entirely, validates findings from literature reviewed indicating that “presently, the state of road-based public transport in Ghanaian and Tanzania cities are unsustainable” (Banister, 2011; United Nations, 2015a; Bongardt et al., 2013). Rather, the content analysis of this research reveals that road-based public transport in Accra city-region is mainly environmentally unsustainable (see Figure 5.4) but to a larger extent economically and socially sustainable as perceived by the respondents. For instance, a remark by Private Transport Operators of Public Transport unit of analysis was:

“concerning environmental sustainability, no, for that one it is not, because of the kind of emissions that we emit from our various ‘trotros’, it is not good for environmental

sustainability". "... economically when we talk about the sustainability of the public transport system as far as individuals are concerned it is sustainable because as challenges come, they try as much as possible to find means of surviving. And you know when it is about means of surviving, anything that you do to make sure that you are still in business, you try to do that" (Private Transport Operators of Public Transport in Accra city-region, Remote Field Data in October 2020).

Interviewees in Academia/Research Institutes expressed the view that:

"if you look at it from an environmental perspective, then you can say that the system is not sustainable for two reasons. One, the dominance of using small vehicles for that is virtually the same as using private cars in the city. So, emissions levels will generally be high, there will be so much congestion in the city and that is what Accra experiences. The second part is that, most of the vehicles that are used for public transport services are vehicles that are very old" (Academia/Research Institutes in Ghana, Remote Field Data in December 2020).

On the contrary, the data analysis of this research shows that the road-based public transport in Dar es Salaam city is marginally environmentally unsustainable (see Figure 5.4) but economically and socially sustainable as perceived by the respondents. The Government Agencies/City Authorities in Tanzania for example asserted that:

"We are still striving to make it sustainable" "Now when you talk about environmental sustainability in Dar es Salaam city we have a challenge. The current situation, most of the buses that are providing services are of second hand" (Government Agencies/City Authorities in Tanzania, Remote Field Data in December 2020).

It is pertinent to emphasise that the data analysis of this study corroborates what was found in literature that, in the case of Ghana "the country has made some gains in the economic and social spheres with reference to the three dimensions of sustainability. Yet, a lot remains to be done on the environmental sphere where pollution and degradation are still a major challenge" (Ministry of Environment Science and Technology, 2012, p. 5). Correspondingly, in the case of Tanzania this study validates what was found in literature that "a periodic voluntary review of progress in line with the 2030 Agenda for sustainable development indicates that the country is performing reasonably well in addressing eight goals: 2, 3, 4, 5, 6, 8, 10, 16; but these four goals: 7, 9, 11, 12 are likely to be attained by the target year 2030 with commensurate local partnerships, efforts and international support; whereas the remaining five goals: 1, 13, 14, 15, and 17 require additional efforts to be attained" (Ministry of Finance and Planning, 2019, pp. xv-xvi).

5.4.2 Reasons for Sustainable Public Transport in Accra city and Dar es Salaam city

The content analysis with respect to all the respondents across the six units of analysis in both Accra city-region and Dar es Salaam city that indicated that the current public transport system in each respective city is sustainable based on varying reasons. These varying reasons inductively generated as sub-categories/sub-codes were ten in total as seen in Figure 5.5. From Figure 5.5, it can be inferred that the top four main reasons given were the implementation of ‘Pilot BRT’, followed by the ‘Introduction of Metro Trains’, ‘Improved Infrastructure’ and ‘Resilient Minibuses (Trotros)’. It is important to mention that respondents in this category of ‘Yes’ as well as for ‘Both’- whose reasons related to ‘Yes’, gave multiple reasons to their response.

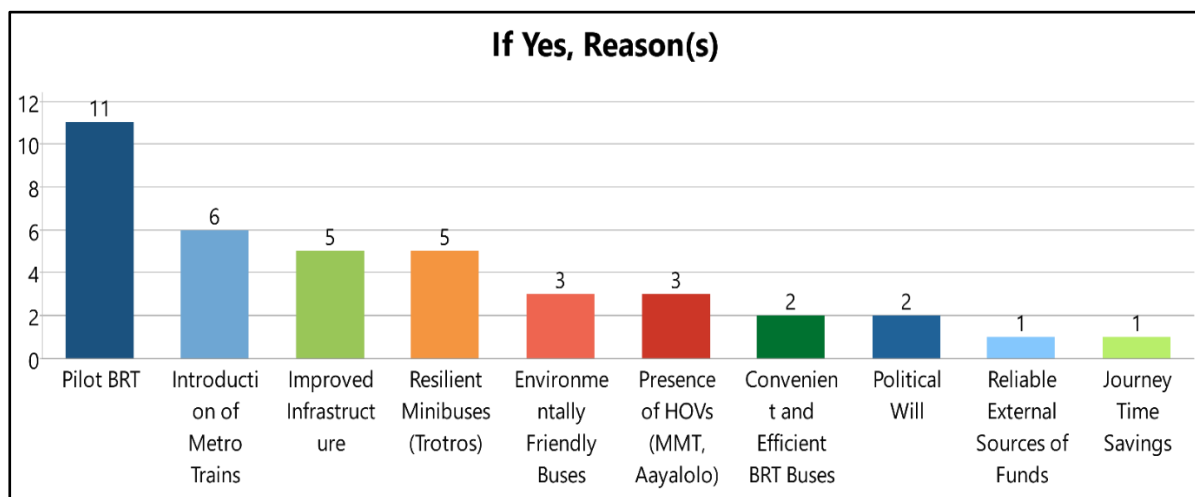


Figure 5.5 Reasons for Sustainable Public Transport in Accra city and Dar es Salaam city

Source: Remote Field Data, September 2020 – March 2021

The data analysis in both Accra city-region and Dar es Salaam city across all the six units of analysis revealed 16 sub-categories/sub-codes as the reasons for the environmentally unsustainable public transport systems in both cities (see Figure 5.6). The top five sub-categories/sub-codes inductively generated as reasons among all the 16 generated sub-categories were: ‘Environmental Hazards (CO² emissions)’, ‘Dominated by Informal Private Sector with LOVs’, ‘Old Fleets for Paratransit Operations’, ‘Poor Infrastructure’ and ‘Congestion in CBDs due to LOVs’ (see Figure 5.6). Here, each respondent among the six units of analysis in this category of ‘No’ and in the category of ‘both’-whose responses were ‘No’ with regards to both Accra city-region and Dar es Salaam city being environmentally unsustainable emphasized multiple reasons.

5.4.3 Reasons for Unsustainable Public Transport in in Accra city and Dar es Salaam city

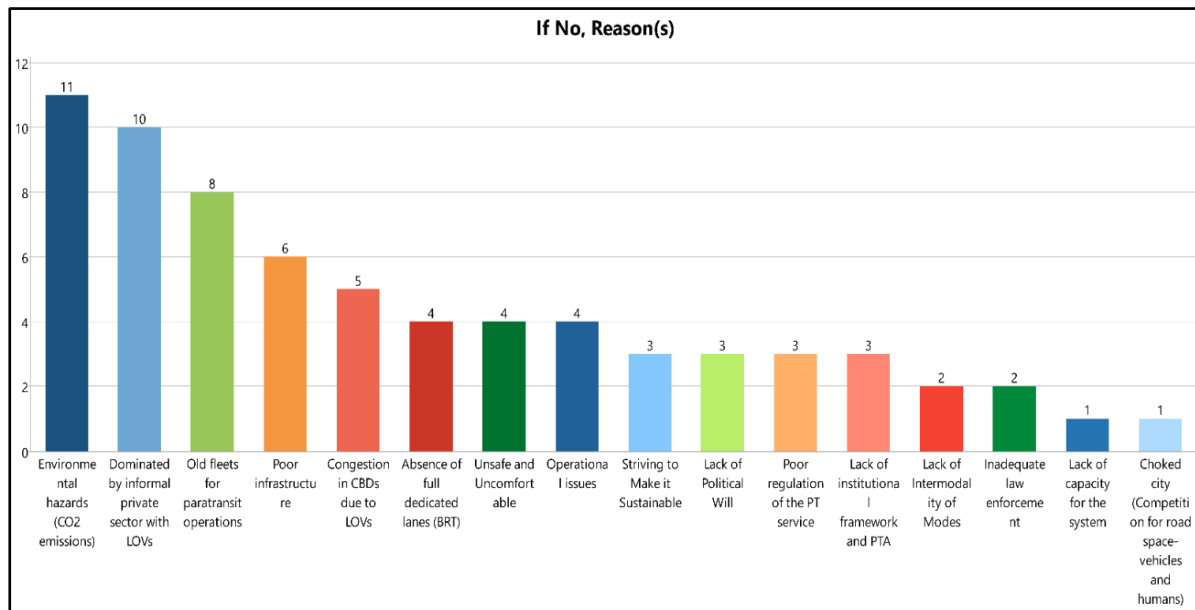


Figure 5.6 Reasons for Unsustainable Public Transport in Accra and Dar es Salaam city

Source: Remote Field Data, September 2020 – March 2021

5.5 Causes of Environmentally Unsustainable Road-Based Public Transport in Accra city-region (Ghana) and Dar es Salaam city (Tanzania)

As has previously been established, the road-based public transport system is largely environmentally unsustainable in Accra city-region and slightly environmentally unsustainable in Dar es Salaam city. From Figure 5.7 the data-driven sub-categories of the causes in Accra city-region among all the units of analysis were 19 in number. These include from bottom-up: Weak Policy Implementation Mechanisms (National Transport Policy), Decentralised Local Levels (Department of Transport) lack adequate funds, Public Transport Regulator issues (GAPTE), Lack of Political Will, Law Enforcement Challenge, Inadequate Public Transport Service Controls (Regulations), Operations Purely Based on Economics, Inadequate Funds and Low Investment, and Old and Rickety Vehicles. In the case of Dar es Salaam city, the data-driven sub-categories of the causes of the slightly environmentally unsustainable public transport system in the city among all the units of analysis were eight in number (see Figure 5.7). These include from middle-up: Inadequate Infrastructure, Numerous Minibuses (Operators), Inadequate Funds and Low Investment, and High Rate of Motorization.

It can be inferred from Figure 5.7 that the total number of causes of largely environmentally unsustainable public transport in Accra city-region (19) more than doubled that of Dar es Salaam city (8) which is slightly environmentally unsustainable. This confirms the several causes of unsustainable public transport indicated in the research problem of this study and the literature reviewed as well. In addition, this study adds to knowledge the specific causes of environmentally unsustainable road-based public transport in Accra city-region and Dar es Salaam city to inform appropriate solutions and measures required to address them by the respective category of actors/institutions.

Code System	Ghana (Accra city)	Tanzania (Dar es Salaam city)
<ul style="list-style-type: none"> <ul style="list-style-type: none"> <ul style="list-style-type: none"> Lack of Strong PT Authority Fragmented Institutions (No Champion) High Rate of Motorization Rapid Urbanisation Dependence on Road Transport Old and Ricketty Vehicles Resistance Inadequate Funds and Low Investment Numerous Minibuses (Operators) Inadequate Infrastructure Users Accustomed to Minibuses Operations Purely Based on Economics of it Inadequate PT Service Controls (Regulations) Law Enforcement challenge Lack of political will Few BRT Projects Public Transport Regulator issues (GAPTE) Disjoint btn Central Agencies and Local Assemblies(Fin. Decent) Decentralised local levels (DoT) lack adequate funds Weak Policy Implementation Mechanisms (Nat.Transport Policy) 		
		1
	2	
	1	5
	1	
	1	
	5	
	2	
	5	2
	2	2
	3	6
	2	
	6	2
	7	
	8	2
	8	
	2	1
	4	
	1	
	4	
	14	

Figure 5.7 Heatmap of Causes of Environmentally Unsustainable Public Transport in both cities

Source: Remote Field Data, September 2020 – March 2021

From Figure 5.7, it can be seen that the major cause of largely environmental unsustainable public transport in Accra city-region is ‘Weak Policy Implementation Mechanisms (National Transport Policy)’. Here, interviewees in the Academia/Research Institutes, Financiers with Dedicated Green Funds, Private Transport Operators of Public Transport, Government Agencies/City Authorities, and Private Sector Organisations units of analysis broadly emphasized that the city actors in Accra city-region over time have not been effective and efficient in providing other alternatives to the existing public transport system in the city. To them, there is a whole range of issues surrounding this weak or lack of policy implementation: is there really any policy about public transport, in terms of who manages

the space, the kind of vehicles that should be allowed on the roads for public transport, the kind of standards the vehicles should have as well as the kind of drivers. A remark from an interviewee from the Financiers with Dedicated Green Funds unit of analysis was that:

“So yes, I mean everybody who drives a vehicle must have a license and must be certified by the DVLA as somebody who is capable of handling a vehicle. But in many cases, it really doesn't happen, the number of illiterate drivers you know who cannot even identify a road sign on the road, you know, is huge. So, all these things kind of point out to the fact that either there are policies that are there that nobody is implementing them or really there are no policies or the policies are weak or they're just more or less statements that nobody really intends to follow up over” (Financiers with Dedicated Green Funds in Ghana, Remote Field Data in October 2020).

From the Private Transport Operators of public transport in Accra city-region two comments from two interviewees were that:

“We are just left with implementation and we cannot do it as a government, it saddens my heart. If it were my private business and I have the power and capacity to make sure that enforcement is done, I bet you, I would have solved this problem within a week. But it is beyond me” (Private Transport Operators of public transport in Ghana, Remote Field Data in October 2020).

“So, the current challenge that we have is the traffic. But as I have said, there are solutions to all these challenges and the solution is the mass transportation of which the governments are not able to also implement them. So, I do not know when we are even going to have this done. Very soon the government which procured the BRT is promising of regulating ‘Okada,’ which means even the policies that he led to get started, he has even forgotten about it and those are fundamental issues” (Private Transport Operators of public transport in Ghana, Remote Field Data in October 2020).

It can be seen from Figure 5.7 that the second major cause of environmentally unsustainable public transport system in Accra city-region include: Lack of Political Will and Law Enforcement Challenge. Precisely, among the Private Transport Operators of public transport, Government Agencies/City Authorities, Private Sector Organisations, and Public Transport Operators of public transport units of analysis, they generally highlighted the Lack of Political will that the government in power does not normally have to ensure that set rules and regulations are enforced to the letter as well as the lack of political commitment to solving the existing transportation challenges. An observation from one of the Government Agencies/City Authorities interviewees revealed that:

“Unlike other political manifestos like the free SHS and all these which seek to ensure that they promised this so they are going to put in adequate funds and make sure that by hook or crook they would be implemented. That level of commitment to implementation of sustainable transport systems in Accra does not exist” (Government Agencies/City Authorities in Ghana, Remote Field Data in October 2020).

Another remark from the Private Transport Operators of public transport in Accra city-region on the lack of political will was:

“As we started with the BRT, the only thing we needed was a political will, a government to back the operations and it would have been well with us even from now. But because of lack of political will and inability to put in funds, we’re still at where we are” (Private Transport Operators of public transport in Ghana, Remote Field Data in October 2020).

With reference to Law Enforcement Challenge which is the other second major cause of the environmentally unsustainable public transport system in Accra city-region from Figure 5.7, it was commonly emphasized by the Public Transport Operators of public transport, Private Sector Organisations, Government Agencies/ City Authorities, and Private Transport Operators of public transport units of analysis that if the issue of enforcement is taken seriously in Accra city-region by all political opponents such that there would not be blame game by opposition political parties to score political points when the government in power seriously enforces regulations to this end, this will address this route cause.

The third major cause of environmentally unsustainable public transport in Accra city-region as indicated in Figure 5.7 is Inadequate Public Transport Service Controls (Regulations). Mainly, the units of analysis consisting of Private Transport Operators of public transport, and Government Agencies/City Authorities, generally indicated that public transport service provision in the city is predominantly individually and privately run, with the only form of association being through the transport unions that these operators join so it lacks several controls that you would expect any public transport service to have. For instance, an interviewee said that:

“when you drive on our roads now you realize that there are certain categories of vehicles being used for public transport. But it is not the case. Anybody that brings any container to the town converts it to become public transport or commercial transport vehicle. You understand. So, we lack regulation in that regard” (Private Transport Operators of public transport in Ghana, Remote Field Data in October 2020).

In the case of Dar es Salaam city, Figure 5.7 depicts that the major cause of the slightly environmental unsustainable road-based public transport in the city is Inadequate Infrastructure. From the Government Agencies/City Authorities units of analysis it was stressed that there is the need for sustainable infrastructure which can accommodate the users of public transport in terms of the number of people that need to be served considering the rapid population growth in the city. An interviewee remarked that:

“Dar es salaam city, is the economic hub of Tanzania. So, currently, we have seen the massive increment of people. Now we are about 6 million plus, so talking about that number of people, we are looking at our infrastructure, does it accommodate the number of vehicles? Does it facilitate the public transport to meet the demand of the people?” (Government Agencies/City Authorities in Tanzania, Remote Field Data in December 2020).

The second major cause of environmentally unsustainable public transport system in the city of Dar es Salaam from Figure 5.7 is High Rate of Motorization. The unit of analysis in Academia/Research Institutes mentioned that although the level of car ownership is low, the rate of private vehicle increase is higher and such a trend may undermine the naturally pre-existing circumstances towards public transport system sustainability in Dar es Salaam city.

Comparatively, among all the 20 sub-categories/sub-codes inductively generated as causes of environmentally unsustainable road-based public transport in Accra city-region and Dar es Salaam city, there were seven similar causes as depicted in Figure 5.7. These were: Law Enforcement Challenges, Inadequate Infrastructure, Operations Purely Based on Economics of it, Inadequate Funds and Low Investment, High Rate of Motorization, Numerous Minibuses and Minibus Operators, and Few BRT Projects. This confirms some of the similar causes of unsustainable public transport system in these two case study cities indicated in the research problem and reviewed literature of this research.

As part of the content analysis of this research, it was also pertinent to analyse the relationship between the inductively generated sub-categories of the main category ‘causes of environmentally unsustainable road-based public transport’ in the two case study cities. Therefore, the ‘code co-occurrence relationship’ was relevant in this regard primarily to identify “the simultaneous occurrence or chronological sequence of categories or sub-categories” (Rädiker and Kuckartz, 2020, p. 93), in this case, the occurrence of two sub-categories when matched together from the interview transcripts in Ghana and Tanzania (see Figure 5.8).

From Figure 5.8 the rows and columns indicate the 20 sub-categories of the main category, and the bigger the square on the node, the more related the two matched sub-categories are.

It can be inferred from Figure 5.8 that the code co-occurrence of the 20 sub-categories when matched together and considering the size of the square symbols shows that 'Lack of Political Will' and these three sub-categories: 'Inadequate Funds and Low Investment', 'Law Enforcement Challenge', and 'Weak Policy Implementation Mechanisms (National Transport Policy)' occur the most often together, just as 'Lack of Political Will' in general has many co-occurrences with other sub-categories. Hence, these four mentioned sub-categories are more related.

On the contrary, from Figure 5.8 for the sub-category 'Lack of Strong Public Transport Authority', there are no co-occurrences with all the other sub-categories. Accordingly, this sub-category has no relationship with all the other sub-categories.

In addition, from Figure 5.8 the size of the matching square symbol depicts that the sub-categories: 'Fragmented Institutions (No Champion)', 'High Rate of Motorization', and 'Disjoint between Central Agencies and Local Assemblies (Financial Decentralization)' have very few number of co-occurrences; hence they are related.



Figure 5.8 Code Co-Occurrence of the sub-categories of the causes of environmentally unsustainable public transport in both cities

Source: Remote Field Data, September 2020 – March 2021

5.6 Effects of Environmentally Unsustainable Road-Based Public Transport in Accra city-region (Ghana) and Dar es Salaam city (Tanzania)

As an offspring of the previous section, the effects of the largely environmentally unsustainable road-based public transport in Accra city-region and slightly environmentally unsustainable public transport in Dar es Salaam city are enormous. From Figure 5.9, there were 13 effects inductively generated as sub-categories in both cities. Precisely, in Accra city-region there were 11 effects out of the 13 effects such as economic impacts, increased travel time and travel cost, high fuel consumption and cost, air pollution (emissions), and congestion on roads (see Figure 5.9). In the case of Dar es Salaam city there were 10 effects out of the 13 effects including inadequate supply of public transport, impassable infrastructure in rainy season, air pollution (emissions), and congestion on roads as depicted in Figure 5.9.

It is important to mention that there were eight similar effects in both cities as depicted in Figure 5.9.

Code System	Ghana (Accra city)	Tanzania (Dar es Salaam city)
✓ Road-Based Public Transport in your city		
✓ If No, effects of unsustainable public transport in your city		
✓ Accidents	1	1
✓ Economic Impacts	11	
✓ Social Impacts	1	2
✓ Increased Travel Time and Travel Cost	10	2
✓ Inadequate Supply of PT		2
✓ Impassable Infrastructure in Rainy Season		3
✓ Uncomfortable PT Service	2	
✓ High fuel consumption and cost	5	3
✓ Increased health budget	4	
✓ Air pollution (Emissions)	11	7
✓ Undependable and inefficient public transport system	5	3
✓ Congestion on roads	10	4
✓ Inhibitions on people's movement	4	2

Figure 5.9 Heatmap of Effects of Environmentally Unsustainable Public Transport in both cities

Source: Remote Field Data, September 2020 – March 2021

It can be inferred from Figure 5.9 that the major effect of the environmentally unsustainable public transport system in Accra city-region is air pollution (emissions) and economic impacts. Similarly, in the case of Dar es Salaam city the major effect was air pollution (emissions). In Accra city-region, the units of analysis within the Financiers with Dedicated Green Funds, Private Transport Operators of public transport, Government Agencies/City Authorities, Private Sector Organisations, and Public Transport Operators of public transport generally mentioned that majority of the fleet used for public transport in the city are minibuses/'trotros' which are of low capacity; therefore, the tendency of CO² emissions to the

environment which is not even safe. Additionally, they indicated that one has to burn more fuel to get to one's destination. For instance, one can end up spending around GHS 6 or so to cover the same distance which one could have spent GHS 2 but because of being stuck in traffic you spend more on fuel. Essentially, there is environmental impacts as well as economic and productivity loss.

In Dar es Salaam city, the units of analysis from Academia, and Government Agencies/City Authorities in relation to the effect of air pollution (emissions) in the city mainly said that there are emissions from the 'daladala' vehicles, and these emissions relate to carbon emissions and noise pollution. It was further stressed that emissions from the 'daladala' vehicles have become higher since most of these vehicles spend a lot of time for a single journey or for the same distance which they could perhaps spend shorter times. The ripple effect according to them, is the attraction of a number of small units like motorcycles and tricycles operating in the city centres which aggravate the issue of environmental impacts in the city of Dar es Salaam.

From Figure 5.9, the second major effect in both cities is congestion on roads. Additionally, in the case of Accra city-region, another second major effect from Figure 5.9 is increased travel time and cost. Primarily, across all the six units of analysis from Public Transport Operators, Private Sector organisations, Private Transport Operators of public transport, Financiers with Dedicated Green Funds, and Government Agencies/City Authorities in Accra city-region the effect of congestion on roads was aptly articulated in the following quotations (see Plates 5.1 and 5.2):

An interviewee from the Government Agencies/City Authorities remarked that:

"So, in conclusion a major symptom or effect of this is seen in the congestion on our roads especially in busy business or satellite business districts. For instance, if you are moving to Kaneshie, any perimeter within 2km or 3km to Kaneshie would have choked network, long travel times, people who have to move very fast for emergency services have to struggle through the congestion" (Government Agencies/City Authorities in Ghana, Remote Field Data in September 2020).

Another comment from the Private Transport Operators of public transport was that:

"Congestion is seriously affecting us. In fact, it is serious because if there's no congestion, one, the issue of time will be minimised. The issue of people getting less sleeping time will also be minimised. So, congestion is a serious issue that needs to be addressed. And with the congestion issue, I believe if enforcement is applied, that one too can be solved because now we have three lanes on most of our approach roads to the city business centre, but you get to the city business centre and some

turn into two lanes and others turn to a single lane” (Private Transport Operators of public transport in Ghana, Remote Field Data in October 2020).

Plate 5.1 Traffic congestion on Kanda overpass towards Kwame Nkrumah interchange at off-peak time in Accra city-region



Source: Remote Field Data (October 2020). Picture by Miss Winnifred Antwi

Plate 5.2 Traffic Congestion on Adenta Corridor heading towards Accra CBD



Source: Remote Field Data (May 2021). Picture by Miss Winnifred Antwi

Mainly, in the case of Dar es Salaam city regarding the effect of congestion on roads in the city, the units of analysis from the Government Agencies/City Authorities, and the Private Sector Organisations similarly reiterated that:

“the existing public transport faces a lot of congestion during the peak hours and therefore one cannot reach a certain place at the scheduled time” (see Plate 5.3). “So, during the rainy season, you can find maybe one or two main roads at a certain time on a particular day when there is rain throughout the day, then, they become impassable (see Plate 5.4). So, all public transport is forced to use alternative roads and this causes a lot of congestion on to other roads” (Government Agencies/City Authorities in Tanzania, Remote Field Data in December 2020).

Plate 5.3 Traffic Congestion along the Msimbazi – Kariakoo street in the afternoon



Source: Remote Field Data (December 2020). Picture by Mr. Amedeus Masangia

Comparatively, the effects of congestion on roads, and air pollution (emissions) as major effects in both Accra city-region and Dar es Salaam city validate findings from literature reviewed as opined by Rodrigue et al. (2017) that, traffic congestion tends to be the most predominant transport challenge in cities with a population threshold of more than 1 million inhabitants if not well managed. In addition, as was also noted in literature reviewed the data reveal that “unless effective bus priorities are in force, public transport suffers from the same traffic congestion as private transport” (Iles, 2005, p. 29).

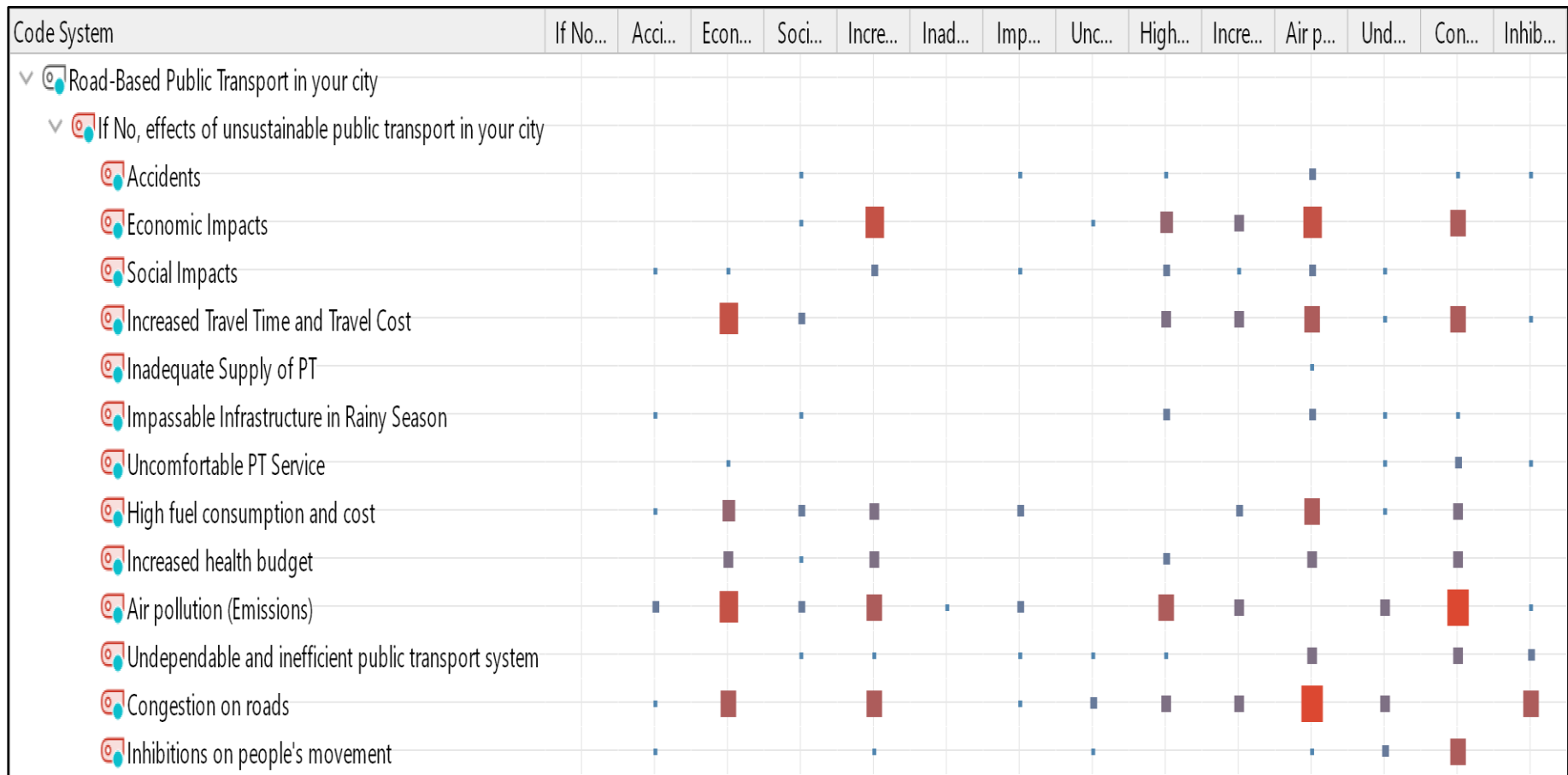


Figure 5.10 Code Co-Occurrence of the sub-categories of the effects of environmentally unsustainable public transport in both cities

Source: Remote Field Data, September 2020 – March 2021

Another important content analysis of this research was the analysis of the relationship (i.e code co-occurrence) between the data-driven sub-categories of the main category 'effects of environmentally unsustainable road-based public transport' in Accra city-region and Dar es Salaam city. From Figure 5.10, the rows and columns show the 13 sub-categories of the main category, and the bigger the square on the node, the more related the two matched sub-categories are.

It can be inferred from Figure 5.10 that the code co-occurrence of all the 13 sub-categories when matched together and taking cognisance of the size of the square symbols show that "air pollution (emissions) and the sub-categories: economic impacts, and congestion on roads occur the most frequent together, just as air pollution (emissions) in general has many co-occurrences with other sub-categories. Therefore, the sub-categories air pollution (emissions), economic impacts, and congestion on roads are more related.

Furthermore, the sub-category 'accidents' has very few number of co-occurrence as depicted in Figure 5.10.

5.7 Institutions, their mandate in the provision of public transport and perception on sustainable public transport in Accra city (Ghana) and Dar es Salaam city (Tanzania)

5.7.1 Mandate of institutions in the provision of public transport in Accra city-region and Dar es Salaam city

With reference to the 16 institutions identified in Ghana and the 13 institutions identified in Tanzania which were grouped under the six units of analysis responsible for the provision of road-based public transport in Accra city-region and Dar es Salaam city, it was pertinent to identify the mandate of these institutions with the view of answering research question one of this study. Therefore, from Figures 5.11 and 5.12 it can be seen that 14 sub-categories were inductively generated under the main category 'mandate of the institution'. These sub-categories include: technical partner/support, regulator, supervisory and monitoring role, encourage environmentally friendly practices, provide mass transportation (BRT) for public transport, and oversee supply/operator of public transport service.

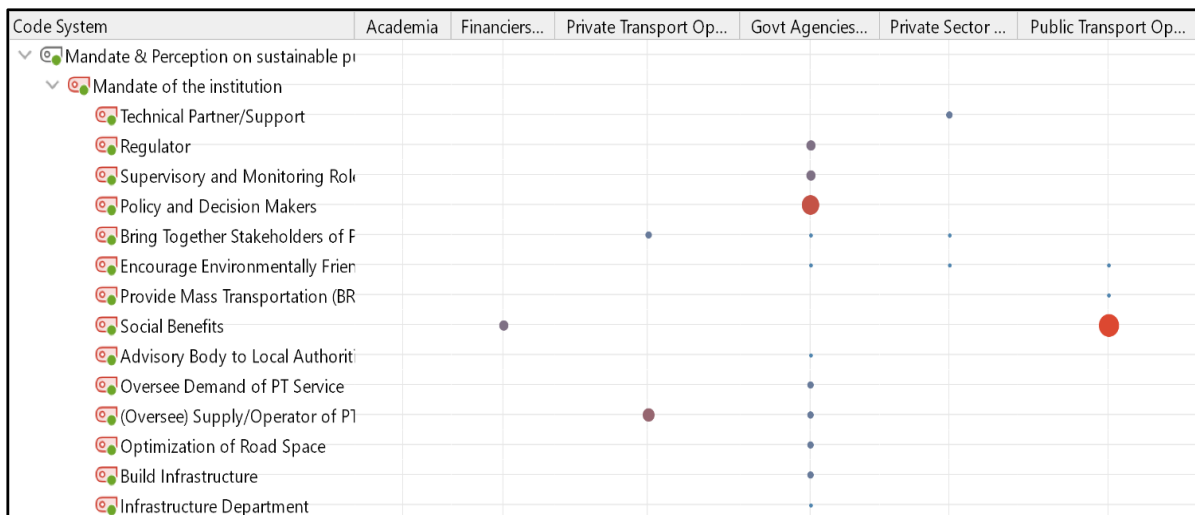


Figure 5.11 Mandate of the institutions in the provision of public transport in Accra city

Source: Remote Field Data, September 2020 – December 2020

From Figures 5.11 and 5.12 it can be inferred that the mandate of the institutions responsible for the provision of public transport in Accra city-region and Dar es Salaam city vary across the six units of analysis. Notably, Academia/Research Institute unit of analysis have no direct or indirect mandate regarding public transport provision in neither Accra city-region nor Dar es Salaam city. The Government Agencies/City Authorities unit of analysis has the most mandate in both cities in comparison to the other five units of analysis.

From Figure 5.11 it can be seen that the Government Agencies/ City Authorities unit of analysis has 11 different mandates with respect to public transport provision in Accra city-region; whereas from Figure 5.12 the Government Agencies/ City Authorities unit of analysis has eight different mandate in line with the provision of public transport in Dar es Salaam city.

Precisely, the main mandate of the Government Agencies/City Authorities regarding the provision of road-based public transport in both cities is 'policy and decision makers' (see Figure 5.11 and 5.12). In the case of Accra city-region, the Government Agencies/ City Authorities in line with their main mandate generally mentioned the reviewed National Transport Policy of May 2020 which is the current policy document for the entire transport sector; as well as the mandate to ensure the provision of affordable and efficient transport systems, infrastructure, and services across all the modes of transport in the city. In addition, this unit of analysis mentioned that as part of their main mandate is to provide for sustainable development and management of human settlements, the preparation of spatial

plans with issues of environmental sustainability being a key component, as well as protecting the environment and public health through developed guidelines and standards.

In the case of Dar es Salaam city, the Government Agencies/City Authorities with regards to their main mandate of 'policy and decision makers' generally indicated that they make policies and develop strategies for the implementation of those policies. For instance, there is an existing policy for human settlement and in this policy, there is an element of public transport and urban development. Furthermore, this unit of analysis has been assigned the responsibility for the planning of transport services for all the four subsectors of transport (i.e. road, air, rail, ports) in Dar es Salaam city.

This corroborates a finding from literature reviewed as indicated by the World Business Council for Sustainable Development (2004), that it is the institutions in these two case study cities that establish the context by which either city-country defines the sustainable mobility prioritized goals to pursue, the levers critical to attain these goals, and the incentives or sanctions that might be levied on their use.

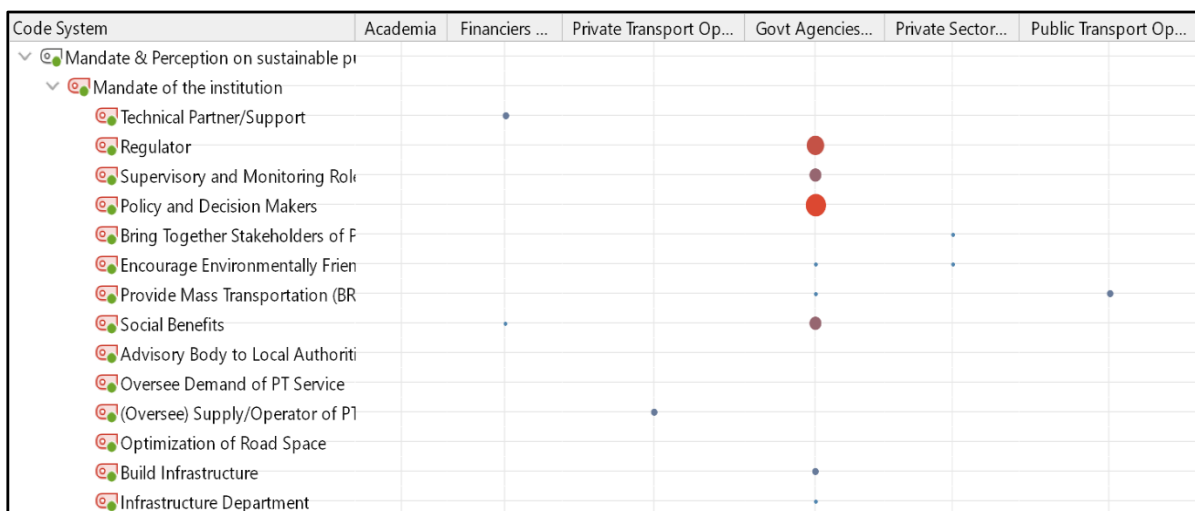


Figure 5.12 Mandate of the institutions in the provision of public transport in Dar es Salaam city

Source: Remote Field Data, September 2020 – March 2021

From Figure 5.11 in terms of the unit of analysis of Private Transport Operators of public transport in Accra city-region, it can be seen that the two main mandates are: 'oversee supply/operator of public transport service', and 'bringing together stakeholders of public transport'. In the case of Dar es Salaam city from Figure 5.12 it shows that the main mandate of the Private Transport Operators of public transport in the city is to 'oversee supply/operator of public transport service'.

Remarks each from the Private Transport operators of public transport in both cities in this regard were:

“... ours is to make sure that we operate by the laid down regulations. That is, the traffic regulations that are set aside and then the Assemblies also have their regulations that anybody who operates within their areas abide by them” (Private Transport Operators of public transport in Accra city, Remote Field Data in October 2020).

“whenever there is anything to do with urban transport in Dar es Salaam, we are involved. We have been involved since the idea of the BRT came into being. We have been involved in the planning of the routes, and enacting the regulations for urban transport, we have been involved almost in everything” (Private Transport Operators of public transport in Dar es Salaam city, Remote Field Data in November 2020).

Comparatively, Financiers with Dedicated Green Funds unit of analysis in both Accra city-region and Dar es Salaam city have the related mandate of ‘social benefits’. Additionally, in Dar es Salaam city this unit of analysis has the related mandate of ‘technical partner/support’ (see Figures 5.11 and 5.12).

Pertaining to Private Sector Organisations unit of analysis, in the case of Accra city the related mandate in line with public transport provision are: ‘technical partner/support’, ‘bringing together stakeholders of public transport’, and ‘encouraging environmentally friendly practices’ (see Figure 5.11). That of Dar es Salaam city are: ‘bringing together stakeholders of public transport’, and ‘encouraging environmentally friendly practices’ (see Figure 5.12).

Lastly, with regards to the Public Transport operators of public transport in Accra city-region and Dar es Salaam city, there is a similar mandate of ‘provision of mass transportation (BRT) for public transport’ as depicted in Figures 5.11 and 5.12. Further, this same unit of analysis pertaining to public transport in Accra city-region has additional mandates of ‘social benefits’, and ‘encouraging environmentally friendly practices’ (see Figure 5.11).

Ultimately, the above issues discussed underscore findings from literature reviewed depicted in the conceptual framework of this study that currently the major provider of public transport in cities in sub-Saharan Africa is the private sector, albeit, sometimes through public-private partnership considering sustainable mass transportation solutions such as bus rapid transit.

As part of the content analysis of this study, it was pertinent to use a code map to present the similarities of the sub-categories of the main category ‘mandate of institutions’, primarily to reveal the co-occurrences of two matched sub-categories/sub-codes (see Figure 5.13). This as opined by Rädiker and Kuckartz (2020, p. 94), as “the more co-occurrences two

codes have, that is, the more similarly they are used in the data, the closer they are placed together on the Code Map". From Figure 5.13, when all the inductively generated 14 sub-categories of the main category 'mandate of institutions' were matched against each other both vertically and horizontally, it can be seen that the similarities, in this case, the co-occurrence of sub-categories in same document display three clusters – in sea blue colour, lemon green colour, and deep blue colour. Precisely, the font size and the circle symbol as depicted in Figure 5.13 reflect the frequency of the corresponding sub-categories, and in this case, 'social benefits' was coded the most frequently, followed by 'policy and decision makers' which are in the same cluster.

Figure 5.13 depicts that the sub-categories 'encourage environmentally friendly practices', 'bring together stakeholders of public transport', 'policy and decision makers', 'provide mass transportation (BRT) for public transport', 'social benefits', and 'supervisory and monitoring role' are close to each other. Therefore, the more similar these sub-categories are used in the data, the closer they are placed together on the Code Map of Figure 5.13. Essentially, a cluster centred around 'social benefits' is formed.

In addition, Figure 5.13 shows that the sub-categories 'build infrastructure', 'infrastructure department', and 'optimization of road space' are close to each other. Thus, the more similarly these sub-categories are used in the data, the closer they are placed together on the Code Map as shown. Here, a second cluster is formed centred around 'build infrastructure'.

Furthermore, Figure 5.13 depicts that the sub-categories 'regulator', 'advisory body to local authorities', and '2codes: oversee demand of public transport service, oversee supply/operator of public transport service' are slightly close to each other. Hence, the closer they are placed together on the Code Map. This forms the third cluster centred around 'regulator'.

Ultimately, the cluster analysis of the 'mandate of institutions' reveals similar results and three clusters are formed with their neighbouring categories from the Code Map of Figure 5.13. These three clusters are 'social benefits', 'build infrastructure', and 'regulator'.

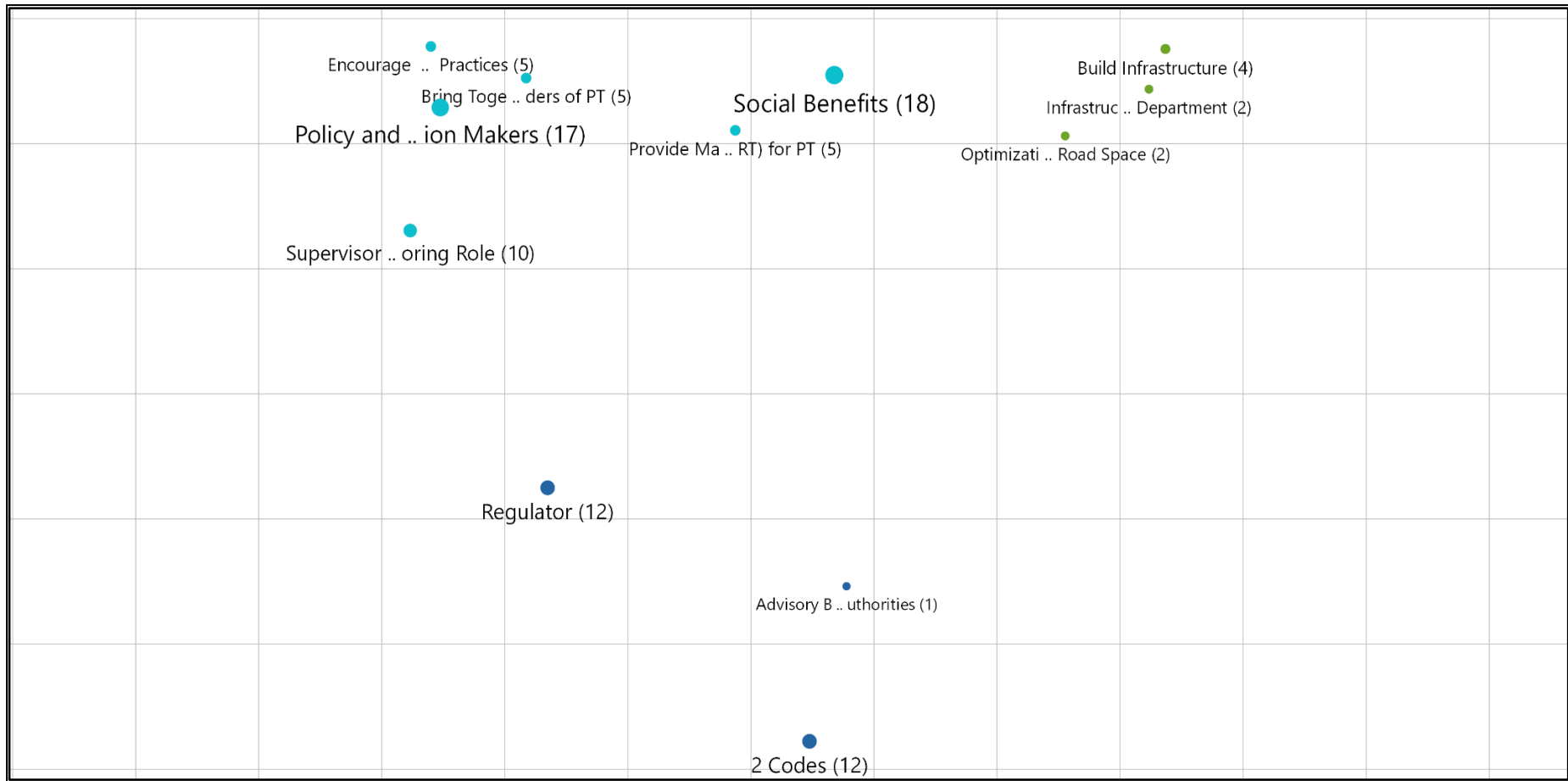


Figure 5.13 Code Map display of co-occurrences of the sub-categories of mandate of institutions in both cities

Source: Remote Field Data, September 2020 – March 2021

5.7.2 Perception of institutions on sustainable public transport in Accra city-region and Dar es Salaam city

With the view of answering research question one of this study, Figures 5.14 and 5.15 depict the perception of all the institutions responsible for public transport provision on sustainable public transport in Accra city-region and Dar es Salaam city respectively.

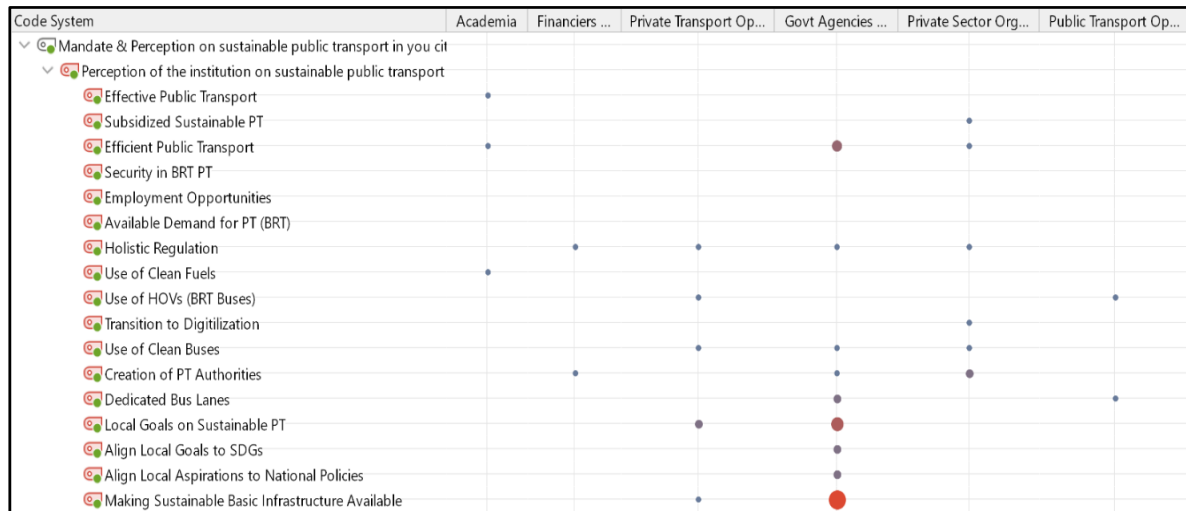


Figure 5.14 Perception of the institutions on sustainable public transport in Accra city

Source: Remote Field Data, September 2020 – December 2020

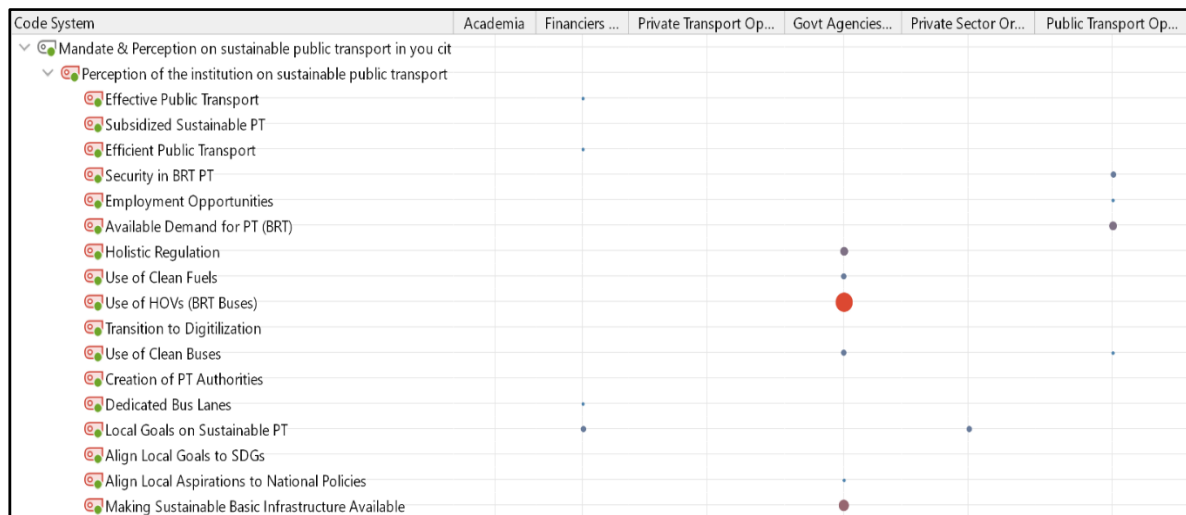


Figure 5.15 Perception of the institutions on sustainable public transport in Dar es Salaam city

Source: Remote Field Data, September 2020 – March 2021

From Figures 5.14 and 5.15, it can be seen that 17 data driven sub-categories were developed from the main category 'perception of the institution on sustainable public transport' in Accra city-region and Dar es Salaam city. These among others are: 'effective public transport', 'subsidized sustainable public transport', 'efficient public transport',

'available demand for public transport (BRT)', 'holistic regulation', 'use of clean fuels', 'use of higher occupancy vehicles (BRT buses)', 'use of clean buses', and 'making sustainable basic infrastructure available'.

In the case of both Ghana and Tanzania, the perception of all the institutions interviewed across the six units of analysis did vary although there were some similarities. From Figure 5.14 it can be seen that the Government Agencies/City Authorities in Ghana mainly perceive a sustainable public transport system in Accra city-region as one having and/ 'making sustainable basic infrastructure available', and second to this is having 'local goals on sustainable public transport'. Whereas the Government Agencies/City Authorities in Tanzania from Figure 5.15 largely perceive a sustainable public transport system in Dar es Salaam city as one that 'uses higher occupancy vehicles such as BRT buses', followed by one having and/ 'making sustainable basic infrastructure available'. Precisely, two remarks from the Government Agencies/City Authorities in Ghana regarding their perception as 'making sustainable basic infrastructure available' are:

"If you have a very good transport system, a good motorised system, I think there should be an avenue to put up the infrastructure which is the road itself and then, may be, the walkway for people to be able to walk, the cycling and non-motorised transport system should also be part. Because you cannot have only vehicles coming in and going out, there should be other modes of transport like bicycles and people being able to walk for short distances" (Government Agencies/City Authorities in Ghana, Remote Field Data in October 2020).

"So, in terms of sustainability we will look at having a certain basic infrastructure which can support this sustainable service round the clock" (Government Agencies/City Authorities in Ghana, Remote Field Data in October 2020).

In the case of Tanzania, two comments from the Government Agencies/City Authorities pertaining to their perception as 'making sustainable basic infrastructure available' are:

"We perceive that we need to have a sustainable means of transport and having sustainable means of infrastructure. Having more infrastructure in terms of roads and bridges" (Government Agency/City Authorities in Tanzania, Remote Field Data in December 2020).

"Its perception is to have good roads for national development" (Government Agencies/City Authorities in Tanzania, Remote Field Data in January 2021).

From Figure 5.14, a perception that was mentioned by nearly all the six units of analysis in the case of Ghana on sustainable public transport in Accra city-region was 'holistic regulation'. Specifically, this was mentioned by the Financiers with Dedicated Green Funds, Private Transport Operators of public transport, Government Agencies/City Authorities, and Private Sector Organisation units of analysis. To the Financiers with Dedicated Green Funds 'holistic regulation' encompassed the following:

“From an institutional perspective there is a lot to be learnt from the growth in Accra and apply to the other cities of Ghana. So, I remember for that project we were looking at Kumasi and Takoradi as well. So, that we could apply some of the lessons that we have learnt in Accra in terms of regulating public transport, making sure that we have stronger set of operators and looking at vehicle specifications and so on. We were looking at how to apply that to stem the challenges that those growing cities are also likely to face. I mean, obviously if you do nothing, then every city is going to end up like Accra with the same kind of sprawl, increase in vehicles, and the same kind of poor infrastructure” (Financiers with Dedicated Green Funds, Remote Field Data in October 2020).

To the Private Transport Operators of public transport 'holistic regulation' was generally emphasized as:

“The authority also has to make sure that they make provision for you to go about your duty without hindrance. And when I talk about hindrance, the pedestrians and then the traders should not come to the road provision meant for vehicles. When this is done, I believe that the public transport system can be sustained” (Private Transport Operators of public transport, Remote Field Data in October 2020).

A remark on 'holistic regulation' from the Government Agencies/City Authorities unit of analysis was:

“Our perception is that it can be achieved, but we have to start the issue of regulation very holistically. Currently each and everybody can enter into the public transport space without any restrictions or fulfilling any conditions. And that, according to the Assemblies' by-laws should not be the case, but the by-laws will be understood and regulated within the public transport space and the Assemblies should have the ability to enforce the rules and regulations” (Government Agencies/City Authorities, Remote Field Data in October 2020).

Finally, 'holistic regulation' from the perspective of Private Sector Organisation unit of analysis was:

“And you also need to regulate to achieve a well-coordinated system preferably as something I mentioned before with a common ticketing system, so the transport becomes inter-modal where you could change from a feeder bus to a bus on a trunk line or ready to raise down traffic which is not very well built for the time being and other forms of transport so that the passenger will have a seamless connection” (Private Sector Organisation, Remote Field Data in October 2020).

Essentially, the perception of ‘holistic regulation’ in line with having a sustainable public transport in Accra city-region as espoused by the four units of analysis above confirm that the nature of reality in this regard is multiple from the various perspectives.

Furthermore, from Figure 5.14 the perception of all the six units of analysis in line with having a sustainable public transport system in Accra city-region is ontologically diverse and multiple. Thus, Academia/Research Institutes perceive a sustainable transport in the city as ‘an effective public transport’, ‘efficient public transport’, and ‘use of clean fuels’; whereas Financiers with Dedicated Green Funds perceive it as one having ‘holistic regulation’, and ‘creation of public transport authorities. The Private Transport Operators of public transport also perceive it as one having ‘holistic regulation’, ‘use of higher occupancy vehicles such as BRT buses’, ‘use of clean buses’, ‘local goals on sustainable public transport’, and ‘making sustainable basic infrastructure available’; while the Government Agencies/City Authorities perceive it as one having ‘efficient public transport’, ‘holistic regulation’, ‘use of clean fuels’, ‘creation of public transport authorities’, ‘dedicated bus lanes’, ‘local goals on sustainable public transport’, ‘align local goals to SDGs’, ‘align local aspirations to national policies’, and ‘making sustainable basic infrastructure available’. The Private Sector Organisation unit of analysis perceive a sustainable public transport in Accra city-region as a ‘subsidized sustainable public transport’, ‘efficient public transport’, ‘holistic regulation’, ‘transition to digitalization’, ‘use of clean buses’, and ‘creation of public transport authorities’; whereas the Public Transport Operators of public transport perceive it as one that ‘use higher occupancy vehicles such as BRT buses’, and ‘dedicated bus lanes’.

In the case of Tanzania, the perception of ‘use of clean buses’ from Figure 5.15 in line with a sustainable public transport system in Dar es Salaam city also depict the nature of reality as multiple. A remark from the Government Agencies/City Authorities was:

“We are thinking of use of CNG buses and electric buses based on its availability being local. So, in terms of sustainability, I see that this project will even be more sustainable than the current situation where we are using diesel” (Government Agencies/City Authorities, Remote Field Data in November 2020).

Another comment on the perception of 'use of clean buses' from the perspective of Public Transport Operators of public transport in Dar es Salaam city was:

"The city was so dirty, because these daladala's were inspected by authorities, but they are old-fashioned, so you get dust and smoke, and they are also of different colours - purple, yellow, red - but now you have one colour in the city or maybe two, so the city becomes clean and organised" (Public Transport Operators of public transport, Remote Field Data in March 2021).

Again, from Figure 5.15 it can be seen that the nature of reality considering the perception of institutions on having a sustainable public transport in Dar es Salaam city is multiple. The perception of Financiers with Dedicated Green Funds are 'effective public transport', 'efficient public transport', 'dedicated bus lanes', and 'local goals on sustainable public transport'; whereas the Government Agencies/City Authorities perceive it as one having 'holistic regulation', 'use of clean fuels', 'use of higher occupancy vehicles such as BRT buses', 'use of clean buses', 'align local aspirations to national policies', and 'making sustainable basic infrastructure available'. To the Private Sector Organisations their perception is having 'local goals on sustainable public transport'; while that of the Public Transport Operators of public transport are 'security in BRT public transport', 'employment opportunities', 'available demand for public transport such as BRT', and 'use of clean buses'.

As part of the content analysis of this study, it was imperative to unravel the similarities of the sub-categories/sub-codes of the main category 'perception of institutions' on sustainable public transport in both Accra city-region and Dar es Salaam city by way of establishing the co-occurrences of two matched sub-categories (see Code Map Figure 5.16). As previously mentioned, the more co-occurrences two matched codes depict, the more similarly they are used in the data, and hence closely placed next to each other on the Code Map as shown in Figure 5.16. Mainly, when all the data driven 17 sub-categories of the main category 'perception of institutions' were matched against each other by rows and columns, it can be seen from Figure 5.16 that the co-occurrences of the sub-categories in the same document similarly display three clusters. These three clusters are categorized in three different colours in Figure 5.16.

From Figure 5.16, based on the font size and the circle symbol which reflect the frequency of the corresponding sub-categories, 'use of higher occupancy vehicles such as BRT buses' and having 'local goals on sustainable public transport' were the two most frequently coded perceptions. These two perceptions/sub-categories find themselves in two different clusters as shown in Figure 5.16.

From Figure 5.16, the sub-categories 'use of clean fuels', 'transition to digitalization', 'use of higher occupancy vehicles such as BRT buses', '3 codes: security in BRT public transport, available demand of public transport such as BRT, employment opportunities', 'use of clean buses' are close to each other and placed next to each other on the Code Map. Fundamentally, a cluster centred around 'use of higher occupancy vehicles such as BRT buses' is formed and depicted in sea blue colour in Figure 5.16.

Furthermore, Figure 5.16 depicts that the sub-categories 'align local aspirations to national policies', 'align local goals to SDGs', having 'local goals on sustainable public transport' are close to each other and similarly used in the data, therefore placed together on the Code Map. The second cluster that is formed here is centred around having 'local goals on sustainable public transport' and depicted in deep blue from Figure 5.16.

Moreover, it can be seen from Figure 5.16 that the sub-categories 'effective public transport', 'efficient public transport', 'dedicated bus lanes', 'subsidized sustainable public transport', 'creation of public transport authorities', 'holistic regulation' are close to each other and similarly used in the data, hence placed next to each other on the Code Map. This forms the third cluster centred around 'holistic regulation'.

Eventually, the cluster analysis of the 'perception of institutions' on sustainable public transport in Accra city-region and Dar es Salaam city reveals similar results and three formed clusters with their neighbouring categories from the Code Map of Figure 5.16. These three clusters are 'use of higher occupancy vehicles such as BRT buses', 'local goals on sustainable public transport', and 'holistic regulation'. Results of this cluster analysis validates findings from literature reviewed that bus rapid transit (BRT) which has one of its major characteristics as technologically-advanced vehicles, has progressively gained interest from decision and policy-makers in addressing mobility challenges in cities in developing and emerging economies, primarily due to its proven cost-effective and flexible substitute for high-performance transit services. Additionally, the cluster analysis results corroborate literature reviewed which indicate that having the required regulations and ensuring effective enforcement of these regulations for public transport in cities is one of the cures for addressing public transport challenges in these cities, although some of the necessary measures could be politically thought-provoking but the potential benefits are significant.

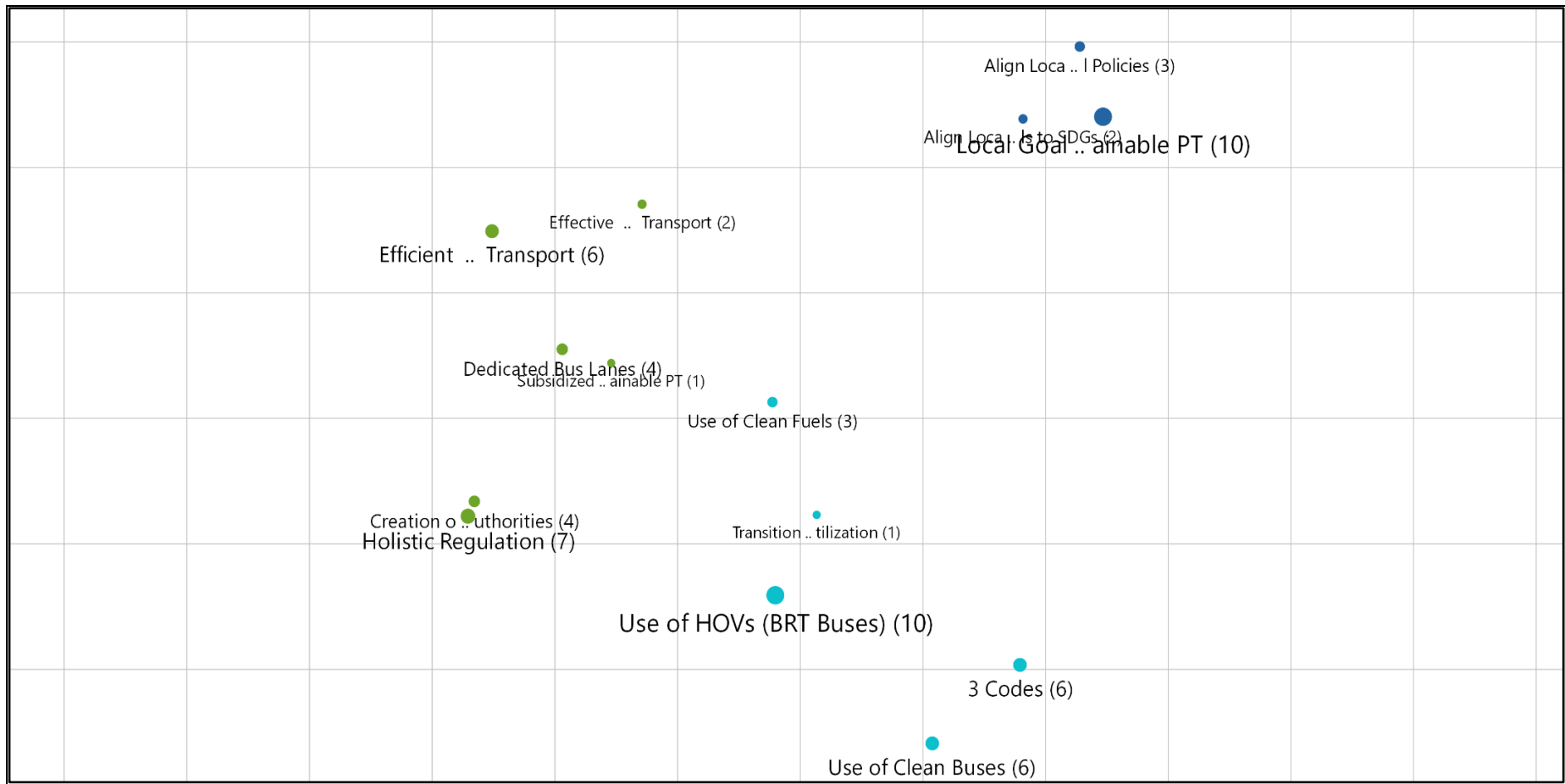


Figure 5.16 Code Map display of co-occurrences of the sub-categories of perception of institutions in both cities

Source: Remote Field Data, September 2020 – March 2021

5.7.3 Pattern Analysis of the two main categories – ‘Mandate’ and ‘Perception’

This section of the study presents the complex code configurations result of the unit ‘document’ for the pattern analysis of ‘mandate of institutions’ and ‘perception of institutions on sustainable public transport’ in both Accra city-region and Dar es Salaam city. From Table 5.2, the analysis depicts the frequency with which combinations of the sub-codes/sub-categories of the selected main codes/main categories ‘mandate of institutions’ and ‘perception of institutions’ were simultaneously assigned within the same document. Every row in Table 5.2 signifies a combination of the sub-categories which occur in the data. The results of these as seen in Table 5.2 are the co-occurrences of the sub-categories of the two main categories analysed in each of the 29 document transcripts across the six units of analysis/institutions.

Precisely, it can be inferred from Table 5.2 that in the first row, in three observations (coded documents), the mandate of ‘build infrastructure’ co-occurred with the perception of ‘making sustainable basic infrastructure available’ within the same unit of analysis of Government Agencies/City Authorities in both Accra city-region and Dar es Salaam city. This corresponds to three out of the total 80 observations analysed. It is important to indicate here that, in this analysis if two sub-categories occur at least once in the document unit, this was treated as a co-occurrence.

Similarly, row three also depicts in three observations (coded documents), the mandate ‘regulator’ co-occurred with the perception ‘holistic regulation’ within the same unit of analysis Government Agencies/City Authorities in both cities. This corresponds to three out of the 80 observations analysed.

In the second row from Table 5.2, it can be seen that in three observations (coded documents), the mandate ‘bring together stakeholders of public transport’ co-occurred with the perception ‘local goals on sustainable public transport’ across three different units of analysis respectively: Private Transport Operators of public transport, Government Agencies/City Authorities, and Private Sector Organisations in both cities. This represents three out of the 80 observations analysed.

Table 5.2 Complex Code Configuration results for the Pattern Analysis of ‘Mandate’ and ‘Perception’ of institutions in both cities

Mandate of the institution	Perception of the institution on sustainable public transport	Documents	Academia	Financiers with Dedicated Green	Private Transport Operators of PT	Govt Agencies or City Authorities	Private Sector Organisations	Public Transport Operators of PT
Build Infrastructure	Making Sustainable Basic Infrastruc	3	0	0	0	3	0	0
Bring Together Stakeholders of PT	Local Goals on Sustainable PT	3	0	0	1	1	1	0
Regulator	Holistic Regulation	3	0	0	0	3	0	0
Infrastructure Department	Making Sustainable Basic Infrastruc	2	0	0	0	2	0	0
(Oversee) Supply/Operator of PT Se	Local Goals on Sustainable PT	2	0	0	1	1	0	0
Technical Partner/Support	Efficient Public Transport	2	0	1	0	0	1	0
Supervisory and Monitoring Role	Holistic Regulation	2	0	0	0	2	0	0
Provide Mass Transportation (BRT)	Use of Clean Buses	2	0	0	0	1	0	1
Provide Mass Transportation (BRT)	Use of HOVs (BRT Buses)	2	0	0	0	1	0	1
Policy and Decision Makers	Making Sustainable Basic Infrastruc	2	0	0	0	2	0	0
Policy and Decision Makers	Align Local Aspirations to National	2	0	0	0	2	0	0
Policy and Decision Makers	Local Goals on Sustainable PT	2	0	0	0	2	0	0
(Oversee) Supply/Operator of PT Se	Holistic Regulation	2	0	0	1	1	0	0
Social Benefits	Holistic Regulation	1	0	1	0	0	0	0
Technical Partner/Support	Holistic Regulation	1	0	0	0	0	1	0
Encourage Environmentally Friendl	Holistic Regulation	1	0	0	0	1	0	0
Regulator	Dedicated Bus Lanes	1	0	0	0	1	0	0
Regulator	Creation of PT Authorities	1	0	0	0	1	0	0
Optimization of Road Space	Making Sustainable Basic Infrastruc	1	0	0	0	1	0	0
(Oversee) Supply/Operator of PT Se	Making Sustainable Basic Infrastruc	1	0	0	1	0	0	0
(Oversee) Supply/Operator of PT Se	Align Local Aspirations to National	1	0	0	0	1	0	0
Oversee Demand of PT Service	Align Local Aspirations to National	1	0	0	0	1	0	0
(Oversee) Supply/Operator of PT Se	Align Local Goals to SDGs	1	0	0	0	1	0	0
Oversee Demand of PT Service	Align Local Goals to SDGs	1	0	0	0	1	0	0
Advisory Body to Local Authorities	Align Local Aspirations to National	1	0	0	0	1	0	0
Social Benefits	Making Sustainable Basic Infrastruc	1	0	0	0	1	0	0
Oversee Demand of PT Service	Local Goals on Sustainable PT	1	0	0	0	1	0	0
Advisory Body to Local Authorities	Align Local Goals to SDGs	1	0	0	0	1	0	0
Provide Mass Transportation (BRT)	Available Demand for PT (BRT)	1	0	0	0	0	0	1
Advisory Body to Local Authorities	Local Goals on Sustainable PT	1	0	0	0	1	0	0
Provide Mass Transportation (BRT)	Employment Opportunities	1	0	0	0	0	0	1
Encourage Environmentally Friendl	Making Sustainable Basic Infrastruc	1	0	0	0	1	0	0
Provide Mass Transportation (BRT)	Security in BRT PT	1	0	0	0	0	0	1
(Oversee) Supply/Operator of PT Se	Dedicated Bus Lanes	1	0	0	0	1	0	0

Table 5.2 Continued

Mandate of the institution	Perception of the institution on sustainable public transport	Documents	Academia	Financiers with Dedicated Green Funds	Private Transport Operators of PT	Govt Agencies or City Authorities	Private Sector Organisations	Public Transport Operators of PT
Oversee Demand of PT Service	Dedicated Bus Lanes	1	0	0	0	1	0	0
Social Benefits	Local Goals on Sustainable PT	1	0	1	0	0	0	0
(Oversee) Supply/Operator of PT Se	Creation of PT Authorities	1	0	0	0	1	0	0
(Oversee) Supply/Operator of PT Se	Use of Clean Buses	1	0	0	1	0	0	0
Oversee Demand of PT Service	Creation of PT Authorities	1	0	0	0	1	0	0
Bring Together Stakeholders of PT	Align Local Aspirations to National	1	0	0	0	1	0	0
Encourage Environmentally Friendl	Local Goals on Sustainable PT	1	0	0	0	0	1	0
Technical Partner/Support	Subsidized Sustainable PT	1	0	0	0	0	1	0
Social Benefits	Dedicated Bus Lanes	1	0	0	0	0	0	1
Technical Partner/Support	Dedicated Bus Lanes	1	0	1	0	0	0	0
Provide Mass Transportation (BRT)	Dedicated Bus Lanes	1	0	0	0	0	0	1
Social Benefits	Creation of PT Authorities	1	0	1	0	0	0	0
Encourage Environmentally Friendl	Dedicated Bus Lanes	1	0	0	0	0	0	1
Technical Partner/Support	Creation of PT Authorities	1	0	0	0	0	1	0
(Oversee) Supply/Operator of PT Se	Use of HOVs (BRT Buses)	1	0	0	1	0	0	0
Encourage Environmentally Friendl	Creation of PT Authorities	1	0	0	0	0	1	0
Encourage Environmentally Friendl	Use of Clean Buses	1	0	0	0	0	1	0
Encourage Environmentally Friendl	Transition to Digitilization	1	0	0	0	0	1	0
Bring Together Stakeholders of PT	Creation of PT Authorities	1	0	0	0	0	1	0
Bring Together Stakeholders of PT	Use of Clean Buses	1	0	0	0	0	1	0
Bring Together Stakeholders of PT	Transition to Digitilization	1	0	0	0	0	1	0
Technical Partner/Support	Effective Public Transport	1	0	1	0	0	0	0
Social Benefits	Use of HOVs (BRT Buses)	1	0	0	0	0	0	1
Provide Mass Transportation (BRT)	Use of Clean Fuels	1	0	0	0	1	0	0
Encourage Environmentally Friendl	Use of HOVs (BRT Buses)	1	0	0	0	0	0	1
Supervisory and Monitoring Role	Making Sustainable Basic Infrastruc	1	0	0	0	1	0	0
Supervisory and Monitoring Role	Align Local Aspirations to National	1	0	0	0	1	0	0
Supervisory and Monitoring Role	Efficient Public Transport	1	0	0	0	1	0	0
Policy and Decision Makers	Use of Clean Buses	1	0	0	0	1	0	0
Oversee Demand of PT Service	Holistic Regulation	1	0	0	0	1	0	0
Total Number of Observations		80	0	6	6	46	12	10

Source: Remote Field Data, September 2020 – March 2021

*64 (of 238 theoretically possible) combinations

From Table 5.2, it can be seen that from row four to row 13 each of these rows depict two observations (coded documents) from the 80 observations analysed. Particularly, majority of the two co-occurrences of the respective mandate and perception are seen in the Government Agencies/City Authorities unit of analysis. For instance, from row seven, the two observations (coded documents) mandate of 'supervisory and monitoring role' and perception of 'holistic regulation' co-occurred within the same unit of analysis Government Agencies/City Authorities (see Table 5.2).

Furthermore, Table 5.2 indicates that in total there were 46 observations out of the 80 observations analysed representing co-occurrences of respective mandates to perceptions with the Government Agencies/City Authorities unit of analysis. This makes this unit of analysis have the largest co-occurrences to the rest of the other five units of analysis. The second to the Government Agencies/City Authorities unit of analysis was the Private Sector Organisations which in total were 12 observations out of the total of 80 observations analysed for co-occurrences of mandate and perceptions of institutions in both cities. Public Transport Operators of public transport in Accra city-region and Dar es Salaam city was the third unit of analysis having a total observation of 10 co-occurrences of respective mandate of institutions to perceptions of the institutions.

Private Transport Operators of public transport unit of analysis, and Financiers with Dedicated Green Funds unit of analysis were the fourth units of analysis with a total of six observations each of co-occurrences of corresponding mandate of institutions and their perceptions.

Academia/Research Institutions from Table 5.2 show that there were no co-occurrences observed for the mandate and perceptions of institutions in both cities.

Ultimately, as opined by Kuckartz and Rädiker (2019), the relevance of the Complex Code Configurations effectively aids in unravelling patterns in the data and provide a good baseline upon which descriptions and categorizations could be developed. 'Patterns from the data' in this study is as espoused by Patton (2015d, p. 541) that, "the term refers to a descriptive finding". Thus, the content analysis of complex code configurations for patterns revealed a pattern of majority co-occurrences of corresponding mandate and perception of institutions observed (46 out of 80 observations) in the Government Agencies/City Authorities unit of analysis in both Ghana and Tanzania. It also revealed a pattern of Private Sector Organisations unit of analysis being second with 12 out of 80 observations of respective co-occurrences of mandate of institutions and their perception on sustainable public transport in Accra city-region and Dar es Salaam city. Additionally, there was a pattern of Public Transport Operators of public transport having 10 observations out of the total of 80

observations for corresponding co-occurrences of mandate of institutions and their perception. Finally, the pattern analysis unravelled a pattern of equal observations of six out of 80 observations for the two units of analysis, namely: Private Transport Operators of public transport and Financiers with Dedicated Green Funds.

Thus, this study adds to knowledge on the major unit of analysis/category of actors/institutions with the most mandate (i.e. Government Agencies/City Authorities) related to the provision of sustainable public transport in Accra city-region and Dar es Salaam city, as well as their perception both in terms of their corresponding sub-categories co-occurred mainly in the complex code configuration analysis. The next, and third units of analysis in this regard respectively were: Private Sector Organisations, and Public Transport Operators of public transport. The last and fourth units of analysis which had equal observations each were Private Transport Operators of public transport and Financiers with Dedicated Green Funds.

Additionally, this also underscores the conceptual framework of this study which depicts that the main provider of public transport in cities in sub-Saharan Africa is largely by the private sector, and as the analysis revealed that the category of actors with the majority mandate in this regard is the Government Agencies/City Authorities. It is important to mention that the conceptual framework also indicates that sometimes public transport provision in these cities are through public private partnership.

5.7.4 Activities implemented by institutions with impact on sustainable public transport in Accra city-region and Dar es Salaam city

Having known all the institutions related to the provision of public transport in Accra city-region and Dar es Salaam city, their mandate, as well as their perception of sustainable public transport in these cities; it was pertinent to ascertain activities implemented or ongoing with impact on sustainable public transport in Accra city-region and Dar es Salaam city as presented in Tables 5.3.

From Table 5.3, it can be seen that among and across all the six units of analysis, there were only two of them that have implemented or implementing project activities that have impact on the progress towards having a sustainable road-based public transport in both Accra city-region and Dar es Salaam city. These two units of analysis/categories of institutions are Financiers with Dedicated Green Funds, and Private Sector Organisations.

Table 5.3 Activities implemented with impact on sustainable public transport in both cities

Ghana (Accra city-region) (N=16)		Tanzania (Dar es Salaam city) (N=13)	
Activities	Impacts	Activities	Impacts
<p>Financiers with Dedicated Green Funds</p> <p>1. An accessibility study of Accra and Kumasi and trying to look at what are the real bottlenecks? Why are people unable to get to where they need to get to on time and so. This activity was completed in the year 2019. Financiers with Dedicated Green Funds_27102020: 142 - 142 (0)</p> <p>2a. The Ghana Urban Transport project (June 2007 – December 2015) – Part one Financiers with Dedicated Green Funds _27102020: 142 - 142 (0)</p>	<p>So, this project was designed to look at some of these elements and address public transport problems in Accra, mostly on the institutional side to see what could be done in terms of establishing institutions that could be responsible or that took more responsibility for public transport in Ghana or in Accra for that matter, and then hopefully replicate it</p>	<p>1. In the designs for the phase one of the Dar Rapid Transit our organisation was really involved from the conceptual design to final designs. Financiers with Dedicated Green Funds_25112020: 98 - 98 (0)</p> <p>2. And the organisation was also involved in the management and the mobilization of the ‘daladala’ operators so that they shift to new place when the phase one road became operational. Financiers with Dedicated Green Funds_25112020: 98 - 98 (0)</p> <p>3. In recent past, the organisation has also assisted the government. There is TARURA - Tanzania Rural and Urban Roads Authority which is managing urban roads. So, the organisation has assisted TARURA to prepare a study which will assist them for proper traffic management parking in the city of Dar es Salaam. That if implemented, it will not only be a source of financing to TARURA, but make sure that the roads are</p>	

Ghana (Accra city-region) (N=16)		Tanzania (Dar es Salaam city) (N=13)	
Activities	Impacts	Activities	Impacts
	<p>in Kumasi and Takoradi, Tamale and other cities.</p> <p>Setting up the institutional structure or strengthening the institutional structure, and trying to implement as it were the existing regulations for the MMDAs – the local government is in charge of public transport and they are supposed to have transport departments set up, but at the time of the project they were not yet set up so we thought we would use the project as a vehicle for setting up those departments so that we will build their capacity to take charge of the public transport within their local areas, and then hopefully as we do</p>	<p>orderly kept and the parking system in Dar es Salaam is well and congestion is eliminated through proper parking.</p> <p>Financiers with Dedicated Green Funds\ITDP_Transcript_25112020: 98 - 98 (0)</p> <p>4. There is a plan which is in the pipeline. Thus, the organisation wants to assist the government and the government has agreed to that. The organisation wants to support the government to prepare urban street design. When you have proper streets in the city, of course, you would end up having proper flow of traffic and the buses cannot be hindered by other traffic and they can smoothly move. In that case, the organisation assists the government in managing the urban areas.</p> <p>Financiers with Dedicated Green Funds_25112020: 98 - 98 (0)</p> <p>5. The organisation is currently undertaking some Transit Oriented Development Study (TOD) in Dar es Salaam and in Mwanza. This</p>	

Ghana (Accra city-region) (N=16)		Tanzania (Dar es Salaam city) (N=13)	
Activities	Impacts	Activities	Impacts
<p>2b. To develop a bus rapid transit (BRT) system in Accra – The other part of the Ghana Urban Transport Financiers with Dedicated Green Funds _27102020: 142 - 142 (0)</p> <p>The initial corridor selected was the Malam-First light-to the Central Business District, which is the one of the heavily used arterials in the city of Accra, attracting quite a huge population from the west to the east or to the center of Accra. So, that was basically the projects, so, we were looking at reforms, we were looking at infrastructure, we were also looking at environmental, monitoring the possibility of changing the structure of the public transport system so that we could operate or we could organize the operators more efficiently and transition them into bus companies, as it were with high occupancy vehicles, it's a fancy name for buses, but the idea is that if we shift from the urvans and so on - the small rickety cars and move to vehicles that have a higher occupancy we will have lesser vehicles on the road; we'll be able to improve the air quality; we'll be able</p>	<p>that across several local areas, then we will be heading towards a better integrated public transport system. Financiers with Dedicated Green Funds _27102020: 142 - 142 (0)</p> <p>Well, unfortunately the outcome it's not easily seen, I'm afraid. Because firstly they made a lot of noise about the BRT but we were not able to implement the BRT in the best sense of the word. We had to</p>	<p>is an on-going study with a duration of 18 months. And hopefully when it is completed, the organisation will come up with informed study on how we can create transit-oriented development in our cities – compact designs. This will also support the BRT ridership. When you have compact designs around the terminals or the nodes and the stations along the BRT corridors, that means you are creating good ridership to the buses, and hence, making the system more sustainable.</p> <p>6. Establishment of the BRT that supports sustainable transport Financiers with Dedicated Green Funds _24112020: 106 - 106 (0)</p>	

Ghana (Accra city-region) (N=16)		Tanzania (Dar es Salaam city) (N=13)	
Activities	Impacts	Activities	Impacts
<p>to improve the safety because there will be fewer cars, less collisions; and then also using a dedicated lane bus rapid transit, then we are going to have a greater assurance of time along that particular route, because nobody interferes with that route you just keep moving, it acts like a railway basically, it's dedicated and nobody else can move into that lane. And then you can go wherever you want to go with some degree of certainty. So, with that, then you could actually have buses that are moving at specified time. So, we would expect to move maybe every 10 minutes or every five minutes from a particular location, from one location along the corridor to the other. So, that was coming with proper bus planning and scheduling within these areas. Financiers with Dedicated Green Funds_27102020: 153 - 158 (0)</p> <p>And then there was a bit of work on the environmental side. Yeah, we were working with EPA to monitor pollution in the city so that overtime as we implement this Bus Rapid Transit system we could actually measure the changes in the environment from a pollution perspective. So, these are kind</p>	<p>use a suboptimal solution by going to the Amasaman to Central Business District Corridor and trying to implement some improvements along the corridor, not an exclusive lane, but some improvements to allow for efficient movement of the buses.</p> <p>It was supposed to go alongside some level of enforcement because the way the vehicles move or the way the private transport operators use the roadway, if there is no enforcement, then the buses will be stranded. And so, while that was desirable and in fact was agreed, unfortunately, when the operation started, there was a lot of</p>		<p>This institution is undertaking an impact evaluation study-and under that one there is an impact evaluation for Dar es Salaam on the BRT. The research is on a number of factors and yet to be concluded. Financiers with Dedicated Green Funds_24112020: 106 - 106 (0)</p>

Ghana (Accra city-region) (N=16)		Tanzania (Dar es Salaam city) (N=13)	
Activities	Impacts	Activities	Impacts
<p>of the activities that happened or that were envisaged under that project. Financiers with Dedicated Green Funds\World Bank_Transcript_27102020: 160 - 160 (0)</p> <p>The project was supposed to go alongside some level of enforcement because the way the vehicles move or the way the private transport operators use the roadway, if there is no enforcement, then the buses will be stranded. And so, while that was desirable and in fact was agreed, unfortunately, when the operation started, there was a lot of resistance from the private transport operators, and it has a political nature, it is always a political issue. And so, the powers that be were unable to sustain the enforcement bit of it. So, in effect, some buses were deployed, some buses were brought in country by the government to start this Ayalolo services along that corridor. And then there were some challenges with the government provision, but nevertheless it went forward, the buses were handed over actually to the existing operators that have been transformed into bus</p>	<p>resistance from the private transport operators, and it has a political nature, it is always a political issue. Financiers with Dedicated Green Funds_27102020: 142 - 142 (0)</p> <p>At the institutional level, what had happened was the creation of GAPTE and GAPTE is the Greater Accra Passenger Transport Executive, which is a body that was created to more or less look at all the cross jurisdictional issues in Accra across various MMDAs and to regulate public transport in Accra basically. So, what it means is that we were trying to shift from every local</p>		

Ghana (Accra city-region) (N=16)		Tanzania (Dar es Salaam city) (N=13)	
Activities	Impacts	Activities	Impacts
<p>companies. So, that for me is one of the benefits, the fact that we were able to go through, you know, a process of dialogue and capacity building to establish those three companies that would be responsible for bus operations and you know getting them into the frame of mind for real business operations along dedicated routes. Financiers with Dedicated Green Funds_27102020: 176 - 176 (0)</p>	<p>government trying to look after its own public transport to having it centralized at the GAPTE, where all the across jurisdictional issues were looked to ensure consistency in designing, in the way we implement policies and so on and so forth. So, that for me was one of the positive things where you had all the MMDAs coming to the table to discuss public transport and to look at the solutions that could be proffered. Financiers with Dedicated Green Funds_27102020: 179 - 180 (0)</p> <p>Unfortunately, we do not always have the will to implement</p>		

Ghana (Accra city-region) (N=16)		Tanzania (Dar es Salaam city) (N=13)	
Activities	Impacts	Activities	Impacts
	<p>some of the things that are planned and so, the Aayalolo system has become a stranded kind of organization now, unfortunately. Financiers with Dedicated Green Funds_27102020: 182 - 182 (0)</p>		
<p>Private Sector Organisations</p>	<p>1. First of all, it was the basic shift from 'trotros'/mini-buses to larger modern buses with much better accessibility for those disabled people or the passengers in general to have a better flow in the buses, speed up the travelling times; in combination with building part of the infrastructure to be used to operate in a good way. Unfortunately, I would say in this respect that the investments in infrastructure are far from sufficient. The city would need to do much more to create dedicated corridors for the buses and new bus stops and other things to make it really what it's intended to be. Private Sector Organisations_01102020: 30 - 30 (0)</p>	<p>Yeah, we used to have meetings and conference in Dar es Salaam a very long time ago. Even the former MD of DART was one of the first vice presidents and founder of UATP. But about six years ago, because of the fact that DART is no longer a member, it's become difficult for us to develop activities in Dar es Salaam. So, for the future, we plan to get them onboard and to get them back so we can organise some events of interest. Private Sector Organisations_29092020: 72 - 72 (0)</p>	

Ghana (Accra city-region) (N=16)		Tanzania (Dar es Salaam city) (N=13)	
Activities	Impacts	Activities	Impacts
<p>2. The second thing is that a lot of time and efforts were spent in training – that was part of the organisation’s contractual commitment with the local stakeholders. So, the organisation trained 300 drivers or a bit more. The organisation had a special initiative to train female drivers which I would say was a lot success. In the beginning it was judged as something that was not feasible or impossible to do which of course was a total misconception because the results at the end of the day is that, between the drivers that we trained from scratch, they are actually better than many of their male colleagues. So, I think that one proved many people wrong, it put a direction a bit to what is doable or not. Today we have actually an opposite reaction where we have companies buying trucks from this organisation and also requesting of us to train women on their behalf to drive their trucks because they found out they actually perform better. Private Sector Organisations_01102020: 30 - 30 (0)</p> <p>3. And then the organization had a</p>			

Ghana (Accra city-region) (N=16)		Tanzania (Dar es Salaam city) (N=13)	
Activities	Impacts	Activities	Impacts
<p>number of other initiatives which had been only the starting blocks. Thus, the willingness to support, that is to look at alternative ways of driving the buses. What the organization wanted to try here in Accra was bio-fuels. So, the buses that were delivered for the Accra BRT first of all are prepared to run on those fossil diesels but also on various kinds of bio-fuels with bio-diesel or synthetic diesel. So, the buses are prepared for that and the organisation had discussions with two different Universities in Ghana and other stakeholders to produce at least a small quantity to start with to run a test project. Unfortunately, this has not been successful yet because the production capacity and the quality of the bio-diesel that was produced has not been according to the standards but it seems is something that the organisation is interested to pursue.</p> <p>Private Sector Organisations_01102020: 30 - 30 (0)</p> <p>4. The organisation has also trained</p>			

Ghana (Accra city-region) (N=16)		Tanzania (Dar es Salaam city) (N=13)	
Activities	Impacts	Activities	Impacts
<p>people in the operation of the buses when it comes to planning and managing the buses and so on to make the transport more efficient but again there's been a large deficit in the... and the needs are... but in the means of the stakeholders who are supposed to operate the buses, here so, they have not been able to accomplish what I would like to see.</p> <p>Private Sector Organisations_01102020: 30 - 30 (0)</p> <p>5. Accra as any city in Africa, all the international activities organised by this organisation on promoting sustainable public transport or sustainable mobility for Africa, the organisation tries to invite all the stakeholders to attend these events either as simple participants, speakers, or partners. So, this is one of the key activities this organisation always does for its members and even non-members. So, this activity concern also Accra city stakeholders at all levels - I mean operators, authorities, industries based in Accra. These stakeholders are invited to any single event, meeting, debate on mobility in Africa and at international level to create</p>	<p>Yeah, we continue following with our partner Scania, that had initiated this mission at the time. So, we continue following the feedback. Yes, we're still expecting that the transport authority</p>		

Ghana (Accra city-region) (N=16)		Tanzania (Dar es Salaam city) (N=13)	
Activities	Impacts	Activities	Impacts
<p>more awareness. Private Sector Organisations_29092020: 28 - 28 (0)</p> <p>6. This organisation conducted a peer review mission in Accra with technical support in May 2019, to address GAPTE and BRT governance and sustainability. It was a concrete action on demand of another stakeholder to help the public transport actors in Accra to find a common solution to strengthen and find a sustainable solution to this BRT system. Private Sector Organisations_29092020: 28 - 28 (0)</p> <p>7. Another clear concrete activity that the organisation has executed in Accra was a visit to the Scania West Africa Training Centre, Tema. We had implemented a training programme for this visit. Also, any single World Bank or Africa Development Bank or AU meeting that we meet ministers or officials from Accra or Ghana, the organisation tries to advocate and disseminate its official position in terms of public transport generally. So, those are some key actions the</p>	<p>informs the decision makers of Ghana, in particular of transport sector will get back to us so that we can have another meeting to see exactly because I remember during this mission we tried to set-up a kind of road map. So, we're expecting from them to organise another mission to try to see what has been achieved or not. Private Sector Organisations_29092020: 31 - 31 (0)</p>		

Ghana (Accra city-region) (N=16)		Tanzania (Dar es Salaam city) (N=13)	
Activities	Impacts	Activities	Impacts
<p>organisation has implemented in Accra. Private Sector Organisations_29092020: 28 - 28 (0)</p> <p>8. Also, when the BRT of Accra started with GAPTE creation, the organisation tried to promote this Accra initiative as a best practice. Because for us, creating the governance institutional framework is a best practice with a pilot project like the BRT, this is a good practice. So, we promoted this good practice. Unfortunately, now, the pilot Accra BRT has some issues in terms of operation of this system. Private Sector Organisations _29092020: 28 - 28 (0)</p>			

Source: Remote Field Data, September 2020 – March 2021

From Table 5.3, the indication of the two units of analysis; namely, Financiers with Dedicated Green Funds, and Private Sector Organisations being the main category of actors for the implementation of project activities towards progress on having sustainable road-based public transport in Accra city-region and Dar es Salaam city, validates reviewed literature finding by Sohail et al. (2006) that the monopoly of the public sector in the provision of road-based public transport services in many cities in the developing countries has been replaced to by the private sector to a larger extent. It is imperative to indicate that the formulation of policies, programmes, and projects in relation to progress of having sustainable public transport in the two case study cities are by the Government Agencies/City Authorities unit of analysis. Essentially, there is a public private partnership and collaboration to this end. Furthermore, the implementation stages of the BRT in Dar es Salaam which is mainly financed by Financiers with Dedicated Green Funds unit of analysis corroborate findings from literature review indicating that the implementation of BRT systems in some markets could be incremental based on the diversity of settings and types, relative to the uniqueness of each city and its transport problem(s) to be overcome (Nikitas and Karlsson, 2015). In addition to the above, as recommended in literature by Pojani and Stead (2015), the combination of private sector competition with robust public sector oversight yields the best results for BRTs in cities in developing countries.

Ultimately, this adds to knowledge in the case of Accra city Region and Dar es Salaam city which are all in sub-Saharan Africa, on the two major categories of actors/institutions/units of analysis that finance the implementation of project solutions such as BRTs and their implementation in these cities.

5.8 Assessment of the capacity levels (legal and regulatory, financial, logistical, personnel and competence of staff) of the identified institutions in the decision-making processes in planning for more sustainable public transport systems in Accra city-region (Ghana) and Dar es Salaam city (Tanzania)

5.8.1 SWOT Analysis of the existing legal and regulatory capacity of institutions in Accra city-region and Dar es Salaam city

With the view of answering research question two of this study, it was pertinent to assess the existing legal and regulatory capacity of institutions involved in the decision-making processes in planning for more sustainable public transport system in Accra city-region in Ghana and Dar es Salaam city in Tanzania. This assessment was necessary to ascertain a baseline for which a capacity development response, where necessary, could be developed and to act as a catalyst for action. Therefore, as a precursor to the assessment, the existing legal and regulatory capacity levels of the institutions directly involved in the decision-making processes in planning for more sustainable public transport in Accra city-region and Dar es Salaam city was conducted using institutional capacity indicators under legal and regulatory capacity and a ranking scheme adapted from the UNDP (see Table 5.4 for the overview). This adapted UNDP capacity assessment supporting tool template can be found in Appendix I. Subsequently, the inductively generated results per all the four indicator-questions seen in Table 5.4 as ‘Legal and Regulatory Capacity Q1 – Q4’ were subjected to the SWOT analysis for the assessment of the existing legal and regulatory capacity of the institutions (see Table 5.5 for that of Ghana and Table 5.6 for that of Tanzania).

Table 5.4 Overview of existing legal and regulatory capacity levels of institutions in both cities using institutional capacity indicators and ranking scheme

	Academia	Financiers with...	Private Transport Op...	Govt Agencies...	Private Sector Org...	Public Transport Op...	Total
Legal and Regulatory Capacity Q4							
Q4 Evidence/Narrative			5	13		2	20
Q4 Existing Level (1-5)			5	13		2	20
Legal and Regulatory Capacity Q3							
Q3 Evidence/Narrative			5	13		4	22
Q3 Existing Level (1-5)			5	13		2	20
Legal and Regulatory Capacity Q2							
Q2 Evidence/Narrative			5	13		1	19
Q2 Existing level (1-5)			5	13		1	19
Legal and Regulatory Capacity Q1							
Q1 Evidence/Narrative			6	14		1	21
Q1 Existing level (1-5)			5	13		1	19
Σ SUM			41	105		14	160
# N = Documents/Speaker	2 (6.9%)	3 (10.3%)	5 (17.2%)	14 (48.3%)	3 (10.3%)	2 (6.9%)	29 (100.0%)

Source: Remote Field Data, September 2020 – March 2021

From Table 5.4, it can be inferred that among all the 29 institutions/unit of analysis in Accra city-region (Ghana) and Dar es Salaam city (Tanzania), the total number of institutions directly involved in the decision-making processes in planning for more sustainable public transport in the two cities were 21 in number. These 21 institutions from Table 5.4 were from three units of analysis, namely: Private Transport Operators of public transport (five institutions), Government Agencies or City Authorities (14 institutions), and Public Transport Operators of public transport (two institutions). Essentially, these 21 institutions' existing legal and regulatory capacity levels were assessed in line with their decision-making process in planning for sustainable public transport in Accra city-region and Dar es Salaam city. Specifically, pertaining to Private Transport Operators of public transport four institutions' legal and regulatory capacity were assessed in Ghana and one institution's in Tanzania; for Government Agencies or City Authorities seven institutions' each legal and regulatory capacity levels were assessed; and with respect to Public Transport Operators of public transport an institution each legal and regulatory capacity level was assessed.

From the assessment of the legal and regulatory capacity of each of the 21 institutions within the above three named units of analysis, the assigned ranking scheme (i.e. 1-No evidence of relevant capacity, 2-Anecdotal evidence of capacity, 3-Partially developed capacity, 4-Widespread but not comprehensive evidence of capacity, 5-Fully developed capacity) which was based on the narrative and evidence provided to each indicator-question by the interviewees revealed that in both cities majority of the institutions had a score of 3-Partially developed capacity or 4-Widespread but not comprehensive evidence of capacity; whereas a few had a score of 1-No evidence of relevant capacity or 2-Anecdotal evidence of capacity. Accordingly, it was on this basis that the SWOT analysis in Tables 5.5 and 5.6 were conducted for the three categories of institutions/units of analysis in Ghana and Tanzania respectively.

From Table 5.5, the Private Transport Operators of public transport in Accra city-region (Ghana) have an umbrella body comprising majority of the different private transport operators in Accra city. However, the SWOT analysis indicates that this umbrella entity currently does not have the needed parliamentary backing to enable it to execute some of its functions but the opportunities of awareness by these decision makers and the willingness to assist this umbrella private transport operator in diverse ways can still be tapped to harness activities of this body until there is finally a legal parliamentary backing passed.

Furthermore, the SWOT analysis of Table 5.5 shows that the Government Agencies/ City Authorities unit of analysis have the necessary regulatory laws and framework for its

purpose but there is no specific policy on sustainable transport although this has been mainstreamed in the Ghana National Transport Policy of year 2020. A key weakness worth mentioning is the issue of inadequate enforcement of these regulations in Accra city which is partly due to the lack of political will. Another important threat from Table 5.5 is the cross-institutional nature of mobility in Accra city-region which needs to be carefully coordinated among all the four ministries namely: Ministry of Local Government, Decentralisation and Rural Development, Ministry of Transport, Ministry of Roads and Highways, and Ministry of Interior. However, the institution to play the coordinating role, is, the Greater Accra Passenger Transport Executive (GAPTE) but seems not to have this recognition for this function from the four ministries.

From Table 5.5 Public Transport Operators of public transport in Accra city-region have the needed road traffic regulations for its operations, as well as government overarching policy on mass transportation in the city. However, what is still missing is a government regulation on subsidies or tax wavers for mass public transport operations such as wavers on fuel.

Table 5.5 SWOT Analysis of existing legal and regulatory capacity of institutions in Ghana

	Strengths-Legal and Regulatory Capacity	Weaknesses-Legal and Regulatory Capacity	Opportunities-Legal and Regulatory Capacity	Threats-Legal and Regulatory Capacity
Private Transport Operators of PT (N=4)	Existence of legal and regulatory mandate to plan for more sustainable public transport in cities - because now this institution is registered under the company Act and also, the institution has the mandate to operate transport in Ghana. And besides that, all the parties involved in the registration and even the secretary who is a Lawyer, all have this voice. Private Transport Operators of PT _22102020 1: 142 - 142 (0)	Inadequate institutional framework, rules, and procedures in line with current operations (i.e. consistent referent to operations) – For instance, the Aayalolo Bus Company from its inception was too young, hence, this institution together with other entities were in the process of developing all the necessary procedures or policies before the operations collapsed. So, some of the necessary requirements that were supposed to be in place before the commencement of operations are not there yet, except that those private transport operators in operations know what their mandates are. Private Transport Operators of PT _22102020 1: 142 - 142 (0)	-	-

	Strengths-Legal and Regulatory Capacity	Weaknesses-Legal and Regulatory Capacity	Opportunities-Legal and Regulatory Capacity	Threats-Legal and Regulatory Capacity
	<p>In terms of strength, this institution which is a council made up of different private transport operators is still in discussions and would like to have the legal and parliamentary backing for such an institution. Private Transport Operators of PT_07102020: 118 - 118 (0)</p>	<p>Other private transport operators that are not members of this council always have it in mind that when this council is given the legal backing it may compel all other unions to come under this umbrella. So, by way of weakness non-members of this council also fight against the move and it's a back and forth. But many of the law makers in Ghana are behind this organisation because they know the relevance of having such an organisation or council. Private Transport Operators of PT_07102020: 118 - 118 (0)</p>	<p>For instance, sometimes people may even request of the council to present its documentations for them to look into it, look at how to restructure the council and undertake other activities for the council. Clearly the opportunities are there except that often times the council needs to tread cautiously when it comes to some of these things. But obviously, there is an opportunity for the council to gain all the legal backing going forward. Private Transport Operators of PT_07102020: 118 - 118 (0)</p>	-
<p>Govt Agencies or City Authorities (N=7)</p>	<p>There is adequate regulatory laws or framework for the purpose. Govt Agencies or City Authorities_16102020:</p>	<p>There is no specific sustainable transport policy but this has been mainstreamed in the revised national transport policy of Ghana – In this policy, sustainable transport is a key feature.</p>	<p>The institution is aware that transport is generally evolving towards more sustainable transport. Hence, Ghana as a country can make its transport system better and more</p>	-

Strengths-Legal and Regulatory Capacity	Weaknesses-Legal and Regulatory Capacity	Opportunities-Legal and Regulatory Capacity	Threats-Legal and Regulatory Capacity
<p>85 - 85 (0)</p> <p>The Act 490 of 1994 gives this institution the power to do everything that needs to be done.</p> <p>Then, the LI 1652 too, permits as a mandate of this institution to come out with legal instruments of which some have come into full force. So, the legal framework of this institution is very strong. Govt Agencies or City Authorities_10102020: 82 - 82 (0)</p> <p>The institution has a mandate given by the mother Ministry, Ministry of Roads and Highways. So, that's what the institution works with and any legal issues are handled by the Ministry</p>	<p>Govt Agencies or City Authorities _16102020: 85 - 85 (0)</p> <p>The fees or charges for offences are very low, and this is under revision. Essentially, since the Act 490 of 1994 was promulgated, the charges for offences stated in the Act as at then could not be increased now to reflect present times. This is woefully not deterrent currently. Govt Agencies or City Authorities _10102020: 82 - 82 (0)</p> <p>The institution does not have a regulatory role, but rather an operational role pertaining to infrastructure, building, and maintenance. So, in terms of regulations, the Assemblies and the Ministry of Transport have this role. This institution operates with the national laws and not by-laws but certainly if this institution needs to go to any Assembly area and the</p>	<p>sustainable guided by international best practice. Govt Agencies or City Authorities _16102020: 85 - 85 (0)</p> <p>Working on a lot of guidelines to implement the new challenges that are coming in. Govt Agencies or City Authorities_10102020: 82 - 82 (0)</p> <p>-</p>	<p>In terms of job execution, the risk normally involved in exposure depending on the location of the job. For instance, the risk of climbing to the tops of roofs, the risk of using boats on water bodies in studies, the risk of accidents on the roads in terms of compliance enforcements, and the risk of also being attacked. Govt Agencies or City Authorities _10102020: 82 - 82 (0)</p> <p>-</p>

Strengths-Legal and Regulatory Capacity	Weaknesses-Legal and Regulatory Capacity	Opportunities-Legal and Regulatory Capacity	Threats-Legal and Regulatory Capacity
<p>of Roads and Highways. Govt Agencies or City Authorities_08102020: 98 - 98 (0)</p> <p>This institution is adequately resourced in terms of the legal issues to carry out its functions and is therefore assisting the different Assemblies to ensure that they have their bye-laws in place and that they have the resources and expertise in ensuring that the provisions of the bye-laws are adequately displayed.</p> <p>Govt Agencies or City Authorities_02102020: 178 - 178 (0)</p>	<p>Assembly has its own restrictions the institution has to abide by them. Govt Agencies or City Authorities_08102020: 98 - 98 (0)</p> <p>The only challenge here is the issue of enforcement. Because once the rules are set up, they must be enforced and clearly, the institution has not been able to get the enforcement arrangement right. This is partly due to the fact that, to be able to enforce laws governing public transport in cities in Ghana there should be the political will, but the political will is not there. Govt Agencies or City Authorities_02102020: 178 - 178 (0)</p>	<p>Willingness of external institutions to support this institution to build up its capacity to be able to carry out its functions.</p> <p>Govt Agencies or City Authorities_02102020: 178 - 178 (0)</p>	<p>The issue of how the external institutions will give the kind of assistance/support to this institution is a challenge right now. Because the biggest issue here in GAMA is that, the issue of mobility cuts across a lot of Departments and Ministries. You have Ministry of Local Government looking after the regulatory issue; you have Ministry of Transport looking after the transport operations; you have Ministry of Roads and Highways looking after the issue infrastructure; and then you have the Ministry of Interior also assisting with the issue of</p>

Strengths-Legal and Regulatory Capacity	Weaknesses-Legal and Regulatory Capacity	Opportunities-Legal and Regulatory Capacity	Threats-Legal and Regulatory Capacity
<p>The strength of this department is still an issue in progress in terms of the area of transport planning. The Assembly has little orientation on transport planning but the department is pushing the boundaries and to make the Assembly understand what it means to undertake regulation and also planning for transport. It is something that the Assembly is aware now from this department based on documents submitted but what is presently needed is for the Central Administration of the</p>	<p>The major gap is the lack of political will on the part of the Central Government to ensure that the bye-laws that have been set up are enforced. For instance, any time the country is in an election year general enforcements of traffic rules are relaxed and there will be no formal communication on this but that is how the system is structured. This is thought of by the department as fostering huge loses on institutional building. So, people oscillate between keeping to the rules and there are times that these people don't keep to the rules because they forget that those times are not election year. In essence, the department thinks that this is a serious draw back in its incremental efforts to making the system effective as long as regulation is concerned.</p> <p>Govt Agencies or City Authorities</p>	<p>-</p>	<p>enforcement and regulation. Now, all these institutions understand their mandate in terms of urban mobility in a very fixed manner. So, there is the need for coordination among all these institutions. And the recognition is that, this institution exists as a function under the urban mobility issues and should be assisted as such. This institution does not have that kind of recognition amongst those institutions. Govt Agencies or City Authorities_02102020: 178 - 178 (0)</p> <p>The department understands that the inadequate funds it receives from the</p>

	Strengths-Legal and Regulatory Capacity	Weaknesses-Legal and Regulatory Capacity	Opportunities-Legal and Regulatory Capacity	Threats-Legal and Regulatory Capacity
	Assembly to respond to the budgetary requests of this department for the implementation of planned activities. Govt Agencies or City Authorities_25092020: 33 - 33 (0)	_25092020: 33 - 33 (0)		Assembly is a chain reaction from what the Assembly receives from Central Government. Govt Agencies or City Authorities_25092020: 33 - 33 (0)
Public Transport Operators of PT (N=1)	Existing road traffic regulations among others. Public Transport Operators of PT_21092020: 141 - 141 (0)	-	Government policy on high occupancy vehicles for mass transportation is what this institution adheres to. Government pollution policy – the buses of this institution run on Euro 5 and Euro 6 engines which reduces the emission of CO ₂ in to the air. Public Transport Operators of PT_21092020: 141 - 141 (0)	Absence of subsidies from the government - such as waving of taxes on the fuel purchased by this institution for public transport operations. Currently, this transport operator purchases fuel at the pump the same rate as the private car user. Public Transport Operators of PT_21092020: 141 - 141 (0)

Source: Remote Field Data, September 2020 – December 2020

From the SWOT Analysis of Table 5.6 on the existing legal and regulatory capacity of institutions in Tanzania, the Private Transport Operators of public transport in Dar es Salaam city is involved in the planning, enacting of new regulations for public transport, and operations on new routes in the city. The Private Transport Operator is also recognised as a key stakeholder in the public transport space in Dar es Salaam city by the public sector.

Additionally, the Government Agencies/City Authorities in Dar es Salaam city urban transport system, as can be seen from Table 5.6, sets forth the road infrastructure for the Dar Rapid Transit; and has also established a Land Transport Regulatory Authority to harmonize activities between the public sector and the private sector which owns the fleet for public transport service delivery in Dar es Salaam city. An important threat from the SWOT analysis is the necessity of four stakeholders, including the Ministry of Lands, Housing, and Human Settlement Development who are supposed to join forces towards the realisation of the required road infrastructure and rapid system in Dar es Salaam city.

Furthermore, the Public Transport Operators of public transport in Dar es Salaam city from Table 5.6 show that the Dar rapid transit has some characteristics of a classical BRT but the dedicated lane of the system needs additional protection from encroachment by other road users such as motorbike riders to prevent road accidents. Again, there is a threat of lack of specific BRT laws in Tanzania since there are no specific regulations exclusively for the Dar rapid transit, and no regulatory body solely for the Dar rapid transit. A Land Transport Regulatory Authority has been established for the regulation of land transport in Tanzania but the necessity of a specific authority with the specific mandate of road-based public transport that will holistically focus on the Dar BRT is seen as critical in this regard.

Table 5.6 SWOT Analysis of existing legal and regulatory capacity of institutions in Tanzania

	Strengths-Legal and Regulatory Capacity	Weaknesses-Legal and Regulatory Capacity	Opportunities-Legal and Regulatory Capacity	Threats-Legal and Regulatory Capacity
Private Transport Operators of PT (N=1)	<p>This organisation is a non-governmental organisation of private transport operators that has been in existence for over 20 years in Dar es Salaam city. As such, this organisation has been involved in the planning, enacting new regulations for public transport, and commencement of operations on new routes in the city.</p> <p>Private Transport Operators of PT_26112020: 110</p>	-	<p>Government Agencies or City Authorities of public transport in the city recognise this organisation as a key stakeholder. Hence, the involvement of this organisation in matters concerning public transport provision and operation in Dar es Salaam city. Private Transport Operators of PT_26112020: 110</p>	-
Govt Agencies or City Authorities (N=7)	<p>Government is trying to regulate the development and other operational mechanisms of land and housing issues with regards to the ministry.</p> <p>Pertaining to the transport sector regarding Dar es Salaam city urban transport system, the government sets forth the infrastructure – the roads and the lanes – for Dar rapid transit. The government has established a Land Transport Regulatory Authority to harmonize the</p>	<p>The Ministry itself has got little influence in the transport sector apart from the planning of the Transport Master Plan and the infrastructure set up.</p> <p>There is the need of having appropriate investor who can have quality fleet, good management and capacity to operate the</p>	-	<p>There are four stakeholders including the Ministry who are supposed to come together to ensure that the city of Dar es Salaam is well served with road infrastructure and a rapid system. Govt Agencies or City Authorities_15012021: 122 – 122 (0)</p>

Strengths-Legal and Regulatory Capacity	Weaknesses-Legal and Regulatory Capacity	Opportunities-Legal and Regulatory Capacity	Threats-Legal and Regulatory Capacity
<p>situation between the public sector, and the private sector which owns the fleets and can deliver services for the public according to the contract with the government. Govt Agencies or City Authorities_15012021: 122 - 122 (0)</p> <p>There is a regulation for Environmental Impact Assessment and Audit that was amended in 2018. This document is expected to cover issues on sustainable transport in Dar es Salaam. Also, there is a regulation for air quality management, and a regulation for noise and vibration control from the year 2015. Govt Agencies or City Authorities_09122020: 216 - 216 (0)</p>	<p>fleet to serve the intended purpose accordingly.</p> <p>Govt Agencies or City Authorities_15012021: 122 – 122 (0)</p> <p>-</p>	<p>-</p>	<p>-</p>
<p>Public Transport Operators of PT (N=1)</p>	<p>BRT is different from other public transport. It's different in the sense that, the way it is being operated it has its dedicated lane, it has to</p>	<p>-</p>	<p>Lack of BRT Law in Tanzania. In Dar es Salaam, if someone takes an offence in the BRT lane, this person or driver is charged as if he was in the mixed lane and this penalty is not punitive enough. Therefore, in many instances people</p>

Strengths-Legal and Regulatory Capacity	Weaknesses-Legal and Regulatory Capacity	Opportunities-Legal and Regulatory Capacity	Threats-Legal and Regulatory Capacity
	<p>be protected in terms of encroachments, and in terms of security. Now, what happens if somebody encroaches the Dar BRT with a motor bike? you can imagine, the motorbike is just one or two people, but this person is putting the lives of many at risk in a bus carrying up to 200 passengers. Hence the Dar Rapid Transit has to be very protected as it is in the case of a train. It is known that in many countries train has its own legal framework. Public Transport Operators of PT_13032021: 219 - 219 (0)</p>		<p>encroach the BRT lane without fear. Ultimately, a more stringent legal framework to protect the Dar rapid transit is needed. Public Transport Operators of PT_13032021: 219 - 219 (0)</p> <p>Also, Dar rapid transit is seen as any other public transport or just another bus by its regulator LATRA. Basically, the Dar rapid transit must have its own regulations and regulatory body. As it stands now, there are overlapping responsibilities between LATRA and DART. In the event where these two roles contradict, then LATRA takes over.</p> <p>There are several tax regulations and fees paid by the operator of the Dar rapid transit. For instance, apart from paying access fees to DART, the operator also pays regulatory fees to LATRA. These fees are very expensive. So, the operator is charged for the infrastructures twice, because the operator does not go upcountry, but rather operates just in the city. Public Transport Operators of PT_13032021: 219 - 219 (0)</p>

Source: Remote Field Data, September 2020 – March 2021

5.8.2 SWOT Analysis of the existing financial resource capacity of institutions in Accra city-region and Dar es Salaam city

In line with answering research question two of this study, the existing financial resource capacity of institutions involved in decision making processes in planning for more sustainable public transport in Accra city-region and Dar es Salaam city was assessed. From Table 5.7 it can be seen that five indicator-questions (Q1-Q5) were asked each of the institutions interviewed in this regard and responses on their existing financial resource capacity in the form of evidence or narratives were ranked using the ranking scheme previously discussed.

From Table 5.7, it can be inferred that three out of the six units of analysis are involved in the decision-making processes in planning for more sustainable public transport in both cities. Precisely, Private Transport Operators of public transport (five institutions), Government Agencies/ City Authorities (14 institutions), and Public Transport Operators of public transport (two institutions).

Table 5.7 Overview of existing financial resource capacity of institutions in both cities using institutional capacity indicators and ranking scheme

	Academia	Financiers...	Private Transport Op...	Govt Agencies...	Private Sector Org...	Public Transport Op...	Total
Financial Resource Capacity Q5							
Q5 Evidence/Narrative			4	13		2	19
Q5 Existing Level (1-5)			5	13		2	20
Financial Resource Capacity Q4							
Q4 Evidence/Narrative			5	14		1	20
Q4 Existing Level (1-5)			5	14		2	21
Financial Resource Capacity Q3							
Q3 Evidence/Narrative			5	12		2	19
Q3 Existing Level (1-5)			5	11		2	18
Financial Resource Capacity Q2							
Q2 Evidence/Narrative			5	12		1	18
Q2 Existing Level (1-5)			5	13		2	20
Financial Resource Capacity Q1							
Q1 Evidence/Narrative			5	13		2	20
Q1 Existing Level (1-5)			5	13		2	20
Σ SUM			49	128		18	195
# N = Documents/Speaker	2 (6.9%)	3 (10.3%)	5 (17.2%)	14 (48.3%)	3 (10.3%)	2 (6.9%)	29 (100.0%)

Source: Remote Field Data, September 2020 – March 2021

The assessment of the existing financial resource capacity of the 12 institutions interviewed in Ghana and nine institutions interviewed in Tanzania across the three units of analysis revealed that, within the Private Transport Operators of public transport units of analysis in both countries the major ranking score to the indicator-questions were 3-Partially developed capacity or 4-Widespread but not comprehensive evidence of capacity. A response to indicator-question 1 (i.e. Does this institution have access to resources in line with planning budgets including credit and/or grant, where appropriate for sustainable public transport in cities?) by an institution each in both cities were:

“A big no. We do not have this, because initially the operation was such that at the end of every month we will send the bills to GAPTE to be paid, but since GAPTE was not able to do those things, we have a lot of arrears for both management and also staff. Hence, now we have done this consolidated arrangement. So, we do not have the financial muscles to even do any other things. Even with the consolidated operators, we do not pay ourselves, we have given all the responsibility to GAPTE. But unfortunately, again, we know that what we are doing is not even the best because they are paid on daily basis and we have suspended the payment of their social security and other government taxes. It is not our fault but that is what the system can afford. So, these are some of the things that we are looking forward to getting assistance or help from any quarters so that we can go back to our normal state” (Private Transport Operators of public transport in Ghana, Remote Field Data in October 2020).

“As a matter of fact, in our previous constitution we were allowed to start-up companies. That is why I told you that we are to start a company so that we can be part of the BRT system. And we did start up a company owned by us through shares in 2007. And we started operations in 2008, with two brand new buses which operated until 2013. And later on, in 2013, when we were almost nearing commencement of the BRT operations, we had to dissolve the company and we joined hands with another guy who was interested in the BRT to form the new company. When this new company was formed, it was owned by 30% from daladala owners, 36% by a certain group and 34% by the government. So, our membership is voluntary, is not compulsory. And we do prepare budget (Private Transport Operators of public transport in Tanzania, Remote Field Data in November 2020)”.

Within the Government Agencies or City Authorities unit of analysis in both countries the assessment revealed that the major ranking score to the indicator-questions were 3-Partially developed capacity or 4-Widespread but not comprehensive evidence of capacity. Regarding the Public Transport Operators of public transport in both countries the assessment showed that the major ranking score to the indicator-questions were 1-No evidence of relevant capacity or 3-Partially developed capacity or 4-Widespread but not comprehensive evidence of capacity.

Consequently, the SWOT analysis presented in Tables 5.8 and 5.9 were conducted for the three categories of institutions/units of analysis in Ghana and Tanzania respectively based on the assessment of the existing financial resource capacity of the institutions.

From the SWOT Analysis in Table 5.8, the Private Transport Operators of public transport in Accra city-region has a council/organisation with nearly 41 membership from different private transport operators, and this is a huge potential if all these members honour their monthly dues to the council for its planned activities. However, there is a weakness of some of the members of this council being stumbling blocks financially to this council due to non-payment of their monthly dues as that is the main source of revenue for the council.

On the other hand, the organisation can leverage on the presence of other external entities that give some support towards their activities and continue to pursue other institutions to this end.

Also, Table 5.8 shows that the Government Agencies/ City Authorities have strength including internally generated funds such as permit fees for its activities. However, this source of internally generated fund is not adequate for the activities of these institutions, rendering them not financially adequate; hence, reflecting in the salaries and turnover of these associations. The Government Agencies/ City Authorities can complement this weakness with project grants from external financiers.

A key threat which needs to be addressed is having a reliable source of funding for the Aayalolo Quality Bus System to prevent this institution from becoming irrelevant and eventually folding-up.

From Table 5.8, the SWOT Analysis shows that the Public Transport operators of public transport experience revenue leakages in their daily operations. Invariably, fare collection is predominantly paid enroute or at the beginning of journey trips per public transport. There are also opportunities for the public transport operators of public transport in Accra city-region to receive government grants to these transport operators.

Table 5.8 SWOT Analysis of existing financial resource capacity of institutions in Ghana

	Strengths- Financial Resource Capacity	Weaknesses- Financial Resource Capacity	Opportunities- Financial Resource Capacity	Threats- Financial Resource Capacity
Private Transport Operators of PT (N=4)	<p>The organisation can do more with its finances when it comes to the member organisations themselves. Sometimes people look at what they will get from an institution rather than what they can give to the institution. So, even without any support at all, if member organisations and as I was leaving office in 2019 we were about 41 in number. If all of us agree, if all of us understand the work of the council and contribute our quota in time, our financial goals will be met. So, our strength still lies with our members that we should be committed to the course of this council and it will be well with us. Private Transport Operators of PT_07102020: 118 - 118 (0)</p>	<p>It is unfortunate that the council is only funded by monthly dues from these member organisations. We don't have any external support for our activities and we hardly have any assistance at all, absolutely none. There are a lot of advocacies that I remember in 2009 we started some sister funding to do some advocacies on the road traffic practice and it was very useful and at the same time we used the opportunity to educate our members on the promulgation of the LI 2180 which was promulgated in 2012. And so, because of constraints there are lots of things that we are not able to do and now a days it's also very difficult to also source funding for such activities. So, I can tell you for a fact that, due to lack of funds we are not able to carry out a lot of activities that we earmarked for ourselves.</p>	<p>We have institutions that give some facilities for advocacies and other things. As I have mentioned, in 2009, we had some funding to support the works of the council and there are such opportunities still available that we are pursuing with. As I've said we have some oil marketing companies that we are in touch with them so that they will come to our aid and support some of the projects that we want to undertake. So, there are opportunities that we see around and we are even talking to the government agencies, for instance, the Ministry of Transport to also help in the area of office allocation and the discussion is still on-going. Private Transport Operators of PT_07102020: 118 - 118 (0)</p>	-

Strengths- Financial Resource Capacity	Weaknesses- Financial Resource Capacity	Opportunities- Financial Resource Capacity	Threats- Financial Resource Capacity
-	<p>Private Transport Operators of PT_07102020: 115 - 115 (0)</p> <p>Furthermore, some members do not understand why they should contribute financially to the council. They were looking at the council has to lead them to procure vehicles, the council has to do A, B, C. Some do not even understand why police should arrest them on the road and for that matter when it comes to contributing to the course of the council they are reluctant to do that. So, the same member organisations also serve us our weakness when it comes to our financial performance. Private Transport Operators of PT_07102020: 118 - 118 (0)</p>	-	

	Strengths- Financial Resource Capacity	Weaknesses- Financial Resource Capacity	Opportunities- Financial Resource Capacity	Threats- Financial Resource Capacity
Govt Agencies or City Authorities (N=7)	<p>We rely mostly on the services that we provide. So, if there's improvement and we work with a lot of industries, so if the industries improve we can get our permit fees and those things.</p> <p>Govt Agencies or City Authorities_10102020: 82 - 82 (0)</p> <p>Currently, this institution has overall control of the Aayalolo Bus System and therefore can use the Aayalolo Bus System to be able to obtain resources to carry out its functions.</p> <p>Govt Agencies or City Authorities_02102020: 178 - 178 (0)</p>	<p>We are not too much financially sound. And this also reflects in our salaries and the turn over.</p> <p>Govt Agencies or City Authorities_10102020: 82 - 82 (0)</p> <p>-</p>	<p>Project grants to implement some of our projects. So, we write for a lot of project assistance to improve on the environmental stewardship. Especially, like the one that we have for the sustainable land development from a world bank project – lands that have been degraded and you want to resuscitate them, we want to train farmers to be able to do sustainable farming, we should not cut down trees, do the proper agricultural practices, we vegetate, revamp lands that have lost their nutrients, and then help the farmers in the improvement of their livelihoods.</p> <p>Govt Agencies or City Authorities_10102020: 82 - 82 (0)</p>	<p>If the industries that pay permit to us close down, it means our financial sources are curtailed and this is a risk to us in terms of revenue generation. And it's really affecting us especially this COVID-19 that has come. We do not have grants for budgetary support.</p> <p>Govt Agencies or City Authorities_10102020: 82 - 82 (0)</p> <p>Until a solution is found on the issue of the funding of this institution, this institution stands a chance of being irrelevant if this issue is not resolved as quickly as possible.</p> <p>Govt Agencies or City Authorities_02102020: 178 - 178 (0)</p>
	<p>It is just the budget tool. And that's all that we can be allowed to handle at this</p>	<p>We don't have too much control over our budget. You see the central government pays for the</p>	<p>We do have the opportunity of getting in private funding subject to the Ministry of</p>	<p>The major threat is some repayment of the private funds for the road maintenance</p>

Strengths- Financial Resource Capacity	Weaknesses- Financial Resource Capacity	Opportunities- Financial Resource Capacity	Threats- Financial Resource Capacity
<p>stage. Govt Agencies or City Authorities_25092020: 33 - 33 (0)</p>	<p>work that we do even though we have our budget everything goes through the central government for payment. So, we don't have too much control over all that, and as and when government makes available money we pay, but invariably the bills go to the central government and the Ministry of Finance will pay them. So, we cannot say we have a strong control because everything is dependent on them. Essentially, we don't determine as and when bills of projects executed are paid because once we prepare the certificates and send to the Ministry of Transport we are done. Ideally, if we were paying ourselves it would have been better but because central government controls everything that is what it is. Govt Agencies or City Authorities_08102020: 98 - 98 (0)</p>	<p>Finance repaying the monies to the contractors. So, yes, there are opportunities to get private funding into the road maintenance phase. Govt Agencies or City Authorities_08102020: 98 - 98 (0)</p> <p>In addition, the fact that we are almost all the time getting support from the donor partners. The availability of donor support once we have clearly spelt out what we would want to achieve as far as the sustainable transport system is concerned. Govt Agencies or City Authorities_16102020: 85 - 85 (0)</p>	<p>phase are delayed unduly. They have the capacity to stall work. Govt Agencies or City Authorities_08102020: 98 - 98 (0)</p> <p>Currently we don't even have a PPP law and it's now yet to be passed. And so, we need to look beyond just the traditional government financing. And look elsewhere. I mean, the only thing with private financing is that it comes with some conditions and I'm not sure government is most often willing to give guarantees, I mean, when it comes to private sector. Govt Agencies or City Authorities_16102020: 85 - 85 (0)</p> <p>We may not readily get the needed funding to implement such projects. For instance, I talked about the BRT and the fact that we need to move</p>

Strengths- Financial Resource Capacity	Weaknesses- Financial Resource Capacity	Opportunities- Financial Resource Capacity	Threats- Financial Resource Capacity
			towards a full BRT system in other to achieve the full benefit of a BRT. For instance, the dedicated lanes, you need funding to do the re-engineering of the roads and all that. Govt Agencies or City Authorities _16102020: 85 - 85 (0)
Public Transport Operators of PT (N=1)	<p>-</p> <p>Revenue leakage - Since fare collection is largely paid in cash by passengers to the conductors, there are instances of pilfering that affects revenue generated. As already indicated, there are few buses of this institution that use the automated fare collection system with a Card. Furthermore, inventory control is much of a problem to us. This leads to pilfering such as parts of buses getting missing and can't be traced as to when they got missing.</p> <p>Public Transport Operators of PT _21092020: 141 - 141 (0)</p>	Government grant in the form of buses. Public Transport Operators of PT_21092020: 141 - 141 (0)	

Source: Remote Field Data, September 2020 – December 2020

From the SWOT Analysis of the existing financial resource capacity of institutions in Tanzania depicted in Table 5.9, it can be seen that the Private Transport Operators of public transport in Dar es Salaam city have their main source of funds from the membership fees of its members. A key weakness of the private transport operator organisation is the absence of a strategic plan to guide its future resource needs. The consistent yearly audits of the finances of this organisation by external auditors is an opportunity to monitor and keep of its financial resources.

In addition, Table 5.9 indicates that the existing financial resource capacity of Government Agencies or City Authorities in Tanzania, pertaining to local government institutions have the strength of preparation of annual budgets based on the functions of these institutions. Specifically, 50 per cent of the annual budget of this local government institution goes into waste management and environmental issues, whereas 40 per cent goes into other developmental issues such as transport.

It is pertinent to get an investor to provide about 500 BRT vehicles or buses in the city of Dar es Salaam as mentioned by the Government Agencies or City Authorities. Another weakness is the fact that these institutions usually receive about 70 per cent to 80 per cent of their funding requirements as it is not easy to receive 100 per cent of their financial needs from the central government. This therefore leads to challenges in terms of equipment needed to execute statutory functions.

On the other hand, there is an opportunity of funding from the central government for other developmental projects to these Government Agencies or City Authorities in Tanzania. Also, there is an opportunity for these institutions to receive from the central government payment staff salaries and fuel subsidies for office use.

From the SWOT Analysis in Table 5.9, Public Transport Operators (of public transport in Dar es Salaam city) have some fleet of BRT buses, as well as staff expertise on BRT operations.

Table 5.9 SWOT Analysis of existing financial resource capacity of institutions in Tanzania

	Strengths- Financial Resource Capacity	Weaknesses- Financial Resource Capacity	Opportunities- Financial Resource Capacity	Threats- Financial Resource Capacity
Private Transport Operators of PT (N=1)	<p>Main source of funding is from membership fees and contributions from the members to cater for the cost of running the office and cost incurred to have meetings.</p> <p>Private Transport Operators of PT _26112020:110</p>	<p>Absence of a strategic plan that spells out the future resource needs of the organisation.</p> <p>Private Transport Operators of PT _26112020: 110.</p>	<p>Consistent audited accounts by external auditors yearly.</p> <p>Private Transport Operators of PT _26112020: 110.</p>	-
Govt Agencies or City Authorities (N=7)	<p>Existence of annual budget commencing from June to July the following year.</p> <p>Mainly, the budget is based on priorities in line with sectors and functions of the institution. Notably, 50% of the annual budget of this institution goes to waste management and environmental issues, and 40% goes to other developmental issues such as transport and other projects.</p> <p>Govt Agencies or City</p>	<p>There is the need to have the appropriate investors because most of the wagons, the fleets, the machinery are imported here.</p> <p>For affordable and efficient system, someone has to spend not less than five years to have the break-even point of the investment he has done. So, to get someone who is in a position to inject that amount of money for over 500 fleets capable of running it for the next five years to the point of recouping his investment is very rare to have someone who is capable of doing this himself in sub-Saharan. That's why we need to have other foreign investors in this regard on the side of operations.</p>	<p>Funding from the central government especially for development projects.</p> <p>Govt Agencies or City Authorities _18122020: 128</p> <p>Receipt of subsidies from the central government in terms of payment of staff salaries of this institution, as well as provision of some funding to run its office. Additionally, this institution gets fuel subsidies from the government but not</p>	-

Strengths- Financial Resource Capacity	Weaknesses- Financial Resource Capacity	Opportunities- Financial Resource Capacity	Threats- Financial Resource Capacity
<p>Authorities_18122020: 128 Adherence to effective financial management and accounting procedures by institutions in the local government. Govt Agencies or City Authorities_18122020: 128</p>	<p>Govt Agencies or City Authorities_15012021: 122 - 122 (0) You may get at least 70% or 80% of your requirements, but it's not easy to get 100% of what you need to implement your activities. So, sometimes you face some challenges in terms of equipment that can assist you to perform your activities. Govt Agencies or City Authorities_011220: 130 - 130 (0)</p>	<p>for the bus operations. This is because, the government provided the infrastructure for the BRT and invited the operator to handle the operations. The current model is the net-costs model: the one who bares the risk of fare revenues is the operator. Govt Agencies or City Authorities_19112020: 266</p>	
<p>Public Transport Operators of PT (N=1) Having fleet of BRT buses, as well as staff with expertise on BRT operations. Private Transport Operators of PT_13032021: 216</p>	-	-	-

Source: Remote Field Data, September 2020-March 2021

5.8.3 SWOT Analysis of the existing logistical capacity of institutions in Accra city-region and Dar es Salaam city

With the lens of answering research question two of this study, the existing logistical capacity of institutions involved in the decision-making processes in planning for more sustainable public transport in Accra city-region and Dar es Salaam city was assessed. From Table 5.10, it can be seen that each of the institutions interviewed in both countries were asked three indicator-questions (Q1-Q3). Their responses on their existing logistical capacity in the form of narratives or evidence served as basis for ranking using the ranking scheme earlier discussed.

Specifically, it can be seen from Table 5.10 that three units of analysis, namely: Private Transport Operators of public transport, Government Agencies/ City Authorities, and Public Transport Operators of public transport are involved in the decision-making processes in planning for more sustainable public transport in Accra city-region and Dar es Salaam city.

Table 5.10 Overview of existing logistical capacity of institutions in both cities using institutional capacity indicators and ranking scheme

	Academia	Financiers...	Private Transport Op...	Govt Agencies ...	Private Sector Org...	Public Transport Op...	Total
Logistical Capacity Q3							
Q3 Evidence/Narrative			6	11		2	19
Q3 Existing Level (1-5)			4	13		2	19
Logistical Capacity Q2							
Q2 Evidence/Narrative			5	11		2	18
Q2 Existing Level (1-5)			5	13		2	20
Logistical Capacity Q1							
Q1 Evidence/Narrative			5	13		2	20
Q1 Existing Level (1-5)			5	13		2	20
Σ SUM			30	74		12	116
# N = Documents/Speaker	2 (6.9%)	3 (10.3%)	5 (17.2%)	14 (48.3%)	3 (10.3%)	2 (6.9%)	29 (100.0%)

Source: Remote Field Data, September 2020 – March 2021

It can be seen from Table 5.10 that there were 116 coded segments on the existing logical capacity of institutions in both cities across the three units of analysis mentioned above. 30 coded segments were retrieved from the five institutions in the Private Transport Operators of public transport, 74 coded segments were retrieved from the 14 institutions in the Government Agencies/ City Authorities, and 12 coded segments were retrieved from the two institutions in the Public Transport Operators of public transport in both cities.

The assessment of the existing logistical capacity of institutions interviewed across the three units of analysis of which 12 of them were in Ghana and nine of them were in Tanzania revealed that, within the Private Transport Operators of public transport in both countries, the major ranking score to the indicator-questions was 3-Partially developed capacity, whereas

the next major score was 1-No evidence of relevant capacity. A remark by an institution each in both countries to indicator-question 1 “Does this institution have appropriate facilities and equipment to support its operations relating to sustainable public transport provision in cities?” were:

“We do not get any subventions from anywhere or grants, we always plan within our strength. If we are looking for logistics to operate and we do not have, we have to budget for it. So, this is how we operate. So, currently I will say no, because we are now in a digital world. Daily new things come in and we need to plan to the current economic situation” (Private Transport Operators of public transport in Ghana, Remote Field Data in October 2020).

“We are just an organisation with an office and we firmly believe we are always there for the members when needed” (Private Transport of public transport in Tanzania, Remote Field Data in November 2020).

With regards to the Government Agencies/ City Authorities in both countries, the assessment showed that the major ranking score to the indicator-question was 3-Partially developed capacity; followed by 4-Widespread but not comprehensive evidence of capacity. A response by an institution each in both countries were:

“For me it is fair to say that we have some but not all. Because we still have issues where sometimes officers cannot challenge especially going to the field to provide a kind of monitoring or assistance to the Assemblies. So, I would not say that we have equipment fully, except that on a scale of 1-10, I will say we are around 7” (Govt Agencies or City Authorities in Ghana, Remote Field Data in October 2020).

“We have them, but they are not enough. The gap is we do not have enough vehicles to facilitate our work as an institution. So, in that manner, sometimes we need to rotate or wait for other groups work to be completed before we can use the vehicle. But there are those vehicles to actually assist us to accomplish our daily tasks but they are not enough” (Govt Agencies or City Authorities in Tanzania, Remote Field Data in December 2020).

With regards to the Public Transport Operators of public transport in both countries the assessment indicated that the major ranking score to the indicator-questions was 3-Partially developed capacity.

From the SWOT Analysis in Table 5.11, it can be seen from the existing logical capacity of institutions involved in the decision-making processes in planning for more sustainable

public transport in Ghana that there are four Private Transport operators with this function. One of these four institutions have the needed office logistics for its day-to-day activities; whereas the rest indicated that the current logistics are not adequate for their operations. Most importantly, these three institutions do not have adequate technological resources. The Private Transport Operators of public transport can leverage on the opportunity of access to other state agencies with some of the needed logistical resources to address this challenge.

From the SWOT Analysis in Table 5.11, it can be seen that all the seven institutions within the Government Agencies or City Authorities involved in the decision-making processes in planning for more sustainable public transport in Ghana have logistics to execute their functions, however most of these institutions mentioned that the logistics are not adequate. For instance, it was mentioned by one of the institutions that their budget is not big enough to enable them do quick replacement of broken-down logistics, as well as over aged logistics such as computers over five years, and over aged vehicles. Another example mentioned by one of the government agencies was restriction with the performance of a statutory function - to undertake development control at the regional level in the form of monitoring at the districts since there is only one vehicle available for this purpose.

From Table 5.11, the SWOT Analysis shows that one institution from the Public Transport Operators of public transport is involved in the decision-making processes in planning for more sustainable public transport in Accra city-region in Ghana. The strength of this institution is the presence of bus terminals across the country. One of the major weaknesses mentioned by this institution was the lack of machineries for works on the buses that lead to increased downtime. This was explained further as - a typical work time on a bus could have been about an hour or two but ends up being several number of days at the workshop due to absence of the required tools to replace the parts of the buses. A threat that was indicated by the Public Transport Operator is the absence of dedicated bus lanes for their operations within the city.

Table 5.11 SWOT Analysis of existing logistical capacity of institutions in Ghana

	Strengths-Logistical Capacity	Weaknesses-Logistical Capacity	Opportunities-Logistical Capacity	Threats-Logistical Capacity
<p>Private Transport Operators of PT (N=4)</p>	<p>Equipped offices by the regulator - The system created offices for the various companies so we were using the offices that were created for us, and the offices were somehow equipped so that when it comes to normal administrative work it was done. So, basically that is what we had then. And now because the operations are more of consolidations, most of the offices have been left and we are not really operating from the offices.</p> <p>Private Transport Operators of PT _22102020 1: 142 - 142 (0)</p> <p>As we speak, anything that we would want to do there will not be any hindrance relating to any administrative work.</p> <p>Private Transport Operators of PT _07102020: 118 - 118 (0)</p>	<p>If we are looking for logistics to operate and we don't have we have to budget for it. So, this is how we operate. So, currently I will say the logistics are not adequate because we are now in a digital world. Daily new things come in and we need to plan to the current economic situation.</p> <p>Private Transport Operators of PT_20102020: 133 - 133 (0)</p> <p>We do not have adequate technological resources.</p> <p>Private Transport Operators of PT _10102020: 108 - 108 (0)</p> <p>In terms of logistics, this organisation is a coordinating council without official vehicle. Private Transport Operators of PT _07102020: 118 - 118 (0)</p>	<p>This organisation mostly appeals to some state agencies such as the Ghana Assurance Association, the National Insurance Commission, the DVLA, and the Road Safety Authority. The organisation/council most often requests of them to come to the aid of the council. Except that these named institutions will also add the request to their budget when they are not fully ready.</p> <p>Private Transport Operators of PT_07102020: 118 - 118 (0)</p>	<p>-</p>

	Strengths-Logistical Capacity	Weaknesses-Logistical Capacity	Opportunities-Logistical Capacity	Threats-Logistical Capacity
<p>Govt Agencies or City Authorities (N=7)</p>	<p>There is some level of availability of computers and plotters though not adequate. Govt Agencies or City Authorities _17102020: 127 - 127 (0)</p> <p>We have some logistics but we will need more. The more you want to expand, you will still need more logistics. Govt Agencies or City Authorities _10102020: 82 - 82 (0)</p> <p>When this institution was created it had adequate resources from the institutions. That is the World Bank, the AfD, and the Global Environmental Fund. We have enough in terms of office space, in terms of office equipment, in terms of even vehicles etc to be able to carry out our work. And we have the data centre that is equipped to support the bus arrangements and also to support the transport planning function. Govt Agencies or City</p>	<p>We have logistics except that they are not at the level that they are supposed to be. Specifically, they are inadequate. Our budget is not so big that we will be able to do quick replacement. For instance, some of our computers have been in use for four-five years, our vehicles too there are frequent break-downs because of our budget space that does not allow us to do quick replacement.</p> <p>Govt Agencies or City Authorities _13102020: 137 - 137 (0)</p> <p>For instance, when it comes to development control, at the regional level we are supposed to monitor the districts but the number of vehicles to go around to check all this are not available. I think for the whole of the region it is only one vehicle.</p> <p>Govt Agencies or City Authorities _17102020: 127 - 127 (0)</p> <p>It is fair to say that we have some logistics but not all. Because we still have issues where sometimes officers cannot challenge especially going to the field to provide the kind of monitoring or</p>	<p>We have the opportunity to get up-to-date equipment for our work, software and what have you. Because we don't do the constructions ourselves, all we need are our office equipment. Govt Agencies or City Authorities _08102020: 98 - 98 (0)</p>	<p>In terms of looking at the option of applying for external funding to enable us acquire logistics, because of institutional rules you can't just go out on your own. It must go through a Ministry and we have limiting issues concerning how we have managed our past projects. So that's where there is a challenge that prevent additional support from coming to us.</p> <p>Govt Agencies or City Authorities_25092020: 33 - 33 (0)</p>

Strengths-Logistical Capacity	Weaknesses-Logistical Capacity	Opportunities-Logistical Capacity	Threats-Logistical Capacity
<p>Authorities_02102020: 178 - 178 (0)</p>	<p>assistance to the Assemblies. So, equipment I wouldn't say that we have it fully except that on a scale of 1-10, I will say we are around 7. Govt Agencies or City Authorities_13102020: 132 - 132 (0)</p> <p>The logistics are moderately enough. Because we have items like vehicles we move with but when it comes to consumables that you will have for the laboratory and those things sometimes it depends on availability of funds. Govt Agencies or City Authorities _10102020: 82 - 82 (0)</p>		
<p>Public Transport Operators of PT (N=1)</p> <p>For infrastructure development too, we have terminals all across the country</p> <p>Public Transport Operators of PT_21092020: 141 - 141 (0)</p>	<p>Lack of machineries to work on buses which cause high downtime. For instance, a bus which needs to be worked on in an hour or two, spends days at the workshop because they don't have the necessary tools to replace the parts.</p> <p>Public Transport Operators of PT_21092020: 141 - 141 (0)</p>	<p>-</p>	<p>Absence of dedicated bus lanes for operations within the city.</p> <p>Public Transport Operators of PT_21092020: 141 - 141 (0)</p>

Source: Remote Field Data, September 2020 – December 2020

From the SWOT Analysis in Table 5.12, it can be seen from the existing logistical capacity of institutions involved in the decision-making processes in planning of more sustainable public transport in Dar es Salaam city that the Private Transport Operator of public transport has an office space to run its day-to day activities as well as internet for communication through WhatsApp messenger where need be.

Regarding the Government Agencies or City Authorities existing logistical capacity, Table 5.12 indicates that there are seven institutions and two out of these institutions have the needed logistics to execute their planned activities. However, five of these institutions have a gap in terms of the required logistics needed as against the logistics available. A typical example that was mentioned by these institutions was inadequate vehicles for monitoring of on-going projects and activities, leading to rotation of the available vehicles by staff for monitoring.

From Table 5.12, the Public Transport Operator of public transport in Dar es Salaam city does have an office space with some logistics to perform its role.

Overall, it can be inferred that the existing logistical capacity of institutions, particularly Government Agencies or City Authorities involved in ensuring more sustainable public transport in Dar es Salaam city do not have adequate logistics to this end. The planning implication here is that, this can lead to delay in execution of day-to-day tasks of these Government Agencies or City Authorities as well as project delivery where these institutions play a lead role.

Table 5.12 SWOT Analysis of existing logistical capacity of institutions in Tanzania

	Strengths-Logistical Capacity	Weaknesses-Logistical Capacity	Opportunities-Logistical Capacity	Threats-Logistical Capacity
Private Transport Operators of PT (N=1)	The organisation has an office space for its day-to-day activities. Also, there is internet for communication through WhatsApp messenger from mobile phones. Private Transport Operators of PT_26112020: 110.	-	-	-
Govt Agencies or City Authorities (N=7)	<p>The presence of some logistics such as vehicles, and computers.</p> <p>Govt Agencies or City Authorities_Part 1_09122020: 216)</p> <p>Availability of at least 70% or 80% of the required logistics for work such as monitoring projects.</p> <p>Govt Agencies or City Authorities_011220: 126</p>	<p>The available logistics are not enough. The gap is we do not have enough vehicles to facilitate the needs of this institution. So, sometimes staff need to rotate or wait for other staff's work to be completed before they can also have the vehicle for tasks to be executed. Govt Agencies or City Authorities_Part 1_09122020: 216 - 216 (0)</p> <p>In terms of computers too, we do not have enough. Technology is advancing and the challenge we have here is that we are lagging behind. For instance, in terms of the update-to-date version of windows etc. There is also a challenge with the policies on procurement of these items. Govt Agencies or City Authorities_Part 1_09122020: 216 - 216 (0)</p>	-	-
Public Transport Operators of PT (N=1)	<p>Presence of an office space with some logistics.</p> <p>Public Transport Operators of PT_13032021</p>	-	-	-

Source: Remote Field Data, September 2020 – March 2021

5.8.4 SWOT Analysis of the existing technical capacity of institutions in Accra city-region and Dar es Salaam city.

With the view of answering research question two of this study, the existing technical capacity (i.e. personnel and competence of staff) of institutions involved in the decision-making processes in planning for more sustainable public transport in Accra city-region and Dar es Salaam city was assessed. Table 5.13 shows that each of the institutions interviewed in both countries were asked nine indicator-questions (Q1-Q9). The responses received on the existing technical capacity of these institutions in the form of narratives or evidence served as the basis for ranking using the ranking scheme previously discussed.

Precisely, Table 5.13 shows that three units of analysis are involved in the decision-making processes in planning for more sustainable public transport in Accra city-region and Dar es Salaam city. These are: Private Transport Operators of public transport, Government Agencies/ City Authorities, and Public Transport Operators of public transport.

Table 5.13 Overview of existing technical capacity of institutions in both cities using institutional capacity indicators and ranking scheme

	Academia	Financiers...	Private Transport Op...	Govt Agencies ...	Private Sector Org...	Public Transport Op...	Total
Technical Capacity Q9							
Q9 Evidence/Narrative			4	10		2	16
Q9 Existing level (1-5)			5	12		2	19
Technical Capacity Q8							
Q8 Evidence/Narrative			4	9		2	15
Q8 Existing Level (1-5)			4	12		2	18
Technical Capacity Q7							
Q7 Evidence/Narrative			4	12		2	18
Q7 Existing Level (1-5)			4	12		2	18
Technical Capacity Q6							
Q6 Evidence/Narrative			5	12		2	19
Q6 Existing Level (1-5)			5	13		2	20
Technical Capacity Q5							
Q5 Evidence/Narrative			5	13		2	20
Q5 Existing Level (1-5)			5	13		2	20
Technical Capacity Q4							
Q4 Evidence/Narrative			5	13		2	20
Q4 Existing Level (1-5)			5	13		2	20
Technical Capacity Q3							
Q3 Evidence/Capacity			5	13		2	20
Q3 Existing Level (1-5)			5	13		2	20
Technical Capacity Q2							
Q2 Evidence/Narrative			5	13		2	20
Q2 Existing Level (1-5)			5	13		2	20
Technical Capacity Q1							
Q1 Evidence/Narrative			6	13		2	21
Q1 Existing Level (1-5)			5	13		2	20
Σ SUM			86	222		36	344
# N = Documents/Speaker	2 (6.9%)	3 (10.3%)	5 (17.2%)	14 (48.3%)	3 (10.3%)	2 (6.9%)	29 (100.0%)

Source: Remote Field Data, September 2020 – March 2021

From Table 5.13, it shows that 344 coded segments were coded for the existing technical capacity of institutions in both cities across the three units of analysis mentioned above. 86 coded segments were retrieved from the five institutions in the Private Transport Operators

of public transport, 222 coded segments were retrieved from the 14 institutions in the Government Agencies/ City Authorities, and 36 coded segments were retrieved from the two institutions in the Public Transport Operators of public transport in both cities.

The assessment of the existing technical capacity of institutions interviewed across the three units of analysis where 12 of them were in Ghana and nine of them were in Tanzania revealed that, within the Private Transport Operators of public transport in both cities, the major ranking score to the indicator-questions was 4-Widespread but not comprehensive evidence of capacity. The second major ranking score to the indicator-questions were 3-Partially developed capacity, and 1-No evidence of relevant capacity. A response each by an institution in both cities to indicator-question 1 'Does this institution have adequate staff in all key positions to plan for more sustainable public transport?' were:

"Yes, we have the staff. The people that we recruited for the maintenance, they have a mechanic background, those that were in charge of dispatching they have various levels of understanding when it comes to transport operations and fleet management. And also, GAPTE who are the regulators also were acting as the technical support for the whole system and the operations" (Private Transport Operators of public transport in Ghana, Remote Field Data in October 2020).

"Our duties are very minimal so most of the time it is the secretary general and the accountant who are in the office. These two people are always running the office from Monday to Friday from 9:00am to 3:00pm" (Private Transport Operators of public transport in Tanzania, Remote Field Data in November 2020).

Another response to indicator-question 8 'Do staff have the needed technological skills to perform tasks/functions related to sustainable public transport?' by an institution each in both cities were as follows:

"Technological skills, I will say no. What we do now is that, we are more concerned about the safety of the drivers and the passengers. So, the trainings we normally have are on improving the skills of the drivers and on terminal provisions made for the drivers" (Private Transport Operators of public transport in Ghana, Remote Field Data in October 2020).

"No Technical Skills" (Private Transport Operators of public transport in Tanzania, Remote Field Data in November 2020).

With regards to the Government Agencies/ City Authorities in both countries, the assessment showed that the major ranking score to the indicator-questions was 4-Widespread but not comprehensive evidence of capacity, and the next major was 3-Partially developed capacity. A remark each by an institution in both countries to indicator question 1 'Does this institution have adequate staff in all key positions to plan for more sustainable public transport?' were as follows:

"Not at all. Officially, there are five staff in this department. A staff is responsible for the area of operations, another for the area of planning, the other in the area of database, the fourth in the area of administration, and the fifth is the head of the department. However, the department is supposed to have 21 staff working in all the positions in this department with reference to the operations manual. You can see that we are understaffed, so what will be happening to us? Mind you, this is one of the biggest institutions in terms of history in GAMA. Also, note that it took a lot of efforts through the Ghana Urban Transport Project before this department was created" (Govt Agencies or City Authorities in Ghana, Remote Field Data in September 2020).

"Yes and No. This institution has staff but the number of staff is not enough to execute the daily activities pertaining to sustainable transport" (Govt Agencies or City Authorities in Tanzania, Remote Field Data in December 2020).

In addition to the Government Agencies/ City Authorities, another response to indicator-question 8 'Do staff have the needed technological skills to perform tasks/functions related to sustainable public transport?' by an institution each in both cities were:

"Their training generally has been on the general sense and people have gathered experience over the years. The training may not be on public transport system but planning in general, for instance, someone who studied transport planning may not necessarily be a master only in public transport systems but may have the general background of transport planning. And so, once we are on the job and there are opportunities, such as trainings that are tailored specifically to public transport planning then you would normally give the opportunities to the staff who are in the technical directorate" (Govt Agencies or City Authorities in Ghana, Remote Field Data in October 2020).

"What I could say is that, for example, we do have Engineers, we do have ICT-Information and Communications Technology staff and so on. But when you bring in this ITS-Intelligent Transport System, and AFCS-Automated Fare Collection System,

or even in transportation development when we are doing this demand studies, there are some specialised transportation applications or programmes which need special training. This institution has procured the ITS. Though some of the staff have done their masters in ITS and so on, the staff does not know the specific ITS that will finally be delivered. The staff needs to get a special training on that particular ITS that is being brought in. This is where I see this institution mainly has gaps, because the staff may have the general knowledge but the specific knowledge on the specific programmes they need to be capacitated to meet the new system requirements” (Govt Agencies or City Authorities in Tanzania, Remote Field Data in November 2020).

With reference to Public Transport Operators of public transport in both countries the assessment indicated that the major ranking score to the indicator-questions was 4-Widespread but not comprehensive evidence of capacity, and the next major ranking score was 1-No evidence of relevant capacity.

All in all, it can be inferred from the assessment of the existing technical capacity (personnel and competence of staff) of the institutions involved in the decision-making processes in planning for more sustainable public transport in Accra city-region and Dar es Salaam city that, specifically, technological skills required to execute tasks towards sustainable public transport in both cities ranked scores of 3-Partially developed capacity, and 1-No evidence of relevant capacity. This corroborates findings from literature reviewed that, “in Tanzania sustainable public transport is negatively affected by inadequate technical capacity of related institutions in the transport sector” (Kanyama et al., 2004), and similarly in Ghana there is “inadequate functional institutional capacity to undertake more arduous planning activities for sustainable public transport including effective BRT” (Ministry of Roads and Transport, 2016; Ministry of Local Government and Rural Development (MLGRD), 2017).

Furthermore, the ontology or nature of reality regarding the existing technical capacity (personnel and competence of staff) of institutions among the three units of analysis in each city, and across both cities is multiple. This is seen in for instance, the Government Agencies/ City Authorities responses to indicator-question 1 pertaining to staff adequacy, as well as indicator-question 8 on technological skills of staff.

From the SWOT Analysis in Table 5.14, the existing technical capacity of the institutions involved in the decision-making processes in planning for more sustainable public transport in Ghanaian cities shows that, the four Private Transport Operators of public transport in Accra city-Region have competent staff in key positions, however, there are no staff in the

administration section. The main reason given for this gap was inadequate funds to employ professionals with the needed capacity for the administrative section. One key thing mentioned as a knock-on effect is the vacuum created in the secretariat that leads to delays in office correspondence including responding to letters. The planning implication of this is, although this task is performed by the General Secretary and any other person available during the opening hours of the offices, this affects task delivery and other associated duties of these institution. Essentially, it was indicated that this is a voluntary job without a fixed salary and therefore, the willingness of the people to work at certain times cannot fully be questioned.

From the SWOT Analysis in Table 5.14, it can be seen that the seven institutions within the government Agencies or City Authorities involved in the decision-making processes in planning for more sustainable public transport in cities in Ghana have staff of which some of the institutions do have expert staff. However, nearly half of the institutions indicated they do not have adequate technical staff to help reduce the workload of the existing staff. It was stressed by one of the institution's that, presence of adequate technical staff will enable other staff to focus on critical areas such as public transport and its sustainability.

In addition, it can be seen from Table 5.14 that, occasional as well as on-the-job trainings are undertaken by staff in their various institutions in the Government Agencies/ City Authorities to boost their skills set. However, there are instances of delayed capacity building for staff in the year needed which is mostly attributed to financial resource availability. On the other hand, three out of seven institutions mentioned that the level of staff salaries are low, hence, making the private sector more attractive to employees who may change jobs at the least opportunity. It was also highlighted by an institution that qualified trained professionals with international exposure are unwilling to join the institution due to low levels of salaries.

The implication for planning is that, there is the need to bridge the gap of inadequate technical staff in these Government Agencies / City Authorities as these are core staff with technological expertise needed towards the desired outcome of having sustainable mobility for public transport in Accra city-region indicated in the conceptual framework of this study. Besides, there is the need for critical measures to be taken to address the issue of delayed capacity building trainings needed by some staff normally attributed to inadequate funds. In that, this has a ripple effect on work output of staff in the situations where these trainings are not undertaken at the right time. Another planning implication worth the attention of decision and policy makers is the need to address the issue of low salary levels of some employees in the Government Agencies to prevent losing core staff with several years of expertise to the private sector or other institutions. Essentially, this may affect the Government Agencies / City Authorities when core staff leave the institutions.

From the SWOT Analysis in Table 5.14, the Public Transport Operator of public transport involved in the decision-making processes in planning for more sustainable public transport in Accra city-region have the required experts in all key positions to run the institution.

Table 5.14 SWOT Analysis of existing technical capacity of institutions in Ghana

	Strengths-Technical Capacity	Weaknesses-Technical Capacity	Opportunities-Technical Capacity	Threats-Technical Capacity
Private Transport Operators of PT (N=4)	<p>Presence of adequate staff in all key positions. There are staff for maintenance with a mechanic background, those responsible for dispatching have various levels of understanding in transport operations and fleet management. And, GAPTE who are the regulators were acting as the technical support for the whole system and the operations.</p> <p>Private Transport Operators of PT_22102020 1: 142 - 142 (0)</p> <p>Presence of other staff including the General Secretary of this organisation with the needed capacities to man this office.</p> <p>Private Transport Operators of PT_07102020: 118 - 118 (0)</p>	<p>There are no staff with the requisite capacities for the administration section of this organisation. Mainly, the reason given for this was in relation to absence of financial resources that would be needed to compensate the work performed by professionals who may be hired for these administrative duties.</p> <p>The absence of staff at the administrative section creates a vacuum at the secretariat as there is no permanent staff to, for instance, receive letters and to respond to letters promptly, and for other relevant office errands. This leads to delays in office correspondence.</p> <p>Private Transport Operators of PT_07102020: 118 - 118 (0)</p>	<p>There are qualified professionals who can be employed but the challenge is the funds to compensate them for works that would be performed.</p> <p>Private Transport Operators of PT_07102020: 118 - 118 (0)</p>	<p>The major challenge is inadequate financial resources</p> <p>Private Transport Operators of PT_07102020: 118 - 118 (0)</p>

	Strengths-Technical Capacity	Weaknesses-Technical Capacity	Opportunities-Technical Capacity	Threats-Technical Capacity
Govt Agencies or City Authorities (N=7)	<p>Presence of experts within the institution with specialised expertise, including GIS specialists, and environmental planners.</p> <p>Govt Agencies or City Authorities_17102020: 127 - 127 (0)</p> <p>Occasional trainings to boost the skills set of staff in this institution. For instance, occasional practical trainings are organised for newly recruited staff to the technical section-planning and research mainly to bring them to speed on current happenings in transport planning and monitoring. Normally the Chartered Institute for Logistics and Transport does these trainings on the institution's behalf.</p> <p>Govt Agencies or City Authorities_16102020: 80 - 80</p>	<p>Low salary levels can lead to staff leaving for the private sector or abroad where their skills are needed and would be paid the deserved salary for work done.</p> <p>Govt Agencies or City Authorities_17102020: 127 - 127 (0)</p> <p>Inadequate technical staff in this institution. There are few planners who are mostly at the entry level. Hence the need for additional technical staff to reduce the workload on the existing staff. This will enable some staff to focus on critical areas such as public transport, its sustainability etc, whereas other staff can also focus on other mandates of this institution, and not lump all these on a few staff.</p> <p>Govt Agencies or City Authorities_16102020: 80 - 80 (0)</p> <p>There are issues with internal supervision and staff development in this institution. Aside the academic competences, this institution is not doing much to develop the personnel,</p>	<p>-</p> <p>Further capacity building or focused trainings enhance the capabilities of the technical staff. These include tailor-made trainings.</p> <p>Govt Agencies or City Authorities_16102020: 85 - 85 (0)</p> <p>External sponsored trainings in Ghana or abroad by Ministries in France and Switzerland in the area of mobility.</p> <p>Govt Agencies or City Authorities_13102020: 132 - 132 (0)</p>	<p>The willingness of very qualified trained professionals with international exposure to join this institution is very low. Govt Agencies or City Authorities_17102020: 127 - 127 (0)</p> <p>-</p>

Strengths-Technical Capacity	Weaknesses-Technical Capacity	Opportunities-Technical Capacity	Threats-Technical Capacity
<p>(0)</p> <p>There are staff on-the-job training programmes. These trainings are based on the appraisal system. Precisely, these trainings are drawn from the staff appraisal discussed during the appraisal process of the appraisee and the appraiser. In this process, any specific area discussed where staff need training on, the end of year assessment takes this into consideration for the required training to be planned for in the subsequent year.</p> <p>Govt Agencies or City Authorities_16102020: 80 - 80 (0)</p> <p>Assistance of staff in this institution to attain higher degrees.</p> <p>Govt Agencies or City Authorities_08102020: 98 - 98</p>	<p>particularly, the new and young officers employed. The system is not so robust to pick the young officers and develop them.</p> <p>Effects from Civil Service transfers. Staff are being transferred in and out which affects programme delivery. For instance, transfer of staff leading specific activities and there is no immediate replacement, lead to stalled progress of the programme. Sometimes, even if a replace is immediately done, you may not get a staff with the same competences.</p> <p>Govt Agencies or City Authorities _13102020: 137 - 137 (0)</p> <p>Issues of delayed capacity building for staff. Staff may need capacity building at a certain time in a year but this can be delayed, and at times it may not be done in the year needed. These delays are mainly from the availability of funds.</p> <p>Govt Agencies or City Authorities _10102020: 82 - 82 (0)</p> <p>This institution currently does not have full control over the regulatory, and transport planning departments. Because, it utilizes the assistance of two Assemblies (i.e. TMA and AMA) to be</p>	<p>Given the positioning of this institution, it appears every ministry in one way or the other would require collaboration with this institution in carrying out its mandate. In effect, this institution can tap into the knock-on effects of working with all these ministries and other agencies of government.</p> <p>Govt Agencies or City Authorities_13102020: 137 - 137 (0)</p> <p>This institution can leverage on the presence of external institutions to obtain assistance in enhancing its technical capacity. For this to become a reality, this institution needs to be recognized by the other four institutions also involved in mobility issues. The recognition of this institution in the urban</p>	<p>-</p> <p>Existence of institutional rivalry. The functions this institution is carrying out, would have been carried out by these other four institutions differently, hence their unwillingness to cede those functions to this institution that has been created. These four institutions are: the Ministry of Local</p>

Strengths-Technical Capacity	Weaknesses-Technical Capacity	Opportunities-Technical Capacity	Threats-Technical Capacity
(0)	able to carry out its functions accordingly. Govt Agencies or City Authorities_02102020: 178 - 178 (0)	mobility space could enhance the needed resources from these external institutions. Govt Agencies or City Authorities_02102020: 178 - 178 (0)	Government, the Ministry of Transport, the Ministry of Roads and Highways, and then the Ministry of Interior. Therefore, this institutional rivalry has to be managed. Govt Agencies or City Authorities_02102020: 178 - 178 (0)
Public Transport Operators of PT (N=1) This institution has experts as line managers, experts who man the various departments, as well as a strong board of directors. Public Transport Operators of PT_21092020: 141 - 141 (0)	-	-	-

Source: Remote Field Data, September 2020 – December 2020

From the SWOT analysis in Table 5.15, it can be seen from the existing technical capacity of institutions involved in the decision-making processes in planning for more sustainable public transport in Dar es Salaam city that the Private Transport Operator of public transport has an office with workers from Monday to Friday every week. It is notable to mention that these workers are engaged voluntarily and not paid monthly salaries but rather little allowances. The reason for this is that, these voluntary workers have their personal jobs as owners of daladalas. In addition, the operator of public transport is mostly invited to workshops and trainings organised by external institutions concerning transport and mobility. This in a way is an added advantage to this operator as there are no fees paid to attend these trainings and workshop.

It can be seen from the SWOT Analysis in Table 5.15 that Government Agencies/ City Authorities involved in planning for more sustainable public transport in Dar es Salaam city have staff in key positions, but similarly to that of Ghana, the staff are inadequate. Also, there is a gap of additional technical staff needed in some of the Government Agencies/ City Authorities, for instance, in the case of the institution responsible to establish and operate the Dar Rapid Transit system in Dar es Salaam. This is necessary as this institution is moving from a transitional service to a full-scale service with Intelligent Transport System (ITS) and Automated Fare Collection System (AFCs) in place.

From the SWOT Analysis in Table 5.15, it can be seen that the Public Transport Operator of public transport in Dar es Salaam city ensures in-house training for its staff. Specifically, there are three types of training for the staff of which the first one is a need-based training requested by the staff. The second and third trainings are focused for drivers to ensure continuous engagement with the drivers and trainings by experts to the drivers on road accidents and safety on roads.

Strengths-Technical Capacity	Weaknesses-Technical Capacity	Opportunities-Technical Capacity	Threats-Technical Capacity
<p>-</p> <p>Presence of staff in all key positions, although not enough. Government Agencies or City Authorities_19112020: 266</p> <p>Incentive package for the staff on the field as motivation. The service hours of this institution are from 4:30am till mid-night daily. Government Agencies_19112020: 266</p>	<p>activities including sustainable transport. Inadequate technological skills by staff to perform such functions.</p> <p>Govt Agencies or City Authorities_09122020: 216 - 216 (0)</p> <p>Gap of additional technical staff needed. Govt Agencies or City Authorities_19112020: 270 - 270 (0)</p> <p>Inadequate staff in the other departments, especially considering moving into a full service from a transitional service. Government Agencies or City Authorities_19112020: 266</p>	<p>awards over the years. Government Agencies or City Authorities_181120: 182.</p> <p>-</p> <p>-</p>	<p>-</p> <p>-</p>
<p>Public Transport Operators of PT (N=1)</p> <p>Existence of in-house training for staff professional development in this institution. There are three types of trainings: the personal development training requested by staff.</p> <p>The major concentration of training in this institution is training for the drivers. Hence, there are two types of trainings for them: first, trainings for continuous engagement with the drivers—drivers are met every Tuesday—once a week—to discuss accidents, and challenges</p>	<p>-</p>	<p>-</p>	<p>-</p>

Strengths-Technical Capacity	Weaknesses-Technical Capacity	Opportunities-Technical Capacity	Threats-Technical Capacity
<p>on the road. Second, training by experts for the drivers to address certain gaps. Public Transport Operator of PT_13032021: 216</p>			

Source: Remote Field Data, September 2020 – March 2021

5.9 Examining the coordination and communication mechanisms between the various institutions responsible for the provision of public transport in Accra city-region (Ghana) and Dar es Salaam city (Tanzania)

5.9.1 Coordination mechanisms between institutions responsible for the provision of public transport in Accra city-region and Dar es Salaam city

With the view of answering research question three of this study, Figure 5.17 and Table 5.16 show the categories of actors/institutions that coordinate with other institutions related to the provision of public transport in Accra city-region, as well as the specific coordination mechanisms used respectively.

Furthermore, Figure 5.18 and Table 5.17 similarly show the institutions related to the provision of public transport in Dar es Salaam city that coordinate with other institutions and the specific coordination mechanisms to that end.

5.9.1.1 Coordination mechanisms between institutions for public transport in Accra city-region

From Figure 5.17, it can be seen that 12 out of the 16 institutions interviewed in Ghana related to public transport provision in Accra city-region coordinate with other institutions. These 12 institutions comprise of five units of analysis, namely: Financiers with Dedicated Green Funds (1), Private Transport Operators of public transport (4), Government Agencies/ City Authorities (4), Private Sector Organisation (2), and Public Transport Operators of public transport (1).

It is important to indicate that one institution which is part of the Government Agencies/ City Authorities could not respond to questions related to this section due to official time constraints.

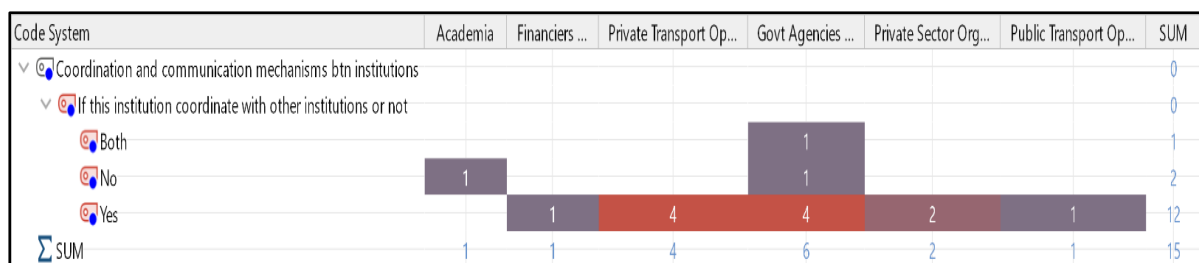


Figure 5.17 Heatmap of Coordination of Institutions in Ghana with others

Source: Remote Field Data, September 2020 – December 2020

Precisely, from Figure 5.17, the Financiers with Dedicated Green Funds emphasized that, as part of its mandate as an institution it cannot intervene in any area to provide support to

sector(s) of the economy without coordination and communication with that sector, for instance, in the case of Ghana. Also, the Private Transport Operators of public transport indicated that there is coordination among all the various transport operators operating the Aayalolo Quality Bus System in Accra city-region. To them, most times the coordination is at the governmental level, particularly relating to government policies that need the inputs of the transport operators. Furthermore, the Government Agencies/ City Authorities emphasized that, principles such as the transport policy enjoins them to collaborate with other agencies responsible for public transport, as well as coordinate with other ministries through working together in groups including transport sector working group.

On the other hand, Academia unit of analysis and an institution in the Government Agencies/ City Authorities from Figure 5.17 indicated that that there is no coordination between them and other institutions related to the provision of public transport in Accra city-region. The reason being that, the academic institution's role is to provide support in terms of how the city functions in the area of transportation, due to the relationship the academic institution has with the local government mandated by law to manage transport systems within their jurisdiction.

Table 5.16 Coordination Mechanisms among Institutions in Ghana

	Academia (N=1)	Financiers with Dedicated Green Funds (N=1)	Private Transport Operators of PT (N=4)	Govt Agencies or City Authorities (N=7)	Private Sector Organisations (N=2)	Public Transport Operators of PT (N=1)
If yes, specific institutions & coordination						
Academia	-	<p>KNUST, Indian Institute of Technology (IIT Madras), Harvard-case studies of public transport projects group.</p>	-	-	-	-
Specific coordination	-	<p>KNUST - a place to house some of the data to be developed in future. Mainly, discussions through the Project Implementation Unit (PIU) whenever the bank was on missions.</p> <p>IIT Madras – bring onboard expertise to start public transport lectures etc in Ghana (capacity building).</p> <p>Harvard – offered background advice on trends in cities and what could be done differently in Accra city (two-year period of engagement and visits to</p>	-	-	-	-

	Academia (N=1)	Financiers with Dedicated Green Funds (N=1)	Private Transport Operators of PT (N=4)	Govt Agencies or City Authorities (N=7)	Private Sector Organisations (N=2)	Public Transport Operators of PT (N=1)
		Ghana). Financiers with Dedicated Green Funds _27102020: 304 - 306 (0)				
Financiers with dedicated green funds	-	Agence Française de Développement (AFD), Global Environment Fund (GEF), KfW (Kreditanstalt für Wiederaufbau)	-	World Bank, AFD, International Development Association (IDA), Global Road Safety Fund, UN Environment, US Environmental Protection Agency (EPA), World Health Organisation (WHO)	World Bank, AFD, Sub-Saharan Africa Transport Policy Programme-SSATP (World Bank Programme)	-
Specific coordination	-	The Ghana Urban Transport project was jointly financed by the World Bank and AFD. AFD brought on board parallel financing, and the World Bank also had funds from the Global Environment Fund-a trust fund within the World Bank itself. Mainly, the World Bank coordinated with Agence Française de Développement in terms of	-	Coordinate through meetings and letters. Govt Agencies _17102020: 140 - 140 (0) Assistance from the World Bank under the TSIP (Transport Sector Improvement Project) – most activities are towards sustainable transport. Govt Agencies	UATP - member of SSATP World Bank programme. Often, at the annual meetings of SSATP, UATP can meet all the governments of all African cities invited by this programme. Private Sector	-

Academia (N=1)	Financiers with Dedicated Green Funds (N=1)	Private Transport Operators of PT (N=4)	Govt Agencies or City Authorities (N=7)	Private Sector Organisations (N=2)	Public Transport Operators of PT (N=1)
	<p>the financing of various components of the Ghana project.</p> <p>Financiers with Dedicated Green Funds_27102020: 291</p> <p>Regular briefing sessions with the AFD for status updates. The World Bank was the overall lead of the Ghana project and was in charge of the infrastructure, whereas the AFD took specific components to implement, for example, the area wide traffic management system.</p> <p>The World Bank did coordinate with AFD during missions – share memoirs and comment on each other’s memoirs.</p> <p>Frequent meetings to discuss outcomes and to discuss the status of the Ghana project.</p> <p>Financiers with Dedicated</p>		<p>_16102020: 98 - 98 (0)</p> <p>Dialogue and coordinate. Govt Agencies _10102020: 95 - 95 (0)</p>	<p>Organisations _29092020: 38 - 38 (0)</p>	

	Academia (N=1)	Financiers with Dedicated Green Funds (N=1)	Private Transport Operators of PT (N=4)	Govt Agencies or City Authorities (N=7)	Private Sector Organisations (N=2)	Public Transport Operators of PT (N=1)
		Green Funds_27102020: 296				
Private Sector Organisations	-	Public transport of operators, Banks - Ecobank, UBA, insurance companies. These entities were interested in the development of the business case (i.e. The BRT in Ghana). Bus Company- Ashok Leyland in India	Banks, Scania	Scania West Africa, Daewoo	ALSA Morocco RATP UATP Scania West Africa	Rana Motors
Specific coordination	-	Discussion with the entities in Ghana on what the project was like, what value they could bring to the project. As part of the discussion, the model of Nigeria was shared with them. Ecobank, for example, had provided the buses in Nigeria - so there is an existing model they could look at. Financiers with Dedicated Green Funds_27102020: 270 - 271 (0)	Some of the operators did liaise with some banks to acquire vehicles. Each operator had its specific conditions and that is how the operators did coordinate with the banks. Private Transport Operators of PT: 150 - 150 (0)	Working with Scania for the BRT buses supplied. Scania for instance has put up a training centre in Tema, Ghana for training drivers. So, it is not only the supply buses. Govt Agencies or City Authorities_16102020: 98 - 98 (0)	Facilitated discussions with possible partners to make the Accra BRT project more successful (ALSA Morocco, RATP). Introduction of the representatives of UATP/UITP to related	Coordinate with bus suppliers - assistance in terms of bus purchases. Because most of the items are received from the suppliers on credit and with payment terms. Public Transport Operators of PT _21092020: 149 - 149 (0)

Academia (N=1)	Financiers with Dedicated Green Funds (N=1)	Private Transport Operators of PT (N=4)	Govt Agencies or City Authorities (N=7)	Private Sector Organisations (N=2)	Public Transport Operators of PT (N=1)
		<p>Scania is the supplier of the buses and trainers of the drivers. Scania is also responsible for maintenance of the buses; hence the operators have been coordinating with them to this end.</p> <p>Private Transport Operators of PT_14042021: 141 - 141 (0)</p>	<p>As for engagement, EPA engages with Scania. EPA staff has been on their committee before when they were exploring the sort of technology to be used in Ghana.</p> <p>Govt Agencies or City Authorities_10102020: 95 - 95 (0)</p>	<p>institutions in Ghana – based on the willingness of UATP to support development of the public transport. So far, there is no one taking charge of the project to be fully implemented.</p> <p>Private Sector Organisations_01102020: 42 - 42 (0)</p>	
Private Transport Operators of PT	-	<p>GPTRU (Ghana Private Road Transport Union) GRTCC (Ghana Road Transport Coordinating Council)</p> <p>Three operators of the Aayalolo BRT: Amalgamated BRT Ghana Cooperative BRT, Accra GPRTU Rapid Bus Serv.</p> <p>PROTOA, GPRTU, Other transport</p>	<p>GPRTU, Cooperative, PROTOA, etc.</p> <p>The private transport operators work under the Ministry of Transport</p>	Private transport operators (formal and informal)	These private transport operators are competitors to the public transport operator. Hence, there is no form of coordination. Public Transport Operators of PT

	Academia (N=1)	Financiers with Dedicated Green Funds (N=1)	Private Transport Operators of PT (N=4)	Govt Agencies or City Authorities (N=7)	Private Sector Organisations (N=2)	Public Transport Operators of PT (N=1)
			operators (small).			_21092020: 149 - 149 (0)
Specific Coordination	-	<p>Coordinated with the existing public transport operators and there was a whole forum for that. This was during the times of the PIU (project implementation unit) meetings, progress updates during the Bank's missions.</p> <p>Set-up of operator steering committees – meetings held with the operators to understand their issues or challenges.</p> <p>Financiers with Dedicated Green Funds_27102020: 242 - 242 (0)</p>	<p>Discussions and meetings</p> <p>Private Transport Operators of PT _22102020 1: 157 - 157 (0)</p>	<p>Committee on public transport fare reviews. The committee meets to look at review of fares when there is fuel price increase.</p> <p>Govt Agencies or City Authorities_16102020: 98 - 98 (0)</p> <p>Collaboration with the private transport unions through a working group. For instance, in the design of the Aayalolo BRT, these unions were key partners especially for the driving of the buses.</p> <p>Govt Agencies or City Authorities_13102020: 147 - 147 (0)</p> <p>The only coordination with the informal providers of public transport is ensuring</p>	<p>Intouch with the private transport operators of public transport – trained close to 300 drivers.</p> <p>Rendered assistance to the operators in setting up the activity at the bus depot, providing offices and others needed for dispatching of the Aayalolo buses. This was done in conjunction with GAPTE.</p> <p>Private Sector Organisations _01102020: 42 - 42 (0)</p>	-

Academia (N=1)	Financiers with Dedicated Green Funds (N=1)	Private Transport Operators of PT (N=4)	Govt Agencies or City Authorities (N=7)	Private Sector Organisations (N=2)	Public Transport Operators of PT (N=1)
			<p>that they obey the rules of the by-laws and this is done through the Assemblies. The Assemblies have a harmonised approach to ensuring that the informal providers of public transport are permitted before they start their operations. In this way, each of the 27 Assemblies deal with the permitting issues in the same manner so that there is no confusion in the network. Govt Agencies_02102020: 189 - 189 (0)</p>		
			<p>The Aayalolo system is an organised, formal special arrangement where Government has</p>		

	Academia (N=1)	Financiers with Dedicated Green Funds (N=1)	Private Transport Operators of PT (N=4)	Govt Agencies or City Authorities (N=7)	Private Sector Organisations (N=2)	Public Transport Operators of PT (N=1)
				<p>provided the infrastructure, and the buses, but the operators of the buses have been invited from these informal sectors.</p> <p>Regular meetings with these bus companies Govt Agencies _02102020: 189 – 189</p>		
Public Transport Operators	-	MMT	-	Metro Mass Transit (MMT Ltd.)	MMT	State Transport Cooperation (STC).
Specific Coordination	-	Some discussions were held with MMT, on what the Ghana project was about and what they could do and what they could not do or how they needed to operate within that space. So at least out of those discussions, the understanding was very clear that MMT was not running as it were at a profit,	-	Good relationship between the Ministry and Metro Mass. MMT is an agency under the Ministry. Their set-up was to provide intracity public mass transport (although they currently provide intercity services), social services,	As a member of UATP, MMT benefits from certain services like trainings, study tools, webinars as we are in COVID context now, peer review mission if requested, etc.	Coordination with STC. STC has a Drivers' Academy that MMT drivers use for training. STC also has an evaluation section which evaluates vehicles of MMT

Academia (N=1)	Financiers with Dedicated Green Funds (N=1)	Private Transport Operators of PT (N=4)	Govt Agencies or City Authorities (N=7)	Private Sector Organisations (N=2)	Public Transport Operators of PT (N=1)
	<p>and they were looking more at the areas where access was difficult. That was one of the things that came out of these consultations.</p> <p>Financiers with Dedicated Green Funds_27102020: 257 - 259 (0)</p>		<p>therefore, we collaborate with them. Also, the Ministry supports MMT's procurement of buses as part of the Ministry's strategic efforts to ensure that the masses can access their services even in deprived areas.</p> <p>In terms of coordination, there is a transport planning group (TPG). TPG is a team of the technical staff of all the various agencies of the Ministry that meets quarterly to look at issues affecting the sector. TPG seeks to leverage on the experiences of each other to come-up with solutions and to</p>	<p>Private Sector Organisations_29092020: 38 - 38 (0)</p>	<p>when they are to be scrapped.</p> <p>Public Transport Operators of PT_21092020: 149 - 149 (0)</p>

	Academia (N=1)	Financiers with Dedicated Green Funds (N=1)	Private Transport Operators of PT (N=4)	Govt Agencies or City Authorities (N=7)	Private Sector Organisations (N=2)	Public Transport Operators of PT (N=1)
Government Agencies/ City Authorities	-	Department of Urban Roads, Environmental Protection Agency, Town and Country Planning, Ministry of Local Government and Rural Development, MMDAs, Ministry of Transport, Ministry of Roads and Highways.	GAPTE, Ghana Technical Training Centre (GTCC), National Road Safety Authority (NRSA), National Drivers Academy, Ministry of Transport, Ministry of Local Government and Rural Development, Ghana Police MTTD.	ensure that each of the Ministry's sector agencies complement each other. Govt Agencies or City Authorities _16102020: 98 - 98 (0)	Ghana Highway Authority, Ministry of Railways, Department of Urban Roads, Accra Metropolitan Assembly, GAPTE, Regional Coordinating Council, MLGRD, NRSA, DVLA.	MLGRD, GAPTE, AMA, MoT, MoF. MoT, DVLA, NRSA, AMA
Specific Coordination	-	The World Bank establishes a task team comprising of: technical people, public transport specialists, environmentalists and	GAPTE is the regulator. Hence, if there is any change needed in the operations,	Coordination is through organised meetings by the Agencies, letters, during plan	Initially, first point of contact was MoT and GAPTE. But there was a	In terms of MoT, coordination is through regular meetings held. There is a group

Academia (N=1)	Financiers with Dedicated Green Funds (N=1)	Private Transport Operators of PT (N=4)	Govt Agencies or City Authorities (N=7)	Private Sector Organisations (N=2)	Public Transport Operators of PT (N=1)
	<p>financial management people. On the government side, the government also sets up a team. The government led by the Ministry of Finance. In the case of the Urban Transport Project, there is a project implementation unit that was set-up by the government with actors. These actors are the specific institutions indicated above.</p> <p>There were regular meetings, progress reports, and others that were submitted to the Bank through which the Bank reviewed and provided advice on what was being done with the status of the project.</p> <p>Financiers with Dedicated Green Funds_27102020: 314</p>	<p>GAPTE calls these operators for discussions and way forward. Now that there is consolidation of operations, joint operations meetings are held weekly. Operator steering committee meetings, as and when needed.</p> <p>Private Transport Operators of PT _22102020 1: 157</p> <p>GTCCC is where the drivers have their re-training courses. Private Transport Operators of PT _22102020 1: 157</p> <p>There is engagement with the Ministry of Transport as operators of the</p>	<p>preparation key stakeholders including the government Ministries, Departments, and Agencies are invited.</p> <p>Govt Agencies or City Authorities_17102020: 140</p> <p>Under the local governance act, public transport in the Assemblies is supposed to be regulated by the Assemblies and the Assemblies fall under the local government. Therefore, there is coordination with the Ministry of Local Government.</p> <p>Specifically, on the BRT, we had always held joint meetings to resolve the challenges</p>	<p>cross functional project group put together under the responsibility of the MoT where they invited representatives from the authorities dealing with the road infrastructure in Accra, from GAPTE, MLGRD, and the Ministry of Finance who were involved in the financing of the project. During the 1st implementation of the project there were regular weekly meetings to follow-up the different trends. Drivers have</p>	<p>called Transport Planning Group- it includes all planners within the Agencies under the MoT, and there is the Transport Sector Working Group- that one goes beyond the MoT and includes transport agencies such as Aviation. So, there are meetings bi-annually or monthly to discuss on the various modes of transport and how they can be merged in a way.</p> <p>Public Transport Operators of PT_21092020:1 49</p>

Academia (N=1)	Financiers with Dedicated Green Funds (N=1)	Private Transport Operators of PT (N=4)	Govt Agencies or City Authorities (N=7)	Private Sector Organisations (N=2)	Public Transport Operators of PT (N=1)
		informal transport. The coordination is on transport fare reviews. Private Transport Operators of PT _07102020: 132.	facing the BRT. Govt Agencies _16102020: 98	been trained. Private Sector Organisations _01102020: 42	

Source: Remote Field Data, September 2020 – December 2020

Table 5.16 presents the specific coordination mechanisms among and between the institutions responsible directly or indirectly for the provision of public transport in Accra city-region. It can be seen from Table 5.16 that Financiers with Dedicated Green Funds coordinate activities with all the six categories of actors/units of analysis. For instance, for Academia, it had coordination with institutions such as the Kwame Nkrumah University of Science and Technology (KNUST) in Ghana, and the Indian Institute of Technology (IIT Madras) in relation to the Urban Transport Project in Ghana. As part of the coordination, Financiers with Dedicated Green Funds had discussions with the project implementation unit of this project, as well as discussions on KNUST acting as a place to house some data to be developed in the future.

From Table 5.16, Financiers with Dedicated Green Funds also coordinated with Government Agencies or City Authorities categories of actors, including, Department of Urban Roads, Ministry of Transport, Ministry of Local Government Decentralisation and Rural Development, and Environmental Protection Agency. Mainly, the coordination was on setting up a task team on the side of the Financiers with Dedicated Green Funds; while on the side of the Government Agencies/ City Authorities a team of actors was also set up to facilitate meetings and discussions in relation to the Ghana Urban Transport Project.

It can be seen from Table 5.16 that Private Transport Operators of public transport coordinate with three out of the six units of analysis/categories of actors related to the provision of public transport in Accra city-region. Precisely, it coordinates with Private Sector Organisation, among Private Transport Operators of public transport, and Government Agencies or City Authorities. However, there is no coordination between Private Transport Operators of public transport and these three categories of actors: Academia, Financiers with Dedicated Green Funds, and Public Transport Operators of public transport. Some of the Private Sector Organisations it coordinates with are banks and Scania West Africa. The specific coordination includes Private Transport Operators liaising with banks in the acquisition of vehicles to operate public transport in the city. With reference to Scania, Scania is the supplier of the Aayalolo BRT buses and responsible for maintenance of the buses, as well as training of drivers at the Scania West African Transport Academy (WATA) in Ghana, hence coordination in all these activities.

From Table 5.16, it can be seen that Government Agencies or City Authorities coordinate activities with five out of the six units of analysis/categories of actors for public transport provision in Accra city-region. The only category of actor there is no coordination with is Academia. For instance, the Private Sector Organisations it coordinates with include Scania West Africa Ltd. and Daewoo. The specific coordination was on working with Scania for the

supply of the BRT buses, as well as training of the drivers of the BRT buses. In the case of Government Agencies or City Authorities, there is coordination among and between these agencies for public transport provision in Accra city-region. These Government Agencies include Department of Urban Roads, Accra Metropolitan Assembly, Greater Accra Passenger Transport Executive, and the Ministry of Local Government Decentralisation and Rural Development. The specific coordination has been through organised meetings by the agencies, through letters, among others.

All in all, it can be seen from Table 5.16 that coordination between and among the six units of analysis/categories of actors/institutions for the provision of public transport in Accra city-region depends on the specific category of actor based on the activities to be executed. In essence, activities of some of the categories of actors/institutions are uncoordinated as there is no coordination with other institutions; as well as no Public Transport Authority to ensure a coordinated strategy in this regard. This validates findings from literature reviewed that “activities of multiple stakeholders involved in planning, financing, implementing, and operating the provision of public transport are uncoordinated” (Poku-Boansi and Marsden, 2018; Agyemang, 2015), and there is no specific authority, such as Public Transport Authority, responsible for the formulation and implementation of a coordinated strategy by the different stakeholders of road-based public transport in Accra city-region.

5.9.1.2 Coordination mechanisms between institutions for public transport in Dar es Salaam city

It can be seen from Figure 5.18 that 12 out of the 13 institutions interviewed in Tanzania related to the provision of public transport in Dar es Salaam city coordinate with other institutions.

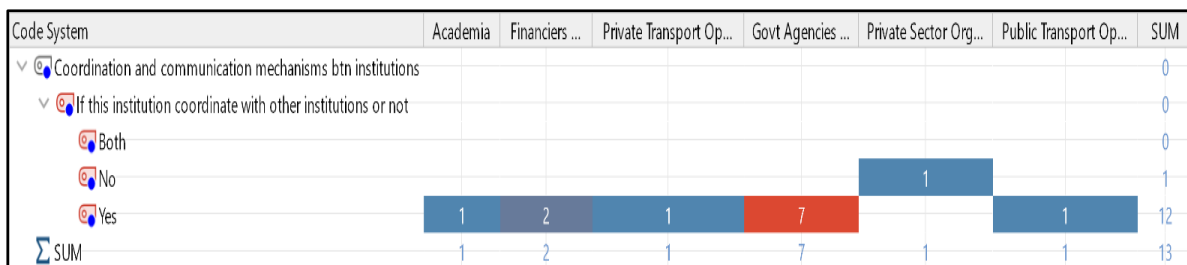


Figure 5.18 Heatmap of Coordination of Institutions in Tanzania with others

Source: Remote Field Data, September 2020 – March 2021

These 12 institutions span across five units of analysis, namely: Academia (1), Financiers with Dedicated Green Funds (2), Private Transport Operators of public transport (1),

Government Agencies/ City Authorities (7), and Public Transport Operators of public transport (1). The only unit of analysis that does not coordinate activities with other institutions/categories of actors is Private Sector Organisation. This specific Private Sector Organisation is the International Association of Public Transport (UATP) and the reason as expressed by them is that, it is still difficult for UATP to have regular communication with Government Agencies/City Authorities such as the Dar Rapid Transit Agency (DART).

For Government Agencies/City Authorities that coordinates with other institutions, it was emphasized that coordination depends on the issue at hand. In that, there are issues that the Ministry of Works Transport and Communication (MWTC) is required to coordinate, especially relating to getting stakeholders opinion on issues. However, regarding implementation, the MWTC does coordinate with the respective institution, including, the Dar es Salaam City Council, and the Dar Rapid Transit Agency.

Regarding Academia category of actors, it was highlighted that there is coordination with other Government Agencies/City Authorities, but, it could be found that there are always implementation problems. Hence, it was iterated that there has been a remedy to address this coordination problem with implementation, and that led to the establishment of a BRT Planning Unit by the Tanzania Roads Agency (TANROADS). This unit acts as a liaison office with DART concerning matters on the BRT infrastructure planning, construction, management, and maintenance.

Table 5.17 Coordination Mechanisms among Institutions in Tanzania

	Academia (N=1)	Financiers with Dedicated Green Funds (N=2)	Private Transport Operators of PT (N=1)	Govt Agencies or City Authorities (N=7)	Private Sector Organisations (N=1)	Public Transport Operators of PT (N=1)
If yes, specific institutions & coordination						
Academia	University of Dar es Salaam (UDSM), National Institute of Transport (NIT), Ardhi University (ARU).	Dar es Salaam Institute of Technology, Engineering Department of the University of Dar es Salaam, University of Dar es Salaam	-	National Institute of Transport, University of Dar es Salaam	-	National Institute of Transport (NIT)
Specific coordination	Coordination is on adhoc basis. Mainly, through a project in the form of committee of stakeholders. Academia_19022021: 160	There is contact with the Dar es Salaam Institute of Technology, and the Engineering Department of University of Dar es Salaam. Financiers with Dedicated Green Funds_25112020: 112	-	Normally, there is less coordination with academia in terms of transport issues but when advice is needed, NIT is contacted. For instance, advice on procurement of buses that are sustainable. Govt	-	Connection with the National Institute of Transport (NIT) to train drivers of the public transport operator (Customised training)

Academia (N=1)	Financiers with Dedicated Green Funds (N=2)	Private Transport Operators of PT (N=1)	Govt Agencies or City Authorities (N=7)	Private Sector Organisations (N=1)	Public Transport Operators of PT (N=1)
	<p>– 112 (0)</p> <p>There are a number of initiatives in Dar es Salaam. For instance, internship opportunities for Masters and Ph.D. students to undertake some research.</p> <p>Through DART, this institution hires the local university to undertake monitoring and evaluation of the BRT.</p> <p>Financiers with Dedicated Green Funds _24112020: 120 – 120 (0)</p>		<p>Agencies or City Authorities_18122020: 142 – 142 (0)</p> <p>Training of TANROADS Staff by UDSM. Govt Agencies or City Authorities_21012021: 40 – 40 (0)</p> <p>Representatives of Academia as board of directors for some Agencies.</p> <p>Regular members of stakeholder meetings organised by government agencies. Govt Agencies or City Authorities_19112020: 299 – 299 (0)</p>		<p>course on BRT). These trainings are as and when needed. Public Transport Operators of PT _13032021: 229 - 229 (0)</p>

	Academia (N=1)	Financiers with Dedicated Green Funds (N=2)	Private Transport Operators of PT (N=1)	Govt Agencies or City Authorities (N=7)	Private Sector Organisations (N=1)	Public Transport Operators of PT (N=1)
Financiers with dedicated green funds	World Bank	World Bank, African Development Bank, Agence Française de Développement (AFD)	-	JICA, World Bank, African Development Bank, EU Kuwait Fund, Agence Française de Développement (AFD)	-	-
Specific coordination	No formal coordination platform. Coordination is normally on adhoc basis. Academia_19022021: 160	Working hand in hand with the World Bank which is financing the construction of the BRT in Dar es Salaam. In terms of coordination, it is through the technical input. These include feasibility studies. Working closely with the African Development Bank. Financiers with Dedicated Green Funds_25112020: 112 - 112 (0)	-	Work closely with the Japan International Cooperation Agency (JICA). JICA is the main funding organisation of the Dar es Salaam Master Plan, so we worked together with them. JICA is also the financiers of the Tazara flyover. Meetings with the World Bank and the African Development Bank. These two	-	-

Academia (N=1)	Financiers with Dedicated Green Funds (N=2)	Private Transport Operators of PT (N=1)	Govt Agencies or City Authorities (N=7)	Private Sector Organisations (N=1)	Public Transport Operators of PT (N=1)
			<p>institutions support the implementation of the Dar BRT phases. Phases 1, 3, and 4 – World Bank; Phase 2 – African Development Bank; Phase 5-Agence Française de Développement. Hence, they have direct coordination with DART and DCC. Govt Agencies _18122020: 142 - 142 (0) Normally, the World Bank visits regularly to have missions. So, within the missions they come to see progress and normally they are very detailed missions because they will be around for a week up to two weeks.</p>		

	Academia (N=1)	Financiers with Dedicated Green Funds (N=2)	Private Transport Operators of PT (N=1)	Govt Agencies or City Authorities (N=7)	Private Sector Organisations (N=1)	Public Transport Operators of PT (N=1)
				Currently, due to COVID-19, workshop meetings are held and drones are used for site visits. Govt Agencies _19112020: 299 – 299 (0)		
Private Sector Organisations	-	-	-	Contractors	-	National Micro Finance PLC (NMB).
Specific coordination	-	-	-	There is coordination through Contracts. Govt Agencies or City Authorities_21012021: 40 – 40 (0)	-	The National Bank of Commerce (NBC) is a very key stakeholder to the public transport operator. Mainly, this bank gave the loan to purchase the BRT buses in

	Academia (N=1)	Financiers with Dedicated Green Funds (N=2)	Private Transport Operators of PT (N=1)	Govt Agencies or City Authorities (N=7)	Private Sector Organisations (N=1)	Public Transport Operators of PT (N=1)
						Dar es Salaam (i.e lender). Public Transport Operators of PT_13032021 : 229 - 229 (0)
Private Transport Operators of PT	-	Daladala Owners/Mini Bus Operators	-	Dar es Salaam Commuter Bus Owners Association (DACOBOA)	-	-
Specific coordination	-	No direct form of coordination. Financiers with Dedicated Green Funds_25112020:112	-	No direct coordination with these operators. But there are some activities that may require their attendance, such as technical meetings. This is where there is coordination by DCC with the private transport operators. Govt Agencies or City		-

	Academia (N=1)	Financiers with Dedicated Green Funds (N=2)	Private Transport Operators of PT (N=1)	Govt Agencies or City Authorities (N=7)	Private Sector Organisations (N=1)	Public Transport Operators of PT (N=1)
				<p>Authorities_181220 20: 142 - 142 (0)</p> <p>The transport operators are regulated by LATRA. Hence, most of their issues are dealt by LATRA. It is only when there is a complaint which needs to be addressed by the MWTC, then the ministry will interfere and coordinate.</p> <p>Govt Agencies or City Authorities_011220: 146 - 146 (0)</p>		
Public Transport Operators	UDART	UDA	UDART	UDA-RT	-	-
Specific coordination	Coordination is on adhoc basis. There is no formal collaboration and	There is no direct coordination with the public transport operators.	There was a committee formed in the year 2014 and it was meeting	No direct coordination with these operators. Govt Agencies or	-	-

	Academia (N=1)	Financiers with Dedicated Green Funds (N=2)	Private Transport Operators of PT (N=1)	Govt Agencies or City Authorities (N=7)	Private Sector Organisations (N=1)	Public Transport Operators of PT (N=1)
	continuous process where the academic institutions recognise they are a part of the engagement of the institutions managing public transport. Academia_19022021: 160	Financiers with Dedicated Green Funds_25112020: 112 - 112 (0)	once a month. It was called the Prime Minister's Transport Committee with representatives of the owners and drivers of urban buses, intercity buses, trucks etc. At this meeting, owners' associations, and drivers' associations met to tackle the challenges in the transport sector. Private Transport Operator_26112020:126	City Authorities_18122020: 142 - 142 (0).		
Govt Agencies/City Authorities	Ministry of Works Transport and Communication (MWTC), TANROADS, DART	DART Agency, Ministry of Works Transport and Communication (MWTC), Dar es Salaam City Council, DART,	LATRA, Traffic Police, DART Agency, MWTC	LATRA, DART Agency, 5 Municipalities in Dar es Salaam, PO-RALG, DCC, TARURA, MWTC,	-	LATRA Dart Agency

	Academia (N=1)	Financiers with Dedicated Green Funds (N=2)	Private Transport Operators of PT (N=1)	Govt Agencies or City Authorities (N=7)	Private Sector Organisations (N=1)	Public Transport Operators of PT (N=1)
		TANROADS, LATRA.		NEMC, TAWURA		
Specific coordination	<p>Coordination is on adhoc basis through projects in the form of committee of stakeholders.</p> <p>Academia_19022021: 160 – 160 (0)</p>	<p>ITDP works closely with DART in line with the Dar BRT. If there are any issues found which needs to be addressed, ITDP highlights them to the respective Government Agencies or City Authorities.</p> <p>ITDP in one way or the other, finances capacity building like workshops, seminars etc. Financiers with Dedicated Green Funds_25112020: 112 – 112 (0)</p>	<p>Mostly in touch with LATRA and the Traffic Police Unit on day to day activities. Whenever there is anything to do with daladala owners, the Government Agencies or City Authorities contact us.</p> <p>Private Transport Operators of PT_26112020: 126 – 126 (0)</p>	<p>Dar es Salaam is made up of 5 municipalities, the Chief Director ensures coordination of the general activities. The DCC fall under the Ministry PO-RALG. So, all coordination under the local government is conducted by the PO-RALG which is the centre of coordination.</p> <p>Govt Agencies or City Authorities_18122020: 142 – 142 (0)</p> <p>LATRA under the MWTC ensures the coordination for the transport sector.</p> <p>Govt Agencies or City</p>	-	<p>Coordination on Monthly Reports.</p> <p>Public Transport Operators of PT_13032021 : 229 - 229 (0)</p>

Academia (N=1)	Financiers with Dedicated Green Funds (N=2)	Private Transport Operators of PT (N=1)	Govt Agencies or City Authorities (N=7)	Private Sector Organisations (N=1)	Public Transport Operators of PT (N=1)
			<p>Authorities_150120 21: 135 – 135 (0)</p> <p>NEMC and LATRA coordinate on any component regarding the environment.</p> <p>Govt Agencies or City Authorities_091220 20: 233 – 233 (0)</p> <p>authority, we have the electric companies, and so on. So, phase one, what was done was establishing those committees and they meet regularly to discuss progress of the project.</p>		

Source: Remote Field Data, September 2020 – March 2021

Table 5.17 presents the specific coordination mechanisms between and among institutions responsible for the provision of public transport in Dar es Salaam city. It can be seen from Table 5.17 that Government Agencies/City Authorities category of actor coordinates activities with all the six categories of actors/units of analysis. Precisely, Government Agencies/City Authorities coordinate activities with Financiers with Dedicated Green Funds such as Japan International Cooperation Agency (JICA), the World Bank, and Agence Française de Développement (AFD). The specific coordination with JICA is closely working together on the Dar es Salaam Master Plan, while the specific coordination with the World Bank and the African Development Bank has been with meetings in line with the implementation of the Dar BRT. Mainly, the Dar BRT phases 1,3, and 4 are being supported financially from the World Bank; whereas the phase 2 is supported by the African Development Bank; and phase 5 by Agence Française de Développement.

In addition, Government Agencies/City Authorities coordinate activities with Private Sector Organisations, including contractors. Regarding Private Transport Operators of public transport, it coordinates with the 'Daladala Owners'/Mini Bus Operators although there is no direct form of coordination, but there are activities the attendance of the operators are required. For Public Transport Operators of public transport, the form of coordination with UDA-RT is indirect.

Again, Government Agencies/City Authorities coordinates activities between and among themselves. Such institutions are LATRA, DART Agency, PO-RALG, DCC, and NEMC.

From Table 5.17, it can be seen that Private Transport Operators of public transport used to coordinate activities with the Public Transport Operator of public transport. Thus, there was a committee formed in the year 2014 called the Prime Minister's Transport Committee with representatives from the owners and drivers of urban buses to tackle challenges in the transport sector. However, presently, there is no such coordination between the Private Transport Operators and the Public Transport Operators.

Ultimately, it can be inferred from Table 5.17 that coordination among and between the six units of analysis/institutions for the provision of public transport in Dar es Salaam city depends on the specific category of actors/institutions with reference to the activities to be executed. It is important to mention that there is no Public Transport Authority to ensure a coordinated strategy among and between the institutions directly or indirectly related to the provision of public transport in Dar es Salaam city. This corroborates findings from literature reviewed that areas of overlap in the discharge of duties by the institutions related to public transport provision in Dar es Salaam city are not properly managed, leading to conflicts in discharge of roles (Kanyama et al., 2005).

5.9.2 Communication mechanisms between institutions responsible for the provision of public transport in Accra city-region and Dar es Salaam city

In line with answering research question three of this study, Figure 5.19 and Table 5.18 show the categories of actors/institutions that communicate with other institutions related to the provision of public transport in Accra city-region, and the specific communication mechanisms.

In addition, Figure 5.20 and Table 5.19 correspondingly depict the institutions related to the provision of public transport in Dar es Salaam city that communicate with other institutions and the specific communication mechanisms.

5.9.2.1 Communication mechanisms between institutions for public transport in Accra city-region

It can be seen from Figure 5.19 that, 12 out of 16 institutions interviewed in Ghana regarding public transport provision in Accra city-region communicate with other institutions. These include five units of analysis, namely: Financiers with Dedicated Green Funds (1), Private Transport Operators of public transport (3), Government Agencies/ City Authorities (5), Private Sector Organisation (2), Public Transport Operators of public transport (1). It is pertinent to mention that one institution from the Private Sector Organisation communicates with some institutions and not with other institutions. Also, one institution from the Government Agencies/ City Authorities was not available to respond to questions related to this section due to official time constraints.

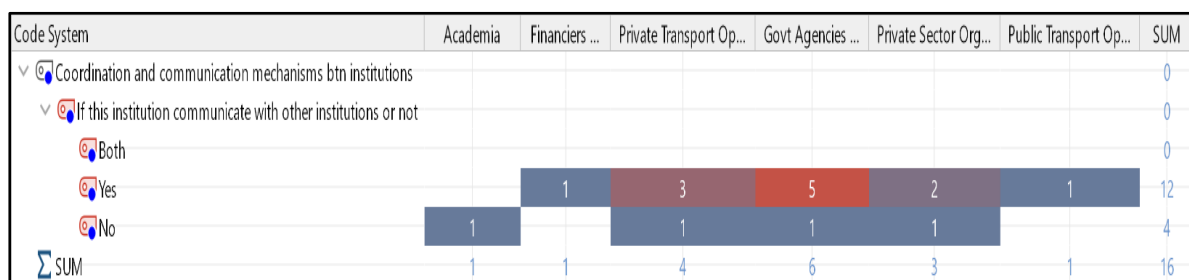


Figure 5.19 Heatmap of Communication of Institutions in Ghana with others

Source: Remote Field Data, September 2020 – December 2020

From Figure 5.19, Private Transport Operators of public transport in Accra city-region emphasized that there is a very cordial relationship among the transport operators. This facilitates communication at any time when the need arises. In addition, the Government Agencies/ City Authorities mentioned that, there is a very cordial relationship which ensures communication with all the stakeholders. In essence, there is communication among these institutions as most of these institutions have representatives on committees, making it easy

to get people to take decisions even when it is immediate. Additionally, the Local Government has a formal communication channel for communication.

On the other hand, four institutions out of the total interviewed in Ghana, do not communicate with other institutions related to public transport provision. Mainly, these are Academia (1), Private Transport Operators of public transport (1), Government Agencies/ City Authorities (1), and Private Sector Organisations (1). The reason given by the Private Transport Operators of public transport, for instance, was that there is no official communication mechanism to be adhered to. It was also emphasized by one of the Private Sector Organisations that the only communication tools in use are its website and events organised, but there is no special communication system with the government.

Table 5.18 Communication Mechanisms among Institutions in Ghana

	Academia (N=1)	Financiers with Dedicated Green Funds (N=1)	Private Transport Operators of PT (N=4)	Govt Agencies or City Authorities (N=7)	Private Sector Organisations (N=2)	Public Transport Operators of PT (N=1)
If yes, specific institution and communication						
Academia	-	-	-	-	-	-
Specific Communication	-	-	-	-	-	-
Financiers with dedicated green funds	-	-	-	World Bank, IDA, Global Road Safety Fund, AfD, C40 cities.	World Bank, AfD.	-
Specific Communication	-	-	-	Communication with related institutions is through the Ministry of Finance on specific issues. For instance, the transport sector improvement project is currently being implemented and so communication is usually through the task team leader who is the leader of the project. Govt Agencies or City Authorities _16102020: 109 - 109 (0)	Communication has been at several meetings with the World Bank, and sometimes discussions with the AfD. These two institutions were involved in the funding of the BRT in Ghana before this institution came to the scene. Unfortunately, from the World Bank side, and also a bit the approach of the AfD, they were not very satisfied with the outcome	-

	Academia (N=1)	Financiers with Dedicated Green Funds (N=1)	Private Transport Operators of PT (N=4)	Govt Agencies or City Authorities (N=7)	Private Sector Organisations (N=2)	Public Transport Operators of PT (N=1)
				<p>There is communication with related institutions all the time. Mainly, it depends on the issues at hand. There are some that have to do with on-going programmes so this institution communicates directly with them. But when it comes to providing the actual support, that is where it has to go through the Ministry of Finance or another Ministry where the support is being sourced from or the institution with supervision over the technical area.</p> <p>Govt Agencies or City Authorities_25092020: 53 - 53 (0)</p>	<p>of their contribution, thus they locked their investment or money in this. The World Bank can be lauded for its contribution especially to the project in terms of the infrastructure such as roads built, bus stops, and terminals. Therefore, the World Bank pulled out of the project, unfortunately at a very sensitive time when this institution was finally delivering the vehicles/buses. Private SectorOrganisations_01102020: 50 - 50 (0)</p>	
Private Sector Organisations	-	-	-	Scania, Daewoo	UATP, Scania West Africa	Rana Motors
Specific	-	-	-	Communication is usually	This institution is a	Communicat

	Academia (N=1)	Financiers with Dedicated Green Funds (N=1)	Private Transport Operators of PT (N=4)	Govt Agencies or City Authorities (N=7)	Private Sector Organisations (N=2)	Public Transport Operators of PT (N=1)
Communication				through letters when necessary. Govt Agencies or City Authorities _16102020: 109 - 109 (0)	stakeholder in the public transport space and a member of UITP. This institution has organised a meeting with high level representatives from UATP/UITP with the stakeholders in Accra. There was actually direct communication with the Government of Ghana representatives and to introduce them to the different stakeholders in other to create, a new brand of discussions, with assistance from the UATP. Because of lack of coordination again between the different stakeholders this never continued, which is very regrettable. Private Sector Organisations_01102020: 50 - 50 (0)	ion is with suppliers of the public transport through phone calls, emails, and meetings. Public Transport Operators of PT _21092020: 155 - 155 (0)
Private Transport	-	-	All other private transport	GPRTU, Cooperative, PROTOA etc.	-	-

	Academia (N=1)	Financiers with Dedicated Green Funds (N=1)	Private Transport Operators of PT (N=4)	Govt Agencies or City Authorities (N=7)	Private Sector Organisations (N=2)	Public Transport Operators of PT (N=1)
Operators of PT			operators.			
Specific Communication	-	Communication sometimes between the PIU (Project Implementation Unit) on the ground and other committees were not very effective or there were different understanding and perspective of the project. Essentially, communication was a problem, sometimes. However, this institution did communicate with all stakeholders affected by the project. For instance, on the social safeguards side, this institution ensured that if there were people going to be even impacted	It is the same existing transport operators who have formed new companies that are managing the Ayalolo Quality Bus System (QBS). The feedback given to the traditional operators is progress report from the companies. So, that is the existing arrangement as it is not all the transport operators that could be part of the management of the QBS. Usually, communication is through telephone	There is collaboration with the private transport operators during transport fare reviews. In addition, these operators are key stakeholders, for instance during the review of the transport policy they were involved. Govt Agencies_16102020: 109 - 109 (0) The communication is normally at scheduled meetings. During these meetings, that's when dialogue and the communication take place. There are no listed effective communication mechanisms. Govt Agencies or City Authorities_13102020: 154 - 154 (0) Letters are written to the leadership of these transport operators directly	-	-

Academia (N=1)	Financiers with Dedicated Green Funds (N=1)	Private Transport Operators of PT (N=4)	Govt Agencies or City Authorities (N=7)	Private Sector Organisations (N=2)	Public Transport Operators of PT (N=1)
	<p>by land acquisition or people are going to be impacted by construction, there was a communication strategy for that. Financiers with Dedicated Green Funds_27102020: 244 - 244 (0)</p>	<p>calls, and official and unofficial meetings. Private Transport Operators of PT_22102020 1: 177 - 177 (0) There are joint weekly operational meetings with GAPTE's Manager. Unfortunately, there are times that for a whole month there would not have been any meeting because GAPTE's operation's manager is supposed to call the meeting. Private Transport Operators of PT_14042021: 150 - 150 (0)</p>	<p>with invitation to attend meetings. These operators are on most committees of this institution. Govt Agencies or City Authorities_10102020: 116 - 116 (0)</p>		

	Academia (N=1)	Financiers with Dedicated Green Funds (N=1)	Private Transport Operators of PT (N=4)	Govt Agencies or City Authorities (N=7)	Private Sector Organisations (N=2)	Public Transport Operators of PT (N=1)
Public Transport Operators	-	-	-	MMT	MMT. However, MMT has not regularized its membership.	STC
Specific Communication	-	-	-	Communication with the public transport operators is both ways and it is an open channel communication. Govt Agencies or City Authorities_16102020: 109 - 109 (0) Communicate is through letters if they need to be instructed to perform or respond to an activity. Govt Agencies or City Authorities\MetroTransAMA_25092020: 53 - 53 (0)	Communication has been infrequent with the public transport operator. This has varied over time due to managerial problems. Top management has been changed several times. Private Sector Organisations_01102020: 50 - 50 (0) Website, emails, etc Private Sector Organisations_29092020: 50 - 50 (0)	There is formal and informal communication with the public transport operator. Informally, the communication is through phone calls, and formally through letters. Public Transport Operators of PT_21092020: 155 - 155 (0)
Govt	-	-	GAPTE,	MMDAs,	MoT,	MoT,

	Academia (N=1)	Financiers with Dedicated Green Funds (N=1)	Private Transport Operators of PT (N=4)	Govt Agencies or City Authorities (N=7)	Private Sector Organisations (N=2)	Public Transport Operators of PT (N=1)
Agencies/City Authorities			GTCC, DVLA, National Road Safety Authority, Ghana Police MTTD, AMA, MoT, MLGRD, EPA	Ministry of Transport, GAPTE, MLGRD, DVLA,	MLGRD, AMA, GAPTE, MoF.	DVLA, NRSA.
Specific Communication	-	It is required that every communication is through the project implementing unit (PIU). So, even if there is something specifically for any Government institution, it would be issued through the PIU. Financiers with Dedicated Green Funds_27102020: 321 - 323 (0)	There is no official communication mechanism with the Government Agencies/ City Authorities. Precisely, these operators liaise together with the Government Agencies. Private Transport Operators of PT_22102020 1: 177 - 177 (0) Through correspondences and sometimes through telephone	Communication is through official letters. Govt Agencies or City Authorities_17102020: 149 - 149 (0) There are meetings and invitations for discussions with the respective Government Agencies/ City Authorities. Govt Agencies or City Authorities_16102020: 109 - 109 (0)	In terms of communication, there have been informal talks with basically all the different stakeholders involved in this BRT to see where this institution can contribute to help the system become successful. This includes the Mayor of AMA, the Minister of Transport, representatives from the MoT, and various staff at the MoT, the Ministry of Local Government. This institution has been invited to the board of	Communication is at meetings organised by the MoT. Additionally, communication is sometimes through phone calls with the MoT. Other communication such as with the DVLA are done in

Academia (N=1)	Financiers with Dedicated Green Funds (N=1)	Private Transport Operators of PT (N=4)	Govt Agencies or City Authorities (N=7)	Private Sector Organisations (N=2)	Public Transport Operators of PT (N=1)
		<p>calls that are unofficial. Private Transport Operators of PT_22102020 1: 177 - 177 (0) Communication is basically on traffic issues and road traffic offences. When there is an incidence, the Police is the first point of call, and also, when there is a heavy traffic on roads, the Police are informed to regulate the situation. Private Transport Operators of PT_22102020 1: 224 - 225 (0)</p> <p>Discussions have been had with GAPTE on the</p>	<p>Communication is at committees, through invitation letters, emails, calls, or any medium depending on the urgency of the issue. Govt Agencies or City Authorities _10102020: 116 - 116 (0)</p>	<p>GAPTE to present what could be done to make the BRT successful.</p> <p>In addition, somehow the financial, sustainable and viable model for the BRT needs to be established so that the GAPTE can be financial stable. It is not viable to believe that a good public transport could run by itself without given any advantages from a regulator and no subsidies from any government institution. Private Sector Organisations_01102020: 50 - 50 (0)</p>	<p>person. As and when needed, it can also be done through emails or WhatsApp. Public Transport Operators of PT_21092020: 155 - 155 (0)</p>

Academia (N=1)	Financiers with Dedicated Green Funds (N=1)	Private Transport Operators of PT (N=4)	Govt Agencies or City Authorities (N=7)	Private Sector Organisations (N=2)	Public Transport Operators of PT (N=1)
		<p>issues that the transport operators think need to be addressed.</p> <p>Private Transport Operators of PT _14042021: 150 - 150 (0)</p> <p>Communication is through committee meetings, emails, letters, and rarely on phone calls.</p> <p>Private Transport Operators of PT_07102020: 143 - 143 (0)</p>			

Source: Remote Field Data, September 2020 – December 2020

Table 5.18 shows the specific communication mechanisms between and among institutions responsible directly or indirectly to the provision of public transport in Accra city-region. It can be seen from Table 5.18 that Government Agencies/ City Authorities communicates activities with five categories of actors, namely, Financiers with Dedicated Green Funds, Private Sector Organisations, Private Transport Operators of public transport, Public Transport Operators of public transport, and other Government Agencies. The specific Financiers with Dedicated Green Funds the Government Agencies communicate with include the World Bank, International Development Association (IDA), and C40 cities. Here, the specific communication mechanisms are through the Ministry of Finance, through task team leaders of specific on-going projects, through letters when necessary, scheduled meetings, and discussion.

Furthermore, Private Transport Operators of public transport also communicate with all other Private Transport Operators, and Government Agencies/ City Authorities. Precisely, these transport operators include GPRTU, Cooperative, PROTOA, GRTCC. The Government Agencies/ City Authorities the Private Transport Operators communicate with are GAPTE, GTCC, DVLA, MTTD, AMA, MLGRD, MoT, EPA, among others. The specific communication mechanisms with the Government Agencies are unofficial as the transport operators liaise with the Government Agencies, as well as through correspondence and sometimes through phone calls.

Additionally, Public Transport Operators of public transport communicates with Private Sector Organisations, other Public Transport Operators of public transport, and Government Agencies/ City Authorities. Specifically, Private Sector Organisations they communicate with include suppliers of their buses such as Rana Motors, whereas other Public Transport Operators of public transport they communicate with is STC. Government Agencies that the Public Transport Operators of public transport communicate with are the Ministry of Transport, the Driver and Vehicle Licensing Authority, National Road Safety Authority, among others. The specific communication mechanisms with the Government Agencies is through meetings, sometimes through phone calls, in person communication, emails, and WhatsApp messenger.

It is pertinent to indicate that Public Transport Operators of public transport in Accra city-region do not communicate with Private Transport Operators of public transport in the city. It is seen that each of these categories of actors are competitors of the users of users of public transport. This is sometimes unhealthy for the public transport service delivery in Accra city-region. This corroborates findings from literature that there is lack of effective stakeholder communication among key institutions involved in road-based public transport provision in

Accra city-region (Ministry of Roads and Transport, 2016; Ministry of Local Government and Rural Development (MLGRD), 2017).

5.9.2.2 Communication mechanisms between institutions for public transport in Dar es Salaam city

From Figure 5.20, it can be seen that 11 out of 13 institutions interviewed in Tanzania regarding the provision of public transport in Dar es Salaam city communicates with other institutions. These 11 institutions are from all the six units of analysis/ categories of actors. Specifically, Academia (1), Financiers with Dedicated Green Funds (2), Private Transport Operators of public transport (1), Government Agencies/ City Authorities (5), Private Sector Organisation (1), and Public Transport Operators of public transport (1).

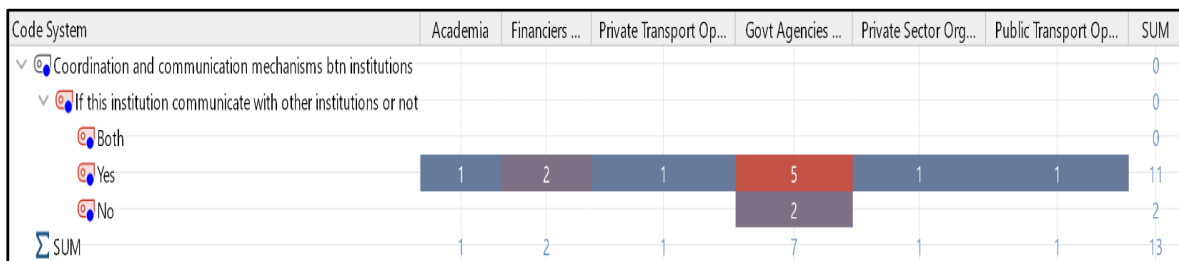


Figure 5.20 Heatmap of Communication of Institutions in Tanzania with others

Source: Remote Field Data, September 2020 – March 2021

For the category of actor Academia, it was highlighted that, communication with other institutions is on adhoc basis. Government Agencies/ City Authorities that communicate with other institutions indicated, among others that, there is communication on the issue of environmental management and transport related issues.

On the other hand, there are two Government Agencies/ City Authorities that do not communicate with other institutions related to the provision of public transport in Dar es Salaam. Mainly, one of these institutions indicated that, the Ministry usually deals with other institutions at the Ministry level, because all the other sectors have their branch offices in Dar es Salaam.

Table 5.19 Communication Mechanisms among Institutions in Tanzania

	Academia (N=1)	Financiers with Dedicated Green Funds (N=2)	Private Transport Operators of PT (N=1)	Govt Agencies or City Authorities (N=7)	Private Sector Organisations (N=1)	Public Transport Operators of PT (N=1)
If yes, specific and communication						
Academia	-	-	National Institute of Transport (NIT)	National Institute of Transport, The University of Dar es Salaam, Institute for Financial Management	-	-
Specific communication	-	-	This institution communicates with the NIT, invites them and vice-versa whenever there are issues. NIT also trains the drivers which is paid by the owners who are part of the Private Transport Operators. Private Transport Operators of PT_26112020: 136 - 136 (0)	Communication through formal letters. Govt Agencies or City Authorities_18122020: 154 - 154 (0) Communication at training of Staff Govt Agencies or City Authorities_21012021: 47 - 47 (0) There is communication with high level institutions to work on strategic plans. Even in establishing the risk management framework, this institution worked	-	-

	Academia (N=1)	Financiers with Dedicated Green Funds (N=2)	Private Transport Operators of PT (N=1)	Govt Agencies or City Authorities (N=7)	Private Sector Organisations (N=1)	Public Transport Operators of PT (N=1)
				with the experts of high-level institutions to put up such systems for quite a long time. Govt Agencies or City Authorities_19112020: 312 - 312 (0)		
Financiers with dedicated green funds	-	World Bank, African Development Bank	The World Bank, ITDP	JICA, World Bank, African Development Bank, AfDB, EU Kuwait Fund	-	-
Specific communication	-	Direct communication, either from New York or from Nairobi. Mainly, through emails and mobile phone calls. Financiers with Dedicated Green Funds_25112020: 140 - 140 (0)	There was communication with the World Bank in the year 2006/2007 during the inception of the BRT. Presently, there has not been any communication with the World Bank. There has been communication with the ITDP in the past in the years 2001/2002/2003/2004	Communication through meetings, phone calls, and formal letters. Govt Agencies or City Authorities_18122020: 154 - 154 (0) Communication during project financing. Govt Agencies or City Authorities_21012021: 47 - 47 (0) Communication through official letters, but on few occasions through emails.	-	-

	Academia (N=1)	Financiers with Dedicated Green Funds (N=2)	Private Transport Operators of PT (N=1)	Govt Agencies or City Authorities (N=7)	Private Sector Organisations (N=1)	Public Transport Operators of PT (N=1)
			and after the government accepted the BRT in the year 2006. Private Transport Operators of PT_26112020: 136 - 136 (0)	By the government standing orders, communications are supposed to be mainly through official letters. Govt Agencies or City Authorities_181120: 211 - 211		
Private Sector Organisations	-	-	-	Contractors		NMB
Specific communication	-	-	-	Communication through Contracts. Govt Agencies or City Authorities_21012021: 47 - 47 (0)		Communication during account Operations/ reports Public Transport Operators of PT_13032021: 236 - 236 (0)
Private Transport Operators of PT	-	Selected daladala transport operations in Dar es Salaam	UWADAR	DACOBOA (Dar es Salaam Commuter Bus Owners Association), UWADAR, TABOA (Tanzania Bus Owners Association)	-	-

	Academia (N=1)	Financiers with Dedicated Green Funds (N=2)	Private Transport Operators of PT (N=1)	Govt Agencies or City Authorities (N=7)	Private Sector Organisations (N=1)	Public Transport Operators of PT (N=1)
Specific communication	-	Communication with daladala's and the selected daladala transport operators are normally through DART, because DART has the mandate to sanction them. Financiers with Dedicated Green Funds_25112020: 140 - 140 (0)	There is communication with UWADAR. Whenever there is a meeting with any government agencies this institution attends the meeting usually together with UWADAR. Private Transport Operators of PT_26112020: 136 - 136 (0)	There is direct communication with the Private Transport Operators. Govt Agencies or City Authorities_19112020: 312 - 312 (0) Communication through official letters and sometimes calls. Govt Agencies or City Authorities_181120: 211 - 211 (0)	-	-
Public Transport Operators	-	UDA-RT	-	UDA-RT	-	-
Specific communication	-	Communication is normally through the Dar Rapid Transit Agency, because they have the mandate to sanction these operators. Financiers with Dedicated Green Funds_25112020: 140 - 140 (0)	-	There is communication at several technical meetings regarding different aspects. For example, the day before this interview, the CEO of UDA-RT was in the office of the DART CEO for a long discussion of about three hours.	-	-

	Academia (N=1)	Financiers with Dedicated Green Funds (N=2)	Private Transport Operators of PT (N=1)	Govt Agencies or City Authorities (N=7)	Private Sector Organisations (N=1)	Public Transport Operators of PT (N=1)
				This type of meeting takes place once every three months. Govt Agencies or City Authorities_19112020: 312 - 312 (0)		
Govt Agencies/City Authorities	Ministry of Works and Transport, TANROADS, DART	DART Agency, TARURA, PO-RALG, TANROADS.	LATRA, Traffic Police, DART Agency	LATRA, DART Agency, 5 Municipalities in Dar es Salaam, PO-RALG, TARURA, DART, Vice President's Office, TANROADS, Dar es Salaam city council, Traffic Police.	DART Agency	LATRA, Dart Agency
Specific communication	-	It depends on the task at hand. In case there is no need to go through the government machinery, and someone can be contacted directly, this is done in person.	Whenever there are any activities there are always correspondence with this institution in writing, per emails, and sometimes by phone calls. Private Transport Operators of	Normally at meetings, phone calls, and formal letters. Govt Agencies or City Authorities_18122020: 154 - 154 (0) Daily communication if there is the need. Govt Agencies or City Authorities_21012021: 47	The main contact is DART. And in terms of institution, there is contact with SSATP. For all African government policies on	Communication during monthly reports. Public Transport Operators of PT_13032021: 236 - 236 (0).

Academia (N=1)	Financiers with Dedicated Green Funds (N=2)	Private Transport Operators of PT (N=1)	Govt Agencies or City Authorities (N=7)	Private Sector Organisations (N=1)	Public Transport Operators of PT (N=1)
	<p>For those which need to go through the government protocols, these protocols are followed.</p> <p>Financiers with Dedicated Green Funds_25112020: 140 - 140 (0)</p>	<p>PT_26112020: 136 - 136 (0)</p>	<p>- 47 (0).</p> <p>This institution is under the umbrella of the vice President's office. Hence, there is usually communication with them.</p> <p>Govt Agencies or City Authorities_09122020: 248 - 248 (0)</p> <p>In terms of communication, phone calls, emails, and physical in-person meetings are used.</p> <p>Govt Agencies or City Authorities_19112020: 312 - 312 (0)</p>	<p>public transport there is contact with SSATP, World Bank, AU, and during international and continental meetings representatives of Dar es Salaam are met and engaged in discussions.</p> <p>Private Sector Organisations_29092020: 97 - 97 (0)</p>	<p>Communication during monthly reports</p> <p>Public Transport Operators of PT_13032021: 236 - 236 (0).</p>

Source: Remote Field Data, September 2020 – March 2021

Table 5.19 shows the specific communication mechanisms among and between institutions responsible for the provision of public transport in Dar es Salaam city. It can be seen from Table 5.19 that Private Transport Operators of public transport communicate activities with four categories of actors/institutions, namely, Academia, Financiers with Dedicated Green Funds, other Private Transport Operators, and Government Agencies/ City Authorities. The specific Academic institution that the Private Transport Operators of public transport communicate with is the National Institute of Transport, while the specific Financiers with Dedicated Green Funds it communicates with are the World Bank and ITDP.

Government Agencies the Private Transport Operators of public transport communicates with include LATRA, Traffic Police, and DART Agency. The specific communication mechanisms are through correspondence with the respective institution in writing, through emails, and sometimes through phone calls.

It is important to highlight that, similarly as in the case of Ghana, Private Transport Operators of public transport in Dar es Salaam city do not communicate with Public Transport Operators of public transport in the city. This validates literature review finding that weak institutional communication among different institutions related to the provision of road-based public transport in Dar es Salaam results in poor planning and operation of public transport in the city (Kanyama et al., 2004). The planning implication here as espoused by Msigwa (2013), is that there is the need for innovative measures to ensure and improve communication among the different categories of actors for public transport provision in Dar es Salaam city and imperative towards the aim of sustainable public transport in the city.

5.10 Examining the existing capacity of the identified institutions to the current urban transport challenges in Accra city-region (Ghana) and Dar es salaam city (Tanzania)

5.10.1 Current public transport challenges in Accra city-region and Dar es Salaam city

With the view of answering research question four of this study, Figures 5.21 and 5.22 depict the current public transport challenges in Accra city-region and Dar es Salaam city. Mainly, it can be seen from Figures 5.21 and 5.22 that 16 sub-codes/sub-categories were inductively developed from the 29 interview transcripts in line with the public transport challenges in both cities.

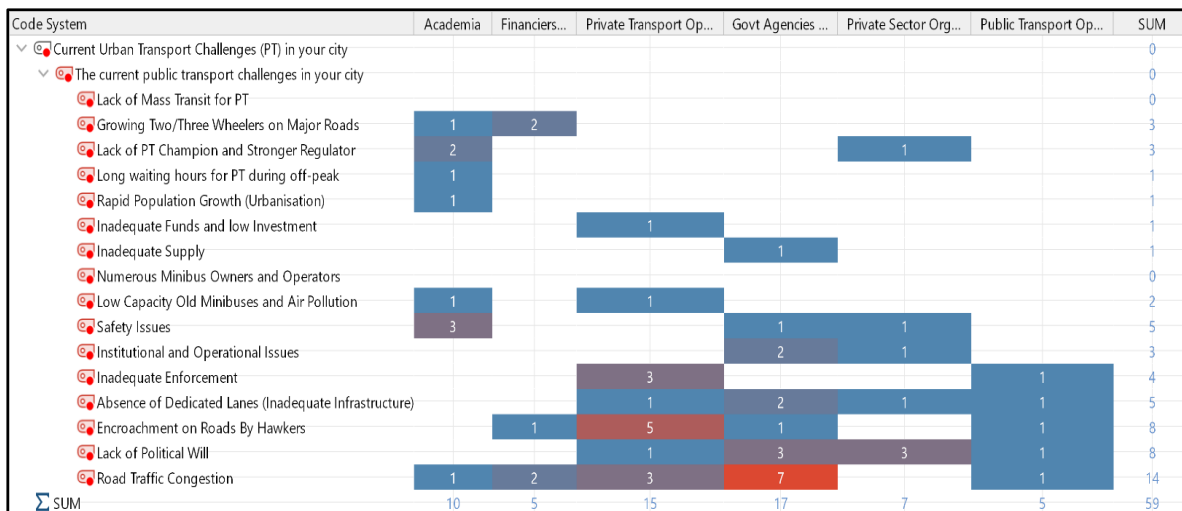


Figure 5.21 Heatmap of current public transport challenges in Accra city-region

Source: Remote Field Data, September 2020 – December 2020

From Figure 5.21, it can be inferred that across the six categories of actors, the top three major current public transport challenges in Accra city-region are: road traffic congestion, encroachment on roads by hawkers, lack of political will, inadequate enforcement, and safety issues.

For instance, with the first top major challenge of road traffic congestion, five categories of actors/ units of analysis mentioned this. These were Academia, Financiers with Dedicated Green Funds, Private Transport Operators of public transport, Government Agencies/ City Authorities, and Public Transport Operators of public transport. Emphases from the Government Agencies/ City Authorities were that:

“... traffic build-up and the congestion that is appearing in the city right now. The congestion is getting worse” (Government Agencies or City Authorities in Ghana, Remote Field Data in October 2020).

“Our core challenge with public transport is congestion on our roads. Traffic! everybody is crying traffic, everybody is crying traffic” Government Agencies or City Authorities in Ghana, Remote Field Data in October 2020).

From the Financiers with Dedicated Green Funds a remark was that:

“Nothing has changed unfortunately. Maybe it is growing from bad to worse, I should say. I mean, it is virtually the same issues, they have tried to bring in more infrastructure in terms of the N1 which was completed during this time. A second interchange has been completed, the beach road has been completed, but the congestion levels are getting worse and like I am saying, there has been no change

in the motorization levels” (Financiers with Dedicated Green Funds in Ghana, Remote Field Data in October 2020).

A striking comment from the Private Transport Operators of public transport was that:

“The people trading in the middle of the major roads has created congestion. There is a place called Agbobloshie, a very short stretch from Abosey Okai to Okaishie – Okaishie is the UTC area, but it will take you about an hour whiles you could drive that distance within 5 minutes – 7 minutes to get to the place. Because the traders have taken over the streets, you spend about an hour. These traders should be evacuated as we have in our laws LI 2180 subsection 117 that, traders should not trade in the middle of streets and on the pedestrian walk ways” (Private Transport Operators of public transport in Ghana, Remote Field Data in October 2020).

All in all, with reference to Figure 5.21 and the first top major challenge being road traffic congestion in Accra city-region, the nature of reality (ontology) of the philosophy of social constructivism is seen in the multiple viewpoints evidenced by the subjective quotes of the three categories of actors/institutions, namely; Government Agencies/ City Authorities, Financiers with Dedicated Green Funds, and Private Transport Operators of public transport. Furthermore, the subjective quote from the Financiers with Dedicated Green Funds validates findings from literature that, cities in Ghana are experiencing rapid motorization and related negative impacts including road traffic congestion and greenhouse gas emissions (Aidoo et al., 2013; Peprah et al., 2019; Ministry of Local Government and Rural Development (MLGRD), 2017).

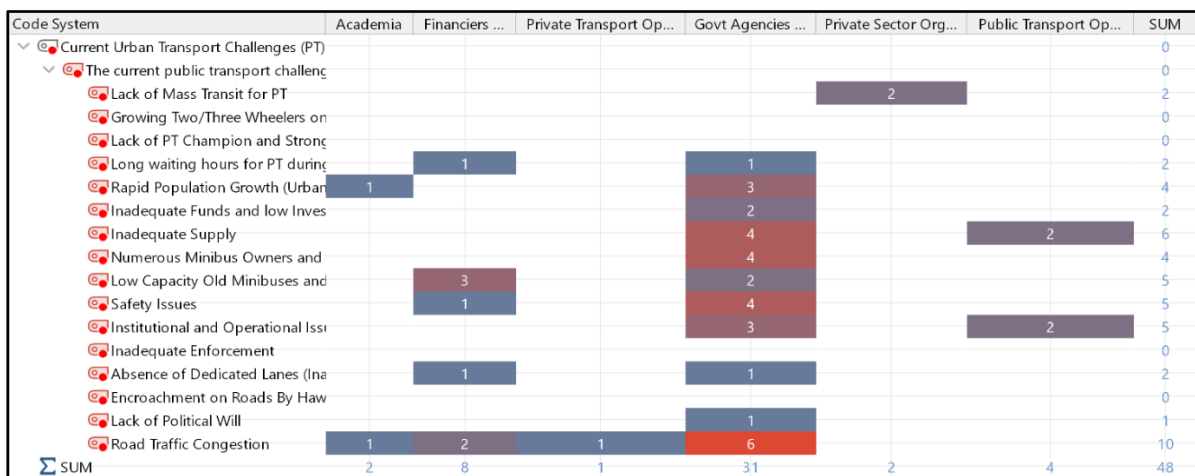


Figure 5.22 Heatmap of current public transport challenges in Dar es Salaam city

Source: Remote Field Data, September 2020 – March 2021

From Figure 5.22, it can be inferred that the top three major current public transport challenges in Dar es Salaam city across the six categories of actors are: road traffic congestion; safety issues, numerous minibuses owners and operators, inadequate supply; institutional and operational issues, low capacity old minibuses and air pollution, and rapid population growth (urbanisation).

For example, regarding the first major challenge of road traffic congestion, it can be seen from Figure 5.22 that four categories of actors/units mentioned this. These were Academia, Financiers with Dedicated Green Funds, Private Transport Operators of public transport, and Government Agencies/ City Authorities. Two comments from the Government Agencies/ City Authorities were that:

“... the biggest challenge we have is the traffic jam due to not well organised traffic infrastructures” (Government Agencies or City Authorities in Tanzania, Remote Field Data in December 2020).

“the other challenge we have is road congestion. That means there is the problem of infrastructure although the government is working to improve it but the challenge is still there” (Government Agencies or City Authorities in Tanzania, Remote Field Data in November 2020).

With reference to the Financiers with Dedicated Green Funds it was emphasized that:

“The main challenge is congestion and the roads are really congested especially during the morning hours and people do spend a lot of time in the buses when the daladala buses are moving slowly” (Financiers with Dedicated Green Funds in Tanzania, Remote Field Data in November 2020).

A remark from the Private Transport Operators of public transport was that:

“We firmly believe that after the completion of the BRT there will be no more challenges, no more traffic jams as they are now” (Private Transport Operators of public transport in Tanzania, Remote Field Data in November 2020).

In sum, from Figure 5.22 with reference to the first major challenge of road traffic congestion in Dar es Salaam city, the epistemology (how reality is known) of the philosophy of social constructivism is evidenced by the subjective quotes of the three categories of actors/institutions, namely; Government Agencies/ City Authorities, Financiers with Dedicated Green Funds, and Private Transport Operators of public transport. Essentially, this affirms the assertion by Guba (1990, p. 26), that “subjective interactions appear to be

the only means to unlocking social constructions held by participants if reality only exist in the minds of these participants”. Additionally, these subjective quotes from the three categories of actors corroborate findings from literature that cities in Tanzania are experiencing road traffic congestion (Kiunsi, 2013; Bwire and Zengo, 2020).

5.10.2 Capacity lapses of institutions to the current public transport challenges in Accra city-region and Dar es Salaam city

With the view of answering research question four of this study, Figures 5.23 and 5.24 depict responses of the categories of actors/institutions whose existing capacity assessment revealed gaps or otherwise that commensurate with the current public transport challenges in Accra city-region and Dar es Salaam city.

5.10.2.1 Capacity lapses of institutions to the current public transport challenges in Accra city-region

From Figure 5.23, it can be seen that six institutions across three categories of actors whose existing capacity were assessed mentioned that the capacity gaps revealed commensurate to the existing public transport challenges in Accra city-region. These categories of actors are Private Transport Operators of public transport, Government Agencies or City Authorities, and Public Transport Operators of public transport.

However, it can be seen from Figure 5.23, that five institutions across two categories of actors indicated that there is no correlation between the identified capacity gaps and the current public transport challenges in Accra city-region. These actors are Private Transport Operators of public transport, and Government Agencies or City Authorities.

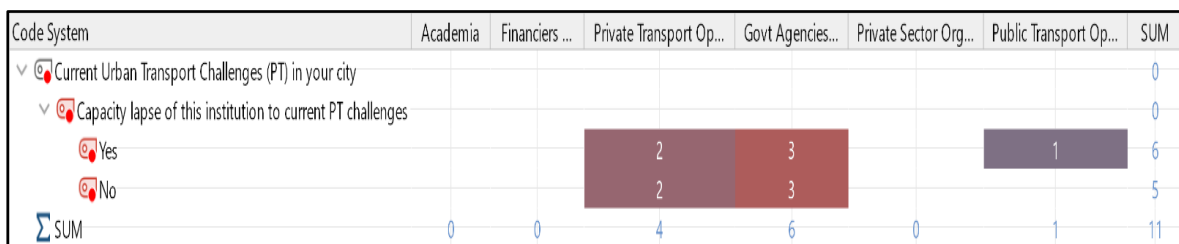


Figure 5.23 Heatmap of capacity lapses of institutions to current PT challenges in Accra city

Source: Remote Field Data, September 2020 – December 2020

The six institutions that indicated that there is a correlation between their capacity gaps and the current public transport challenges gave reasons including:

“A registered company needs to be funded, but because this institution did not have its own financial resources, it has been dependent on GAPTE which is not good for administration. So, there is a financial gap for all the operating companies on the Aayalolo Quality Bus System which has not been resolved” (Private Transport Operators of public transport in Ghana, Remote Field Data in October 2022).

“Due to inadequate logistics and financial resources, this institution is not able to monitor the District Assembly development control. For instance, when you visit a place called Atomic junction in Accra city-region, you will realize that the junction has been used for a major lorry station which is causing a lot of road traffic congestion around the area. So, if this institution had adequate logistics and funds, it could go around and monitor the developments by the District Assemblies. Additionally, this institution will be able to check those District Assemblies who are not undertaking their development controls properly to ensure that everything is done to at least contribute to some level of well-coordinated and thought-out transportation system that will ameliorate the road traffic congestion” (Government Agencies/ City Authorities in Ghana, Remote Field Data in October 2020).

“This institution was expected to run within the cities whether at a loss or even making gains. But as it stands now it operates just a few buses within the cities. At the moment, more vehicles (LOVs) are moving few people rather than what is supposed to be. It is rather supposed to be few vehicles (HOVs) moving more people. For instance, if a manager who lives in Adenta can get a bus that uses dedicated lanes to the Ministries area where he works, such a person will park his car at home and join the bus. In a way, this institution is also contributing to congestion on the road in Accra city-region due to change in its operations to mainly intercity services to survive financially” (Public Transport Operators of public transport in Ghana, Remote Field Data in September 2020).

5.10.2.2 Capacity lapses of institutions to the current public transport challenges in Dar es Salaam city

It can be seen from Figure 5.24 that three institutions across two categories of actors whose existing capacity were assessed indicated that the capacity gaps discovered commensurate to the existing public transport challenges in Dar es Salaam city. These categories of actors are Government Agencies or City Authorities, and Public Transport Operators of public transport. However, from Figure 5.24, six institutions across two categories of actors mentioned that there is no correlation between the identified capacity gaps and the current

public transport challenges in Dar es Salaam city. These institutions are Private Transport Operators of public transport, and Government Agencies or City Authorities.

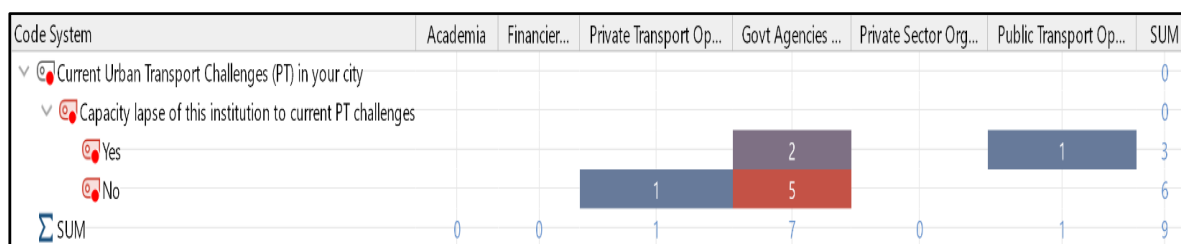


Figure 5.24 Heatmap of capacity lapses of institutions to current PT challenges in Dar es Salaam city

Source: Remote Field Data, September 2020 – March 2021

The three institutions that mentioned that there is a correlation between their identified capacity gaps and the current public transport challenges in the city gave reasons including:

“The mandate of the Dar es Salaam City Council (DCC) in terms of transport is not clear. If DCC has responsibility on means of public transport in Dar es Salaam city such as procurement of buses, and construction of related infrastructure it will be good. So, there is the need for the government to restructure the core functions of the DCC. If DCC has the mandate to operate transport issues in Dar es Salaam like in other cities around the world, then the DCC would ensure that the transport issues in Dar es Salaam has a good management without any additional challenges” (Government Agencies/ City Authorities in Tanzania, Remote Field Data in December 2020).

*“There is a minimum link between the *** capacity and performance of the *** in Dar es Salaam city. But in most cases, it is based on the financial capacity *** because the operations are with the private sector and they invest. So, they have to minimize operation cost and increase the revenue base so that they can get their money and profit” (Government Agencies/ City Authorities in Tanzania, Remote Field Data in January 2021).*

“The idea of BRT is very good. And it has won the confidence of people in Dar es Salaam. It is basically good because the passengers are happy. But there are challenges to be addressed. Once these challenges have been fully addressed, BRT is the best solution for mobility of people not only in Dar es Salaam, but probably in all major African cities of the world. We do not have to go back to the old way of transport – with daladala – we just need to move forward – but we need to sort out

these challenges. But for sure, these challenges contribute to the stagnations of the BRT services in Dar es Salaam city” (Public Transport Operators of public transport in Tanzania, Remote Field Data in March 2021).

Ultimately, the existing capacity lapses identified across the institutions in both Ghana and Tanzania, specifically relating to financial resource capacity, logistical capacity, and legal and regulatory capacity commensurate with the current public transport challenges in Accra city-region and Dar es Salaam city.

5.11 Pilot BRT challenges currently in Accra city-region and Dar es Salaam city

This section of the study became pertinent and worth exploring during the data collection, although it is not directly answering a specific research question but rather, it gives further understanding to the research problem of this study. Regarding the existing challenges of the pilot BRTs in Accra city-region and Dar es Salaam city, 13 sub-categories/sub-codes were inductively developed. These are: lack of political will, inadequate financial resources, lack of understanding between actors, unsatisfactory BRT/QBS (Accra), collaborative bus operations, switch to paper tickets for fares, fill-and-go bus system (AM-PM Peak), lack of transparency, absence of dedicated bus lanes, inadequate and overcrowded BRT buses, absence of passenger information, BRT infrastructure challenges, and BRT management & operations challenges (See Tables 5.20 and 5.21). Therefore, Figure 5.25 and Table 5.20 presents the existing challenges with the pilot Aayalolo BRT (Quality Bus System) in Accra city-region, whereas, Figure 5.26 and Table 5.21 presents the existing challenges with the Dar Rapid Transit in Dar es Salaam city.

5.11.1 Pilot BRT challenges currently in Accra city-region

From Figure 5.25 and Table 5.20, it can be seen that there are nine out of the 13 challenges that relates to the pilot BRT/QBS in Accra city region. With respect to the most frequently mentioned current challenges, these are: inadequate financial resources, lack of political will, unsatisfactory BRT/QBS, fill-and-go bus system (AM-PM peak), collaborative bus operations, absence of dedicated bus lanes, lack of understanding between actors, switch to paper tickets for fares, and lack of transparency.

The major challenge from Figure 5.25 and Table 5.20 is ‘inadequate financial resources’. This was highlighted by the categories of actors/institutions, namely; Financiers with Dedicated Green Funds, Private Transport Operators of public transport, Government Agencies/ City Authorities, and Private Sector Organisations.

The second major challenge is ‘lack of political will’ as seen in Figure 5.25 and Table 5.20. This challenge was stressed by Financiers with Dedicated Green Funds, Private Transport Operators of public transport, and Private Sector Organisation categories of actors.

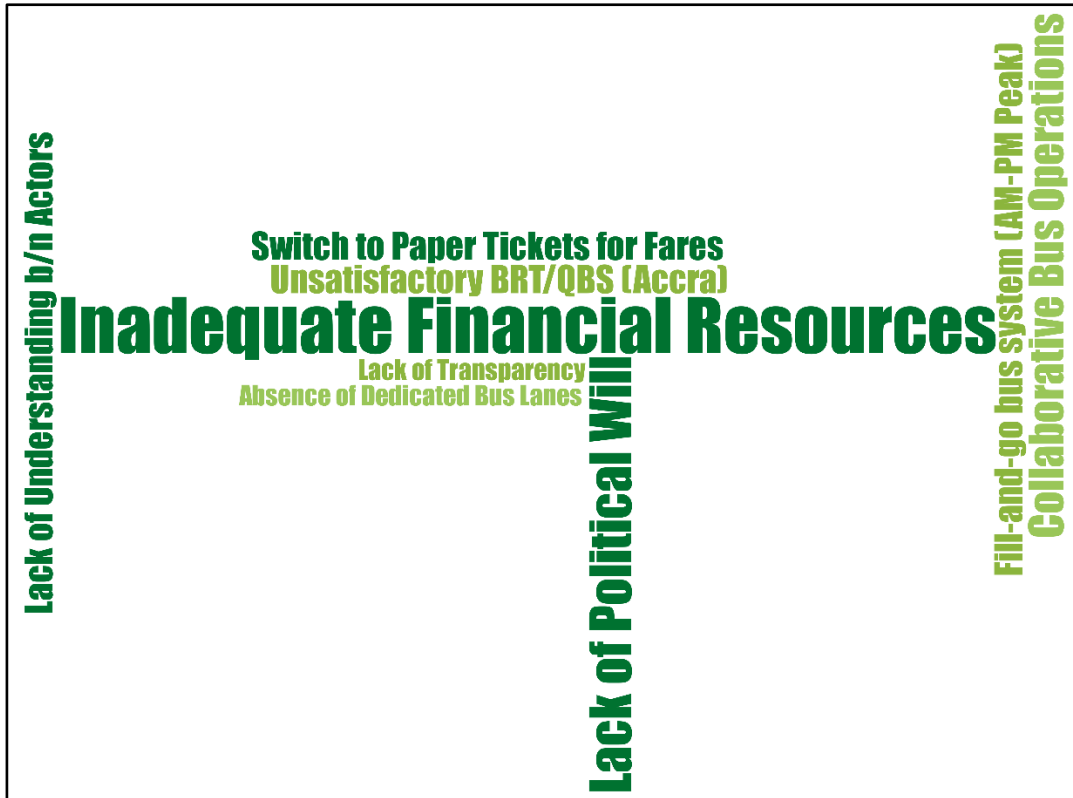


Figure 5.25 Code cloud of most frequently mentioned current BRT challenges in Accra city-region

Source: Remote Field Data, September 2020 – December 2020

Table 5.20 Code frequency of most mentioned current BRT challenges in Accra city

	Frequency	Percentage	Percentage (valid)
Inadequate Financial Resources	5	31.25	71.43
Lack of Political Will	4	25.00	57.14
Unsatisfactory BRT/QBS (Accra)	2	12.50	28.57
Fill-and-go bus system (AM-PM Peak)	2	12.50	28.57
Collaborative Bus Operations	2	12.50	28.57
Absence of Dedicated Bus Lanes	1	6.25	14.29
Lack of Understanding b/n Actors	1	6.25	14.29
Switch to Paper Tickets for Fares	1	6.25	14.29
Lack of Transparency	1	6.25	14.29
BRT Infrastructure Challenges	0	0.00	0.00
Absence of Passenger Information	0	0.00	0.00
Inadequate and Overcrowded BRT Buses	0	0.00	0.00
BRT Management and Operations Challenges	0	0.00	0.00
DOCUMENTS with code(s)	7	43.75	100.00
DOCUMENTS without code(s)	9	56.25	-
ANALYZED DOCUMENTS	16	100.00	-

Source: Remote Field Data, September 2020 – December 2020

All in all, this corroborates findings from literature review that institutional bottlenecks such as absence of initial capital at the start of operations, inadequate enforcement by city authorities, and absence of dedicated lanes for the pilot Ayalolo BRT led to a complete halt of the bus services in November 2018 (Poku-Boansi, 2021). Currently, these challenges of the pilot Ayalolo BRT found in literature are still prevalent as already discussed, with additional challenges indicated in Figure 5.25 and Table 5.20. It is important to indicate that, although the bus operations subsequently commenced operations again after November 2018, it can be seen from Figure 5.25 that the Ayalolo Bus Operation service is currently a 'fill-and-go bus system' focusing on busing commuters during AM and PM peak (see Plate 5.4).

Plate 5.4 Absence of Dedicated Bus Lanes, Fill-and-go Ayalolo bus system



Source: Remote Field Data (October 2020). Picture by Miss Winnifred Antwi

5.11.2 Pilot BRT challenges currently in Dar es Salaam city

It can be seen from Figure 5.26 and Table 5.21 that there are five out of the 13 challenges that relates to the interim phase I of the Dar Rapid Transit in Dar es Salaam City. These five challenges are: BRT management and operations challenges, inadequate and overcrowded BRT buses, BRT infrastructure challenges, switch to paper tickets for fares, and absence of passenger information.

The major challenge from Figure 5.26 and Table 5.21 is ‘BRT management and operations challenges’. This was emphasized by Government Agencies/City Authorities, and Public Transport Operators of public transport categories of actors/institutions.

The second major challenge from Figure 5.26 and Table 5.21 is ‘inadequate and overcrowded BRT buses’ which was highlighted by four categories of actors/institutions (see Plate 5.5). These actors are Academia, Financiers with Dedicated Green Funds, Government Agencies/City Authorities, and Public Transport Operators of public transport in Dar es Salaam city.

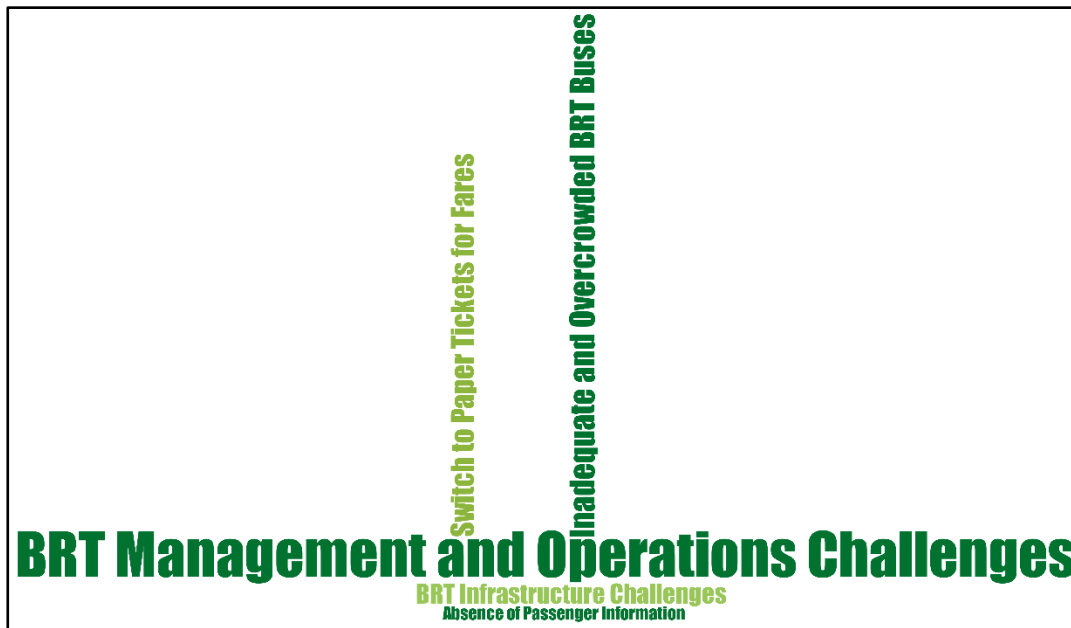


Figure 5.26 Code cloud of most frequently mentioned current BRT challenges in Dar es Salaam city

Source: Remote Field Data, September 2020 – March 2021

Table 5.21 Code frequency of most mentioned current BRT challenges in Dar es Salaam

	Frequency	Percentage	Percentage (valid)
BRT Management and Operations Challenges	4	30.77	57.14
Inadequate and Overcrowded BRT Buses	4	30.77	57.14
BRT Infrastructure Challenges	3	23.08	42.86
Switch to Paper Tickets for Fares	3	23.08	42.86
Absence of Passenger Information	1	7.69	14.29
Lack of Transparency	0	0.00	0.00
Fill-and-go bus system (AM-PM Peak)	0	0.00	0.00
Absence of Dedicated Bus Lanes	0	0.00	0.00
Collaborative Bus Operations	0	0.00	0.00
Unsatisfactory BRT/QBS (Accra)	0	0.00	0.00
Lack of Understanding b/n Actors	0	0.00	0.00
Inadequate Financial Resources	0	0.00	0.00
Lack of Political Will	0	0.00	0.00
DOCUMENTS with code(s)	7	53.85	100.00
DOCUMENTS without code(s)	6	46.15	-
ANALYZED DOCUMENTS	13	100.00	-

Source: Remote Field Data, September 2020 – December 2020

Plate 5.5 Inadequate and overcrowded BRT buses



Source: Remote Field Data (December 2020). Picture by Mr. Amedeus Masangia

Mainly, the afore validates findings from literature review that the phase 1 of the Dar Rapid Transit (DART) has not been without challenges inhibiting its efficient operations, among which are, deterioration of operations evidenced in overcrowded buses, long ticketing queues, inadequate DART capacity, and flooding along the trunk line (Mchomvu, 2018).

5.12 Effects of COVID-19 pandemic on public transport in Accra city-region and Dar es Salaam city

This section of the study was unravelled during the content analysis of the data. Precisely, this section does not answer the main or sub-research questions of this study but has a ripple effect on the existing public transport in Accra city-region and Dar es Salaam city due to Coronavirus disease 2019 (COVID-19) pandemic. The content analysis revealed six effects of COVID-19 on public transport in the two case study cities. These are increased operations cost, queuing of passengers, reduced road traffic (due to COVID-19), restrictions on import and exports, reduced BRT bus capacity (social distancing), and busing health workers.

5.12.1 Effects of COVID-19 pandemic on public transport in Accra city-region

From Figure 5.27 and Table 5.22, it can be seen that there are five out of the six revealed effects of COVID-19 on public transport in Accra city-region. These are busing health workers, reduced BRT bus capacity (social distancing), restrictions on import and export, reduced road traffic (due to COVID-19), and increased operations cost.



Figure 5.27 Code cloud of the effects of COVID-19 pandemic on public transport in Accra city-region

Source: Remote Field Data, September 2020 – December 2020

Table 5.22 Code frequency of the effects of COVID-19 pandemic on public transport in Accra city-region

	Frequency	Percentage	Percentage (valid)
Busing Health Workers	1	6.25	33.33
Reduced BRT Bus Capacity (Social Distancing)	1	6.25	33.33
Restrictions on Import and Export	1	6.25	33.33
Reduced Road Traffic (due to COVID-19)	1	6.25	33.33
Increased Operations Cost	1	6.25	33.33
Queuing of Passengers	0	0.00	0.00
DOCUMENTS with code(s)	3	18.75	100.00
DOCUMENTS without code(s)	13	81.25	-
ANALYZED DOCUMENTS	16	100.00	-

Source: Remote Field Data, September 2020 – December 2020

From Figure 5.27 and Table 5.22, the five effects were highlighted by Private Transport Operators of public transport in the city, Government Agencies/City Authorities, and Private Sector Organisations categories of actors/institutions.

5.12.2 Effects of COVID-19 pandemic on public transport in Dar es Salaam city

It can be seen from Figure 5.28 and Table 5.23 that there are three out of the six unravelled effects of the COVID-19 pandemic on public transport in Dar es Salaam city. These are reduced BRT bus capacity (social distancing), queuing of passengers, and increased operations cost.

Mainly, these three effects were emphasized by two categories of actors/institutions, namely; Government Agencies/City Authorities, and Public Transport Operators of public transport in Dar es Salaam city.



Figure 5.28 Code cloud of the effects of COVID-19 pandemic on public transport in Dar es Salaam city

Source: Remote Field Data, September 2020 – March 2021

Table 5.23 Code frequency of the effects of COVID-19 pandemic on public transport in Dar es Salaam city

	Frequency	Percentage	Percentage (valid)
Reduced BRT Bus Capacity (Social Distancing)	1	7.69	50.00
Queuing of Passengers	1	7.69	50.00
Increased Operations Cost	1	7.69	50.00
Reduced Road Traffic (due to COVID-19)	0	0.00	0.00
Busing Health Workers	0	0.00	0.00
Restrictions on Import and Export	0	0.00	0.00
DOCUMENTS with code(s)	2	15.38	100.00
DOCUMENTS without code(s)	11	84.62	-
ANALYZED DOCUMENTS	13	100.00	-

Source: Remote Field Data, September 2020 – December 2020

All in all, the common effects of COVID-19 on public transport in both Accra city-region and Dar es Salaam city are two out of the six. Namely, ‘increased operations cost’ and ‘reduced BRT bus capacity (social distancing)’. A remark from each city relating to ‘reduced BRT bus capacity (social distancing)’ were:

“It impacted a lot. There was a time where we had restrictions imposed and it affected public transport operations. There was a situation where vehicles we asked not to take full occupancy” (Government Agencies/ City Authorities in Ghana, Remote Field Data in October 2020).

“Because there is this social distancing, a bus which was supposed to carry 155 passengers as carrying capacity, we only carried 40. So, with 40 passengers the fare collected is not adequate to purchase fuel, and spare parts. Therefore, COVID-19 restrictions affected us dearly”. (Public Transport Operators of public transport in Tanzania, Remote Field Data in March 2021).

An interesting positive effect which was specific to Dar es Salaam city relating to ‘queuing of passengers’ was:

“... after COVID-19, one good thing we see COVID-19 has brought us is queuing. Queuing used to be very difficult for commuters to comply with. It was very difficult because people were used to fighting and getting into the bus and it was very difficult to control that. But when COVID-19 emerged, it made people stand in queues”. (Government Agencies/ City Authorities in Tanzania, Remote Field Data in November 2020).

5.13 Summary of Chapter

This chapter has presented the content analysis of remote field data by way of giving detailed descriptions, interpretations, and subjective quotes as evidence which is underpinned by the philosophy of social constructivism. Additionally, it has presented the four analytical concepts of the conceptual framework of this study reflected across the main and five sub-research questions of this study.

Furthermore, this chapter has also presented the multiple realities within and across each of the six categories of actors/institutions in both cities in a comparative manner with the view of answering the research questions of this study.

Lastly, this chapter has presented verified key issues highlighted in the research problem of this study, from the current state and sustainability of road based public transport in both cities, to challenges with the pilot BRTs in both cities.

The next chapter provides a summary and discusses key findings from the previous chapter, as well as from the literature review Chapter Two of this study. It further presents the utility of the conceptual framework of this study.

CHAPTER SIX

SUMMARY AND DISCUSSION OF FINDINGS

6.1 Introduction

The preceding chapter provided the analysis, interpretation, and presentation of remote field data for this research with the view of answering the research questions. This chapter summarizes and discusses the key findings from the chapter five of this dissertation, as well as from the review of relevant secondary data in Chapter Two. Additionally, it presents major findings from the comparative overview analysis of the two case study cities in chapter four. The findings will also inform decision and policy makers, and other key stakeholders in addressing the needed institutional responses to sustainable mobility for public transport in the two comparative case study cities. Finally, it presents the utility of the conceptual framework of this study.

6.2 Summary of Key Findings

6.2.1 Environmentally unsustainable road-based public transport in Accra city-region (Ghana) and Dar es Salaam city (Tanzania)

It was found from the content analysis of this study that the state of road-based public transport in Accra city-region is largely environmentally unsustainable but economically and socially sustainable. Additionally, it was found from the analysis that the state of road-based public transport in Dar es Salaam city is marginally environmentally unsustainable but economically and socially sustainable. This appears to be partly at variance with what was found in literature nearly a decade ago that the state of road-based public transport in cities in developing and emerging economies are unsustainable (Banister, 2011; Bongardt et al., 2013).

The content analysis of this study revealed 19 specific causes of environmentally unsustainable road-based public transport in Accra city-region, and eight specific causes in the case of Dar es Salaam city (see Figure 5.7). Furthermore, it was found from the analysis that the top three major causes in the case of Accra city were: Weak Policy Implementation Mechanisms (National Transport Policy), Lack of Political Will and Law Enforcement Challenge as well as Inadequate Public Transport Service Controls (Regulations); whereas in the case of Dar es Salaam, the top two major causes were: Inadequate Infrastructure, and High Rate of Motorization.

In addition, it was found from the analysis that there were seven similar causes of environmentally unsustainable public transport in Accra city-region and Dar es Salaam city, namely: Law Enforcement Challenges, Inadequate Infrastructure, Operations Purely Based

on Economics of it, Inadequate Funds and Low Investment, High Rate of Motorization, Numerous Minibuses and Minibus Operators, as well as few BRT Projects.

The planning implication of this is that this will serve as a guide to respective institutions/actors for appropriate interventions to address this problem in each city bearing in mind scarce resources.

6.2.2 Research Objective One: Identify institutions; examine their mandate in the provision of public transport and perception on sustainable transport in Accra city-region (Ghana) and Dar es Salaam city (Tanzania)

Sub-Research Question One: What are the institutions, their mandate in the provision of public transport and perception on sustainable transport in Accra city-region (Ghana) and Dar es Salaam city (Tanzania)?

6.2.2.1 Findings on Identified Institutions

From the analysis it was found that, pertaining to the institutions/categories of actors responsible or related to the provision of road-based public transport in Accra city Region in Ghana and Dar es Salaam city in Tanzania, six categories of actors comprising of various institutions with their respective mandates exist in both countries. These are: Government Agencies/City Authorities, Public Transport Operators of Public Transport, Private Transport Operators of Public Transport, Private Sector Organisations, Financiers with Dedicated Green Funds, and Academia/Research Institutes. However, the category of actors known as Civil Society Organisations such as Public Transport Users Association identified as an actor in the reviewed literature was non-existent in Accra city-region and Dar es Salaam city. This presents a gap pertaining to the seven categories of actors that the study found as this category of actor indirectly impacts the service delivery of road-based public transport services in both cities.

6.2.2.2 Findings on Mandate of Identified Institutions

It was found from the analysis in line with the 'mandate of institutions' responsible for the provision of road-based public transport in Accra city-region and Dar es Salaam city, that there are three clusters with their neighbouring categories based on all the 14 inductively generated sub-categories (see Figure 5.13). These three clusters are 'social benefits', 'build infrastructure', and 'regulator'. The planning implication is that, the mandate of all these identified institutions in both cities for public transport provision are focused mainly on the social benefits of public transport to the society, the relevance of building the necessary infrastructure to support public transport in both cities, and having the needed regulators for

the public transport systems in both cities. Of course, the other neighbouring categories as were found in the analysis are key to these three named clusters.

6.2.2.3 Findings on Perception of Institutions on Sustainable Transport

It was found from the content analysis of this study regarding the 'perception of institutions' on sustainable public transport in Accra city-region and Dar es Salaam city that three main clusters, namely, 'use of higher occupancy vehicles such as BRT buses', having 'local goals on sustainable public transport', and 'holistic regulation' are critical as perceived by all the 29 institutions interviewed in both Ghana and Tanzania (see Figure 5.16). It is important to indicate that, it was also found from the analysis that, all these three clusters have neighbouring categories pertinent to be examined for decision and policy making.

6.2.2.4 Findings on Complex Code Configuration Analysis for Patterns

It was found from the complex code configuration analysis for patterns that the major unit of analysis/category of actors/institutions with the most mandate related to the provision of sustainable public transport in Accra city-region and Dar es Salaam city, as well as their perception which in terms of their corresponding sub-categories co-occurred predominantly in the complex code configuration analysis was Government Agencies/City Authorities (i.e. 46 out of 80 observations, refer to Table 5.2). The planning implication here is that, the Government Agencies/City Authorities in both Ghana and Tanzania have the greatest responsibility based on their mandate to ensure effective public transport in Accra city-region and Dar es Salaam city respectively. Hence, this designated mandate needs to be practically operationalized effectively to the letter in terms of related policy implementation projects for mass transportation such as the Aayalolo BRT in Accra city-region and the Dar Rapid Transit in Dar es Salaam city which were both launched a little over half a decade ago.

Also, the complex code configuration analysis for patterns revealed that the second, and third units of analysis in this regard respectively were: Private Sector Organisations (i.e. 12 out of 80 observations of respective co-occurrences of mandate of institutions and their perception on sustainable public transport), and Public Transport Operators of public transport (i.e. 10 observations out of the total of 80 observations). It was found from the analysis that the last and fourth units of analysis which had equal observations each were Private Transport Operators of public transport, and Financiers with Dedicated Green Funds (i.e. there were six observations each of co-occurrences out of 80 observations). The planning implication is that continuous collaboration and coordination between the Private Sector Organisations and the Government Agencies/City Authorities in the provision of public transport in Accra city-region and Dar es Salaam is critical towards the desired

outcome of this research on 'effective sustainable road-based public transport in the two case study cities of this research' from the conceptual framework.

6.2.2.5 Findings on Institutions and the Implementation of Projects on Sustainable Transport in both cities

It was found from the analysis that among all the six units of analysis of this study, there are two main units of analysis/institutions, namely, Financiers with Dedicated Green Funds, and Private Sector Organisation for the implementation of project activities pertaining to progress on having sustainable road-based public transport in Accra city-region and Dar es Salaam city which are both in sub-Saharan Africa. The implication for planning is that as these two units of analysis are primarily critical major financiers of sustainable transport project solutions such as BRTs in both cities, it is essential for the Government Agencies/City Authorities that formulate such policies which translate into these projects to continue to strengthen the collaboration and partnership with these two private entities for continued support, as well as the need for the respective public sector entities to identify other internally generated funds for such sustainable solutions.

6.2.3 Research Objective Two: Assess the capacity levels (legal and regulatory, financial, logistical, personnel and competence of staff) of the institutions involved in the decision-making processes in planning for more sustainable public transport systems in Accra city-region (Ghana) and Dar es Salaam city (Tanzania)

Sub-Research Question Two: What are the capacity levels (legal and regulatory, financial, logistical, personnel and competence of staff) of institutions involved in the decision-making processes in planning for more sustainable public transport systems in Accra city-region (Ghana) and Dar es Salaam city (Tanzania)?

It was found from the content analysis of this study that, among all the 29 institutions interviewed in both Ghana and Tanzania, 21 of them are directly involved in the decision-making processes in planning for more sustainable public transport in Accra city-region and Dar es Salaam city. Thus, these 21 institutions were from three categories of institutions out of the six studied. These are: Private Transport Operators of public transport (four institutions in Ghana, one institution in Tanzania), Government Agencies or City Authorities (seven institutions in each country), and Public Transport Operators of public transport (an institution each in both countries).

6.2.3.1 Findings on the Assessment of the Existing Legal and Regulatory Capacity of Institutions

The assessment of the existing legal and regulatory capacity of the 21 institutions under the three units of analysis mentioned above which was based on the narrative and evidence to each of the indicator-question by the interviewees revealed that in both cities majority of the institutions had a score of 3-Partially developed capacity or 4-Widespread but not comprehensive evidence of capacity; whereas a few had a score of 1-No evidence of relevant capacity or 2-Anecdotal evidence of capacity on a ranking scheme of 1 to 5. On this basis, SWOT analysis was conducted for institutions in both Ghana and Tanzania.

It was found from the SWOT analysis of the existing legal and regulatory capacity of the 12 institutions (categorized under the three units of analysis) involved in the decision-making processes in planning for more sustainable public transport in Accra city-region that, the Government Agencies/ City Authorities have the necessary regulatory laws and framework for its purpose but there is no specific policy on sustainable transport although this has been mainstreamed in the Ghana National Transport Policy of year 2020. A key weakness which was found is the issue of inadequate enforcement of these regulations in Accra city which is partly due to the lack of political will (see Table 5.5). Another important threat found from the SWOT analysis is the cross-institutional nature of mobility in Accra city-region which needs to be carefully coordinated among all the four ministries namely: Ministry of Local Government, Decentralisation and Rural Development, Ministry of Transport, Ministry of Roads and Highways, and Ministry of Interior. However, the supposed institution to play this coordinating role; the Greater Accra Passenger Transport Executive (GAPTE) seems not to have this recognition for this function from the four Ministries.

The SWOT analysis on the Public Transport Operators of public transport in Accra city-region revealed that this unit of analysis has the needed road traffic regulations for its operations, as well as government overarching policy on mass transportation in the city. Nonetheless, what is missing is a government regulation on subsidies or tax wavers for mass public transport operations such as wavers on fuel.

On the existing legal and regulatory capacity of the nine institutions categorized under the three units of analysis which are involved in the decision-making processes in planning for more sustainable public transport in Dar es Salaam city, it was found from the SWOT analysis of the Public Transport Operators of public transport in Dar es Salaam city that the Dar rapid transit has some characteristics of a classical BRT but the dedicated lane of the system needs additional protection from encroachment by other road users such as motorbike riders to prevent road accidents. Additionally, it was found from the SWOT

analysis that there is a threat of lack of specific BRT laws in Tanzania, no specific regulations exclusively for the Dar rapid transit, and no regulatory body solely for the Dar rapid transit. Although a Land Transport Regulatory Authority has been established for the regulation of land transport in Tanzania, it is pertinent to have a specific authority with the sole mandate of road-based public transport that will holistically focus on the Dar BRT to operate at its maximum potential.

6.2.3.2 Findings on the Assessment of the Existing Financial Resource Capacity of Institutions

In the case of Ghana, it was found from the SWOT Analysis of the existing financial resource capacity of the 12 institutions categorized under the three units of analysis involved in the decision-making processes for more sustainable public transport in Accra city-region that, Private Transport Operators of public transport in the city have an umbrella council/organisation comprising 41 membership from the various transport unions. This in essence is a key organisation for the private transport operators, but on the other hand, non-payment of membership dues by some of the private transport operators becomes a stumbling block financially to the umbrella council. The reason being that, the major source of funding for this council is the dues from its 41 members.

Regarding Government Agencies or City Authorities, it was found from the SWOT analysis of the existing financial resource of such institutions encompass internally generated funds such as permit fees for their activities. But, these internally generated funds are usually not adequate to execute all planned activities, leading to some of these institutions being financially inadequate. This validates literature reviewed to the effect that, in principle transport planning and management are often decentralized at the local levels, but in practice municipalities lack adequate funds, particularly for capital investments, to execute these transport related activities; primarily due to the fact that less internally generated funds are usually collected as against expected revenues for developmental projects, as well as low and/or late disbursement of funds from the central government (United Nations Country Team Ghana, 2018, p. 5; Staniek, 2018). The implication for planning is for this unit of analysis to intensify its strategies to increase its internally generated funds, as well as complement these funds with the opportunity of external financiers for project grants.

Another important finding relates to having a sustainable source of financing for the Aayalolo Quality Bus System to prevent the current institution from becoming irrelevant and eventually folding-up.

With reference to the Public Transport Operators of public transport in Accra city-region, the SWOT Analysis revealed that there are issues of revenue leakages in the daily operations of this institution regarding the existing financial resource capacity of this institution. This

situation is largely due to the fact that fares are paid enroute or at the beginning of trips and the checks and balances are not adequate to curtail the revenue leakages.

In the case of Tanzania, it was found from the SWOT Analysis pertaining to the existing financial resource capacity of the nine institutions grouped under the three units of analysis which are involved in the decision-making process in planning for more sustainable public transport in Dar es Salaam city that, the Private Transport Operators of public transport in the city depends on the membership dues from its members for its activities. This is similar to that of the other case country of this study. It was also found from the SWOT Analysis that this unit of analysis does not have a strategic plan to guide its future resource needs.

Regarding the existing financial resource capacity of the Government Agencies or City Authorities, it was found that from the annual budgets of the local government institutions, 50 per cent of the annual budget goes into waste management and environmental issues; whereas 40 per cent goes into other developmental issues such as transport. This shows that the annual budget composition for transport might not be adequate juxtaposing it against the capital investments required in the transport sector such as the Dar Rapid Transit which has inadequate BRT buses for the existing passenger demand. The planning implication here is that it is pertinent for transport issues to be seen as very critical as that of waste management and the percentage of budget designated to transport increased accordingly.

Another finding was that, the Government Agencies or City Authorities usually receive about 70 per cent to 80 per cent of its funding requirements from the central government rather than the full 100 per cent, leading to challenges in terms of equipment needed to execute their functions. This situation is similar to that of the case of Government Agencies or City Authorities in Ghana in terms of the existing financial resource capacity.

From the SWOT Analysis, it was found that the public transport operators of public transport in Dar es Salaam city regarding their existing financial resource capacity have some fleet of BRT buses for the operations of the Dar Rapid Transit although not enough buses.

6.2.3.3 Findings on the Assessment of the Existing Logistical Capacity of Institutions

It was found from the SWOT analysis of the existing logistical capacity of the 12 institutions (categorized under the three units of analysis) involved in the decision-making process in planning for more sustainable public transport in Accra city-region that, majority of the Private Transport Operators of public transport in the city (three out of four) do not have adequate logistics for their day-to-day activities as well as technological resources.

Concerning Government Agencies or City Authorities, it was found from the SWOT analysis of the existing logistical capacity of the seven institutions that, logistics are available to

perform their roles. However, most of these institutions indicated that the logistics are not adequate and a number of them, such as computers and vehicles, are over aged.

Regarding the existing logistical capacity of Public Transport Operators of public transport in Accra city-region, the SWOT analysis revealed that there are relevant logistics that are currently lacking. Among them are machineries to work on buses which lead to increased downtime for bus operations. This is mainly because, a bus can spend days at the workshop due to unavailable tools to replace the parts of the bus although such works on the bus could take about an hour or two if the necessary machineries were available. Additionally, it was found from the SWOT Analysis that there is no dedicated bus lane for the Public transport operator of public transport in Accra city-region to operate, leaving their operations in mixed traffic and long journey times during peak times as these buses cannot manoeuvre to use any short cut routes due to their size and capacity.

In the case of Tanzania, in terms of the existing logistical capacity of the seven institutions involved in the decision-making process in planning for more sustainable public transport in Dar es Salaam city, it was found from the SWOT analysis that five out of the seven Government Institutions or City Authorities do not have adequate logistics. A common instance was cited of inadequate vehicles for monitoring on-going projects and activities.

In a nutshell, the existing logistical capacity of all the institutions, particularly, Government Agencies or City Authorities in both Ghana and Tanzania involved in decision-making for more sustainable public transport in Accra city-region and Dar es Salaam city depict inadequate logistics as against the required logistics. This corroborates findings from literature that, the Department of Transport - Accra Metropolitan Assembly does not have adequate logistics with regards to office equipment, transport, and facilities for staff to execute their functions effectively (Ministry of Local Government and Rural Development (MLGRD), 2017).

6.2.3.4 Findings on the Assessment of the Existing Technical Capacity of Institutions

It was found from the assessment of the existing technical capacity (personnel and competence of staff) of institutions involved in the decision-making processes in planning for more sustainable public transport in Accra city-region and Dar es Salaam city that, precisely, the needed technological skills to this end was currently inadequate. This is due to the fact that the major ranking scheme in this regard with reference to technological skills were: 3- Partially developed capacity, and 1-No evidence of relevant capacity. Essentially, this validates findings from literature reviewed that “sustainable public transport in Tanzania is negatively affected by inadequate technical capacity of institutions in the transport sector”

(Kanyama et al., 2004), and in the same vein, there is “inadequate functional institutional capacity to undertake more arduous planning activities for sustainable public transport including BRT in Ghana” (Ministry of Roads and Transport, 2016; Ministry of Local Government and Rural Development (MLGRD), 2017). The implication for planning is that, the identified gap of inadequate technological skills needs to be addressed by the respective institutions and stakeholders towards the desired outcome of effective sustainable mobility for road-based public transport in cities, as indicated in the conceptual framework of this study.

It was also found from the assessment that, the nature of reality (ontology) concerning the existing technical capacity (personnel and competence of staff) of institutions among the Private Transport Operators of public transport, Government Agencies/ City Authorities, and Public Transport Operators of public transport in each city, and across both cities is multiple. This is evidenced in for instance, the Government Agencies/ City Authorities responses to indicator-question 1 on staff adequacy, as well as indicator-question 8 on technological skills of staff.

Furthermore, the SWOT analysis on the existing technical capacity of institutions in Ghana revealed that on-the-job and occasional trainings are undertaken by staff in the respective seven Government Agencies or City Authorities to boost their skills set. However, instances of delayed capacity-building trainings for staff during the year that is normally attributed to inadequate funds need to be prioritized and addressed by decision-makers. Again, the SWOT analysis also revealed that, three out of seven institutions indicated the level of staff salaries are low, making the private sector which pays higher salaries for similar job positions more attractive to the existing staff in the Government Agencies or City Authorities in Ghana. The planning implication is that, it is pertinent for decision-makers to have concrete measures to address the issue of delayed capacity building trainings so that these can be undertaken at the right time; as well as the need to address the concerns of low staff salaries some of the Government Agencies in Ghana.

Similarly, the SWOT Analysis of the existing technical capacity of institutions involved in planning for more sustainable public transport in Dar es Salaam city revealed that, there is a gap of additional technical staff needed in some of the Government Agencies/ City Authorities, particularly for the institution responsible to establish and operate the Dar Rapid Transit in Dar es Salaam city. Essentially, this institution is moving from the transitional service it has been rendering since the inception of the BRT to full-scale service with Intelligent Transport System (ITS) and Automated Fare Collection System (AFCs) in place.

All in all, this will contribute to the progress towards having an effective sustainable public transport in Dar es Salaam city.

6.2.4 Research Objective Three: Examine the coordination and communication mechanisms between the various institutions responsible for the provision of public transport in Accra city-region (Ghana) and Dar es Salaam city (Tanzania)

Sub-Research Question Three: What are the coordination and communication mechanisms between the various institutions responsible for the provision of public transport in Accra city-region (Ghana) and Dar es Salaam city (Tanzania)?

6.2.4.1 Findings on the Coordination Mechanisms of Institutions for Public Transport Provision

The study revealed that, in the case of Accra city-region coordination between and among the six categories of actors/institutions related to public transport in the city depends, to a larger extent, on the specific category of actor(s) and the activities to be undertaken which defines the form of coordination and the specific institutions. Additionally, activities of some of the categories of actors are uncoordinated since there is no coordination with other institutions. For instance, it was revealed that there is no coordination between Private Transport Operators of public transport and Public Transport Operators of public transport in the city. Reasons for this include competition for the same users of public transport in Accra city-region which at times is unhealthy as it is not in a coordinated manner. In essence, the absence of a specific Public Transport Authority with the responsibility of formulation and implementation of a coordinated strategy between the six categories of actors for public transport provision in Accra city-region is pertinent.

In the case of Dar es Salaam city, the study similarly found that, there is no Public Transport Authority to ensure a coordinated strategy between and among the institutions directly or indirectly involved in the provision of public transport in Dar es Salaam city. This authority is necessary to coordinate, properly manage, and harmonize overlap in discharge of duties of these institutions to ameliorate the issue of conflicts in discharge of roles of these institutions.

6.2.4.2 Findings on the Communication Mechanisms of Institutions for Public Transport Provision

The study revealed that, regarding communication between and among institutions related directly or indirectly to the provision of public transport in Accra city-region, there exist a lack of communication between Private Transport Operators of public transport, and Public

Transport Operators of Public Transport in the city. This is largely due to the unhealthy competition for the same public transport users. Essentially, there is the need for an effective communication mechanism put together and accepted by these two categories of actors to facilitate a successful sustainable public transport and service delivery in Accra city-region.

Similarly, in the case of Dar es Salaam city, the study found that Private Transport Operators of public transport do not communicate with Public Transport Operators of public transport in the city. This adds to the weak institutional communication among the different institutions of public transport found by other studies. Essentially, the need for innovative measures to facilitate communication among the various categories of actors in the public transport space and service delivery in Dar es Salaam city.

6.2.5 Research Objective Four: Examine how the existing capacities of these institutions are commensurate with the current urban transport challenges in Accra city-region (Ghana) and Dar es Salaam city (Tanzania)

Sub-Research Question Four: Is the existing capacity of these institutions commensurate with the current urban transport challenges in Accra city-region (Ghana) and Dar es Salaam city (Tanzania)?

6.2.5.1 Findings on the current public transport challenges in Accra city-region and Dar es Salaam city

The study inductively found 16 current public transport challenges in Accra city-region and Dar es Salaam city. These are: road traffic congestion, lack of political will, encroachment on roads by hawkers, absence of dedicated lanes (inadequate infrastructure), inadequate enforcement, institutional and operational issues, safety issues, low capacity old minibuses and air pollution, numerous minibus owners and operators, inadequate supply, inadequate funds and low investment, rapid population growth (urbanisation), long waiting hours for public transport during off-peak, lack of public transport champion and stronger regulator, growing two/three wheelers on major roads, and lack of mass transit for public transport.

In the case of Accra city-region, the study revealed that the top three major current public transport challenges highlighted across the six categories of actors/institutions were: road traffic congestion; encroachment on roads by hawkers; lack of political will, inadequate enforcement, and safety issues.

Additionally, the study found that, with reference to the first top major challenge being road traffic congestion in Accra city-region the nature of reality (ontology) pertaining to the philosophy of social constructivism was evidenced by the multiple viewpoints by the

subjective quotes of three categories of actors/institutions, namely; Government Agencies/ City Authorities, Financiers with Dedicated Green Funds, and Private Transport Operators of public transport.

In the case of Dar es Salaam city, the study found that the top three major current public transport challenges highlighted across the six categories of actors were: road traffic congestion; safety issues, numerous minibus owners and operators, inadequate supply; institutional and operational issues, low capacity old minibuses and air pollution, and rapid population growth (urbanisation).

Furthermore, the study revealed that, considering the first major challenge of road traffic congestion in Dar es Salaam city, the epistemology of the philosophy of social constructivism is evidenced by the subjective quotes of these three categories of actors, namely; Government Agencies/ City Authorities, Financiers with Dedicated Green Funds, and Private Transport Operators of public transport. In essence, this affirms the assertion by Guba (1990, p. 26), that “subjective interactions appear to be the only means to unlocking social constructions held by participants if reality only exist in the minds of these participants”.

6.2.5.2 Findings on the existing capacity lapses of institutions to the current public transport challenges in Accra city-region and Dar es Salaam city

The study found that the identified capacity lapses in some institutions in both Ghana and Tanzania commensurate with the current public transport challenges in Accra city-region and Dar es Salaam city. This was evidenced by the subjective quotes of six institutions across three categories of actors in Ghana namely: Private Transport Operators of public transport, Government Agencies or City Authorities, and Public Transport Operators of public transport. That of Tanzania was evidenced by the subjective quotes of three institutions across two categories of actors namely: Government Agencies/ City Authorities, and Public Transport Operators of public transport.

Similarly, the study revealed that the existing institutional capacity lapses that commensurate with the current public transport challenges in Accra city-region and Dar es Salaam city relates to financial resource capacity, logistical capacity, and legal and regulatory capacity.

6.3 Findings on the current pilot BRT challenges in Accra city-region and Dar es Salaam City

6.3.1 Findings on the current challenges of the pilot Aayalolo BRT/QBS in Accra city

The study found 13 existing challenges of the pilot BRTs in Accra city-region and Dar es Salaam city. These were: lack of political will, inadequate financial resources, lack of understanding between actors, unsatisfactory BRT/QBS (Accra), collaborative bus operations, switch to paper tickets for fares, fill-and-go bus system (AM-PM Peak), lack of transparency, absence of dedicated bus lanes, inadequate and overcrowded BRT buses, absence of passenger information, BRT infrastructure challenges, and BRT management & operations challenges.

Furthermore, the study revealed that there are nine out of the 13 challenges specifically relating to the pilot Aayalolo BRT/QBS in Accra city-region, namely; inadequate financial resources, lack of political will, unsatisfactory BRT/QBS, fill-and-go bus system (AM-PM peak), collaborative bus operations, absence of dedicated bus lanes, lack of understanding between actors, switch to paper tickets for fares, and lack of transparency. The major current challenge is 'inadequate financial resources', and the second is 'lack of political will'.

Essentially, earlier studies identified institutional bottlenecks including absence of initial capital at the start of operations, inadequate enforcement by city authorities, and absence of dedicated lanes for the pilot Aayalolo BRT which led to a complete halt of its operations in November 2018 (Poku-Boansi, 2021). But as already mentioned, all these challenges identified by earlier studies are presently existing, and the pilot Aayalolo BRT subsequently began operations again after November 2018 as a 'fill-and-go bus system' focusing on busing commuters during AM and PM peak.

All in all, these nine current challenges of the pilot Aayalolo BRT is useful for the attention of the respective decision-makers and categories of actors for the necessary action, specifically looking at the major and second major challenges, to be addressed to ameliorate these challenges of the bus system.

6.3.2 Findings on the current challenges of the pilot Dar Rapid Transit in Dar es Salaam

The study found that there are five out of the 13 challenges that relates to the interim phase I of the Dar Rapid Transit in Dar es Salaam city. These five challenges are: BRT management and operations challenges, inadequate and overcrowded BRT buses, BRT infrastructure challenges, switch to paper tickets for fares, and absence of passenger information. The top-most challenge is 'BRT management and operations challenges', followed by 'inadequate and overcrowded BRT buses'.

Primarily, previous studies outlined challenges inhibiting efficient operations of the interim phase I of the Dar Rapid Transit, including, deterioration of operations evidenced in overcrowded buses, long ticketing queues, inadequate DART capacity, and flooding along the trunk line (Mchomvu, 2018). This study has found in addition the top-most current challenge of 'BRT management and operations challenges' which was highlighted by Government Agencies/City Authorities, and Public Transport Operators categories of actors/institutions.

The study revealed that the two major current challenges with the pilot BRTs in Accra city-region and Dar es Salaam city are different. Thus, in Accra city-region, the two major current challenges were 'inadequate financial resources' and 'lack of political will' respectively. Whereas, in Dar es Salaam city, the two major current challenges were 'BRT management and operations challenges' and 'inadequate and overcrowded BRT buses'. This difference on the one hand, is attributable to the fact that the pilot Aayalolo BRT/QBS in Accra city-region is not yet in full-scale operations since it was launched in December 2016, and also misses some of the classical characteristics of a full-scale BRT. On the other hand, the interim phase I of the Dar Rapid Transit since its launch in May 2016 is currently operational, and therefore issues of 'BRT management and operations challenges', and 'inadequate and overcrowded BRT buses' are top-most priority challenges that needs urgent attention from the respective decision-makers and categories of actors.

The study found 'switch to paper tickets for fares' as the only common present challenge of the pilot Aayalolo BRT/QBS in Accra city-region and the interim phase I Dar Rapid Transit in Dar es Salaam city. This was emphasized by the categories of actors, namely; Private Transport Operators of public transport, Government Agencies/ City Authorities, and Public Transport Operators of public transport.

6.4 Findings on the effects of COVID-19 pandemic on public transport in Accra city-region and Dar es Salaam city

The study revealed six effects of the COVID-19 pandemic on public transport in Accra city-region and Dar es Salaam city. These were increased operations cost, queuing of passengers, reduced road traffic (due to COVID-19), restrictions on import and exports, reduced BRT bus capacity (social distancing), and busing health workers.

Specifically, five out of the six effects related to public transport in Accra city-region, namely; busing health workers, reduced BRT bus capacity (social distancing), restrictions on import and export, reduced road traffic (due to COVID-19), and increased operations cost. These

effects were emphasized by Private Transport Operators of public transport in the city, Government Agencies/City Authorities, and Private Sector Organisations categories of actors/institutions.

Also, the study found that three out of the six effects related to public transport in Dar es Salaam city. These were reduced BRT bus capacity (social distancing), queuing of passengers, and increased operations cost. These three effects were highlighted by two categories of actors/institutions, namely; Government Agencies/City Authorities, and Public Transport Operators of public transport in Dar es Salaam city.

Among the six effects, the study discovered one effect which was recounted as positive from actors/institutions in Dar es Salaam, which was, 'queuing of passengers'. To them, the COVID-19 pandemic instilled discipline of queuing before boarding buses in commuters, as against the previous times without the pandemic where commuters used to fight to get into buses.

6.5 Major Findings from the Comparative Overview Analysis of Accra city-region and Dar es Salaam City

The major findings of the comparative overview analysis have been summarized in Table 6.1 of this study. This mainly encompasses the similarities and differences of the profiles of Accra city-region and Dar es Salaam city regarding five key issues, namely; physical and natural characteristics of the respective cities, demographic characteristics, economic characteristics, governance of the respective cities (institutions), and sustainable mobility of road-based public transport. Table 6.1 also presents the planning implication under each key issue and lessons learnt.

Table 6.1 Summary of Findings of the Comparative Overview Analysis of Accra city-region and Dar es Salaam city

Key Issues	Similarities (Accra city-region and Dar es Salaam city)	Differences (Accra city-region and Dar es Salaam city)
<p>Physical and Natural Characteristics</p>	<ul style="list-style-type: none"> • Accra city and Dar es Salaam city both experiences comparatively high temperatures. <p>Implication for planning: As noted by the Ministry of Lands Housing and Human Settlements Development (2016, p. 27), there is the need to align streets and the orientation of buildings such that wind circulation and cross-ventilation around and in buildings are maximized. In addition, the design and types of vehicles used for road-based public transport need to be critically looked into to provide passengers the needed comfort during trips on board them through effective cross-ventilation features.</p> <ul style="list-style-type: none"> • Both cities are susceptible to flooding during the rainy seasons when there are records of heavy down pours. <p>Implication for Planning: The type of vehicle for public transport and the orientation of station and stops facilities need to properly planned and balanced out to avoid the situation of low-entry vehicles being flooded during operations.</p> <ul style="list-style-type: none"> • Dar es Salaam city’s average daily sunshine of 8.8 hours has a positive impact on its tourism activities. 	<p style="text-align: center;">-</p>

Key Issues	Similarities (Accra city-region and Dar es Salaam city)	Differences (Accra city-region and Dar es Salaam city)
	<p>The planning implication of this advantage is that, this can serve as an alternative source of clean energy for the city and its adjoining regions.</p> <p>Secondly, the tourism industry booms during the month of March (Ministry of Lands Housing and Human Settlements Development, 2016), which ultimately would have an upward or increase in revenue inflows of the tourism sector and its's ripple effect on other sectors of the economy of Dar es Salaam city and environs.</p>	
	<p>Lessons Learnt:</p> <p>The physical characteristics of the city primarily determines the types and design of facilities to support effective road-based public transport arrangements. This also determines to a large extent the vehicle modes and features that would align with the respective overall visions of both Accra city-region and Dar es Salaam city.</p>	
Demographic Characteristics	<ul style="list-style-type: none"> • Accra-city Region/ GAMA's estimated total population in the year 2015 was 4.3 million inhabitants with an average intercensal growth rate of 3.54 per cent between the year 2000 and the year 2010 (Government of Ghana, 2015a, p. 30; Ghana Statistical Service, 2012; Agyemang, 2015). Out of this population females constituted 51.7 per cent in comparison to males of 48.3 per cent (Ghana Statistical Service, 2014b, p. 8). It is notable to indicate that the average intercensal growth rate of GAMA mentioned afore is higher in comparison to that of the national. Thus, the 	-

Key Issues	Similarities (Accra city-region and Dar es Salaam city)	Differences (Accra city-region and Dar es Salaam city)
	<p>annual average intercensal growth rate of Ghana based on the 2010 Population and Housing Census was 2.5 per cent (Ghana Statistical Service, 2012, p. 2). Mainly, the reasons which account for GAMA/Accra city's high annual average intercensal growth rate to that of Ghana is as a result of the attractiveness of Accra city and the existing opportunities to the youthful population and individuals across Ghana (i.e. high in-migration rate), low fertility and decreasing mortality rate in GAMA. In the case of Dar es Salaam city, the total inhabitants in the year 2012 was 4,364,541 with an average annual intercensal growth rate of 5.6 per cent (National Bureau of Statistics Tanzania, 2013, p. 2 and 4) of which 51.3 per cent were females and 48.7 per cent were males, depicting a common trend with most African cities (National Bureau of Statistics Tanzania, 2013, p. 10).</p> <p>Implication for Planning: Both cities depict more females than males with respect to the population of each of them, which is a common trend in most African cities. Therefore, policy decisions for planning need to take into consideration the population dynamics and characteristics of these cities in line with their needs and aspirations for developmental projects. For instance, within the scope of this study, it is pertinent that</p>	

Key Issues	Similarities (Accra city-region and Dar es Salaam city)	Differences (Accra city-region and Dar es Salaam city)
	<p>policy and decision-makers consider the needs of all gender, which is predominantly females in both Accra-city and Dar es Salaam city, and therefore the need to ensure that the needs of these population relating to effective road-based public transport in these cities are primarily well represented.</p> <p>Again, it is important to indicate that the population pyramid/ age-sex distribution of the population of both cities indicate a youthful population as seen in the broad-base of the population pyramid. For instance, in the case of Dar es Salaam city, the age-sex structure as shown in Figure 4.10 is dominated by young persons from ages 0-44 years. Essentially, with the advancement in technology in road-based public transport, this could be an important catalyst during implementation and roll-out of effective sustainable road-based public transport solutions as the youth are inclined to these technologies and would be a positive advantage for policy and decision makers in this regard to leverage on.</p> <p>Lessons Learnt:</p> <p>Primarily, knowledge on the composition and growth of the population, for instance, Accra city/GAMA and Dar es Salaam city is pertinent to ensure effective development planning in these cities by city authorities/planners and other key decision makers and stakeholders to inform policy formulation, plans, programmes and projects in this regard. Accordingly, policy and decision makers need to factor the dominance of this youthful population in plans and programmes related to</p>	

Key Issues	Similarities (Accra city-region and Dar es Salaam city)	Differences (Accra city-region and Dar es Salaam city)
	<p>effective sustainable road-based public transport in both cities as well as the relevance of this youthful age-cohort population to the development of the cities.</p> <p>Furthermore, both Accra city and Dar es Salaam city population is dominated by females and therefore as has already been highlighted, decision and policy makers need to consider the needs of females very well in programmes, plans, and projects related to effective sustainable road-based public transport.</p>	
Economic Characteristics	<ul style="list-style-type: none"> • Accra city-region/GAMA and Dar es Salaam city are both the most important cities in their respective countries (Arup International Development, 2016; Ministry of Lands Housing and Human Settlements Development, 2016). Specifically, Accra city-region accounts for 80 per cent of foreign direct investment in Ghana as well as approximately 25 per cent of the Gross Domestic Product of Ghana. In similar vein, Dar es Salaam city accounts for almost 40 per cent of the total number of industrial manufacturing companies in Tanzania as well as 45 per cent of the total industrial manufacturing output. In addition, both cities are attractive in terms of the numerous economic activities present in each city, spanning from transportation activities to commercial activities – either formal or informal activities (Ghana 	-

Key Issues	Similarities (Accra city-region and Dar es Salaam city)	Differences (Accra city-region and Dar es Salaam city)
	<p>Statistical Service, 2014a; Ministry of Lands Housing and Human Settlements Development, 2016) - making these cities pull-factors with respect to in-migration from other parts of Ghana or Tanzania to each respective city and beyond the borders of these countries. These economic activities include manufacturing industries, public transport unions/associations, oil companies, telecommunication institutions, tourism establishments, financial institutions, educational institutions and health institutions, with most of the head offices of these institutions located in Accra city-region or Dar es Salaam city (Ghana Statistical Service, 2014a; Ministry of Lands Housing and Human Settlements Development, 2016; Bwire and Zengo, 2020). Furthermore, both cities are strategically located, thereby giving them leverage in terms of cross-country international trade (Government of Ghana, 2015a, p. 30). For instance, Accra city-region is almost at the centre of the West African regional economic corridor that spans from Lagos to Abidjan, referred to as “an economic powerhouse”. In the case of Dar es Salaam city, its strategic location makes it the central gateway to the international markets for the “Tripartite East African Community (EAC), Southern Africa Development Community (SADC), and</p>	

Key Issues	Similarities (Accra city-region and Dar es Salaam city)	Differences (Accra city-region and Dar es Salaam city)
	<p>Common Market for Eastern and Southern Africa (COMESA) regional economic groupings” (Ministry of Finance and Planning, 2016, p. 34; Ministry of Lands Housing and Human Settlements Development, 2016, p. 9).</p> <p>Planning Implication: Both Accra city-region and Dar es Salaam city are major economic hubs of each respective country and therefore attractive locations in terms of job opportunities, leading to in-migration from other parts of each country and beyond. Therefore, it is imperative for city authorities and decision-makers to consider innovative and pragmatic ways of containing the general populace of these cities vis-à-vis the required necessary social services and amenities to this end. Typically, road-based public transport is greatly impacted by the increasing demand of public transport users for their trip purposes. And as has already been discussed in the research problem of this study, there is a gap in attaining effective sustainable mobility (precisely road-based public transport) in Accra city-region and Dar es Salaam city.</p>	
	<p>Lessons Learnt: Both Accra city-region and Dar es Salaam city have a comparative advantage over other cities in their respective countries due to their roles, functions, and the prevalence of myriad of job opportunities with majority of its head offices in these cities, making them attractive to natives and non-natives of each country. In view of this, mindful of the rapid</p>	

Key Issues	Similarities (Accra city-region and Dar es Salaam city)	Differences (Accra city-region and Dar es Salaam city)
	<p>urbanisation and rapid motorisation in both cities already discussed in the research problem of this research, it is imperative to indicate that 'here-and-now' tailor-made measures need to be considered to ensure that Accra city-region and Dar es Salaam city can sustainably contain the increasing number of people moving to live in each city as well as persons that make trips on a daily basis from far and near for several trip purposes. Essentially, it is imperative that barriers to effective sustainable mobility relating specifically to road-based public transport in Accra city-region and Dar es Salaam city are addressed by key stakeholders, decision and policy makers to this end.</p>	
<p>Governance of the cities</p>	<ul style="list-style-type: none"> Both Accra city and Dar es salaam city have specific Metropolitan/Municipal/District Assemblies or Municipal Councils that govern each of these Districts or Municipalities under the city for ensuring development in their geographical scope of jurisdiction (see Figures 4.5 and 4.13). <p>Planning Implication: Both cities have decentralized institutions (i.e. MMDAs and City Authority) for the development of the local economy and sees to the preparation of plans (i.e Medium Term Development Plans and Master Plans) that indicates the programmes and projects over a medium-term period in accordance with national policy frameworks. For instance, the Four-Year Medium-Term Development Plan (2016-2020) of the AMA and the 20 Year Master Plan of Dar es Salaam City (2016-2036). In essence, this will guide development accordingly, ensure monitoring of</p>	<ul style="list-style-type: none"> Accra city (the conurbation of 12 MMDAs) does not have a specific head playing the role of city head (i.e champion), although all the 12 MMDAs have their institutional heads to ensure local development in their jurisdictions in line with the decentralisation system of Ghana (For instance, the head of AMA is the Mayor). On the contrary, Dar es Salaam city (composed of five municipalities and 90 wards) has a City Director (see Figure 4.13) who oversees development across all these five municipalities and 90 wards (see Figure 4.14).

Key Issues	Similarities (Accra city-region and Dar es Salaam city)	Differences (Accra city-region and Dar es Salaam city)
	<p>on-going projects and evaluation of completed projects under these time frame, as well as the indicative budget for specific projects with the respective funding sources. Overall, after each planned period, assessment of programmes and projects with their status will precede the subsequent Development/ Master Plans and serve as a way of check for decision makers as to what went right or wrong that needs intervention.</p>	<p>Implication for Planning: With reference to the city of Accra, the absence of a city council and a city head (i.e champion) for Accra city-region as a whole could impede decision making relating to key issues such as sustainable road-based public transport in the city, ultimately delaying and retarding developmental programmes, plans and projects, for instance, the Aayalolo Bus Rapid Transit System implementation.</p>
	<p>Lesson Learnt: Even though Dar es Salaam City has a City Council to ensure development within the city and perform a coordinating role across the five Municipal Councils and the 90 wards (see Figure 4.14) as already discussed, there are key limitations to this current administrative structure which have also been discussed afore. Essentially, these could serve as lesson's for Accra city in this regard relating to a possible city authority in the future.</p> <p>By and large, the Ministry of Lands Housing and Human Settlements Development (2016, p. 21) has noted that the current institutional arrangement in Dar es Salaam city talking of the execution and implementation of development plans has been inadequate and normally lack co-ordination. In essence, it is pertinent for the current organogram to be improved and the necessary by-laws passed to remedy any limitations in this regard of the functions of the Dar es Salaam City Council accordingly. Other key issues highlighted by the Ministry of Lands Housing and Human Settlements Development (2016, p. 21) relates to the implementation and maintenance of projects by public agencies mandated to</p>	

Key Issues	Similarities (Accra city-region and Dar es Salaam city)	Differences (Accra city-region and Dar es Salaam city)
	<p>deliver specific services in Dar es Salaam city who execute these projects independent of each other, due to the major issue of poor coordination that eventually results in “duplication of efforts, dispersal of scarce resources and little accountability”.</p>	
<p>Sustainable Mobility of road-based public transport</p>	<ul style="list-style-type: none"> • The main mode of transport in Accra city-region and Dar es Salaam city is road-based public transport (National Development Planning Commission (NDPC), 2017c; Korea International Cooperation Agency (KOICA), 2016; Dar es Salaam City Council, 2017) , thereby depicting the importance of the road-based public transport mode to the City Authorities of each respective city and other related key institutions as well as the relevance and role played by the public transport industry to each city’s economy. By and large, a major justification why it is key and decision makers in Accra city-region and Dar es Salaam city sought of find a solution to the myriad of problems bedevilled by the road-based public transport industry in each city (i.e. Ayalolo BRT in Accra city and Dar es Salaam BRT in Dar es Salaam). • The visions of Dar es Salaam city and Accra Metropolis which is the biggest of the 11 conurbations of Accra-city Region/GAMA have common similarities. The vision of Dar es Salaam city is “A 	<ul style="list-style-type: none"> • Accra city Region does not have a city council but Dar es Salaam has a city council referred to as the Dar es Salaam City Council. • The Ayalolo Type B pilot BRT in Accra city which was defunct in November 2018, has been operational on some routes in Accra city at peak times although not all services are regular. This implies that much more needs to be done by the Greater Accra Passenger Transport Executive (GAPTE), the operators of the system, and other key stakeholders in this regard. • On the other hand, the Dar es Salaam Rapid Transit Phase 1 has also been

Key Issues	Similarities (Accra city-region and Dar es Salaam city)	Differences (Accra city-region and Dar es Salaam city)
	<p>sustainable, competitive and people-centred city” (Ministry of Lands Housing and Human Settlements Development, 2018, p. 4) whereas the vision of Accra Metropolis is “A Smart, Sustainable and Resilient City” (Accra Metropolitan Assembly, 2018). It is pertinent to mention here that Accra-city Region is not yet established as one unit as in the case of Dar es Salaam city and therefore Accra city does not have a city Council or Authority.</p> <ul style="list-style-type: none"> It is notable to mention that Dar es Salaam City Council also has a vision “To be a leading safe city with sustainable development, competitive investment environment, managed on principles of good governance, where residents have decent living standards” (Dar es Salaam City Council and C40 Cities Climate Leadership Group, 2019, p. 10). <p>Planning Implication: As resources are scarce and insatiable, it is necessary then that based on the major mode of transport in Accra city-region and Dar es Salaam, a solution was sought by policy and decision-makers. Coincidentally, this led to the launch of the Ayalolo BRT and the Dar es Salaam BRT in the</p>	<p>faced with some challenges since it commenced operations in the year 2016 including institutional bottlenecks.</p> <p>Planning Implication: It is very pertinent for the institutional bottlenecks and other challenges impeding the BRTs in both cities from operating at their maximum potential to be addressed accordingly.</p> <p>By implication, in the city of Dar es Salaam, the DART BRT has been planned to be the major public transport mode in Dar es Salaam city for short-medium distance travel until the year 2031 (Japan International Cooperation Agency (JICA), 2018) and this has immense contribution to the realisation of the DART BRT operating at its maximum potential.</p>

Key Issues	Similarities (Accra city-region and Dar es Salaam city)	Differences (Accra city-region and Dar es Salaam city)
	<p>year 2016. Accordingly, as has already been outlined in the research problem of this dissertation in line with the BRT systems in both cities, it is essential that these two BRT systems in Accra city-region and Dar es Salaam city are harnessed towards reaching their maximum potential. In terms of the visions of both cities, it is apparent that a sustainable city is key to each of these cities and therefore mainstreaming and formulating programmes and projects in this regard is a step in the right direction. What is also key is ensuring the successful implementation of such projects.</p>	
	<p>Lessons Learnt:</p> <p>It is relevant to highlight that both Accra city-region and Dar es Salaam city do not have a Public Transport Authority as in the case of cities with successful BRTs worldwide such as Rede Integrada de Transporte in Curitiba city, Brazil and TransMilenio in Bogota city, Colombia. Specifically, the Public Transport Authority in Bogota city is TransMilenio S.A (Centre for European Policy Studies, 2015; Editorial Staff, 2021; United Nations Development Programme (UNDP), 2012) while that of Curitiba city is Urban Development Authority of Curitiba/ Urbanizacao de Curitiba SA (URBS) (Transport Research Board, n.d; Kiepsch, 2012; Inter-American Development Bank, 2019). Although in the case of Dar es Salaam city this had been planned for alongside planning for the DART BRT before its launch in the year 2016 this has not materialized as of now.</p> <p>Additionally, it pertinent to put into retrospect some relevant factors that have contributed to the success of TransMilenio in Bogota according to United Nations Development Programme (UNDP) (2012, p. 10) as a lesson learnt for Accra city-region and Dar es Salaam city:</p>	

Key Issues	Similarities (Accra city-region and Dar es Salaam city)	Differences (Accra city-region and Dar es Salaam city)
	<p>“i. Establishing coordination mechanisms and adequate institutional arrangements”;</p> <p>“ii. Allocating sufficient technical and financial resources to the preparation and execution of the project”;</p> <p>iii. “Including stakeholders in the process to garner support”;</p> <p>iv. “Thinking long-term, but including specific short-term actions that have an immediate demonstrated effect”; and</p> <p>v. “Creating awareness of the system and its upgrades through information campaigns to gain public buy-in”.</p> <p>Furthermore, as a lesson learnt for the two case study cities of this research, TransMilenio in Bogota is a public-private partnership and the private sector maintains the operations through fare collection since its inception without any public subsidies provided to fund equipment acquisition or operations (United Nations Development Programme (UNDP), 2012, p. 6).</p> <p>Another important lesson learnt from Curitiba city’s Public Transport Authority known as Urbanizacao de Curitiba SA (URBS) is the utilization of community participation and consultation related to the city’s BRT system, Rede Integrada de Transporte (Transport Research Board, n.d). Specifically, URBS Public Transport Authority engages the public through consultations to promote usage of the BRT, responds to the concerns of the public related to the BRT system, and makes information available to the public (Transport Research Board, n.d). This is therefore relevant lesson for Accra city-region and Dar es Salaam city with regards to effective sustainable road-based public transport in these cities.</p>	

Source: Author’s Construct, May 2021

6.6 Utility of the Conceptual Framework

The conceptual framework of sustainable mobility for road-based public transport in cities - Figure 2.15 - served its purpose of providing a thorough understanding of the phenomenon of interest underscored by the network of all the interlinked concepts to the desired outcome/aim of this study. Primarily, all the four analytical concepts of this study, namely; institutions, institutional capacity, coordination mechanisms, and communication mechanisms as opined by Jabareen (2009) gave a comprehensive understanding of the ontology and epistemology of these concepts with respect to sustainable road-based public transport in Accra city-region and Dar es Salaam city. The four normative concepts of this study of the conceptual framework, namely; sustainable road-based public transport in cities, sustainable transport, effective sustainable mobility, and sustainable development served as the standard to which the study data analysed in relation to these concepts were corroborated.

Furthermore, the conceptual framework-Figure 2.15-served as this study's roadmap with a specific pathway and methodical progression that led to results of this study. Owing to this framework adopted, the findings of this study can be relied on as a true reflection of institutions related to the provision of road-based public transport in Accra city-region and Dar es Salaam city. Therefore, whereas a classical BRT considered as a sustainable road-based public transport solution is applicable elsewhere, in the case of Accra city-region and Dar es Salaam city there seem to be a rather tailor-made BRT solution that is applicable. It is also valid to say that formal rules and informal norms, as well as the enforcement characteristics of same are indeed critical for both cities and respective actors. Lastly, related institutions for public transport provision in both cities need holistic competences (i.e. technical capacity) as well as available resources (i.e. logistical capacity, financial resource capacity) with effective legal and regulatory framework to be able to perform some specific functions.

6.7 Summary of Chapter

This chapter has discussed the key findings of this study from both primary and secondary data analysed. It has also presented the utility of the conceptual framework of the study.

The final chapter of this study presents the recommendations towards sustainable mobility for public transport in Accra city-region and Dar es Salaam city. The study's contribution to knowledge, areas for further research, limitations of study, among others are provided in the next final chapter of this study.

CHAPTER SEVEN

RECOMMENDATIONS AND CONCLUSION

7.1 Introduction

The six preceding chapters of this study have presented the relevant literature, the study approach and research methodology, discussed the analysis of the comparative overview of the two case study cities, presented the remote field data analysed, and major findings from the entire research. This last chapter of this study encompasses four sections; with the first focused on specific recommendations towards sustainable mobility for public transport in Accra city-region and Dar es Salaam city. The second section presents the study's contribution to knowledge whereas the next section provides the areas for further research. The last and fourth section presents the key limitations of this study. A general conclusion of the entire study is presented in this final chapter.

7.2 Recommendations for Accra city-region (Ghana) and Dar es Salaam city (Tanzania)

Based on the findings, recommendations have been proposed with the objective of providing institutional responses to sustainable mobility for road-based public transport in Accra city-region (Ghana) and Dar es Salaam city (Tanzania) to address the research problem, research gap, and research questions of this study. These recommendations have been categorized into three: short-term, medium-term and long-term. Short-term policy recommendations refer to the ones that can be addressed in a maximum of two years, whereas the medium-term policy recommendations can be implemented between two to five years. The long-term policy recommendations on the other hand, pertains to the ones that can take longer than five years to be implemented.

7.2.1 Short Term Policy Recommendations

The short-term policy recommendations of this study have been presented in Table 7.1. Mainly, the specific policy recommendations have been indicated in line with the specific location, and the expected timeframe of six-month interval over a maximum of two years. In addition, the specific implementing categories of actors/institutions have been outlined in terms of the lead and collaborating actors, as well as the source of the budget allocation per the lead and collaborating actors/institutions. In all, there were nine recommended short-term policies.

Table 7.1 Short Term Policy Recommendations (can be addressed in a maximum of two years)

Short Term Policies	Location (Accra city/ Dar es Salaam City	Timeframe (six months interval)				Implementing Categories of Actors/Institutions		Budget Allocation (Categories of Actors/Institutions)	
		1st	2nd	3rd	4th	Lead	Collaborating	Lead	Collaborating
<p><i>1. Make road-based public transport environmentally sustainable.</i></p> <p>This can be achieved in Dar es Salaam city by providing the needed adequate infrastructure, ensuring that the phase 2 of the Dar Rapid Transit network (i.e. 20.3 km) is completed within the planned timeframe (i.e September 2015-December 2022), as well as effective law enforcement.</p>	<p>Dar es Salaam City (Phase 2 of BRT Network)</p>	✓				<p>Tanzania National Roads Agency (TANROADS)</p>	<p>Ministry of Works, Transport and Communication (MWTC)</p> <p>Dar es Salaam City Council (DCC)</p>	<p>African Development Bank (AfDB)</p>	<p>Government of Tanzania</p> <p>Ministry of Finance and Planning</p>
<p><i>2. Need to create civil society organisations for public transport users (7th Category of Actor).</i></p>	<p>Accra city-region</p>	✓	✓	✓		<p>Civil Society</p>	<p>12 Districts of GAMA</p>	<p>Civil Society Organisations</p>	<p>World Bank (i.e Civil Society Fund)</p>
	<p>Dar es</p>	✓	✓	✓		<p>Civil Society</p>	<p>Dar es Salaam</p>	<p>Civil Society</p>	<p>World Bank (i.e</p>

Short Term Policies	Location (Accra city/ Dar es Salaam City)	Timeframe (six months interval)				Implementing Categories of Actors/Institutions		Budget Allocation (Categories of Actors/Institutions)	
		1st	2nd	3rd	4th	Lead	Collaborating	Lead	Collaborating
		Salaam city						City Council	Organisations
<i>3. Formulate local goals on sustainable public transport (including effective implementation mechanisms of specific activities).</i>	Accra city- region		✓	✓	✓	Metro Transport Departments in GAMA	Ministry of Transport Ministry of Local Government, Decentralisation and Rural Development	12 Districts in GAMA	Ministry of Transport Ministry of Local Government, Decentralisation and Rural Development
	Dar es Salaam city		✓	✓	✓	Dar es Salaam City Council	Ministry of Works, Transport and Communication, Land Transport Regulatory	Dar es Salaam City Council	Ministry of Works, Transport and Communication, LATRA, Ministry of

Short Term Policies	Location (Accra city/ Dar es Salaam City)	Timeframe (six months interval)				Implementing Categories of Actors/Institutions		Budget Allocation (Categories of Actors/Institutions)	
		1st	2nd	3rd	4th	Lead	Collaborating	Lead	Collaborating
							Authority(LATRA) MLHSD		Lands, Housing and Human Settlement Development
<i>4. Ensure adequate enforcement of regulations on public transport in Accra city in line with legal and regulatory capacity of Government Agencies/City Authorities. This can be realised with strong political will.</i>	Accra city-region	✓	✓	✓	✓	12 Districts in GAMA, Ghana Police Service-MTTD, GAPTE, Metro Mass Transit (MMT).	MoT, GPRTU, Ghana Cooperative Association, GRTCC, The three operators of Aayalolo QBS	12 Districts in GAMA GAPTE Metro Mass Transit (MMT)	Ministry of Transport Ghana Police Service-MTTD
<i>5. Need for effective inter-ministerial coordination of the four ministries related to public transport in Accra city-region</i>	Accra city-region		✓	✓	✓	Office of the President	GAPTE The four ministries	Office of the President The four	GAPTE The four ministries

Short Term Policies	Location (Accra city/ Dar es Salaam City)	Timeframe (six months interval)				Implementing Categories of Actors/Institutions		Budget Allocation (Categories of Actors/Institutions)	
		1st	2nd	3rd	4th	Lead	Collaborating	Lead	Collaborating
<i>(Ministry of Local Government, Decentralisation and Rural Development; Ministry of Transport; Ministry of Roads and Highways; and Ministry of Interior).</i>								Ministries	
6. Enact BRT law(s) in Tanzania	Dar es Salaam city			✓	✓	LATRA Ministry of Works, Transport and Communication (MWTC)	DART Agency Dar City Council (DCC) TANROADS	LATRA MWTC	DCC
7. Need for effective communication mechanisms, particularly, between Private Transport Operators and Public	Accra city- region	✓	✓	✓	✓	MoT 12 Districts in GAMA	All Private Transport Operators	MoT 12 Districts in GAMA	All Private Transport Operators

Short Term Policies	Location (Accra city/ Dar es Salaam City	Timeframe (six months interval)				Implementing Categories of Actors/Institutions		Budget Allocation (Categories of Actors/Institutions)	
		1st	2nd	3rd	4th	Lead	Collaborating	Lead	Collaborating
<i>Transport Operators of public transport in both cities.</i>							MMT		MMT
	Dar es Salaam city	✓	✓	✓	✓	LATRA DCC	DARCOBOA, UDART PLC.	LATRA DCC	DARCOBOA, UDART PLC.
<i>8. Create inter-ministerial committee meetings for effective communication of the four ministries related to public transport in Accra city-region. These are: Ministry of Local Government, Decentralisation and Rural Development; Ministry of Transport; Ministry of Roads and Highways; and Ministry of Interior.</i>	Accra city- region		✓	✓	✓	Office of the President	The four ministries	Office of the President	The four ministries

Short Term Policies	Location (Accra city/ Dar es Salaam City	Timeframe (six months interval)				Implementing Categories of Actors/Institutions		Budget Allocation (Categories of Actors/Institutions)	
		1st	2nd	3rd	4th	Lead	Collaborating	Lead	Collaborating
<p>9. <i>Need for strong communication platforms for all the six categories of actors, which will emanate from having effective coordination platforms.</i></p> <p>Mainly, once there is strong coordination platform already established, this will propel communication among all the six actors, as at certain meetings all these actors could be at the same table discussing issues pertaining to public transport.</p>	Dar es Salaam city		✓	✓	✓	LATRA DCC	All the six categories of actors	LATRA DCC	All the six categories of actors

Author's Construct, July 2022

From Table 7.1 as an example, a short-term -policy of *'formulate local goals on sustainable public transport including effective implementation mechanisms'* is proposed. This is the third short-term policy. This policy is for both Accra-city region and Dar es Salaam city, and the planned timeframe within which this policy could be executed is a year-and-half.

The lead implementing actor/institution in the case of Accra city-region is the Metropolitan Transport Departments in the Greater Accra Metropolitan Area (GAMA), and the collaborating actors are the Ministry of Transport, and the Ministry of Local Government, Decentralisation and Rural Development. Budget allocation for the execution of this policy is expected to be from the 12 districts in GAMA as the lead institution, and the collaborating institutions are the Ministry of Transport, and the Ministry of Local Government, Decentralisation, and Rural Development (MLGRD).

In the case of Dar es Salaam city from Table 7.1, the lead implementing actor is the Dar es Salaam City Council, and the collaborating actors are Ministry of Works, Transport and Communication (MWTC), the Land Transport Regulatory Authority (LATRA), and the Ministry of Lands Housing and Human Settlement Development (MLHHSD). The main lead actor for budget allocation for this policy is the Dar es Salaam City Council, and expected to collaborate with the Ministry of Works, Transport and Communication, and the Ministry of Lands, Housing and Human Settlement Development.

7.2.2 Medium Term Policy Recommendations

Table 7.2 presents the medium-term policy recommendations of this study. Precisely, the policy recommendations, the respective geographical location, and the planned implementation timeframe of between two to five years have be indicated in Table 7.2. Furthermore, the specific implementing institutions/categories of actors have been indicated according to the lead and collaborating actors, as well as the budget allocation for the sources of funds for the implementation of these recommendations based on the lead and collaborating actors. Altogether, there were six recommended medium-term policies from Table 7.2.

Table 7.2 Medium Term Policy Recommendations (can be implemented between two to five years)

Medium Term Policies	Location (Accra city/ Dar es Salaam City)	Timeframe (Yearly intervals)				Implementing Categories of Actors/Institutions		Budget Allocation (Categories of Actors/Institutions)	
		Yr. 2+	Yr. 3	Yr. 4	Yr. 5	Lead	Collaborating	Lead	Collaborating
<p><i>1. Make road-based public transport environmentally sustainable.</i></p> <p>This can be attained in Accra city- region by having strong policy implementation mechanisms (i.e. the National Transport Policy, the Aayalolo BRT project), strong political will, effective law enforcement, and adequate public transport service controls (i.e regulations).</p> <p>In Dar es Salaam city, this can be achieved by providing the needed adequate infrastructure, ensuring that</p>	Accra city- region	✓	✓			Government of Ghana	Department of Urban Roads	Government of Ghana	World Bank
	Dar es Salaam city (Phases 3-6 of BRT Network)	✓	✓	✓	✓	Department of Urban Roads	Metro Transport Departments in GAMA	Ministry of Finance	AfDB
					Ministry of Transport	GAPTE	12 Districts in GAMA		GAPTE
					MLGRD	Ghana Police Service-MTTD			
					Tanzania National Roads Agency (TANROADS)	Ministry of Works, Transport and Communication (MWTC)	World Bank	Government of Tanzania	
						DCC	African Development Bank (AfDB)	Ministry of Finance and Planning	

Medium Term Policies	Location (Accra city/ Dar es Salaam City)	Timeframe (Yearly intervals)				Implementing Categories of Actors/Institutions		Budget Allocation (Categories of Actors/Institutions)	
		Yr. 2+	Yr. 3	Yr. 4	Yr. 5	Lead	Collaborating	Lead	Collaborating
the rest of the phases 3 – 6 of the Dar Rapid Transit networks (i.e. 99.9 km out of 141.1 km) are implemented based within the planned timeframe, effective law enforcement, and having a fleet renewal system for the minibus fleets/daladala's to comply with standards, and for these fleets to serve as feeders for the DART System.									
2. <i>Establish a Public Transport Authority (PTA) in both cities.</i> This is pertinent as there is no specific institution with the responsibility of formulation	Accra city-region		✓	✓	✓	Ministry of Transport MLGRD	Metro Transport Depts in GAMA	Ministry of Transport MLGRD	Metro Transport Depts in GAMA
	Dar es Salaam City	✓	✓			MWTC	DCC	MWTC	DCC

Medium Term Policies	Location (Accra city/ Dar es Salaam City)	Timeframe (Yearly intervals)				Implementing Categories of Actors/Institutions		Budget Allocation (Categories of Actors/Institutions)	
		Yr. 2+	Yr. 3	Yr. 4	Yr. 5	Lead	Collaborating	Lead	Collaborating
<p>and implementation of a coordinated strategy between the six categories of actors in both cities.</p> <p>In the case of Accra city-region, there is no coordination between Private Transport Operators and Public Transport Operators of PT due to competition for same users of public transport. And this, essentially is at times unhealthy as it is not in a coordinated manner.</p> <p>For Dar es Salaam city, a PTA is important to coordinate, properly manage,</p>						LATRA		LATRA	

Medium Term Policies	Location (Accra city/ Dar es Salaam City)	Timeframe (Yearly intervals)				Implementing Categories of Actors/Institutions		Budget Allocation (Categories of Actors/Institutions)	
		Yr. 2+	Yr. 3	Yr. 4	Yr. 5	Lead	Collaborating	Lead	Collaborating
and harmonize overlap in discharge of duties of the related institutions to ameliorate the issue of conflicts in discharge of roles.									
<i>3. Ensure adequate and up-to-date logistics for Government Agencies/City Authorities, Private and Public Transport Operators of PT.</i>	Accra city-region	✓	✓	✓	✓	Ministry of Transport, MLGRD, Department of Urban Roads.	Metro Transport Depts-GAMA, Land Use and Spatial Planning Authority (LUSPA), EPA, MMT, GPRTU, Ghana Cooperative, GRTCC.	Ministry of Transport, MLGRD, Department of Urban Roads.	Metro Transport Depts-GAMA, Land Use and Spatial Planning Authority (LUSPA), EPA, MMT, GPRTU, Ghana Cooperative, GRTCC.
	Dar es	✓	✓	✓	✓	LATRA,	National	LATRA,	National

Medium Term Policies	Location (Accra city/ Dar es Salaam City)	Timeframe (Yearly intervals)				Implementing Categories of Actors/Institutions		Budget Allocation (Categories of Actors/Institutions)	
		Yr. 2+	Yr. 3	Yr. 4	Yr. 5	Lead	Collaborating	Lead	Collaborating
		Salaam city					MWTC, MLHHSD	Environment Mgt Council (NEMC), DCC, DART Agency.	MWTC, MLHHSD
<p><i>4. Upgrade existing technical capacity of Private Transport Operators, Public Transport operators, and Government Agencies/City Authorities; and ensure capacity building trainings are undertaken at the right time.</i></p> <p>This is necessary as the existing technical capacity of these three afore mentioned categories of actors were found to be either partially developed capacity (ranking</p>	Accra city-region	✓	✓	✓	✓	Ghana Co-Operative Bus Rapid Transit Services Ltd., Accra GPRTU Rapid Bus Services Ltd., Amalgamated Bus Rapid Transit Services Ltd., MMT,	Ghana Road Transport Coordinating Council, MoT, MLGRD,	MoT, MLGRD, GAPTE, MMT.	Ghana Co-Operative Bus Rapid Transit Services Ltd., Accra GPRTU Rapid Bus Services Ltd., Amalgamated Bus Rapid Transit Services Ltd., 12 District Assemblies in GAMA.

Medium Term Policies	Location (Accra city/ Dar es Salaam City)	Timeframe (Yearly intervals)				Implementing Categories of Actors/Institutions		Budget Allocation (Categories of Actors/Institutions)	
		Yr. 2+	Yr. 3	Yr. 4	Yr. 5	Lead	Collaborating	Lead	Collaborating
scheme-3) or no evidence of relevant capacity (ranking scheme-1). Also, there are instances of delayed capacity-building trainings for staff attributable to inadequate funds by the institutions.						GAPTE, Metro Transport Depts in GAMA.			
	Dar es Salaam city	✓	✓	✓	✓	DART Agency, LATRA, UDA Rapid Transit Public Limited Company (UDART PLC).	Ministry of Works, Transport, and Communication, MLHHS, DARC BOA	Ministry of Works, Transport, and Communication , MLHHS, DART Agency, UDART, ITDP.	Dar es Salaam Commuter Bus Owners' Ass (DARCOBOA) , DCC, LATRA.
<i>5. Adherence to spatial plans for transportation prepared by the Land Use and Spatial Planning Authority (LUSPA) which can serve as a form of</i>	Accra city- region	✓	✓	✓	✓	LUSPA, 12 District Assemblies in GAMA, Ministry of	Department of Urban Roads.	Ministry of Environment, Science, Technology and Innovation	12 District Assemblies in GAMA

Medium Term Policies	Location (Accra city/ Dar es Salaam City)	Timeframe (Yearly intervals)				Implementing Categories of Actors/Institutions		Budget Allocation (Categories of Actors/Institutions)	
		Yr. 2+	Yr. 3	Yr. 4	Yr. 5	Lead	Collaborating	Lead	Collaborating
<p><i>coordination mechanism for all transport related institutions.</i></p> <p>The spatial plans-development framework for transportation for GAMA (15 – 20 years' timeframe) need to be seen and recognized as a blueprint by all related transport institutions for use. The spatial plans will serve as a unifying factor, in place of all the separate plans related transport institutions decided to use (for instance the Department of Urban Roads) and ensure harmony in development.</p>						Environment, Science, Technology and Innovation (MESTI), Ministry of Transport.		(MESTI), Ministry of Transport	
6. <i>Need to have a champion</i>	Accra city-	✓	✓	✓		MOT,	GAPTE	MOT,	12 Districts in

Medium Term Policies	Location (Accra city/ Dar es Salaam City)	Timeframe (Yearly intervals)				Implementing Categories of Actors/Institutions		Budget Allocation (Categories of Actors/Institutions)	
		Yr. 2+	Yr. 3	Yr. 4	Yr. 5	Lead	Collaborating	Lead	Collaborating
<p><i>in the form of a city head for Accra city-region (made up of a conurbation of 12 MMDAs with their institutional heads for local development in their jurisdictions).</i></p> <p>This is pertinent as public transport is cross-jurisdictional over these 12 MMDAs, hence the need for a champion to ensure a harmonised approach for sustainable public transport in Accra city-region. One of such projects is the Aayalolo BRT/QBS that requires a champion in the driver's seat.</p>	region					MLGRD, 12 Districts in GAMA.		MLGRD	GAMA

Author's Construct, July 2022

For instance, from Table 7.2, the second proposed medium-term policy is *'Establish a Public Transport Authority (PTA) in both Accra city-region and Dar es Salaam city*. This is pertinent as there is no specific institution with the responsibility of formulation and implementation of a coordinated strategy between the six categories of actors in both cities.

In the case of Accra city-region, there is no coordination between Private Transport Operators and Public Transport Operators of public transport due to competition for same users of public transport. And this, essentially is at times unhealthy as it is not in a coordinated manner. For Dar es Salaam city, a PTA is important to coordinate, properly manage, and harmonize overlap in discharge of duties of the related institutions to ameliorate the issue of conflicts in discharge of roles.

The timeframe for the execution of this policy in Accra city-region from Table 7.2 is a year and half, and the lead implementing actors are the Ministry of Transport, and the Ministry of Local Government, Decentralisation and Rural Development. The collaborating implementing actor is the Metropolitan Transport Department in GAMA. The actors for budget allocation are the Ministry of Transport, Ministry of Local Government, Decentralisation and Rural Development, and the Metropolitan Transport Departments in GAMA.

For the case of Dar es Salaam city, the expected timeframe for the execution of this policy is within one year. This is based on the fact that there has been plans to establish a public transport authority in the city referred to as DUTA-Dar es Salaam Urban Transport Authority but this has not materialized. The implementing actors are the Ministry of Works, Transport and Communication, the Land Transport Regulatory Authority, and the Dar City Council. The budget allocation is expected to come from these three mentioned institutions.

7.2.3 Long Term Policy Recommendations

The long-term policy recommendations of this study have been presented in Table 7.3. Specifically, the policy recommendations are presented in line with the geographical location, and the timeframe of implementation which can take longer than five years. The associated implementing institutions/categories of actors per the lead and collaborating actors, as well as the specific source of budget allocation have also been indicated in Table 7.3.

Table 7.3 Long Term Policy Recommendations (can take longer than five years to be implemented)

Long Term Policies	Location (Accra city/ Dar es Salaam City)	Timeframe (beyond five years)				Implementing Categories of Actors/Institutions		Budget Allocation (Categories of Actors/Institutions)	
		5Yr.+	6- 10Yrs.	11- 15Yrs.	16Yrs.+	Lead	Collaborating	Lead	Collaborating
<p><i>1. Invest heavily in infrastructure for public transport in Accra city-region.</i></p> <p>In essence, sustainable public transport requires other forms of road infrastructure that will facilitate movement of people in a better way. The realization of this will have a ripple effect on the current traffic congestion on the major roads in the city.</p>	Accra city-region	✓				Ministry of Transport, Department of Urban Roads, Ministry of Roads and Highways.	Land Use and Spatial Planning Authority	Ministry of Roads and Highways	World Bank, African Development Bank (AfDB),

Author's Construct, July 2022

7.3 Contribution of Research to Knowledge

The main reason for undertaking this study was to contribute to knowledge on institutional responses to sustainable mobility for public transport in Ghanaian and Tanzania cities, as well as, measures to improve the existing capacity of institutions, coordination and communication mechanisms. The results of this study have provided useful findings and recommendations in line with answering the research questions of this study. Based on the analysis and discussions, it was realised that the study has made the following specific contributions to knowledge and theory:

i. Extension and validation of the theory of New Institutional Economics (NIE)

The study gives credence to the proposition of the NIE theory that greater focus be given to institutional capacity development as institutions are the rules of the game in a society (North, 1990). An extension of the NIE theory based on the outcomes of the study therefore is to include governance issues on political willingness and readiness to ensure planned sustainable mobility measures and solutions are implemented to the letter in sub-Saharan Africa.

ii. Environmentally Unsustainable Public Transport in Accra city-region and Dar es Salaam city

The study revealed that, road-based public transport in Accra city-region is largely environmentally unsustainable but economically and socially sustainable; whereas that of Dar es Salaam city is marginally environmentally unsustainable but economically and socially sustainable. This study therefore adds to knowledge regarding the specific dimension of the three components of sustainable development that is currently unsustainable in Accra city-region and Dar es Salaam city; relative to what was found in literature review nearly a decade ago by Banister (2011) and Bongardt et al. (2013), that the entirety (i.e. environment, social, and economic) of the road-based public transport system in cities in developing and emerging economies is unsustainable.

The study also revealed the three major causes of environmentally unsustainable road-based public transport in Accra city, namely: 'weak policy implementation mechanisms (National Transport Policy)', 'lack of political will and law enforcement challenge' as well as 'inadequate public transport service controls (regulations)'. In the case of Dar es Salaam city, the study revealed the top two major causes, namely: 'inadequate infrastructure', and 'high rate of motorization'. In addition, the study unravelled seven similar causes of environmentally unsustainable public transport in Accra city-region and Dar es Salaam city, namely: 'law enforcement challenges', 'inadequate infrastructure', 'operations purely based

on economics', 'inadequate funds and low investment', 'high rate of motorization', 'numerous minibuses and minibus operators', as well as 'few BRT Projects'. Ultimately, this study adds to knowledge on the specific major and similar causes of environmentally unsustainable road-based public transport in Accra city-region and Dar es Salaam city from the qualitative point of view.

iii. Perception of Institutions on Sustainable Transport in Accra city and Dar es Salaam city

The study discovered three main clusters as the perception of all the 29 institutions on sustainable public transport in Accra city-region and Dar es Salaam city. These are: 'use of higher occupancy vehicles such as BRT buses', having 'local goals on sustainable public transport', and 'holistic regulation'. Additionally, the study also revealed neighbouring categories essential for decision and policy makers attention (refer to Figure 5.16). Hence, this study adds to knowledge on the three main perceptions institutions responsible for the provision of public transport in both Accra city-region and Dar es Salaam city have on transitioning to having sustainable public transport in both cities, not forgetting the adjoining perceptions of all these three main perceptions.

iv. Ontology of the Existing Technical (Personnel and Competence of Staff) Capacity of Institutions

The study has revealed new and richer understanding of the ontology (nature of reality) of the existing technical capacity of institutions involved in the decision-making processes in planning for more sustainable public transport in Accra city-Region and Dar es Salaam city. Earlier studies from literature have established a holistic proposition that there is a gap of inadequate technical capacity of institutions in the transport sector towards sustainable public transport in Accra city-region and Dar es Salaam city (Kanyama et al., 2004; Ministry of Roads and Transport, 2016; Ministry of Local Government and Rural Development (MLGRD), 2017). But this study has revealed and adds to knowledge the specific three out of six categories of actors/institutions with inadequate technical capacity towards the desired outcome of this study, namely: Private Transport Operators of public transport, Government Agencies/ City Authorities, and Public Transport Operators of public transport. Additionally, the study adds to knowledge the multiple realities unravelled within these three categories of actors in each city, and across the two cities, evidenced by the multiple viewpoints, for instance, to indicator-question 8 on technological skills of staff, discussed in the previous chapter of this study.

v. Current public transport challenges in Accra city-region and Dar es Salaam city

The study has discovered 16 presently existing public transport challenges in Accra city-region and Dar es Salaam city. Previous studies from literature mentioned some of these public transport challenges in these two cities including rapid motorization, rapid urbanization, rural-urban migration, service unreliability, uncomfortable vehicles, and inadequate fleet (Aidoo et al., 2013; Peprah et al., 2019; Kiunsi, 2013; Bwire and Zengo, 2020; Adarkwa and Poku-Boansi, 2011). The 16 current public transport challenges discovered by this study are: road traffic congestion, lack of political will, encroachment on roads by hawkers, absence of dedicated lanes (inadequate infrastructure), inadequate enforcement, institutional and operational issues, safety issues, low capacity old minibuses and air pollution, numerous minibus owners and operators, inadequate supply, inadequate funds and low investment, rapid population growth (urbanisation), long waiting hours for public transport during off-peak, lack of public transport champion and stronger regulator, growing two/three wheelers on major roads, and lack of mass transit for public transport.

This study adds to knowledge on the specific top three major current public transport challenges in Accra city-region across the six categories of actors/institutions, namely; road traffic congestion; encroachment on roads by hawkers; lack of political will, inadequate enforcement, and safety issues. Additionally, it adds to knowledge on the top three major current public transport challenges in Dar es Salaam city, namely; road traffic congestion; safety issues, numerous minibus owners and operators, inadequate supply; institutional and operational issues, low capacity old minibuses and air pollution, and rapid population growth (urbanisation). Similarly, it adds to knowledge on the first top major existing public transport challenge in Accra city-region and Dar es Salaam city being road traffic congestion.

The implication to planning is that this will inform policy makers of the most critical existing challenges of public transport in Accra city-region and Dar es Salaam city for policy decisions juxtaposing this against scarce resources.

vi. Effects of COVID-19 pandemic on public transport in Accra city-region and Dar es Salaam city

This study adds to knowledge on the five specific effects of COVID-19 pandemic on public transport in Accra city-region, namely; busing health workers, reduced BRT bus capacity (social distancing), restrictions on import and export, reduced road traffic (due to COVID-19), and increased operations cost. Correspondingly, it also adds to knowledge on the specific three effects on public transport in Dar es Salaam city, namely; reduced BRT bus capacity (social distancing), queuing of passengers, and increased operations cost.

The study also adds to knowledge two common effects of COVID-19 on public transport in the two case study cities, that is, 'increased operations cost' and 'reduced BRT bus capacity (social distancing)'. Essentially, knowledge of the effects of COVID-19 on public transport in the two cities will serve as basic information for action by the respective categories of actors/institutions.

7.4 Questions and Areas for Further Research

The review of previous studies on sustainable mobility for public transport in cities, institutional capacity, coordination and communication mechanisms of institutions, and this study have revealed relevant areas necessary for further research. These are as follows:

i. In what ways can civil society organisations for public transport users contribute to the attainment of sustainable mobility for public transport in cities?

This study has established the relevance of civil society organisations for public transport users in cities as key actors for sustainable mobility. However, the absence of such organisations in the two case study cities made it impossible to verify this. What is unknown is the diverse ways civil society organisations for public transport users can contribute to the attainment of sustainable mobility in cities, hence, suggested for future research.

ii. How can barriers to non-motorized transport (walking and cycling) be addressed towards sustainable transport in cities?

With reference to the sustainable development goal 13 and sustainable transport solutions, this study has established that prioritization of solutions including non-motorized transport in cities is necessary to contribute to the attainment of the goal. Nonetheless, the present barriers to use of non-motorized transport in Accra city-region is suggested for further in-depth research.

7.5 Limitations of the Study

The emergence of the coronavirus (COVID-19) pandemic and associated restrictions in Berlin in January, 2020 impacted this study. First of all, at the time the literature review chapter of this dissertation was being finalised, already accessed literature and available online literature (excluding published books) had to be used because of the closure of research institutes and university libraries in Berlin. This was resorted to bearing in mind the limited three- and half-year scholarship timeframe for this study. Subsequently, when there was some semblance of normality (i.e. the 'new normal' phase of the pandemic), this chapter of the study was updated to address this limitation.

The other major limitation from the COVID-19 pandemic was its impact on the scheduled timeframe for field data collection in Accra city-region (Ghana) and Dar es Salaam city (Tanzania) planned for July 2020 and September, 2020 respectively. However, this could not be undertaken due to travel restrictions and border closures of countries in response to the COVID-19 pandemic and safety issues. To address this limitation, field data was rescheduled to be collected remotely from October 2020 to December 2020. Eventually, field data were collected remotely in Ghana from 21st September, 2020 to 5th December, 2020; and in Tanzania from 29th September, 2020 to 30th March, 2021.

7.6 General Conclusion

Sustainable mobility for road-based public transport in Accra city-region and Dar es Salaam city is not far-fetched but attainable. This is substantiated by results of this study which has presented specific causes of environmentally unsustainable road-based public transport in both cities as a guide to respective actors/institutions for appropriate interventions. It has also unravelled the perception of institutions involved in decision making for public transport in both cities on sustainable public transport; as well as existing capacity levels of these institutions regarding legal and regulatory capacity, financial resource capacity, logistical capacity, and technical capacity in planning for more sustainable public transport.

Furthermore, results of this study have revealed the specific coordination and coordination mechanisms between and among the six actors related to public transport provision in Accra city-region and Dar es Salaam city with the associated planning implications for further action by each respective city. It has also presented nine specific current challenges of the pilot Aayalolo BRT/QBS in Accra city-region, and five current challenges with the interim phase I of the Dar Rapid Transit in Dar es Salaam city, as well as the common current challenge of the BRTs in both cities for the attention of respective decision-makers and actors for the necessary development intervention. In addition, the study results have presented similarities and differences of the profiles of the two cities on these five key issues: physical and natural characteristics, demographic characteristics, economic characteristics, governance of each city (institutions), and sustainable mobility for road-based public transport in each city.

Ultimately, these have provided key policy direction including the need to formulate local goals on sustainable public transport that details out effective implementation mechanisms in both cities, necessity for adequate enforcement of regulations on public transport in Accra city-region with strong political will, need to enact laws for the Dar Rapid Transit in Dar es Salaam city, and need for effective communication mechanisms particularly between private

transport operators and public transport operators in both cities in the short-term. In the medium-term, policy focus includes, the necessity to establish public transport authorities in both cities, the need to ensure adequate and up-to-date logistics (for government agencies/city authorities, private and public transport operators of public transport) in both cities, and the need to upgrade the existing technical capacity of the afore three actors in both cities. In the long-term, the policy direction is the need to invest heavily in public transport infrastructure in Accra city-region.

To ensure sustainable mobility for road-based public transport in both cities, the above recommendations could be adopted.

LIST OF REFERENCES

- Abd Rahman, N. and Abdullah, Y. A. (2016) 'Theorizing the Concept of Urban Public Transportation Institutional Framework in Malaysia', *MATEC Web of Conferences*, 66, pp. 6.
- Abdallah, T. (2017) 'Chapter 1 - Sustainable Mass Transit. Challenges and Opportunities in Urban Public Transportation', in Abdallah, T. (ed.) *Sustainable Mass Transit*: Elsevier, pp. 1-14.
- Abubakari, M., Kitson Baffour Asamoah, P. and Agyemang, F. (2018) 'Ghana and Sustainable Development: The 40-Year National Development Plan in Retrospective', *Journal of Human Resource and Sustainability Studies*, 06, pp. 24-36.
- Accra Metropolitan Assembly, Planning Department (2018) *Medium Term Development Plan (2018-2021): National Medium-Term Development Policy Framework* Ghana: Accra Metropolitan Assembly
- Accra Metropolitan Assembly, AMA (2019) *Accra Resilience Strategy: 100 Resilient Cities*. Accra: AMA.
- Accra Metropolitan Assembly (AMA) (2020) 'The Assembly'. Available at: <https://ama.gov.gh/theassembly.php> (Accessed 10th June, 2020).
- Adarkwa, K. K. and Poku-Boansi, M. (2011) 'Rising vehicle ownership, roadway challenges and traffic congestion in Kumasi', in Adarkwa, K.K. (ed.) *Future of the tree : towards growth and development of Kumasi*. Kumasi, Ghana: University Printing Press (UPK), Kwame Nkrumah University of Science and Technology, pp. 327.
- Adarkwa, K. K. and Tamakloe, E. K. A. (2001) 'Urban Transport Problems and Policy Reforms in Kumasi ', *The Fate of the Tree: Planning and Managing the Development of Kumasi*. Accra, Ghana: Woeli Publishing Services.
- African Development Bank (AfDB) (2013) *Tanzania Transport Sector Review*, Abidjan, Côte d'Ivoire. Available at: [https://www.afdb.org/fileadmin/uploads/afdb/Documents/Project-and-Operations/Tanzania - Transport Sector Review.pdf](https://www.afdb.org/fileadmin/uploads/afdb/Documents/Project-and-Operations/Tanzania_-_Transport_Sector_Review.pdf) (Accessed: 9th April, 2020).
- Agence Française de Développement (2015) 'Sustainable Urban Transport and Mobility: Improving the quality of life and economic attractiveness of cities'. Available at: [http://www.afd.fr/webdav/site/afd/shared/PUBLICATIONS/THEMATIQUES/Transport Urbain VA.pdf](http://www.afd.fr/webdav/site/afd/shared/PUBLICATIONS/THEMATIQUES/Transport_Urbain_VA.pdf).
- Agyemang, E. (2015) 'The bus rapid transit system in the Greater Accra Metropolitan Area, Ghana: Looking back to look forward', *Norsk Geografisk Tidsskrift - Norwegian Journal of Geography*, 69(1), pp. 28-37.
- Agyemang, E. (2020) "'Uber is here to stay": Exploring the policy implications of the Uber-Local taxis turf war in Accra, Ghana', *Case Studies on Transport Policy*, 8(1), pp. 59-66.
- Agyemang, F. S. K., Silva, E. and Poku-Boansi, M. (2019) 'Understanding the urban spatial structure of Sub-Saharan African cities using the case of urban development patterns of a Ghanaian city-region', *Habitat International*, 85, pp. 21-33.
- Aidoo, E. N., Agyemang, W., Monkah, J. E. and Afukaar, F. K. (2013) 'Passenger's satisfaction with public bus transport services in Ghana: A case study of Kumasi–Accra route', *Theoretical and Empirical Researches in Urban Management*, 8(2), pp. 33-44.
- Amoh-Gyimah, R. and Aidoo, E. N. (2013) 'Mode of transport to work by government employees in the Kumasi metropolis, Ghana', *Journal of Transport Geography*, 31, pp. 35-43.
- Anfara, V. A. and Mertz, N. T. (eds.) (2015) *Theoretical Frameworks in Qualitative Research*. 2nd edn. United States of America: SAGE Publications Inc.
- Antwi, C. (2015) *A Study of the Supply of Public Transport Services along the Accra and Offinso Arterial Roads in the Kumasi Metropolis, Ghana*. Master of Science in

- Development Planning and Management Master Thesis, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana.
- Ardila, A. (2005) *Study of urban public transport conditions in Bogotá (Colombia)* [Draft Report], Washington, DC. Available at: https://ppiaf.org/ppiaf/sites/ppiaf.org/files/documents/toolkits/UrbanBusToolkit/assets/CaseStudies/summy/sum_bogota.html.
- Arndt, W.-H. (ed.) (2014) *Mobility and Transportation : Concepts for Sustainable Transportation in Future Megacities*. Berlin, Germany: Jovis Verlag GmbH.
- Arup International Development (2016) *Future Proofing Cities: Ghana - Metropolitan Cities* [Report], London, United Kingdom. Available at: <https://www.arup.com/perspectives/publications/research/section/future-cities-africa> (Accessed: 4th April, 2020).
- Babu, S. C. and Sengupta, D. 2006. Capacity Development as a Research Domain: Frameworks, Approaches, and Analytics. In: International Food Policy Research Institute (ed.). Washington, DC International Food Policy Research Institute (IFPRI)
- Bakker, S. and Konings, R. (2018) 'The transition to zero-emission buses in public transport – The need for institutional innovation', *Transportation Research Part D: Transport and Environment*, 64, pp. 204-215.
- Banister, D. (2000) 'Sustainable Mobility', *Built Environment (1978-)*, 26(3), pp. 175-186.
- Banister, D. (2008) 'The sustainable mobility paradigm', *Transport Policy*, 15(2), pp. 73-80.
- Banister, D. (2011) 'Cities, mobility and climate change', *Journal of Transport Geography*, 19(6), pp. 1538-1546.
- Banister, D., Stead, D., Steen, P., Åkerman, J., Dreborg, K., Nijkamp, P. and Schleicher-Tappeser, R. (2000) *European Transport Policy and Sustainable Mobility*. London: SPON PRESS, Taylor & Francis Group.
- Barbier, E. B. and Burgess, J. C. (2019) 'Sustainable development goal indicators: Analyzing trade-offs and complementarities', *World Development*, 122, pp. 295-305.
- Baxter, P. and Jack, S. (2008) 'Qualitative Case Study Methodology: Study Design and Implementation for Novice Researchers', *The Qualitative Report*, 13(4), pp. 544-559.
- Bedrunka, K. (2020) 'Concepts of the Sustainable Development of the Region', in Królczyk, G.M., Wzorek, M., Król, A., Kochan, O., Su, J. & Kacprzyk, J. (eds.) *Sustainable Production: Novel Trends in Energy, Environment and Material Systems Studies in Systems, Decision and Control*. Cham: Springer International Publishing, pp. 11-18.
- Bhagavan, M. R. and Virgin, I. 2004. Generic Aspects of Institutional Capacity Development in Developing Countries. Stockholm, Sweden: Stockholm Environment Institute.
- Black, W. R. (2000) 'Socio-economic barriers to sustainable transport', *Journal of Transport Geography*, 8(2), pp. 141-147.
- Bogner, A., Littig, B. and Menz, W. (2018) 'Generating Qualitative Data with Experts and Elites', in *The SAGE Handbook of Qualitative Data Collection*. pp. 16 [Online]. Version. Available at: <https://sk.sagepub.com/reference/the-sage-handbook-of-qualitative-data-collection> (Accessed: 20th August, 2020).
- Bongardt, D., Creutzig, F., Hüging, H., Sakamoto, K., Bakker, S., Gota, S. and Böhler-Baedeker, S. (2013) *Low-Carbon Land Transport : Policy Handbook*. London, United Kingdom: Routledge.
- Bongardt, D., Sterk, W. and Rudolph, F. (2009) 'Achieving sustainable mobility in developing countries: Suggestions for a post-2012 agreement', *GAIA (Ecological Perspectives for Science and Society)*, 18(4), pp. 307-314.
- Bonsu, C. (2017) *Action Plan for Amasaman-Tudu Type B BRT Operations (Aayalolo Bus System)* [Report], Accra: Scania West Africa Ltd (Accessed: 10th August, 2017).
- Bonsu, C. (2018a) *Report on Scania and UATP Collaborative Meeting (Sustainable Transport in West Africa) on 25 - 26.07.2018*, Accra, Ghana: Scania West Africa Ltd. (Accessed: 16th August, 2018).
- Bonsu, C. (2018b) *Report on Visit to Scania West Africa Ltd. Ghana by ALSA-Spanish Operator in Passenger Transport*, Accra, Ghana (Accessed: 29th March, 2018).

- Bonsu, C. (2018c) *Report on Visit to Scania West Africa Ltd. Ghana by the RATP Group in Paris, France*, Accra, Ghana (Accessed: 21st February, 2021).
- Bonsu, S. (2017) 'Promoting Efficient Public Transportation in Ghana'. *Workshop on Low Sulphur Fuels in Ghana, 31st October - 1st November 2016*, Ghana, 1st November, 2016. Ghana: United Nations Environment Programme, 70.
- Booth, A. (1995) 'The State and the Economy in Indonesia in the Nineteenth and Twentieth Centuries', in Harriss, J., Hunter, J. & Lewis, C.M. (eds.) *The New Institutional Economics and Third World Development*. London: Routledge, pp. 283-305.
- Brett, E. A. (1995) 'Institutional Theory and Social Change in Uganda', in Harriss, J., Hunter, J. & Lewis, C.M. (eds.) *The New Institutional Economics and Third World Development*. London: Routledge pp. 200-214.
- Brookins, D. (2019) *Transforming Urban Transport-The Role of Political Leadership: TUT-POL Sub-Saharan Africa, the case of Accra, Ghana*, Cambridge, United States of America: Harvard University, Graduate School of Design (Final Report. Available at: https://static1.squarespace.com/static/5804efd7cd0f68e576ecd423/t/5dfe925d50c530473013db10/1576964717327/Accra%2C+Ghana_Case_Final.pdf (Accessed: 22nd June, 2020).
- Bwire, H. and Zengo, E. (2020) 'Comparison of efficiency between public and private transport modes using excess commuting: An experience in Dar es Salaam', *Journal of Transport Geography*, 82(102616), pp. 14.
- Cardano, M. (2020) *Defending Qualitative Research : Design, Analysis, and Textualization. Routledge Advances in Research Methods Ser.* Milton, United Kingdom: Taylor & Francis Group.
- Carlsnaes, W. (1992) 'The Agency-Structure Problem in Foreign Policy Analysis', *International Studies Quarterly*, 36(3), pp. 245-270.
- Carrese, S., Gori, S., Mannini, L. and Nigro, M. (2014) 'The value of information for the accessibility to concurrent transit system services', in Brebbia, C.A. (ed.) *Urban Transport XX*. Southampton, United Kingdom: WIT Press, pp. 101-112.
- Centre for European Policy Studies (2015) *Transport and Mobility - Bus Rapid Transit: TransMilenio*, Belgium. Available at: https://pocacito.eu/sites/default/files/TransMilenio_Bogota.pdf (Accessed: 10th August, 2021).
- Cervero, R. and Golub, A. (2007) 'Informal transport: A global perspective', *Transport Policy*, 14(6), pp. 445-457.
- Chakwizira, J., Bikam, P. and Adeboyejo (2014) 'Sustainable transport solutions at a crossroads in developing countries: insights and perspectives', in Brebbia, C.A. (ed.) *Urban Transport XX*. Southampton, United Kingdom: WIT Press, pp. 593-604.
- Chengula, D. and Kombe, K. (2017) 'Assessment of the Effectiveness of Dar Es Salaam Bus Rapid Transit (DBRT) System in Tanzania', *International Journal of Sciences: Basic and Applied Research (IJSBAR)*, 36(8), pp. 10-30.
- Cities Alliance (2017) 'Research Monograph: Urban Governance and Services in Ghana- Institutional, financial and functional constraints to effective service delivery'. Available at: <http://www.citiesalliance.org/sites/citiesalliance.org/files/Urban%20Governance%20and%20Services%20in%20Ghana.pdf> (Accessed 4th January, 2019).
- Citiscope (2017) 'New bus rapid transit system earns Dar es Salaam 2018 Sustainable Transit Award'. Available at: <http://archive.citiscope.org/story/2017/new-bus-rapid-transit-system-earns-dar-es-salaam-2018-sustainable-transit-award> (Accessed 30th June, 2017).
- Coase, R. (1998) 'The New Institutional Economics', *The American Economic Review*, 88(2), pp. 72-74.
- Coase, R. H. (1984) 'The New Institutional Economics', *Zeitschrift für die gesamte Staatswissenschaft / Journal of Institutional and Theoretical Economics*, 140(1), pp. 229-231.

- Cobbinah, P. B., Gaisie, E., Oppong-Yeboah, N. Y. and Anim, D. O. (2020) 'Kumasi: Towards a sustainable and resilient cityscape', *Cities*, 97, pp. 102567.
- Cobbinah, P. B. and Niminga-Beka, R. (2017) 'Urbanisation in Ghana: Residential land use under siege in Kumasi central', *Cities*, 60, pp. 388-401.
- Collin, R. W. and Collin, R. M. (2015) 'Sustainable Development: Environmental Justice and Sustainability', in Redclift, M. & Springett, D. (eds.) *Routledge International Handbook of Sustainable Development Routledge International Handbooks Ser. 1* ed. London, United Kingdom: Routledge, pp. 209-221.
- Coyne, I. T. (1997) 'Sampling in Qualitative Research. Purposeful and Theoretical Sampling; merging or clear boundaries?', *J Adv Nurs*, 26(3), pp. 623-630.
- Creswell, J. W. (2013) *Qualitative Inquiry & Research Design : Choosing Among Five Approaches. Qualitative inquiry and research design* Third edition edn. United States of America: Sage.
- Curtis, C. and Low, N. (2012) *Institutional Barriers to Sustainable Transport. Transport and Mobility Series 1* edn. Farnham, United Kingdom: Ashgate Publishing Limited.
- D'Acierno, L., Gallo, M., Biggiero, L. and Montella, B. (2014) 'Replanning public transport services in the case of budget reductions', in Brebbia, C.A. (ed.) *Urban Transport XX*. Southampton, United Kingdom: WIT Press, pp. 77-88.
- D'Souza, K. A. and Maheshwari, S. K. (2014) 'The comparison of regional and urban transit bus driver distraction', in Brebbia, C.A. (ed.) *Urban Transport XX*. Southampton, United Kingdom: WIT Press, pp. 89-100.
- da Silva, A. N. R., da Silva Costa, M. and Macedo, M. H. (2008) 'Multiple views of sustainable urban mobility: The case of Brazil', *Transport Policy*, 15(6), pp. 350-360.
- Daly, H. E. (1991) *Steady-State Economics: Second Edition With New Essays*. 2 edn. Washington D.C., United States of America: Island Press.
- Dang, H.-A. H. and Serajuddin, U. (2020) 'Tracking the sustainable development goals: Emerging measurement challenges and further reflections', *World Development*, 127, pp. 104570.
- Dar es Salaam City Council (2017) *Strategic Plan for Dar es Salaam City Council*. Dar es Salaam: Dar es Salaam City Council.
- Dar es Salaam City Council and C40 Cities Climate Leadership Group (2019) *Strategic Climate Action Planning Appraisal Report, Dar es Salaam*. Dar es Salaam: Dar es Salaam City Council.
- Dar Rapid Transit Agency (DART) 2017. DART Agency Five Years Strategic Plan 2016/2017 - 2020/2021. Dar es Salaam.
- Dave (2019) 'The future is public transport', *International Union Rights*, 26(4), pp. 6-7.
- Deng, T. and Nelson, J. D. (2012) 'The perception of Bus Rapid Transit: a passenger survey from Beijing Southern Axis BRT Line 1', *Transportation Planning and Technology*, 35(2), pp. 201-219.
- Denzin, N. K. and Lincoln, Y. S. (2005) 'Introduction: The Discipline and Practice of Qualitative Research', in *The Sage Handbook of Qualitative Research*. pp. 1-34 [Online]. Version. Available at: https://us.sagepub.com/sites/default/files/upm-assets/51015_book_item_51015.pdf (Accessed: 7th May, 2021).
- Detel, W. (2001) 'Social Constructivism', in Smelser, N.J. & Baltes, P.B. (eds.) *International Encyclopedia of the Social & Behavioral Sciences*. Oxford: Pergamon, pp. 14264-14267.
- Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) (2013) *Supporting Capacity Development: A Guiding Framework for Practitioners*, Eschborn, Germany. Available at: <https://www.giz.de/en/downloads/giz2018-en-orientierungsrahmen-capacity-development.pdf> (Accessed: 25th June, 2019).
- Dresing, T., Pehl, T. and Schmieder, C. (2015) *Manual (on) Transcription. Transcription Conventions, Software Guides and Practical Hints for Qualitative Researchers*. Marburg, Germany.
- Driver and Vehicle Licensing Authority (DVLA) (2018) *Analysis of Vehicle Data as at September, 2018*. Accra: Ghana.

- Dura, H. and Weil, M. (2014) 'An approach towards sustainable passenger mobility in urban areas: a life cycle perspective', in Brebbia, C.A. (ed.) *Urban Transport XX*. Southampton, United Kingdom: WIT Press, pp. 333-343.
- Editorial Staff (2021) 'Transdev got a €874 million electric bus contract for Transmilenio in Bogotá', *E-Magazine: Sustainable Bus*.
- Enders, J. C. and Remig, M. (eds.) (2015) *Theories of Sustainable Development*. 1 edn. London, United Kingdom: Routledge.
- Environmental Protection Agency (EPA) Ghana (2019) *Electric Mobility in Ghana: Policy Options*. Accra: Environmental Protection Agency.
- Eriksson, E. A. and Weber, K. M. (2008) 'Adaptive Foresight: Navigating the complex landscape of policy strategies', *Technological Forecasting and Social Change*, 75(4), pp. 462-482.
- Farthing, S. (2016) *Research Design in Urban Planning: A Student's Guide* 55 City Road, London: SAGE Publications Ltd. Available at: <http://sk.sagepub.com/books/research-design-in-urban-planning> (Accessed: 8th April, 2021).
- Finn, B., Arthur, B. A. and Gyamera, S. 'New Regulatory Framework for Urban Passenger Transport in Ghanaian cities ', *11th Conference on Competition and Ownership in Land Passenger Transport*, Delft University of Technology (The Netherlands), 20th - 25th September, 2009. Australia: The University of Sydney, 1-14.
- Finn, B. and Walters, J. (2010) 'Workshop report – Public transport markets in development', *Research in Transportation Economics*, 29(1), pp. 354-361.
- Flick, U. (2009) *An Introduction to Qualitative Research*. 4th edn. London: SAGE Publications Ltd.
- Flick, U. (2018a) 'Doing Qualitative Data Collection – Charting the Routes', in *The SAGE Handbook of Qualitative Data Collection*. pp. 13 [Online]. Version. Available at: <https://sk.sagepub.com/reference/the-sage-handbook-of-qualitative-data-collection/i318.xml> (Accessed: 20th August, 2020).
- Flick, U. (2018b) 'Triangulation in Data Collection', in *The SAGE Handbook of Qualitative Data Collection*. pp. 18 [Online]. Version. Available at: <https://sk.sagepub.com/reference/the-sage-handbook-of-qualitative-data-collection> (Accessed: 20th August, 2020).
- Flyvbjerg, B. (2006) 'Five Misunderstandings About Case-Study Research', *Qualitative Inquiry*, 12(2), pp. 219-245.
- Fouracre, P. R., Sohail, M. and Cavill, S. (2006) 'A Participatory Approach to Urban Transport Planning in Developing Countries', *Transportation Planning and Technology*, 29(4), pp. 313-330.
- Freeman, P. N. W. (2013) 'CODATU special issue: "Urban Transport in Developing Countries"', *Research in Transportation Economics*, 40(1), pp. 1-2.
- Gabaldon-Estevan, D. and Kaufmann, C. 'Environmental innovation through transport policy: The implementation of a free fare policy on public transport in Tallinn, Estonia', *Xii Congreso De Ingenieria Del Transporte*, Valencia, Spain: Univ Politecnica Valencia, 2437-2443.
- Ghana Statistical Service (2012) *2010 Population and Housing Census: Summary Report of Final Results*. Accra, Ghana: Ghana Statistical Service.
- Ghana Statistical Service (2014a) *2010 Population & Housing Census: District Analytical Report- Accra Metropolitan*. Accra: Ghana Statistical Service.
- Ghana Statistical Service (2014b) *Ghana Living Standards Survey Round 6 (GLSS-6): Main Report* [Report], Accra. Available at: https://www.statsghana.gov.gh/gssmain/fileUpload/Living%20conditions/GLSS6_Main%20Report.pdf (Accessed: 23rd July, 2021).
- GIBB (2017) *Greater Accra Regional Spatial Development Framework-Volume 2: Regional Spatial Development Framework Strategies and Policies Report* [Final Report], Ghana: Land Use and Spatial Planning Authority (LUSPA) (J36261. Available at: <http://www.luspa.gov.gh/files/GARSDf%20Vol%202.pdf> (Accessed: 5th April, 2020).

- Government of Ghana (2015a) *Ghana National Spatial Development Framework (2015-2035)* [Executive Summary of Vol I and Vol II], Ghana (IDA 4870 GH. Available at: <https://new-ndpc-static1.s3.amazonaws.com/CACHES/PUBLICATIONS/2015/08/11/NSDFFinalReport.pdf> (Accessed: 4th April, 2020).
- Government of Ghana (2015b) *Ghana National Spatial Development Framework (2015-2035): Conditions and Main Issues* [Final Report], Ghana: NDPC (IDA 4870 GH. Available at: https://new-ndpc-static1.s3.amazonaws.com/CACHES/PUBLICATIONS/2016/04/16/NSDF+Final+Report+-+Vol+I+Final+Edition_TAC.pdf (Accessed: 5th April, 2020).
- Gray, P. S. (2007) 'Research Design', in Karp, D.A., Williamson, J.B., Dalphin, J.R. & Gray, P.S. (eds.) *The Research Imagination: An Introduction to Qualitative and Quantitative Methods*. Cambridge: Cambridge University Press, pp. 33-56.
- Guba, E. G. (ed.) (1990) *The Paradigm Dialog*. 1st edn. United States of America: SAGE Publications Inc.
- Han, S. S. (2010) 'Managing motorization in sustainable transport planning: the Singapore experience', *Journal of Transport Geography*, 18(2), pp. 314-321.
- Harriss, J., Hunter, J. and Lewis, C. M. (eds.) (1995) *The New Institutional Economics and Third World Development*. London: Routledge
- Hart, J. (2016) *Ghana on the Go : African Mobility in the Age of Motor Transportation*. Bloomington, United States: Indiana University Press.
- Hasselqvist, H. and Hesselgren, M. (2019) 'Bridging citizen and stakeholder perspectives of sustainable mobility through practice-oriented design', *Sustainability: Science, Practice, and Policy*, 15(1), pp. 1-14.
- Hay, C. (2016) 'Good in a crisis: the ontological institutionalism of social constructivism', *New Political Economy*, 21(6), pp. 520-535.
- Hay, G. J. and Castilla, G. 'Object-Based Image Analysis: Strengths, Weaknesses, Opportunities and Threats (SWOT)'. *1st International Conference on Object-based Image Analysis*, 4-5.
- Heinrichs, D., Goletz, M. and Lenz, B. (2017) 'Negotiating territory: strategies of informal transport operators to access public space in urban Africa and Latin America', *Transportation Research Procedia*, 25, pp. 4507-4517.
- Herriott, R. E. and Firestone, W. A. (1983) 'Multisite Qualitative Policy Research: Optimizing Description and Generalizability', *Educational Researcher*, 12(2), pp. 14-19.
- Hickman, R. and Banister, D. (2014) *Transport, Climate Change and the City. Routledge Advances in Climate Change Research Ser.* London, United Kingdom: Routledge.
- Hickman, R., Hall, P. and Banister, D. (2013) 'Planning more for sustainable mobility', *Journal of Transport Geography*, 33, pp. 210-219.
- Holden, E., Gilpin, G. and Banister, D. (2019) 'Sustainable mobility at thirty', *Sustainability (Switzerland)*, 11(7).
- Holden, E., Linnerud, K. and Banister, D. (2014) 'Sustainable development: Our Common Future revisited', *Global Environmental Change*, 26, pp. 130-139.
- Holzwarth, S. (2012) 'Bus Rapid Transit Systems for African Cities', *TRIALOG 110: Urban Public Transport*, 110, pp. 32-37.
- Hutton, B. (2013) 'Public Transport', in *Planning Sustainable Transport*. pp. 261-320 [Online]. Version. Available at: <http://ebookcentral.proquest.com/lib/dlr-ebooks/detail.action?docID=1221504> (Accessed: 27th January, 2020).
- Iles, R. (2005) *Public Transport in Developing Countries*. 1 edn. United Kingdom Elsevier Ltd.
- Institute for Transportation and Development Policy (2017) 'Dar es Salaam, Tanzania Wins 2018 Sustainable Transport Award'. Available at: <https://www.itdp.org/2017/07/07/dar-es-salaam-wins-2018-sta/> (Accessed 29th December, 2018).
- Inter-American Development Bank (2019) *Brazil: Curitiba Sustainable Urban Mobility Program* [Report], Washington, DC BR-L1532). Available at:

- <https://www.gtai.de/resource/blob/214400/97733881e48599008fb18767b4f0a02f/pro202001295035-data.pdf> (Accessed: 10th August, 2021).
- Intergovernmental Panel on Climate Change (2018) *What the IPCC special report on global warming of 1.5°C means for cities*: Intergovernmental Panel on Climate Change. Available at: <http://doi.org/10.24943/SCPM.2018> (Accessed: 21st December, 2018).
- International Transport Forum 'Bringing global, smart, sustainable and multimodal mobility to life'. *Movin'On-World Summit on Sustainable Mobility: from ambition to action*, Montréal, Canada, 30th May - 1st June, 2018 International Transport Forum.
- Jabareen, Y. (2009) 'Building a Conceptual Framework: Philosophy, Definitions, and Procedure', *International Journal of Qualitative Methods*, 8(4), pp. 49-62.
- Japan International Cooperation Agency (JICA) (2018) *The Project for Revision of Dar es Salaam Urban Transport Master Plan in United Republic of Tanzania: Final Report Summary*. Dar es Salaam: Dar es Salaam City Council.
- Jennings, G. R. (2005a) 'Business Research, Theoretical Paradigms That Inform', in Kempf-Leonard, K. (ed.) *Encyclopedia of Social Measurement*. New York: Elsevier, pp. 211-217.
- Jennings, G. R. (2005b) 'Business, Social Science Methods Used in', in Kempf-Leonard, K. (ed.) *Encyclopedia of Social Measurement*. New York: Elsevier, pp. 219-230.
- Jones, S., Tefe, M. and Appiah-Opoku, S. (2013) 'Proposed framework for sustainability screening of urban transport projects in developing countries: A case study of Accra, Ghana', *Transportation Research Part A: Policy and Practice*, 49, pp. 21-34.
- Kalugendo, I. F. O. S. 'Development of Sustainable Public Transport System in Dar es Salaam city: Bringing Bus Rapid Transit to Tanzania'. *Urban Environment - African Carbon Forum 2017*, Cotonou, Benin, 28-30th June, 2017, 15.
- Kanyama, A., Carlsson-Kanyama, A., Lindén, A.-L. and Lupala, J. (2004) *Public transport in Dar es Salaam, Tanzania -institutional challenges and opportunities for a sustainable transportation system*. Springer Verlag.
- Kanyama, A., Carlsson Kanyama, A., Lindén, A.-L. and Lupala, J. (2005) *Coping with Urban Transport Development: An analysis of public transportation in Dar-es Salaam, Tanzania from an institutional coordination perspective*. Stockholm: Royal Institute of Technology/Department.
- Keyvanfar, A., Shafaghat, A., Muhammad, N. Z. and Ferwati, M. S. (2018) 'Driving behaviour and sustainable mobility-policies and approaches revisited', *Sustainability (Switzerland)*, 10(4).
- Kiepsch, M. (2012) *Sustainable urban transport approaches for Brazilian megacities – the examples of Rio de Janeiro and Curitiba*. Diplomarbeit, Technische Universität Dresden, Dresden [Online] Available at: <https://tud.gucosa.de/api/gucosa%3A29031/attachment/ATT-0/> (Accessed: 10th August, 202).
- Kiunsi, R. B. (2013) 'A Review of Traffic Congestion in Dar es Salaam City from the Physical Planning Perspective', *Journal of Sustainable Development*, 6(2), pp. 94-103.
- Knörr, W. and Dünnebeil, F. (2008) *Transport in China: Energy Consumption and Emissions of Different Transport Modes-Final Report*, Heidelberg, Germany: Institute for Energy and Environmental Research (ifeu) Heidelberg. Available at: [http://re.indiaenvironmentportal.org.in/files/IFEU_et_al\(2008\)_Transport_in_China_G B.pdf](http://re.indiaenvironmentportal.org.in/files/IFEU_et_al(2008)_Transport_in_China_G B.pdf) (Accessed: 6th February, 2020).
- Kopp, A., Block, R. I. and Iimi, A. (2013) *Turning the Right Corner : Ensuring Development through a Low-Carbon Transport Sector. Directions in Development-Environment and Sustainable Development* Washington DC, United States: World Bank Publications.
- Korea International Cooperation Agency (KOICA) (2016) *Transportation Master Plan Greater Accra Region: Final Report*. Accra, Ghana: Ministry of Transport.
- Kratochwil, F. V. (1989) *Rules, Norms, and Decisions: On the conditions of practical and legal reasoning and domestic affairs*. New York: Cambridge University Press.

- Kuckartz, U. and Rädiker, S. (2019) *Analyzing Qualitative Data with MAXQDA: Text, Audio, and Video* Cham: Springer International Publishing. Available at: <https://link.springer.com/book/10.1007%2F978-3-030-15671-8> (Accessed: 28th April, 2020).
- Kumar, A., Zimmerman, S. and O.P. Agarwal (2012) *International Experience in Bus Rapid Transit Implementation : Synthesis of Lessons Learned from Lagos, Johannesburg, Jakarta, Delhi, and Ahmedabad*, World Bank, Washington, DC (69308). Available at: <https://openknowledge.worldbank.org/handle/10986/13049> (Accessed: 18th June, 2019).
- Lawrence, G. (2019) 'Indicators for Sustainable Development', in Dodds, F. (ed.) *The Way Forward: Beyond Agenda 21*. 1st Edition ed. London: Routledge, pp. 179-189.
- Lichtman, M. (2014) *Qualitative Research for the Social Sciences*. London: Sage.
- Lincoln, Y. S. (1990) 'The Making of a Constructivist: A Remembrance of Transformations Past', in Guba, E.G. (ed.) *The Paradigm Dialog*. Newbury Park Calif.: Sage Publications Inc., pp. 67-87.
- Lukenangula, J. M. B. (2017) *Walkability in Rapidly Growing Cities in Developing Countries: The Case of Dar es Salaam, Tanzania*. Doctor of Engineering (Dr.-Ing.) Doctoral Thesis, TU Dortmund University, Dortmund, Germany [Online] Available at: https://www.google.de/url?sa=t&rct=j&q=&esrc=s&source=web&cd=13&cad=rja&uact=8&ved=2ahUKEwjrla-Mk7zjAhXHa1AKHR_mBg4QFjAMegQIBxAC&url=https%3A%2F%2Feldorado.tu-dortmund.de%2Fbitstream%2F2003%2F36188%2F1%2FLukenangula_Dissertation.pdf&usq=AOvVaw0OowaG4_FgOag5yfB092I (Accessed: 17th July, 2019).
- Madeja, J. and Wyszomirski, O. (2018) 'Privatisation of Urban Transport Services Using the Example of the Board of Urban Transport in Gdynia', in Suchanek, M. (ed.) *New Research Trends in Transport Sustainability and Innovation : TranSopot 2017 Conference*. Cham, Switzerland Springer, pp. 209-220.
- Marshall, C. and Rossman, G. B. (eds.) (2011) *Designing Qualitative Research*. 5th edn. United States of America: SAGE Publications Inc.
- Mason, J. (2002) *Qualitative Researching* 2nd edn. London: SAGE Publications.
- Mason, M. (2010) 'Sample Size and Saturation in PhD Studies Using Qualitative Interviews', *Forum Qualitative Sozialforschung / Forum Qualitative Social Research*, 11(3), pp. 19.
- Matata, F., Kitali, A. E., Sando, T. and Bwire, H. 'Operational Characteristics of the Newly Introduced Bus Rapid Transit in Dar es Salaam, Tanzania', *Transportation Research Board 96th Annual Meeting* Washington DC, United States, 8th - 12th January, 2017 Washington DC, United States: Transportation Research Board 14.
- Maxwell, J. A. (2013) *Qualitative Research Design : An Interactive Approach* 3rd edn. Los Angeles: Sage.
- May, T. and Perry, B. (2014) 'Reflexivity and the Practice of Qualitative Research', in *The SAGE Handbook of Qualitative Data Analysis*. pp. 14 [Online]. Version. Available at: <http://sk.sagepub.com/reference/the-sage-handbook-of-qualitative-data-analysis/i802.xml> (Accessed: 14th January, 2021).
- Mayring, P. (2000) 'Qualitative Content Analysis', *Forum Qualitative Sozialforschung / Forum Qualitative Social Research*, 1(2), pp. 10.
- Mchomvu, Y. E. 'The Dar es Salaam Bus Rapid Transit (BRT) system'. *SSATP (Sub-Saharan African Transport Policy Programme) Annual General Meeting*, Abuja, Nigeria, 3rd July, 2018, 24.
- Ménard, C. (2018) 'Research frontiers of new institutional economics', *RAUSP Management Journal*, 53(1), pp. 3-10.
- Merino, S. S. and Carmenado, I. d. I. R. (2012) 'Capacity Building in Development Projects', *Procedia - Social and Behavioral Sciences*, 46, pp. 960-967.
- Mertens, D. M. (2014) 'Ethical Use of Qualitative Data and Findings', in *The SAGE Handbook of Qualitative Data Analysis*. pp. 14 [Online]. Version. Available at:

- <http://sk.sagepub.com/reference/the-sage-handbook-of-qualitative-data-analysis/i2995.xml> (Accessed: 14th January, 2021).
- Michelangeli, A. (ed.) (2015) *Quality of Life in Cities : Equity, Sustainable Development and Happiness from a Policy Perspective*. London, United Kingdom: Routledge.
- Ministry of Communications and Transport (2003) *National Transport Policy*. Dar es Salaam: United Republic of Tanzania-Ministry of Communications and Transport.
- Ministry of Environment Science and Technology (2012) *National Assessment Report on Achievement of Sustainable Development Goals and Targets for RIO+20 Conference*, Accra, Ghana. Available at: <https://sustainabledevelopment.un.org/content/documents/1016ghananationalreport.pdf> (Accessed: 31st July, 2019).
- Ministry of Finance and Planning (2016) *National Five Year Development Plan 2016/17 - 2020/21: "Nurturing Industrialization for Economic Transformation and Human Development"*. Tanzania: Ministry of Finance and Planning.
- Ministry of Finance and Planning (2019) *Voluntary National Review (VNR) Report on the Sustainable Development Goals-United Republic of Tanzania*, New York, USA. Available at: https://sustainabledevelopment.un.org/content/documents/23429VNR_Report_Tanzania_2019_FINAL.pdf (Accessed: 8th August, 2019).
- Ministry of Lands Housing and Human Settlements Development (2016) *Dar es Salaam City Master Plan 2016-2036: Volume I Main Report*. Tanzania: Ministry of Lands Housing and Human Settlements Development.
- Ministry of Lands Housing and Human Settlements Development (2018) *Dar es Salaam City Master Plan 2016-2036: Volume II Technical Supplements*. Tanzania: Ministry of Lands Housing and Human Settlements Development.
- Ministry of Local Government and Rural Development (MLGRD) (2017) *Ghana Urban Mobility and Accessibility Project: Improving the Governance and Financing of Urban Mobility and Accessibility in GAMA - Issues and Options to Move Forward [GUMAP Policy Note]*, Accra: Ministry of Local Government and Rural Development (0844_160-GUMAPPolicyNote.docx, (Accessed: 9th August, 2018).
- Ministry of Roads and Transport (2016) 'Accra Bus Rapid Transit Project: Facilitating Implementation and Readiness for Mitigation (FIRM) Project - Ghana'. Available at: http://www.lowcarbondev-support.org/-/media/Sites/FIRM_Facilitating_Implementation_and_Readiness_for_Mitigation/Final-Country-Reports-Phase-1/FIRM-Ghana-ACCRA-BRT-NAMA.ashx?la=da&hash=8ED6AC3D84EFB179F6665021DDBE1C84053F648A (Accessed 11th December, 2018).
- Ministry of Transport (2008) *National Transport Policy*. Ghana: Government of Ghana - Ministry of Transport.
- Ministry of Transport (2020) *National Transport Policy: Draft White Paper*. Accra: Ministry of Transport.
- Mirailles, J.-M. (2012) 'Mass Transit Modes Relevance in Developing Countries. The Case of Bogotá', *TRIALOG 110: Urban Public Transport*, 110, pp. 8-12.
- Moallemi, E. A., Malekpour, S., Hadjidakou, M., Raven, R., Szetey, K., Moghadam, M. M., Bandari, R., Lester, R. and Bryan, B. A. (2019) 'Local Agenda 2030 for sustainable development', *The Lancet Planetary Health*, 3(6), pp. e240-e241.
- Msigwa, R. E. (2013) 'Challenges Facing Urban Transportation in Tanzania', *Mathematical Theory and Modeling*, 3(5), pp. 18-26.
- Murphy, R. (2015) 'Sustainable Development or the Creeping Incubation of Disaster?', in Redcliff, M. & Springett, D. (eds.) *Routledge International Handbook of Sustainable Development Routledge International Handbooks Ser. 1* ed. London, United Kingdom: Routledge, pp. 391-403.
- National Bureau of Statistics Tanzania (2013) *2012 Population and Housing Census: Population Distribution by Administrative Areas*. Tanzania: National Bureau of Statistics Tanzania.

- National Development Planning Commission (NDPC) (2017a) *Long-Term National Development Plan of Ghana (2018-2057)* [Outline], Ghana: NDPC. Available at: <https://s3-us-west-2.amazonaws.com/new-ndpc-static1/CACHES/PUBLICATIONS/2017/10/24/OUTLINE+-+LONG-TERM+-+PLAN.pdf> (Accessed: 4th April, 2020).
- National Development Planning Commission (NDPC) (2017b) *Medium-Term National Development Policy Framework - An Agenda for Jobs: Creating Prosperity and Equal Opportunity for all (First Step) 2018-2021*. Accra: National Development Planning Commission.
- National Development Planning Commission (NDPC) (2017c) *Transport Infrastructure Framework of the Ghana Infrastructure Plan (2018-2047)*, Accra, Ghana: National Development Planning Commission (Draft Report. Available at: <https://s3-us-west-2.amazonaws.com/new-ndpc-static1/CACHES/PUBLICATIONS/2017/10/24/Transport.pdf> (Accessed: 5th August, 2019).
- Newman, P., Matan, A. and McIntosh, J. (2015) 'Urban Transport and Sustainable Development', in Redclift, M. & Springett, D. (eds.) *Routledge International Handbook of Sustainable Development Routledge International Handbooks Ser. 1* ed. London, United Kingdom: Routledge, pp. 337-350.
- Nikitas, A. and Karlsson, M. (2015) 'A Worldwide State-of-the-Art Analysis for Bus Rapid Transit: Looking for the Success Formula', *Journal of Public Transportation*, 18(1), pp. 33.
- Nkurunziza, A., Zuidgeest, M., Brussel, M. and Maarseveen, M. v. (2012) 'Modeling Commuter Preferences for the Proposed Bus Rapid Transit in Dar-es-Salaam', *Journal of Public Transportation*, 15(2), pp. 95-116.
- North, D. C. (1986) 'The New Institutional Economics', *Journal of Institutional and Theoretical Economics (JITE) / Zeitschrift für die gesamte Staatswissenschaft*, 142(1), pp. 230-237.
- North, D. C. (1990) *Institutions, Institutional Change and Economic Performance*. New York, United States of America: Cambridge University Press.
- North, D. C. (1995) 'The New Institutional Economics and Third World Development', in Harriss, J., Hunter, J. & Lewis, C.M. (eds.) *The New Institutional Economics and Third World Development*. London: Routledge, pp. 376.
- Okraszewska, R., Jamroz, K., Michalski, L., Zukowska, J., Grzelec, K. and Birr, K. (2019) 'Analysing Ways to Achieve a New Urban Agenda-Based Sustainable Metropolitan Transport', *Sustainability*, 11(3), pp. 1-21.
- Okyere, K. D. (2012) *Sustainability of the Urban Transport System of Kumasi*. Master of Philosophy (MPhil) Planning Master Thesis, Kwame Nkrumah University of Science and Technology (KNUST). [Online] Available at: <http://ir.knust.edu.gh/bitstream/123456789/7457/1/DENNIS%20KWADWO%20OKYERE.pdf> (Accessed: 20th March, 2017).
- Onatere, J. O., Nwagboso, C. and Georgakis, P. (2014) 'Performance indicators for urban transport development in Nigeria', in Brebbia, C.A. (ed.) *Urban Transport XX*. Southampton, United Kingdom: WIT Press, pp. 555-568.
- Organisation for Economic Cooperation and Development (OECD) (2004) *Communicating Environmentally Sustainable Transport : The Role of Soft Measures*. Paris, France: OECD Publications.
- Ostrom, E. (1990) *Governing the commons: The evolution of institutions for collective action*. New York, United States of America: Cambridge University Press.
- Partnership on Sustainable Low Carbon Transport (SLoCaT), Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH (GIZ), UN-HABITAT and Department for International Development (DFID) (2014) *Development of a post-2015 Results Framework on Sustainable Transport*. Available at: <http://www.slocat.net/resultsframework> (Accessed: 16th October, 2018).

- Patlins, A. (2017) 'Improvement of Sustainability Definition Facilitating Sustainable Development of Public Transport System', *Procedia Engineering*, 192, pp. 659-664.
- Patton, M. Q. (2015a) 'Chapter 3. Module 15 Social Constructionism, Constructivism, Postmodernism, and Narrative Inquiry', *Qualitative Research & Evaluation Methods: Integrating Theory and Practice*. 4th ed. Thousand Oaks, CA: SAGE Publications, Inc, pp. 121-131.
- Patton, M. Q. (2015b) 'Module 82: Enhancing the Credibility and Utility of Qualitative Inquiry by Addressing Philosophy of Science Issues', *Qualitative Research & Evaluation Methods Integrating Theory and Practice*. 4th ed. Thousand Oaks CA SAGE Publications Inc, pp. 832.
- Patton, M. Q. (2015c) 'Part 2. Qualitative Designs and Data Collection', *Qualitative Research & Evaluation Methods: Integrating Theory and Practice*. 4th Edition ed. Thousand Oaks, CA: SAGE Publications, Inc, pp. 832.
- Patton, M. Q. (2015d) 'Part 3. Analysis, Interpretation, and Reporting', *Qualitative Research & Evaluation Methods Integrating Theory and Practice*. 4th ed. Thousand Oaks CA SAGE Publications Inc, pp. 832.
- Paulsson, A. (2018) 'Making the sustainable more sustainable: public transport and the collaborative spaces of policy translation', *Journal of Environmental Policy & Planning*, 20(4), pp. 419-433.
- Paulsson, A., Isaksson, K., Sørensen, C. H., Hrelja, R., Rye, T. and Scholten, C. (2018) 'Collaboration in public transport planning – Why, how and what?', *Research in Transportation Economics*, 69, pp. 377-385.
- Peprah, C., Amponsah, O. and Oduro, C. (2019) 'A system view of smart mobility and its implications for Ghanaian cities', *Sustainable Cities and Society*, 44, pp. 739-747.
- Peter, L. L. and Yang, Y. (2019) 'Urban planning historical review of master plans and the way towards a sustainable city: Dar es Salaam, Tanzania', *Frontiers of Architectural Research*, 8(3), pp. 359-377.
- Pojani, D. and Stead, D. (2015) 'Sustainable Urban Transport in the Developing World: Beyond Megacities', *Sustainability*, 7(6), pp. 7784-7805.
- Pojani, D. and Stead, D. (2018) 'Policy design for sustainable urban transport in the global south', *Policy Design and Practice*, 1(2), pp. 90-102.
- Poku-Boansi, M. (2021) 'Contextualizing urban growth, urbanisation and travel behaviour in Ghanaian cities', *Cities*, 110, pp. 103083.
- Poku-Boansi, M. and Adarkwa, K. K. (2011) 'An Analysis of the Supply of Urban Public Transport Services in Kumasi, Ghana', *Sustainable Development in Africa*, 13(2), pp. 28-40.
- Poku-Boansi, M. and Adarkwa, K. K. (2014) 'The determinants of demand for public transport services in Kumasi, Ghana', *Journal of Science and Technology (Ghana)*, 33(3), pp. 60-72.
- Poku-Boansi, M., Amoako, C. and Atuah, D. O. (2019) 'Urban travel patterns and safety among school children around Accra, Ghana', *Journal of Transport & Health*, 15, pp. 100660.
- Poku-Boansi, M. and Marsden, G. (2018) 'Bus Rapid Transit Systems as a Governance Reform Project', *Journal of Transport Geography*, 70, pp. 193-202.
- Polk, M. (2011) 'Institutional Capacity-building in Urban Planning and Policy-making for Sustainable Development: Success or Failure?', *Planning Practice & Research*, 26(2), pp. 185-206.
- Rädiker, S. and Kuckartz, U. (2020) *Focused Analysis of Qualitative Interviews with MAXQDA* Berlin: MAXQDA Press. Available at: <https://www.maxqda-press.com/catalog/books/focused-analysis-of-qualitative-interviews-with-maxqda> (Accessed: 14th December, 2020).
- Ragin, C. C. and Amoroso, L. M. (eds.) (2011) *Constructing Social Research: The Unity and Diversity of Method*. 2nd edn. Thousand Oaks California: Pine Forge Press-SAGE Publications Inc.

- Rapley, T. (2014) 'Sampling Strategies in Qualitative Research', in *The SAGE Handbook of Qualitative Data Analysis*. pp. 14 [Online]. Version. Available at: <http://sk.sagepub.com/reference/the-sage-handbook-of-qualitative-data-analysis/i428.xml> (Accessed: 14th January, 2021).
- Ravitch, S. M. and Carl, N. M. (2021) *Qualitative Research: Bridging the Conceptual, Theoretical, and Methodological*. 2nd edn. United States of America: SAGE Publishing Inc.
- Ravitch, S. M. and Riggan, M. (2017) *Reason & Rigor: How Conceptual Frameworks Guide Research*. 2nd edn. United States of America: SAGE Publications Inc.
- Redclift, M. and Springett, D. (eds.) (2015) *Routledge International Handbook of Sustainable Development*. 1 edn. London, United kingdom: Routledge.
- Reudenbach, L. and Scholz, W. (2012) 'Mobility and Residential Location of the Middle Class in Dar es Salaam', *TRIALOG 110: Urban Public Transport*, pp. 27-31.
- Rizzo, M. (2018) 'Neoliberalizing Infrastructure and Its Discontents: The Bus Rapid Transit Project in Dar es Salaam', in Enright, T. & Rossi, U. (eds.) *The Urban Political*: Palgrave Macmillan, Cham, pp. 103-121.
- Rodrigue, J.-P., Comtois, C. and Slack, B. (2016) 'Transport, Energy and Environment', in *The Geography of Transport Systems*. pp. 288-310 [Online]. Version. Available at: <http://ebookcentral.proquest.com/lib/dlr-ebooks/detail.action?docID=4771887> (Accessed: 4th January, 2019).
- Rodrigue, J.-P., Comtois, C. and Slack, B. (2017) *The Geography of Transport Systems*. 4th Edition edn. New York: Routledge.
- Rodríguez-Pose, A. (2013) 'Do Institutions Matter for Regional Development?', *Regional Studies*, 47(7), pp. 1034-1047.
- Rojon, C. and Saunders, M. N. K. (2012) 'Formulating a convincing rationale for a research study', *Coaching: An International Journal of Theory, Research and Practice*, 5(1), pp. 55-61.
- Rye, T., Monios, J., Hrelja, R. and Isaksson, K. (2018) 'The relationship between formal and informal institutions for governance of public transport', *Journal of Transport Geography*, 69, pp. 196-206.
- Saghapour, T., Moridpour, S. and Thompson, R. G. (2016) 'Public transport accessibility in metropolitan areas: A new approach incorporating population density', *Journal of Transport Geography*, 54, pp. 273-285.
- Salet, W. (ed.) (2018) *The Routledge Handbook of Institutions and Planning in Action*. New York, NY: Routledge.
- Sam, E. F. and Abane, A. M. (2017) 'Enhancing passenger safety and security in Ghana: appraising public transport (PT) operators' recent interventions', *Manage. Res. Pract.*, 9(3), pp. 62-75.
- Sam, E. F., Daniels, S., Brijs, K., Brijs, T. and Wets, G. (2018a) 'Modelling public bus/minibus transport accident severity in Ghana', *Accident Analysis & Prevention*, 119, pp. 114-121.
- Sam, E. F., Hamidu, O. and Daniels, S. (2018b) 'SERVQUAL analysis of public bus transport services in Kumasi metropolis, Ghana: Core user perspectives', *Case Studies on Transport Policy*, 6, pp. 25-31.
- Saunders, M. N. K., Lewis, P. and Thornhill, A. (2019) 'Chapter 4: Understanding Research Philosophy and Approaches to Theory Development', *Research Methods for Business Students* 8th ed. New York Pearson, pp. 128-171.
- Schreier, M. (2012) *Qualitative Content Analysis in Practice*. 55 City Road London: SAGE Publications Ltd.
- Schreier, M. (2014) 'Qualitative Content Analysis', in *The SAGE Handbook of Qualitative Data Analysis*. pp. 1-14 [Online]. Version. Available at: <https://sk.sagepub.com/reference/download/the-sage-handbook-of-qualitative-data-analysis/i1108.pdf> (Accessed: 14th January, 2021).
- Schreier, M. (2018) 'Sampling and Generalization1', in *The SAGE Handbook of Qualitative Data Collection*

- pp. 15 [Online]. Version. Available at: <https://sk.sagepub.com/reference/the-sage-handbook-of-qualitative-data-collection/i817.xml> (Accessed: 20th August, 2020).
- Servillo, L. A. and Van Den Broeck, P. (2012) 'The Social Construction of Planning Systems: A Strategic-Relational Institutional Approach', *Planning Practice & Research*, 27(1), pp. 41-61.
- Shell Foundation (2012) *Scaling up Solutions for Sustainable Mobility* [Discussion Document]. Available at: https://www.shellfoundation.org/ShellFoundation.org_new/media/Shell-Foundation-Reports/shell_foundation_scaling_solutions_for_sustainable_mobility.pdf (Accessed: 27th November, 2018).
- Sietchiping, R., Permezal, M. J. and Ngomsi, C. (2012) 'Transport and mobility in sub-Saharan African cities: An overview of practices, lessons and options for improvements', *Cities*, 29(3), pp. 183-189.
- Sohail, M., Maunder, D. A. C. and Cavill, S. (2006) 'Effective regulation for sustainable public transport in developing countries', *Transport Policy*, 13(3), pp. 177-190.
- Sørensen, C. H. and Longva, F. (2011) 'Increased coordination in public transport—which mechanisms are available?', *Transport Policy*, 18(1), pp. 117-125.
- Spangenberg, J. H. (2015) 'Indicators for Sustainable Development', in Redcliff, M. & Springett, D. (eds.) *Routledge International Handbook of Sustainable Development* *Routledge International Handbooks Ser.* 1 ed. London, United Kingdom: Routledge, pp. 308-322.
- SSATP 'Integrated Transport System & Land-Use Planning: Challenges in Accra Metropolitan Area and Solutions for Addressing Them'. *SSATP Annual General Meeting*, Marrakech, Morocco, 20th -24th February, 2017: SSATP.
- Stake, R. E. (2003) 'Case Studies', in Denzin, N.K. & Lincoln, Y.S. (eds.) *Strategies of Qualitative Inquiry*. 2nd ed. Thousand Oaks Calif.: Sage Publications, pp. 134-164.
- Staniek, M. (2018) 'S-Mile Visualizer Tool as a Solution to Support Local Authorities in Smart Cities', in Suchanek, M. (ed.) *New Research Trends in Transport Sustainability and Innovation : TranSopot 2017 Conference*. Cham, Switzerland Springer, pp. 80-87.
- Steiss, A. W. (2003) *Strategic Management for Public and Nonprofit Organizations*. New York, United States: Routledge.
- Streeck, W. and Thelen, K. A. (2005) *Beyond continuity: Institutional change in advanced political economies*. Oxford University Press.
- Sudhakara Reddy, B. and Balachandra, P. (2012) 'Urban mobility: A comparative analysis of megacities of India', *Transport Policy*, 21, pp. 152-164.
- TanzaniaInvest.com (2017) 'Tanzania Dar Rapid Transit (DART)'. Available at: <https://www.tanzaniainvest.com/dart> (Accessed 29th December, 2018).
- The World Bank (2003) *World Development Report 2003 : Sustainable Development in a Dynamic World - Transforming Institutions, Growth, and Quality of Life*, New York, NY 10016 (24705). Available at: <http://documents.worldbank.org/curated/en/262521468337195361/World-development-report-2003-sustainable-development-in-a-dynamic-world-transforming-institutions-growth-and-quality-of-life> (Accessed: 5th April, 2019).
- The World Bank (2017a) *Implementation Completion and Results Report on a credit to the United Republic of Tanzania: Second Central Transport Corridor Project*, Washington DC (Report No: ICR00004196. Available at: <http://documents.worldbank.org/curated/en/210491513006516919/pdf/ICR-P103633-2017-12-05-18-08-12062017.pdf> (Accessed: 9th April, 2020).
- The World Bank (2017b) *Implementation Completion and Results Report on an International Development Association Credit for the Ghana Urban Transport Project* [Report], Washington, D.C. (Report No: ICR00003821. Available at: <http://documents.worldbank.org/curated/en/933711488510098083/pdf/ICR-Ghana-Urban-Transport-Project-P100619-FINAL-01262017-01312017.pdf> (Accessed: 22nd June, 2020).

- Transport Research Board (n.d) *BRT Case Studies: Curitiba, Brazil* [Report], Washington, DC: Transport Research Board Transit Cooperative Research Program Report 90). Available at: https://onlinepubs.trb.org/onlinepubs/tcrp/tcrp90v1_cs/Curitiba.pdf (Accessed: 10th August, 2021).
- Transportation Research Board (2017).
- UN-Habitat (2016) *Urbanisation and Development: Emerging Futures (World Cities Report 2016)*, Nairobi, Kenya (HS/038/16E. Available at: <https://unhabitat.org/books/world-cities-report/> (Accessed: 24th May, 2019).
- UN Communications Group (UNCG) and CSO Platform on SDGs 2017. The Sustainable Development Goals (SDGs) in Ghana: Why they matter & How we can help. Ghana: United Nations Development Programme (UNDP).
- United Nations (1987) *Report of the World Commission on Environment and Development (Brundtland Report): Our Common Future A/42/427.* (Accessed: 12th December, 2018).
- United Nations (2015a) *Analysis of the transport relevance of each of the 17 SDGs*: United Nations. Available at: <https://sustainabledevelopment.un.org/content/documents/8656Analysis%20of%20transport%20relevance%20of%20SDGs.pdf> (Accessed: 21st December, 2018).
- United Nations 'Transforming our world: the 2030 Agenda for Sustainable Development'. *United Nations Sustainable Development Summit 2015*, New York, 25th-27th September 2015, 1-35.
- United Nations (2016a) *Mobilizing Sustainable Transport for Development. Analysis and Policy Recommendations from the United Nations Secretary-General's High_Level Advisory on Sustainable Transport*, New York City: United Nations. Available at: <https://sustainabledevelopment.un.org/content/documents/2375Mobilizing%20Sustainable%20Transport.pdf> (Accessed: 21st December, 2018).
- United Nations (2016b) *Mobilizing Sustainable Transport for Development. Summary of the Report by the United Nations Secretary-General's High-level Advisory Group on Sustainable Transport*, New York City: United Nations. Available at: <https://sustainabledevelopment.un.org/content/documents/12453HLAG-ST%20brochure%20web.pdf> (Accessed: 21st December, 2018).
- United Nations 'Sustainable Development Goals'. *Global Sustainable Transport Conference*, Ashgabat, Turkmenistan, 26th - 27th November, 2016 United Nations.
- United Nations Association of Tanzania (2018) 'How are the sustainable development goals implemented in Tanzania', *UNA Tanzania*, Available: United Nations Association of Tanzania. Available at: <https://una.or.tz/how-are-the-sustainable-development-goals-implemented-in-tanzania/> (Accessed 9th August, 2019).
- United Nations Country Team Ghana 2018. UN Ghana Sustainable Development Partnership Framework with Ghana 2018-2022. Ghana: United Nations in Ghana.
- United Nations Development Programme (UNDP), Capacity Development Group-Bureau for Development Policy (2005) *Measuring Capacities: An Illustrative Catalogue to Benchmarks and Indicators*. New York: United Nations Development Programme.
- United Nations Development Programme (UNDP), Capacity Development Group-Bureau for Development Policy (2008) *Capacity Assessment Methodology-User's Guide*. New York, United States of America: UNDP.
- United Nations Development Programme (UNDP) (2012) *Bogotá, Columbia Bus Rapid Transit Project - Transmilenio: Case Study (Transportation)*, France. Available at: https://www.esc-pau.fr/ppp/documents/featured_projects/colombia_bogota.pdf (Accessed: 10th August, 2021).
- United Nations Framework Convention on Climate Change (2015) *Paris Agreement*: United Nations. Available at: <https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement> (Accessed: 21st December, 2018).
- United Nations Framework Convention on Climate Change 2020. Paris Agreement - Status of Ratification. Bonn, Germany: United Nations Framework Convention on Climate Change (UNFCCC).

- United Nations Statistics Division (UNSD) (2020a) 'Global indicator framework for the Sustainable Development Goals and targets of the 2030 Agenda for Sustainable Development'. Available at: <https://unstats.un.org/sdgs/indicators/indicators-list/>
- United Nations Statistics Division (UNSD) (2020b) 'Goal 11-Make cities and human settlements inclusive, safe, resilient and sustainable: Access to public transport is increasing, but faster progress is needed in developing regions'. Available at: <https://unstats.un.org/sdgs/report/2019/Goal-11/> (Accessed 4th March, 2020).
- Valentin, E. K. (2001) 'SWOT Analysis from a Resource-Based View', *Journal of Marketing Theory and Practice*, 9(2), pp. 54-69.
- Verma, A. and Ramanayya, T. V. (2015) *Public Transport Planning and Management in Developing Countries*. Boca Raton Florida, United States: CRC Press, Taylor & Francis Group.
- Vieira do Nascimento, D. M. (2014) 'The Brazilian experience of flex-fuel vehicles technology: towards low carbon mobility', in Brebbia, C.A. (ed.) *Urban Transport XX*. Southampton, United Kingdom: WIT Press, pp. 545-553.
- Vogrin, Z., Golubic, J. and Golubic, J. (2014) 'An applicable model for establishing sustainable traffic', in Brebbia, C.A. (ed.) *Urban Transport XX*. Southampton, United Kingdom: WIT Press, pp. 29-39.
- Vogt, W. P., Gardner, D. C. and Haeffele, L. M. (2012) *When to Use What Research Design*. New York, United States: Guilford Publications.
- Wijaya, S. E. and Imran, M. (2019) *Moving the Masses: Bus-Rapid transit (BRT) policies in low income Asian cities: Case studies from Indonesia*. Springer Singapore.
- Wind, M. (2001) 'A Constructivist Account of Institutions and Social Change: Towards a Post-Hobbesian Order', *Sovereignty and European Integration*. London: Palgrave Macmillan, pp. 56-77.
- Woodcock, J., Banister, D., Edwards, P., Prentice, A. M. and Roberts, I. (2007) 'Energy and transport', *The Lancet*, 370(9592), pp. 1078-1088.
- World Business Council for Sustainable Development (2004) *Mobility 2030: Meeting the challenges to sustainability*, England (Accessed: 7th November, 2018).
- World Business Council for Sustainable Development (2007) *Mobility for Development: Facts and Trends*, Atar Roto Presse SA, Switzerland: World Business Council for Sustainable Development. Available at: http://cecodes.org.co/site/wp-content/uploads/publicaciones/Impacto_Social/MobilityForDevFactsTrendsBriefing.pdf (Accessed: 16th November, 2018).
- Wulfhorst, G. and Klug, S. (eds.) (2016) *Sustainable Mobility in Metropolitan Regions : Insights from Interdisciplinary Research for Practice Application*. Wiesbaden, Germany: Springer VS (Springer Fachmedien Wiesbaden GmbH).
- Yankson, P. W. K. and Bertrand, M. (2012) 'Challenges of Urbanisation in Ghana', in *The Mobile City of Accra*. pp. 25-46 [Online]. Version. Available at: https://www.researchgate.net/profile/Monique_Bertrand/publication/265171450_The_Mobile_City_of_Accra_Urban_Families_Housing_and_Residential_Practices_Accra_capitale_en_mouvement_Familles_citadines_logement_et_pratiques_residentielles/links/5404413f0cf2bba34c1c59b7/The-Mobile-City-of-Accra-Urban-Families-Housing-and-Residential-Practices-Accra-capitale-en-mouvement-Familles-citadines-logement-et-pratiques-residentielles.pdf#page=38 (Accessed: 18th July, 2019).
- Yin, R. K. (ed.) (2014) *Case Study Research: Design and Methods* 5th Edition edn. Washington DC, United States of America: Sage.
- Yobo, E. (2018) 'State Intervention in Public Transportation in Ghana', *Journal of Transportation and Logistics*, 3(1), pp. 36-51.
- Zegras, P. C. (2005) *Sustainable Urban Mobility : Exploring the Role of the Built Environment*. Doctor of Philosophy in Urban and Regional Planning PhD Thesis, Massachusetts Institute of Technology, Massachusetts Institute of Technology [Online] Available at: <https://dspace.mit.edu/handle/1721.1/34170> (Accessed: 16th November, 2018).

APPENDICES

Appendix 3.1 Interview Guide for Government Agencies/City Authorities related to the provision of road-based public transport in Accra city (Ghana) and Dar es Salaam city (Tanzania)

GOVERNMENT AGENCIES/CITY AUTHORITIES

NAME OF INSTITUTION:

DATE:

Section 1: Background of Respondent

1. Name-
2. Position-

Section 2: Road-Based Public Transport

Preamble

The United Nations (2016b, p. 2) defines sustainable transport as “the provision of services and infrastructure for the mobility of people and goods advancing economic and social development to benefit today’s and future generations in a manner that is safe, affordable, accessible, efficient, and resilient, while minimizing carbon and other emissions and environmental impacts”. Sustainable transport in the same vein is the capacity to provide the mobility needs of humanity in a manner that is least detrimental to the environment and protects the mobility needs of future generations (Rodrigue et al., 2016). The core focus of sustainable mobility, according to Banister (2000), is to find diverse pathways to facilitate movement of people, goods and services in accordance with the sustainable development strategy.

Public transport is broadly considered as a comparably sustainable means of transport (Bakker and Konings, 2018; Paulsson, 2018). A sustainable public transport system has three components: environment, economy and society (Patlins, 2017). Therefore, it is important that solutions to ensure sustainable public transport underscore these three components. Abdallah (2017) and Abd Rahman and Abdullah (2016), assert that, the implementation of an effective and efficient public/mass transit in cities (such as BRT) is a major solution and opportunity to be more sustainable.

3. Is the public transport system in Accra city or Dar es Salaam city sustainable?

- a. Yes..... b. No.....

4a. If Yes, please indicate your reason(s)

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4b. If No, please indicate your reason(s)

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5. If No, what are the causes of unsustainable road-based public transport in Accra city or Dar es Salaam city?

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6. If No, what are the effects of unsustainable road-based public transport in Accra city or Dar es Salaam city?

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Section 3: Mandate of institution and perception on sustainable public transport in Accra city or Dar es Salaam city

7. What is the mandate of this institution in the provision of public transport in Accra city or Dar es Salaam city?

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8. What is this institution's perception on sustainable public transport in cities in Ghana or Tanzania?

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Section 4: Institutional capacity in decision making processes for more sustainable public transport in Accra city or Dar es Salaam city

9. What are the existing capacity levels of this institution in the decision making processes in planning for more sustainable public transport in Accra city or Dar es Salaam city (See Tables 1 and 2)

Table 1: Existing institutional capacity using institutional capacity indicators and ranking scheme

Institutional Capacity Questions		Assess Capacity		
Legal and Regulatory Capacity	Questions (Based on indicators)	Desired Level (1-5)	Existing Level (1-5)	Evidence (Narrative)
	1. Does this institution have a legal and regulatory mandate to plan for more sustainable public transport in cities?	5		
	2. Does this institution's legal framework, policies, rules and procedures provide a consistent referent for operations?	5		
	3. Does the organisational structure of this institution meet needs of efficiency and control?	5		
	4. Does the organisational subsystems for administration, production, financial management, and other operations operate efficiently?	5		
Financial Resources Capacity	Questions (Based on indicators)	Desired Level (1-5)	Existing Level (1-5)	Evidence (Narrative)
	1. Does this institution have access to resources in line with planning budgets (including credit and/or grant, where appropriate) for sustainable public transport in cities?	5		
	2. Does this institution have control over its own budget?	5		
	3. Is this institution aware of its future resource needs?	5		
	4. Does this institution have an effective financial management and accounting procedure in place?	5		
	5. Does this institution use budget as planning and monitoring tools?	5		
Logistical Capacity	Questions (Based on indicators)	Desired Level (1-5)	Existing Level (1-5)	Evidence (Narrative)
	1. Does this institution have appropriate facilities and equipments to support its operations relating to sustainable public transport provision in cities?	5		
	2. Does this institution have access to logistical and communication needs (vehicles, telephone, computers, etc)?	5		
	3. Does this institution have the needed technological resources in line with sustainable public transport provision in cities?	5		
Personnel and Competence of staff (Technical Capacity)	Questions (Based on indicators)	Desired Level (1-5)	Existing Level (1-5)	Evidence (Narrative)
	1. Does this institution have adequate staff in all key positions to plan for more sustainable public transport?	5		
	2. Is compensation adequate and equitable?	5		
	3. Does the monetary and non-monetary incentives of this institution support targeted behaviour?	5		
	4. Is the staff turnover rate of this institution low?	5		
	5. Are there opportunities for staff professional development and on-the-job training in this institution in line with sustainable public transport?	5		
	6. Are staff held accountable for getting work done according to clear performance standards?	5		
	7. Do staff have the required planning skills to execute tasks/functions related to sustainable public transport?	5		
	8. Do staff have the needed technological skills to perform tasks/functions related to sustainable public transport?	5		
	9. Do staff have adequate financial skills to perform tasks related to sustainable public transport?	5		

Table 2: SWOT Analysis of the existing institutional capacity

SWOT	Strengths	Weaknesses	Opportunities	Threats
Institutional Capacity				
Legal and Regulatory Capacity				
Financial Resources Capacity				
Logistical Capacity				
Personnel and Competence of staff (Technical Capacity)				

Section 5: Coordination and communication mechanisms between institutions for the provision of public transport in Accra city and Dar es Salaam city

10. Does this institution coordinate with other institutions responsible for the provision of public transport in Accra city or Dar es Salaam city?

a. Yes..... b. No.....

11. If Yes, which specific institutions? and how? See Table 3

Table 3: Institutions you coordinate with and how

Category of Actors	Specific Institutions	How is the coordination done?
Government Agencies/City Authorities		
Public Transport Operators		

Private Transport Operators of PT		
Private Sector Organisations		
Financiers with dedicated green funds		
Academia		

12. If No, why?

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...

13. Does this institution communicate with other institutions responsible for the provision of public transport in Accra city or Dar es Salaam city?

a. Yes..... b. No.....

14. If Yes, which specific institutions? and how? See Table 4

Table 4: Institutions you communicate with and how

Category of Actors	Specific Institutions	How is the communication done?
Government Agencies/City Authorities		
Public Transport Operators		
Private Transport Operators of PT		
Private Sector Organisations		
Financiers with dedicated green funds		
Academia		

15. If No, why?

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Section 6: Current Urban Transport Challenges (public transport) in Accra city or Dar es Salaam city

16. What are the current public transport challenges in Accra city or Dar es Salaam city?

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17. Does the existing capacity (lapses) of this institution identified in question 9 contribute to the current public transport challenges in Accra city or Dar es Salaam city?

a. Yes..... b. No.....

18. If yes, how?

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...

Section 7: Measures to improve the existing capacity, coordination and communication mechanisms

19. What measures do you suggest can be put in place to improve the existing capacity of this institution to become more responsive to the requirements of sustainable public transport in Accra city or Dar es Salaam city? See Table 5

Table 5: Institutional capacity indicators and measures to improve these capacities

Institutional Capacity Indicators	Measures to improve the existing capacities of these institutions
Legal and Regulatory Capacity	
Financial Resources Capacity	
Logistical Capacity	
Personnel and Competence of staff (Technical Capacity)	

20. What measures do you suggest can be put in place to improve the coordination mechanisms between this institution and other institutions in the provision of sustainable public transport in Accra city or Dar es Salaam city?

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21. What measures do you suggest can be put in place to improve the communication mechanisms between this institution and other institutions in the provision of sustainable public transport in Accra city or Dar es Salaam city?

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Appendix 3.2 Interview Guide for Public Transport Operators of road-based public transport in Accra city (Ghana) and Dar es Salaam city (Tanzania)

PUBLIC TRANSPORT OPERATORS

NAME OF INSTITUTION:

DATE:

Section 1: Background of Respondent

1. Name -
2. Position-

Section 2: Road-Based Public Transport

Preamble

The United Nations (2016b, p. 2) defines sustainable transport as “the provision of services and infrastructure for the mobility of people and goods advancing economic and social development to benefit today’s and future generations in a manner that is safe, affordable, accessible, efficient, and resilient, while minimizing carbon and other emissions and environmental impacts”. Sustainable transport in the same vein is the capacity to provide the mobility needs of humanity in a manner that is least detrimental to the environment and protects the mobility needs of future generations (Rodrigue et al., 2016). The core focus of sustainable mobility, according to Banister (2000), is to find diverse pathways to facilitate movement of people, goods and services in accordance with the sustainable development strategy.

Public transport is broadly considered as a comparably sustainable means of transport (Bakker and Konings, 2018; Paulsson, 2018). A sustainable public transport system has three components: environment, economy and society (Patlins, 2017). Therefore, it is important that solutions to ensure sustainable public transport underscore these three components. Abdallah (2017) and Abd Rahman and Abdullah (2016), assert that, the implementation of an effective and efficient public/mass transit in cities (such as BRT) is a major solution and opportunity to be more sustainable.

3. Is the public transport system in Accra city or Dar es Salaam city sustainable?

- a. Yes..... b. No.....

4a. If Yes, please indicate your reason(s)

.....

...

4b. If No, please indicate your reason(s)

.....

...

5. If No, what are the causes of unsustainable road-based public transport in Accra city or Dar es Salaam city?

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...

6. If No, what are the effects of unsustainable road-based public transport in Accra city or Dar es Salaam city?

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...

Section 3: Mandate of institution and perception on sustainable public transport in Accra city or Dar es Salaam city

7. What is the mandate of this institution in the provision of public transport in Accra city or Dar es Salaam city?

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8. What is this institution's perception on sustainable public transport in cities in Ghana or Tanzania?

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Section 4: Institutional capacity in decision making processes for more sustainable public transport in Accra city or Dar es Salaam city

9. What are the existing capacity levels of this institution in the decision making processes in planning for more sustainable public transport in Accra city or Dar es Salaam city (See Tables 1 and 2)

Table 1: Existing institutional capacity using institutional capacity indicators and ranking scheme

Institutional Capacity Questions		Assess Capacity		
Legal and Regulatory Capacity	Questions (Based on indicators)	Desired Level (1-5)	Existing Level (1-5)	Evidence (Narrative)
	1. Does this institution have a legal and regulatory mandate to plan for more sustainable public transport in cities?	5		
	2. Does this institution's legal framework, policies, rules and procedures provide a consistent referent for operations?	5		
	3. Does the organisational structure of this institution meet needs of efficiency and control?	5		
	4. Does the organisational subsystems for administration, production, financial management, and other operations operate efficiently?	5		
Financial Resources Capacity	Questions (Based on indicators)	Desired Level (1-5)	Existing Level (1-5)	Evidence (Narrative)
	1. Does this institution have access to resources in line with planning budgets (including credit and/or grant, where appropriate) for sustainable public transport in cities?	5		
	2. Does this institution have control over its own budget?	5		
	3. Is this institution aware of its future resource needs?	5		
	4. Does this institution have an effective financial management and accounting procedure in place?	5		
	5. Does this institution use budget as planning and monitoring tools?	5		
Logistical Capacity	Questions (Based on indicators)	Desired Level (1-5)	Existing Level (1-5)	Evidence (Narrative)
	1. Does this institution have appropriate facilities and equipments to support its operations relating to sustainable public transport provision in cities?	5		
	2. Does this institution have access to logistical and communication needs (vehicles, telephone, computers, etc)?	5		
	3. Does this institution have the needed technological resources in line with sustainable public transport provision in cities?	5		
Personnel and Competence of staff (Technical Capacity)	Questions (Based on indicators)	Desired Level (1-5)	Existing Level (1-5)	Evidence (Narrative)
	1. Does this institution have adequate staff in all key positions to plan for more sustainable public transport?	5		
	2. Is compensation adequate and equitable?	5		
	3. Does the monetary and non-monetary incentives of this institution support targeted behaviour?	5		
	4. Is the staff turnover rate of this institution low?	5		
	5. Are there opportunities for staff professional development and on-the-job training in this institution in line with sustainable public transport?	5		
	6. Are staff held accountable for getting work done according to clear performance standards?	5		
	7. Do staff have the required planning skills to execute tasks/functions related to sustainable public transport?	5		
	8. Do staff have the needed technological skills to perform tasks/functions related to sustainable public transport?	5		
	9. Do staff have adequate financial skills to perform tasks related to sustainable public transport?	5		

Table 2: SWOT Analysis of the existing institutional capacity

SWOT	Strengths	Weaknesses	Opportunities	Threats
Institutional Capacity				
Legal and Regulatory Capacity				
Financial Resources Capacity				
Logistical Capacity				
Personnel and Competence of staff (Technical Capacity)				

Section 5: Coordination and communication mechanisms between institutions for the provision of public transport in Accra city and Dar es Salaam city

10. Does this institution coordinate with other institutions responsible for the provision of public transport in Accra city or Dar es Salaam city?

a. Yes..... b. No.....

11. If Yes, which specific institutions? and how? See Table 3

Table 3: Institutions you coordinate with and how

Category of Actors	Specific Institutions	How is the coordination done?
Government Agencies/City Authorities		

Public Transport Operators		
Private Transport Operators of PT		
Private Sector Organisations		
Financiers with dedicated green funds		
Academia		

12. If No, why?

.....

...

13. Does this institution communicate with other institutions responsible for the provision of public transport in Accra city or Dar es Salaam city?

a. Yes..... b. No.....

14. If Yes, which specific institutions? and how? See Table 4

Table 4: Institutions you communicate with and how

Category of Actors	Specific Institutions	How is the communication done?
Government Agencies/City Authorities		
Public Transport Operators		
Private Transport Operators of PT		
Private Sector Organisations		
Financiers with dedicated green funds		
Academia		

15. If No, why?

.....

...

Section 6: Current Urban Transport Challenges (public transport) in Accra city or Dar es Salaam city

16. What are the current public transport challenges in Accra city or Dar es Salaam city?

.....
...

17. Does the existing capacity (lapses) of this institution identified in question 9 contribute to the current public transport challenges in Accra city or Dar es Salaam city?

a. Yes..... b. No.....

18. If yes, how?

.....
...

Section 7: Measures to improve the existing capacity, coordination and communication mechanisms

19. What measures do you suggest can be put in place to improve the existing capacity of this institution to become more responsive to the requirements of sustainable public transport in Accra city or Dar es Salaam city? See Table 5

Table 5: Institutional capacity indicators and measures to improve these capacities

Institutional Capacity Indicators	Measures to improve the existing capacities of these institutions
Legal and Regulatory Capacity	
Financial Resources Capacity	
Logistical Capacity	
Personnel and Competence of staff (Technical Capacity)	

20. What measures do you suggest can be put in place to improve the coordination mechanisms between this institution and other institutions in the provision of sustainable public transport in Accra city or Dar es Salaam city?

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21. What measures do you suggest can be put in place to improve the communication mechanisms between this institution and other institutions in the provision of sustainable public transport in Accra city or Dar es Salaam city?

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Appendix 3.3 Interview Guide for Private Transport Operators of road-based public transport in Accra city (Ghana) and Dar es Salaam city (Tanzania)

PRIVATE TRANSPORT OPERATORS OF PUBLIC TRANSPORT

NAME OF INSTITUTION (TRANSPORT UNION):

DATE:

Section 1: Background of Respondent

1. Name-
2. Position-

Section 2: Road-Based Public Transport

Preamble

The United Nations (2016b, p. 2) defines sustainable transport as “the provision of services and infrastructure for the mobility of people and goods advancing economic and social development to benefit today’s and future generations in a manner that is safe, affordable, accessible, efficient, and resilient, while minimizing carbon and other emissions and environmental impacts”. Sustainable transport in the same vein is the capacity to provide the mobility needs of humanity in a manner that is least detrimental to the environment and protects the mobility needs of future generations (Rodrigue et al., 2016). The core focus of sustainable mobility, according to Banister (2000), is to find diverse pathways to facilitate movement of people, goods and services in accordance with the sustainable development strategy.

Public transport is broadly considered as a comparably sustainable means of transport (Bakker and Konings, 2018; Paulsson, 2018). A sustainable public transport system has three components: environment, economy and society (Patlins, 2017). Therefore, it is important that solutions to ensure sustainable public transport underscore these three components. Abdallah (2017) and Abd Rahman and Abdullah (2016), assert that, the implementation of an effective and efficient public/mass transit in cities (such as BRT) is a major solution and opportunity to be more sustainable.

3. Is the public transport system in Accra city or Dar es Salaam city sustainable?

- a. Yes..... b. No.....

4a. If Yes, please indicate your reason(s)

.....

...

4b. If No, please indicate your reason(s)

.....

...

5. If No, what are the causes of unsustainable road-based public transport in Accra city or Dar es Salaam city?

.....
...

6. If No, what are the effects of unsustainable road-based public transport in Accra city or Dar es Salaam city?

.....
...

Section 3: Mandate of institution and perception on sustainable public transport in Accra city or Dar es Salaam city

7. What is the mandate of this institution in the provision of public transport in Accra city or Dar es Salaam city?

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...

8. What is this institution's perception on sustainable public transport in cities in Ghana or Tanzania?

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Section 4: Institutional capacity in decision making processes for more sustainable public transport in Accra city or Dar es Salaam city

9. What are the existing capacity levels of this institution in the decision making processes in planning for more sustainable public transport in Accra city or Dar es Salaam city (See Tables 1 and 2)

Table 1: Existing institutional capacity using institutional capacity indicators and ranking scheme

Institutional Capacity Questions		Assess Capacity		
Legal and Regulatory Capacity	Questions (Based on indicators)	Desired Level (1-5)	Existing Level (1-5)	Evidence (Narrative)
	1. Does this institution have a legal and regulatory mandate to plan for more sustainable public transport in cities?	5		
	2. Does this institution's legal framework, policies, rules and procedures provide a consistent referent for operations?	5		
	3. Does the organisational structure of this institution meet needs of efficiency and control?	5		
	4. Does the organisational subsystems for administration, production, financial management, and other operations operate efficiently?	5		
Financial Resources Capacity	Questions (Based on indicators)	Desired Level (1-5)	Existing Level (1-5)	Evidence (Narrative)
	1. Does this institution have access to resources in line with planning budgets (including credit and/or grant, where appropriate) for sustainable public transport in cities?	5		
	2. Does this institution have control over its own budget?	5		
	3. Is this institution aware of its future resource needs?	5		
	4. Does this institution have an effective financial management and accounting procedure in place?	5		
	5. Does this institution use budget as planning and monitoring tools?	5		
Logistical Capacity	Questions (Based on indicators)	Desired Level (1-5)	Existing Level (1-5)	Evidence (Narrative)
	1. Does this institution have appropriate facilities and equipments to support its operations relating to sustainable public transport provision in cities?	5		
	2. Does this institution have access to logistical and communication needs (vehicles, telephone, computers, etc)?	5		
	3. Does this institution have the needed technological resources in line with sustainable public transport provision in cities?	5		
Personnel and Competence of staff (Technical Capacity)	Questions (Based on indicators)	Desired Level (1-5)	Existing Level (1-5)	Evidence (Narrative)
	1. Does this institution have adequate staff in all key positions to plan for more sustainable public transport?	5		
	2. Is compensation adequate and equitable?	5		
	3. Does the monetary and non-monetary incentives of this institution support targeted behaviour?	5		
	4. Is the staff turnover rate of this institution low?	5		
	5. Are there opportunities for staff professional development and on-the-job training in this institution in line with sustainable public transport?	5		
	6. Are staff held accountable for getting work done according to clear performance standards?	5		
	7. Do staff have the required planning skills to execute tasks/functions related to sustainable public transport?	5		
	8. Do staff have the needed technological skills to perform tasks/functions related to sustainable public transport?	5		
	9. Do staff have adequate financial skills to perform tasks related to sustainable public transport?	5		

Table 2: SWOT Analysis of the existing institutional capacity

SWOT	Strengths	Weaknesses	Opportunities	Threats
Institutional Capacity				
Legal and Regulatory Capacity				
Financial Resources Capacity				
Logistical Capacity				
Personnel and Competence of staff (Technical Capacity)				

Section 5: Coordination and communication mechanisms between institutions for the provision of public transport in Accra city and Dar es Salaam city

10. Does this institution coordinate with other institutions responsible for the provision of public transport in Accra city or Dar es Salaam city?

a. Yes..... b. No.....

11. If Yes, which specific institutions? and how? See Table 3

Table 3: Institutions you coordinate with and how

Category of Actors	Specific Institutions	How is the coordination done?
Government Agencies/City Authorities		

Public Transport Operators		
Private Transport Operators of PT		
Private Sector Organisations		
Financiers with dedicated green funds		
Academia		

12. If No, why?

.....

...

13. Does this institution communicate with other institutions responsible for the provision of public transport in Accra city or Dar es Salaam city?

a. Yes..... b. No.....

14. If Yes, which specific institutions? and how? See Table 4

Table 4: Institutions you communicate with and how

Category of Actors	Specific Institutions	How is the communication done?
Government Agencies/City Authorities		
Public Transport Operators		
Private Transport Operators of PT		
Private Sector Organisations		
Financiers with dedicated green funds		
Academia		

15. If No, why?

.....

...

Section 6: Current Urban Transport Challenges (public transport) in Accra city or Dar es Salaam city

16. What are the current public transport challenges in Accra city or Dar es Salaam city?

.....
...

17. Does the existing capacity (lapses) of this institution identified in question 9 contribute to the current public transport challenges in Accra city or Dar es Salaam city?

a. Yes..... b. No.....

18. If yes, how?

.....
...

Section 7: Measures to improve the existing capacity, coordination and communication mechanisms

19. What measures do you suggest can be put in place to improve the existing capacity of this institution to become more responsive to the requirements of sustainable public transport in Accra city or Dar es Salaam city? See Table 5

Table 5: Institutional capacity indicators and measures to improve these capacities

Institutional Capacity Indicators	Measures to improve the existing capacities of these institutions
Legal and Regulatory Capacity	
Financial Resources Capacity	
Logistical Capacity	
Personnel and Competence of staff (Technical Capacity)	

20. What measures do you suggest can be put in place to improve the coordination mechanisms between this institution and other institutions in the provision of sustainable public transport in Accra city or Dar es Salaam city?

.....
...

21. What measures do you suggest can be put in place to improve the communication mechanisms between this institution and other institutions in the provision of sustainable public transport in Accra city or Dar es Salaam city?

.....
...

Appendix 3.4 Interview Guide for Private Sector Organisations related to the provision of road-based public transport in Accra city (Ghana) and Dar es Salaam city (Tanzania)

PRIVATE SECTOR ORGANISATIONS

NAME OF INSTITUTION:

DATE:

Section 1: Background of Respondent

- 1. Name-
- 2. Position-

Section 2: Road-Based Public Transport

Preamble

The United Nations (2016b, p. 2) defines sustainable transport as “the provision of services and infrastructure for the mobility of people and goods advancing economic and social development to benefit today’s and future generations in a manner that is safe, affordable, accessible, efficient, and resilient, while minimizing carbon and other emissions and environmental impacts”. Sustainable transport in the same vein is the capacity to provide the mobility needs of humanity in a manner that is least detrimental to the environment and protects the mobility needs of future generations (Rodrigue et al., 2016). The core focus of sustainable mobility, according to Banister (2000), is to find diverse pathways to facilitate movement of people, goods and services in accordance with the sustainable development strategy.

Public transport is broadly considered as a comparably sustainable means of transport (Bakker and Konings, 2018; Paulsson, 2018). A sustainable public transport system has three components: environment, economy and society (Patlins, 2017). Therefore, it is important that solutions to ensure sustainable public transport underscore these three components. Abdallah (2017) and Abd Rahman and Abdullah (2016), assert that, the implementation of an effective and efficient public/mass transit in cities (such as BRT) is a major solution and opportunity to be more sustainable.

3. Is the public transport system in Accra city or Dar es Salaam city sustainable?

- a. Yes.....
- b. No.....

4a. If Yes, please indicate your reason(s)

.....
...

4b. If No, please indicate your reason(s)

.....
...

5. If No, what are the causes of unsustainable road-based public transport in Accra city or Dar es Salaam city?

.....

...

6. If No, what are the effects of unsustainable road-based public transport in the city of Accra or Dar es Salaam city?

.....

...

Section 3: Related mandate for the provision of public transport and perception on sustainable public transport in Accra city or Dar es Salaam city

7. What related mandate does this institution have with respect to the provision of public transport in the city of Accra or Dar es Salaam city?

.....

...

8. What is this institution's perception on sustainable public transport in cities in Ghana and Tanzania?

.....

...

9. What tasks/activities have this institution implemented that has impact on sustainable public transport in Accra city or Dar es Salaam city?

Table 1: Activities and impact on sustainable public transport in Accra city or Dar es Salaam city

Activities/Tasks	Impact on sustainable public transport in Accra city or Dar es Salaam city

Section 4: Coordination and communication mechanisms between institutions for the provision of public transport in Accra city or Dar es Salaam city

10. Does this institution coordinate with other institutions responsible for the provision of public transport in Accra city or Dar es Salaam city?

a. Yes..... b. No.....

11. If Yes, which specific institutions? and how? See Table 2

Table 2: Institutions you coordinate with and how

Category of Actors	Specific Institutions	How is the coordination done?
Government Agencies/City Authorities		
Public Transport Operators		
Private Transport Operators of PT		
Private Sector Organisations		
Financiers with dedicated green funds		
Academia		

12. If No, why?

.....
 ...

13. Does this institution communicate with other institutions responsible for the provision of public transport in Accra city or Dar es Salaam city?

a. Yes..... b. No.....

14. If Yes, which specific institutions? and how? See Table 3

Table 3: Institutions you communicate with and how

Category of Actors	Specific Institutions	How is the coordination done?
Government Agencies/City Authorities		
Public Transport Operators		
Private Transport Operators of PT		
Private Sector Organisations		
Financiers with dedicated green funds		
Academia		

15. If No, why?

.....
...

Section 6: Current Urban Transport Challenges in Accra city or Dar es Salaam city

16. What are the current public transport challenges in Accra city or Dar es Salaam city?

.....
...

Section 7: Measures to improve the existing capacity, coordination and communication mechanisms

17. What measures do you suggest can be put in place to improve the existing capacity of this institution to become more responsive to the requirements of sustainable public transport in Accra city or Dar es Salaam city? See Table 4

Table 4: Institutional capacity indicators and measures to improve these capacities

Institutional Capacity Indicators	Measures to improve the existing capacities of these institutions
legal and Regulatory Capacity	
Financial Resources Capacity	
Logistical Capacity	
Personnel and Competence of staff (Technical Capacity)	

18. What measures do you suggest can be put in place to improve the coordination mechanisms between this institution and other institutions in the provision of sustainable public transport in Accra city or Dar es Salaam city?

.....
...

19. What measures do you suggest can be put in place to improve the communication mechanisms between this institution and other institutions in the provision of sustainable public transport in Accra city or Dar es Salaam city?

.....
...

Appendix 3.5 Interview Guide for Financiers with Dedicated Green Funds related to the provision of road-based public transport in Accra city (Ghana) and Dar es Salaam city (Tanzania)

FINANCIERS WITH DEDICATED GREEN FUNDS

NAME OF INSTITUTION:

DATE:

Section 1: Background of Respondent

- 1. Name-
- 2. Position-

Section 2: Road-Based Public Transport

Preamble

The United Nations (2016b, p. 2) defines sustainable transport as “the provision of services and infrastructure for the mobility of people and goods advancing economic and social development to benefit today’s and future generations in a manner that is safe, affordable, accessible, efficient, and resilient, while minimizing carbon and other emissions and environmental impacts”. Sustainable transport in the same vein is the capacity to provide the mobility needs of humanity in a manner that is least detrimental to the environment and protects the mobility needs of future generations (Rodrigue et al., 2016). The core focus of sustainable mobility, according to Banister (2000), is to find diverse pathways to facilitate movement of people, goods and services in accordance with the sustainable development strategy.

Public transport is broadly considered as a comparably sustainable means of transport (Bakker and Konings, 2018; Paulsson, 2018). A sustainable public transport system has three components: environment, economy and society (Patlins, 2017). Therefore, it is important that solutions to ensure sustainable public transport underscore these three components. Abdallah (2017) and Abd Rahman and Abdullah (2016), assert that, the implementation of an effective and efficient public/mass transit in cities (such as BRT) is a major solution and opportunity to be more sustainable.

3. Is the public transport system in Accra city or Dar es Salaam city sustainable?

- a. Yes.....
- b. No.....

4a. If Yes, please indicate your reason(s)

.....
...

4b. If No, please indicate your reason(s)

.....
...

5. If No, what are the causes of unsustainable road-based public transport in Accra city or Dar es Salaam city?

.....
 ...

6. If No, what are the effects of unsustainable road-based public transport in Accra city or Dar es Salaam city?

.....
 ...

Section 3: Related mandate for the provision of public transport and perception on sustainable public transport in Accra city or Dar es Salaam city

7. What related mandate does this institution have with respect to the provision of public transport in Accra city or Dar es Salaam city?

.....
 ...

8. What is this institution's perception on sustainable public transport in cities in Ghana or Tanzania?

.....
 ...

9. What tasks/activities has this institution implemented that have impact on sustainable public transport in Accra city or Dar es Salaam city?

Table 1: Activities and impact on sustainable public transport in Accra city or Dar es Salaam city

Activities/Tasks	Impact on sustainable public transport in Accra city or Dar es Salaam city

Section 4: Coordination and communication mechanisms between institutions for the provision of public transport in Accra city or Dar es Salaam city

10. Does this institution coordinate with other institutions responsible for the provision of public transport in Accra city or Dar es Salaam city?

a. Yes..... b. No.....

11. If Yes, which specific institutions? and how? See Table 2

Table 2: Institutions you coordinate with and how

Category of Actors	Specific Institutions	How is the coordination done?
Government Agencies/City Authorities		
Public Transport Operators		
Private Transport Operators of PT		
Private Sector Organisations		
Financiers with dedicated green funds		
Academia		

12. If No, why?

.....
 ...

13. Does this institution communicate with other institutions responsible for the provision of public transport in Accra city or Dar es Salaam city?

a. Yes..... b. No.....

14. If Yes, which specific institutions? and how? See Table 3

Table 3: Institutions you communicate with and how

Category of Actors	Specific Institutions	How is the communication done?
Government Agencies/City Authorities		
Public Transport Operators		
Private Transport Operators of PT		
Private Sector Organisations		
Financiers with dedicated green funds		
Academia		

15. If No, why?

.....
...

Section 6: Current Urban Transport Challenges in Accra city or Dar es Salaam city

16. What are the current public transport challenges in Accra city or Dar es Salaam city?

.....
...

Section 7: Measures to improve coordination and communication mechanisms

17. What measures do you suggest can be put in place to improve the coordination mechanisms between this institution and other institutions in the provision of sustainable public transport in Accra city or Dar es Salaam city?

.....
...

18. What measures do you suggest can be put in place to improve the communication mechanisms between this institution and other institutions in the provision of sustainable public transport in Accra city or Dar es Salaam city?

.....
.....

Appendix 3.6 Interview Guide for Academia with research on public transport in Ghana and Tanzania

ACADEMIA

NAME OF INSTITUTION:

DATE:

Section 1: Background of Respondent

- 1. Name-
- 2. Position-

Section 2: Road-Based Public Transport

Preamble

The United Nations (2016b, p. 2) defines sustainable transport as “the provision of services and infrastructure for the mobility of people and goods advancing economic and social development to benefit today’s and future generations in a manner that is safe, affordable, accessible, efficient, and resilient, while minimizing carbon and other emissions and environmental impacts”. Sustainable transport in the same vein is the capacity to provide the mobility needs of humanity in a manner that is least detrimental to the environment and protects the mobility needs of future generations (Rodrigue et al., 2016). The core focus of sustainable mobility, according to Banister (2000), is to find diverse pathways to facilitate movement of people, goods and services in accordance with the sustainable development strategy.

Public transport is broadly considered as a comparably sustainable means of transport (Bakker and Konings, 2018; Paulsson, 2018). A sustainable public transport system has three components: environment, economy and society (Patlins, 2017). Therefore, it is important that solutions to ensure sustainable public transport underscore these three components. Abdallah (2017) and Abd Rahman and Abdullah (2016), assert that, the implementation of an effective and efficient public/mass transit in cities (such as BRT) is a major solution and opportunity to be more sustainable.

3. Is the public transport system in Accra city or Dar es Salaam city sustainable?

- a. Yes.....
- b. No.....

4a. If Yes, please indicate your reason(s)

.....
...

4b. If No, please indicate your reason(s)

.....
...

5. If No, what are the causes of unsustainable road-based public transport in the city of Accra or Dar es Salaam city?

.....

...

6. If No, what are the effects of unsustainable road-based public transport in the city of Accra or Dar es Salaam city?

.....

Section 3: Related mandate for the provision of public transport and perception on sustainable public transport in Accra city or Dar es Salaam city

7. What is this institution's perception on sustainable public transport in cities in Ghana and Tanzania?

.....

Section 4: Coordination and communication mechanisms between institutions for the provision of public transport in Accra city or Dar es Salaam city

8. Does this institution coordinate with other institutions responsible for the provision of public transport in Accra city or Dar es Salaam city?

a. Yes..... b. No.....

9. If Yes, which specific institutions? and how? See Table 1

Table 1: Institutions you coordinate with and how

Category of Actors	Specific Institutions	How is the coordination done?
Government Agencies/City Authorities		
Public Transport Operators		
Private Transport Operators of PT		
Private Sector Organisations		
Financiers with dedicated green funds		
Academia		

10. If No, why?

.....

11. Does this institution communicate with other institutions responsible for the provision of public transport in Accra city or Dar es Salaam city?

a. Yes..... b. No.....

12. If Yes, which specific institutions? and how? See Table 2

Table 2: Institutions you communicate with and how

Category of Actors	Specific Institutions	How is the coordination done?
Government Agencies/City Authorities		
Public Transport Operators		
Private Transport Operators of PT		
Private Sector Organisations		
Financiers with dedicated green funds		
Academia		

13. If No, why?

.....

Section 5: Current Urban Transport Challenges in Accra city or Dar es Salaam city

14. What are the current public transport challenges in Accra city or Dar es Salaam city?

.....
 ...

Section 6: Measures to improve coordination and communication mechanisms

15. What measures do you suggest can be put in place to improve the coordination mechanisms between this institution and other institutions in the provision of sustainable public transport in Accra city or Dar es Salaam city?

.....
 ...

16. What measures do you suggest can be put in place to improve the communication mechanisms between this institution and other institutions in the provision of sustainable public transport in Accra city or Dar es Salaam city?

.....

Appendix 3.7 Institutions interviewed in Ghana, date & time of interview, medium of interview

S/N	Category of Actors	Institutions in Ghana (Accra city)	Date and Time of Interview	Medium of Interview	Comment
1.	Government Agencies/ City Authorities	Accra Metropolitan Assembly (AMA)-Metro Transport Department	Friday 25.09.2020 at 9:00am Ghana Time/11:00am German Time	Skype for Business Meeting	Interview executed as scheduled but start time changed due to delays from the interviewee. From 11:30am to 2:30pm.
		Department of Urban Roads	Thursday 08.10.2020 at 9:00am Ghana Time/ 11:00am German Time	Telephone Call	Interview commenced as scheduled at 11:00am German Time and had to be paused at 11:30am due to official meeting of the interviewee. Interview continued at 4:00pm German Time and paused again at 4:30pm to be continued at 9:00pm.

	Greater Accra Passenger Transport Executive (GAPTE) under MLGRD	Friday 02.10.2020 at at 12:00pm Ghana Time/ 2:00pm German Time.	Skype for Business Meeting.	Interview executed as scheduled. From 2:00pm – 3:30pm German Time.
	Environmental Protection Agency (EPA) under MESTI	Friday 09.10.2020 at 9:00am Ghana Time/11:00am German Time	Telephone call	Interview came off rather on Saturday 10.10.2020 at 11:15am to 12:50pm due to the interviewee's office engagements.
	Land Use and Spatial Planning Authority (LUSPA) under MESTI	Monday 12.10.2020 at 10:00am Ghana Time/12:00pm German Time.	Skype for Business Meeting	Interview came off rather on Saturday 17.10.2020 at 12:10pm to 2:15pm (German Time) due to the interviewee's office work.
	Ministry of Transport(MoT)	Rescheduled interview from Wednesday 30.09.2020 to Friday 16.10.2020 at	Skype for Business Meeting	Interview came off as scheduled from 11:09am to 1:20pm.

			9:00am Ghana Time/ 11:00am German Time due to emergency office assignment of interviewee.		
		Ministry of Local Government and Rural Development (MLGRD)	Tuesday 13.10.2020 at 11:00am Ghana Time/ 1:00pm German Time	Skype for Business Meeting and Telephone call	Interview came off as scheduled from 1:40pm to 3:20pm German Time.
2.	Public Transport Operators	Metro Mass Transit Ltd (MMT)	Monday 21.09.2020 at 10:00am GMT/12:00pm German Time	Telephone call	Interview executed as scheduled from 12:00pm to 3:00pm German Time.
3.	Private Transport Operators of PT	Ghana Private Road Transport Union (GPRTU)	Tues 20.10.2020 at 8:00am Ghana Time/ 10:00am German Time.	Telephone call.	Interview came off as scheduled from 10:00am to 11:30am German Time. Interviewee was also interviewed for Accra

					GPRTU Rapid Bus Services Ltd.
		Ghana Cooperative Transport Association	Saturday 10.10.2020 at 10:00am Ghana Time/12:00pm German Time	Telephone call	Interview came off on Saturday 10.10.2020 at 1:00pm to 3:18pm. Interviewee was also interviewed for Ghana Co- Operative Bus Rapid Transit Services Ltd.
		Ghana Road Transport Coordinating Council (GRTCC)	Wednesday 07.10.2020 at 10:00am Ghana Time/12:00pm German Time	Telephone Call	Interview executed successfully as planned from 12:00pm to 2:00pm
		Ghana Co- Operative Bus Rapid Transit Services Ltd.	See Above	Telephone call	See Above
		Accra GPRTU Rapid Bus Services Ltd.	See Above	Telephone call	See Above
		Amalgamated Bus Rapid Transit Services Ltd.	Thurs 22.10.2020 at 10:00am Ghana Time/12:00pm German Time	Telephone call	Interview came off as planned but had to start rather at 1:02pm German Time

					due to interviewee's availability.
4.	Private Sector Organisations	Scania West Africa Ltd.	Thursday 01.10.2020 at 9:30am Ghana Time/11:30am German Time	Skype Call	Interview executed as planned from 11:40am to 1:00pm but there were internet connectivity challenges that led to some delays during the interview.
		African Association of Public Transport (UATP/UITP)	Tuesday 29.09.2020 at 9:00am (GMT)/ 11:00am German Time	Skype for Business Meeting	Interview executed as scheduled from 11:05am to 12:10pm.
5.	Civil Society Groups	Public Transport Users Association (No such institution was found)	-	-	-
6.	Financiers with dedicated green funds	The World Bank Group	Tuesday 27.10.2020 at 10:00am Ghana Time/ 11:00am German Time	Skype Call.	Meeting came off as planned but started rather late from 12.23pm-

					2:15pm as interviewee was stuck in traffic and got to the office later than expected.
7.	Academia/Research Institutes	Kwame Nkrumah University of Science and Technology (KNUST)	Saturday 5.12.2020 at 7:30pm Ghana Time/8:30pm German Time	Zoom meeting and telephone call	Interview came off at 7:47pm Ghana Time/8:47pm German Time to 8:50pm Ghana Time/9:50pm German Time.
Total number of institutions		16			

Source: Author's Construct, April 2021

Appendix 3.8 Institutions interviewed in Tanzania, date & time of interview, medium of interview

S/ N	Category of Actors	Institutions in Tanzania (Dar es Salaam and Dodoma cities)	Date and Time of Interview	Medium of Interview	Comment
1.	Government Agencies/ City Authorities	Dar es Salaam City Council	Friday 18.12.2020 at 11:00am Tanzania Time/ 9:00am German Time	Skype for Business Meeting and telephone call.	Interview came off as planned at 9:00am but the internet connectivity was very poor which impacted the duration of the interview. Therefore, the interview had to be paused at 10:00am and continued later in the day from 3:00pm German Time. Interview was completed on Saturday 19.12.2020 from 8:00am to 8:45am German Time.
		Land Transport Regulatory Authority (LATRA)	Wednesday 18.11.2020 at 11:00am Tanzania	Skype for Business Meeting and	Interview came off as scheduled on Wed

			Time/ 9:00am German Time	telephone call	18.11.2020 from 9:50am to 11:30am German Time. However, the interview was paused at 11:30am due to official work of the interviewee and continued on Tuesday 24.11.2020 at 2:00pm to 2:30pm Tanzania Time/ 12:00pm to 12:30pm German Time. It is pertinent to indicate that there were network and internet connectivity challenges at the location of the interviewee. In view of this, the interview was rescheduled and completed on Friday
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					27.11.2020.
		Dar Rapid Transit Agency (DART)	Thursday 19.11.2020 at 11:00am Tanzania Time/ 9:00am German Time	Skype for Business Meeting	Interview came off as scheduled via Skype for Business Meeting from 9:00am to 11:45am German Time.
		National Environment Management Council (NEMC) - Environment Division (Vice President's Office)	Wednesday 09.12.2020 at 11:00am Tanzania Time/ 9:00am German Time.	Skype for Business Meeting	Interview executed as scheduled but the network was very bad which impacted the duration of the interview from 9:05am to 11:00am. Interview had to be paused to be continued at a later day. Interview was completed on Monday 04.01.2021 from 10:00am to 10:30am German Time.
		Ministry of Lands, Housing and Human	Friday 15.01.2021 at 11:00am	Skype for Business Meeting	Interview executed as planned.

		Settlement Development	Tanzania Time/ 9:00am German Time		However, there were breaks and hearing issues due to the internet connectivity which impacted completion time of the interview. Also, the interview had to be paused at 10:30am to be continued at 4:00pm German Time/ 6:00pm Tanzania Time due to an official office meeting of the interviewee.
		Ministry of Works, Transport and Communication	Tues 1.12.2020 at 6:00pm Tanzania Time / 4:00pm German Time.	Skype for Business Meeting and telephone call	Interview came off as scheduled but from 5:10pm to 7:00pm German Time. There were internet and poor network challenges in Dodoma.

		President's Office, Regional Administration and Local Government (PO-RALG)	Monday 21.12.2020 at 11:00am Tanzania time/ 9:00am German Time. However, interview did not come off.	Institution al Questionn aire	Interview did not come off as scheduled. However, interviewee requested for a questionnaire on 14.01.2021 to be filled-in and returned. This was sent to the interviewee on Fri. 15.01.2021. As at the end of the remote data collection on 30.03.2021, this questionnaire with responses had not been received.
		Tanzania National Roads Agency (TANROADS) under Ministry of Works, Transport and Communication	Wednesday 16.12.2020 at 11:00am Tanzania Time/ 9:00am German Time.	Institution al Questionn aire	Interview did not come off as scheduled. Interviewee requested for a questionnaire that was sent to him on 16.12.2020 to be filled-in and returned. The interviewee

					returned the questionnaire on Thursday 21.01.2021. after several emails and call reminders.
2.	Public Transport Operators	UDA Rapid Transit Public Limited Company (UDART PLC).	Wednesday 17.03.2021 at 12:00pm Tanzania Time/ 10:00am German Time	Institutional questionnaire followed by interview for clarity on WhatsApp call	Several efforts had to be made from Friday 20.11.2020 till this interview came off on Wednesday 17.03.2021. Interview was executed after questionnaire sent to the interviewee on Thursday 28.01.2021 was received on Saturday 13.03.2021. Specifically, due to the official work schedules of the interviewee, the clarity interview on Wednesday 17.03.2021

					was undertaken at three different times (10:30am-11:00am, 2:43pm-3:10pm, 6:19pm-7:15pm). An additional interview came off on Wed 30.03.2021 from 5:20pm-6:10pm to finally complete the clarity interview.
3.	Private Transport Operators of PT	Dar-es-Salaam Commuter Bus Owners' Association (DARCOBOA)	Thursday 26.11.2020 at 10:30am Tanzania Time/8:30am German Time	Skype for Business Meeting	Interview came off as scheduled from 8:30am to 10:15am.
4.	Private Sector Organisations	African Association of Public Transport (UATP/UITP)	Tuesday 29.09.2020 from 12:15pm	Skype for Business Meeting	Interview came off as planned from 12:15pm to 12:42pm
5.	Civil Society Groups	Public Transport Users Association	-	-	-

		(No such institution was found)			
6.	Financiers with dedicated green funds	The World Bank Group	Tuesday 24.11.2020 at 12:30pm Tanzania Time/ 10:30am German Time	WebEx Meeting	Meeting came off as scheduled from 10:30am to 11:40am German Time.
		Institute for Transportation and Development Policy (ITDP)	Wednesday 25.11.2020 at 11:00am Tanzania Time/ 9:00am German Time	Skype for Business Meeting.	Interview came off as scheduled from 9:00am to 10:30am.
7.	Academia/Research Institutes	University of Dar es Salaam (UDSM)	Friday 19.02.2021 at 11:00am Tanzania Time/ 9:00am German Time	Institutional Questionnaire followed-up with interview for clarity on Skype for Business Meeting	Questionnaire was sent to the interviewee on Thursday 04.02.2021 and received with the response on Thursday 18.02.2021. A clarity interview came off on Friday 19.02.2021 at 9:30am to

					10:30am German Time.
Total number of institutions		13			

Source: Author's Construct, April 2021

Appendix 3.9 Coding Frame Built for Analysis

Code System	Frequency
Code System	2470
Measures to Ensure Sustainable PT in your city	11
Effects of COVID-19 on PT (Pilot BRT)	5
Effects of COVID-19 on PT (Pilot BRT)\Increased Operations Cost	2
Effects of COVID-19 on PT (Pilot BRT)\Queuing of Passengers	1
Effects of COVID-19 on PT (Pilot BRT)\Reduced Road Traffic (due to COVID-19)	1
Effects of COVID-19 on PT (Pilot BRT)\Restrictions on Import and Export	1
Effects of COVID-19 on PT (Pilot BRT)\Reduced BRT Bus Capacity (Social Distancing)	2
Effects of COVID-19 on PT (Pilot BRT)\Busing Health Workers	1
Measures to Address BRT Challenges	24
BRT Challenges So Far	78
BRT Challenges So Far\BRT Management and Operations Challenges	12
BRT Challenges So Far\BRT Infrastructure Challenges	3
BRT Challenges So Far\Absence of Passenger Information	1
BRT Challenges So Far\Inadequate and Overcrowded BRT Buses	5
BRT Challenges So Far\Absence of Dedicated Bus Lanes	1
BRT Challenges So Far\Lack of Transparency	1
BRT Challenges So Far\Fill-and-go bus system (AM-PM Peak)	2
BRT Challenges So Far\Switch to Paper Tickets for Fares	6
BRT Challenges So Far\Collaborative Bus Operations	3
BRT Challenges So Far\Unsatisfactory BRT/QBS (Accra)	2
BRT Challenges So Far\Lack of Understanding b/n Actors	2
BRT Challenges So Far\Inadequate Financial Resources	6
BRT Challenges So Far\Lack of Political Will	4
MAGENTA	1
YELLOW	17
Measures to improve communication mechanisms	29
Measures to improve coordination mechanisms	36
Measures to improve the existing capacity (Table 5)	0
Measures to improve the existing capacity (Table 5)\Measures-Technical Capacity (Personnel and Competence)	10
Measures to improve the existing capacity (Table 5)\Measures-Logistical Capacity	7

Measures to improve the existing capacity (Table 5)\Measures-Financial Resource Capacity	15
Measures to improve the existing capacity (Table 5)\Measures-Legal and Regulatory Capacity	10
Current Urban Transport Challenges (PT) in your city	0
Current Urban Transport Challenges (PT) in your city\Capacity lapse of this institution to current PT challenges Q17	0
Current Urban Transport Challenges (PT) in your city\Capacity lapse of this institution to current PT challenges Q17\If yes, Reason	14
Current Urban Transport Challenges (PT) in your city\Capacity lapse of this institution to current PT challenges Q17\Yes	9
Current Urban Transport Challenges (PT) in your city\Capacity lapse of this institution to current PT challenges Q17\No	11
Current Urban Transport Challenges (PT) in your city\The current public transport challenges in your city	0
Current Urban Transport Challenges (PT) in your city\The current public transport challenges in your city\Lack of Mass Transit for PT	2
Current Urban Transport Challenges (PT) in your city\The current public transport challenges in your city\Growing Two/Three Wheelers on Major Roads	3
Current Urban Transport Challenges (PT) in your city\The current public transport challenges in your city\Lack of PT Champion and Stronger Regulator	3
Current Urban Transport Challenges (PT) in your city\The current public transport challenges in your city\Long waiting hours for PT during off-peak	3
Current Urban Transport Challenges (PT) in your city\The current public transport challenges in your city\Rapid Population Growth (Urbanisation)	5
Current Urban Transport Challenges (PT) in your city\The current public transport challenges in your city\Inadequate Funds and low Investment	3
Current Urban Transport Challenges (PT) in your city\The current public transport challenges in your city\Inadequate Supply	7
Current Urban Transport Challenges (PT) in your city\The current public transport challenges in your city\Numerous Minibus Owners and Operators	4
Current Urban Transport Challenges (PT) in your city\The current public transport challenges in your city\Low Capacity Old Minibuses and Air Pollution	7
Current Urban Transport Challenges (PT) in your city\The current public transport challenges in your city\Safety Issues	10
Current Urban Transport Challenges (PT) in your city\The current public transport challenges in your city\Institutional and Operational Issues	8
Current Urban Transport Challenges (PT) in your city\The current public transport challenges in your city\Inadequate Enforcement	4

Current Urban Transport Challenges (PT) in your city\The current public transport challenges in your city\Absence of Dedicated Lanes (Inadequate Infrastructure)	7
Current Urban Transport Challenges (PT) in your city\The current public transport challenges in your city\Encroachment on Roads By Hawkers	8
Current Urban Transport Challenges (PT) in your city\The current public transport challenges in your city\Lack of Political Will	9
Current Urban Transport Challenges (PT) in your city\The current public transport challenges in your city\Road Traffic Congestion	24
Coordination and communication mechanisms btn institutions	0
Coordination and communication mechanisms btn institutions\Additional info on coordination and communication	7
Coordination and communication mechanisms btn institutions\If this institution communicate with other institutions or not	0
Coordination and communication mechanisms btn institutions\If this institution communicate with other institutions or not\Both	0
Coordination and communication mechanisms btn institutions\If this institution communicate with other institutions or not\Yes	23
Coordination and communication mechanisms btn institutions\If this institution communicate with other institutions or not\No	6
Coordination and communication mechanisms btn institutions\If this institution communicate with other institutions or not\If no, Reason	8
Coordination and communication mechanisms btn institutions\If this institution communicate with other institutions or not\If no, Reason\Additional info	2
Coordination and communication mechanisms btn institutions\If this institution communicate with other institutions or not\If yes, which specific institutions and how (Table 4)	0
Coordination and communication mechanisms btn institutions\If this institution communicate with other institutions or not\If yes, which specific institutions and how (Table 4)\Academia	5
Coordination and communication mechanisms btn institutions\If this institution communicate with other institutions or not\If yes, which specific institutions and how (Table 4)\Academia\How is the communication done	5
Coordination and communication mechanisms btn institutions\If this institution communicate with other institutions or not\If yes, which specific institutions and how (Table 4)\Financiers with dedicated green funds	10
Coordination and communication mechanisms btn institutions\If this institution communicate with other institutions or not\If yes, which specific institutions and how (Table 4)\Financiers with dedicated green funds\How is the communication done	10
Coordination and communication mechanisms btn institutions\If this institution communicate with other institutions or not\If yes, which specific institutions and how (Table 4)\Private Sector Organisations	7

Coordination and communication mechanisms b/n institutions\If this institution communicate with other institutions or not\If yes, which specific institutions and how (Table 4)\Private Sector Organisations\How is the communication done	7
Coordination and communication mechanisms b/n institutions\If this institution communicate with other institutions or not\If yes, which specific institutions and how (Table 4)\Private Transport Operators of PT	12
Coordination and communication mechanisms b/n institutions\If this institution communicate with other institutions or not\If yes, which specific institutions and how (Table 4)\Private Transport Operators of PT\How is the communication done	14
Coordination and communication mechanisms b/n institutions\If this institution communicate with other institutions or not\If yes, which specific institutions and how (Table 4)\Public Transport Operators	8
Coordination and communication mechanisms b/n institutions\If this institution communicate with other institutions or not\If yes, which specific institutions and how (Table 4)\Public Transport Operators\How is the communication done	9
Coordination and communication mechanisms b/n institutions\If this institution communicate with other institutions or not\If yes, which specific institutions and how (Table 4)\Govt Agencies/City Authorities	33
Coordination and communication mechanisms b/n institutions\If this institution communicate with other institutions or not\If yes, which specific institutions and how (Table 4)\Govt Agencies/City Authorities\How is the communication done	37
Coordination and communication mechanisms b/n institutions\If this institution coordinate with other institutions or not	0
Coordination and communication mechanisms b/n institutions\If this institution coordinate with other institutions or not\Both	1
Coordination and communication mechanisms b/n institutions\If this institution coordinate with other institutions or not\No	3
Coordination and communication mechanisms b/n institutions\If this institution coordinate with other institutions or not\Yes	24
Coordination and communication mechanisms b/n institutions\If this institution coordinate with other institutions or not\If no, Reason	7
Coordination and communication mechanisms b/n institutions\If this institution coordinate with other institutions or not\If yes, which specific institutions and how (Table 3)	0
Coordination and communication mechanisms b/n institutions\If this institution coordinate with other institutions or not\If yes, which specific institutions and how (Table 3)\Academia	7
Coordination and communication mechanisms b/n institutions\If this institution coordinate with other institutions or not\If yes, which specific institutions and how (Table 3)\Academia\How is the coordination done	8

Coordination and communication mechanisms b/n institutions\If this institution coordinate with other institutions or not\If yes, which specific institutions and how (Table 3)\Financiers with dedicated green funds	18
Coordination and communication mechanisms b/n institutions\If this institution coordinate with other institutions or not\If yes, which specific institutions and how (Table 3)\Financiers with dedicated green funds\How is the coordination done	16
Coordination and communication mechanisms b/n institutions\If this institution coordinate with other institutions or not\If yes, which specific institutions and how (Table 3)\Private Sector Organisations	10
Coordination and communication mechanisms b/n institutions\If this institution coordinate with other institutions or not\If yes, which specific institutions and how (Table 3)\Private Sector Organisations\How is the coordination done	10
Coordination and communication mechanisms b/n institutions\If this institution coordinate with other institutions or not\If yes, which specific institutions and how (Table 3)\Private Transport Operators of PT	13
Coordination and communication mechanisms b/n institutions\If this institution coordinate with other institutions or not\If yes, which specific institutions and how (Table 3)\Private Transport Operators of PT\How is the coordination done	14
Coordination and communication mechanisms b/n institutions\If this institution coordinate with other institutions or not\If yes, which specific institutions and how (Table 3)\Public Transport Operators	11
Coordination and communication mechanisms b/n institutions\If this institution coordinate with other institutions or not\If yes, which specific institutions and how (Table 3)\Public Transport Operators\How is the coordination done	11
Coordination and communication mechanisms b/n institutions\If this institution coordinate with other institutions or not\If yes, which specific institutions and how (Table 3)\Govt Agencies/City Authorities	49
Coordination and communication mechanisms b/n institutions\If this institution coordinate with other institutions or not\If yes, which specific institutions and how (Table 3)\Govt Agencies/City Authorities\How is the coordination done	51
SWOT Analysis of the existing institutional capacity	0
SWOT Analysis of the existing institutional capacity\Threats-Technical Capacity	4
SWOT Analysis of the existing institutional capacity\Opportunities-Technical Capacity	4
SWOT Analysis of the existing institutional capacity\Weaknesses-Technical Capacity	10
SWOT Analysis of the existing institutional capacity\Strengths-Technical Capacity	14
SWOT Analysis of the existing institutional capacity\Threats-Logistical	2

Capacity	
SWOT Analysis of the existing institutional capacity\Opportunities-Logistical Capacity	1
SWOT Analysis of the existing institutional capacity\Weaknesses-Logistical Capacity	11
SWOT Analysis of the existing institutional capacity\Strengths-Logistical Capacity	9
SWOT Analysis of the existing institutional capacity\Threats-Financial Resource Capacity	6
SWOT Analysis of the existing institutional capacity\Opportunities-Financial Resource Capacity	7
SWOT Analysis of the existing institutional capacity\Weaknesses-Financial Resource Capacity	11
SWOT Analysis of the existing institutional capacity\Strengths-Financial Resource Capacity	4
SWOT Analysis of the existing institutional capacity\Threats-Legal and Regulatory Capacity	4
SWOT Analysis of the existing institutional capacity\Opportunities-Legal and Regulatory Capacity	5
SWOT Analysis of the existing institutional capacity\Weaknesses-Legal and Regulatory Capacity	10
SWOT Analysis of the existing institutional capacity\Strengths-Legal and Regulatory Capacity	11
Institutional Capacity for sustainable PT in your city	0
Institutional Capacity for sustainable PT in your city \Technical Capacity Q9	0
Institutional Capacity for sustainable PT in your city \Technical Capacity Q9\Q9 Evidence/Narrative	16
Institutional Capacity for sustainable PT in your city \Technical Capacity Q9\Q9 Existing level (1-5)	19
Institutional Capacity for sustainable PT in your city \Technical Capacity Q8	0
Institutional Capacity for sustainable PT in your city \Technical Capacity Q8\Q8 Evidence/Narrative	15
Institutional Capacity for sustainable PT in your city \Technical Capacity Q8\Q8 Existing Level (1-5)	18
Institutional Capacity for sustainable PT in your city \Technical Capacity Q7	0
Institutional Capacity for sustainable PT in your city \Technical Capacity Q7\Q7 Evidence/Narrative	18
Institutional Capacity for sustainable PT in your city \Technical Capacity Q7\Q7 Existing Level (1-5)	18
Institutional Capacity for sustainable PT in your city \Technical Capacity Q6	0
Institutional Capacity for sustainable PT in your city \Technical Capacity Q6\Q6 Evidence/Narrative	19
Institutional Capacity for sustainable PT in your city \Technical Capacity	20

Q6\Q6 Existing Level (1-5)	
Institutional Capacity for sustainable PT in your city \Technical Capacity Q5	0
Institutional Capacity for sustainable PT in your city \Technical Capacity Q5\Q5 Evidence/Narrative	20
Institutional Capacity for sustainable PT in your city \Technical Capacity Q5\Q5 Existing Level (1-5)	20
Institutional Capacity for sustainable PT in your city \Technical Capacity Q4	0
Institutional Capacity for sustainable PT in your city \Technical Capacity Q4\Q4 Evidence/Narrative	20
Institutional Capacity for sustainable PT in your city \Technical Capacity Q4\Q4 Existing Level (1-5)	20
Institutional Capacity for sustainable PT in your city \Technical Capacity Q3	0
Institutional Capacity for sustainable PT in your city \Technical Capacity Q3\Q3 Evidence/Capacity	20
Institutional Capacity for sustainable PT in your city \Technical Capacity Q3\Q3 Existing Level (1-5)	20
Institutional Capacity for sustainable PT in your city \Technical Capacity Q2	0
Institutional Capacity for sustainable PT in your city \Technical Capacity Q2\Q2 Evidence/Narrative	20
Institutional Capacity for sustainable PT in your city \Technical Capacity Q2\Q2 Existing Level (1-5)	20
Institutional Capacity for sustainable PT in your city \Technical Capacity Q1	0
Institutional Capacity for sustainable PT in your city \Technical Capacity Q1\Q1 Evidence/Narrative	21
Institutional Capacity for sustainable PT in your city \Technical Capacity Q1\Q1 Existing Level (1-5)	20
Institutional Capacity for sustainable PT in your city \Logistical Capacity Q3	0
Institutional Capacity for sustainable PT in your city \Logistical Capacity Q3\Q3 Evidence/Narrative	19
Institutional Capacity for sustainable PT in your city \Logistical Capacity Q3\Q3 Existing Level (1-5)	19
Institutional Capacity for sustainable PT in your city \Logistical Capacity Q2	0
Institutional Capacity for sustainable PT in your city \Logistical Capacity Q2\Q2 Evidence/Narrative	18
Institutional Capacity for sustainable PT in your city \Logistical Capacity Q2\Q2 Existing Level (1-5)	20
Institutional Capacity for sustainable PT in your city \Logistical Capacity Q1	0
Institutional Capacity for sustainable PT in your city \Logistical Capacity Q1\Q1 Evidence/Narrative	20
Institutional Capacity for sustainable PT in your city \Logistical Capacity Q1\Q1 Existing Level (1-5)	20
Institutional Capacity for sustainable PT in your city \Financial Resource	0

Capacity Q5	
Institutional Capacity for sustainable PT in your city \Financial Resource Capacity Q5\Q5 Evidence/Narrative	19
Institutional Capacity for sustainable PT in your city \Financial Resource Capacity Q5\Q5 Existing Level (1-5)	20
Institutional Capacity for sustainable PT in your city \Financial Resource Capacity Q4	0
Institutional Capacity for sustainable PT in your city \Financial Resource Capacity Q4\Q4 Evidence/Narrative	20
Institutional Capacity for sustainable PT in your city \Financial Resource Capacity Q4\Q4 Existing Level (1-5)	21
Institutional Capacity for sustainable PT in your city \Financial Resource Capacity Q3	0
Institutional Capacity for sustainable PT in your city \Financial Resource Capacity Q3\Q3 Evidence/Narrative	19
Institutional Capacity for sustainable PT in your city \Financial Resource Capacity Q3\Q3 Existing Level (1-5)	18
Institutional Capacity for sustainable PT in your city \Financial Resource Capacity Q2	0
Institutional Capacity for sustainable PT in your city \Financial Resource Capacity Q2\Q2 Evidence/Narrative	18
Institutional Capacity for sustainable PT in your city \Financial Resource Capacity Q2\Q2 Existing Level (1-5)	20
Institutional Capacity for sustainable PT in your city \Financial Resource Capacity Q1	0
Institutional Capacity for sustainable PT in your city \Financial Resource Capacity Q1\Q1 Evidence/Narrative	20
Institutional Capacity for sustainable PT in your city \Financial Resource Capacity Q1\Q1 Existing Level (1-5)	20
Institutional Capacity for sustainable PT in your city \Legal and Regulatory Capacity Q4	0
Institutional Capacity for sustainable PT in your city \Legal and Regulatory Capacity Q4\Q4 Evidence/Narrative	20
Institutional Capacity for sustainable PT in your city \Legal and Regulatory Capacity Q4\Q4 Existing Level (1-5)	20
Institutional Capacity for sustainable PT in your city \Legal and Regulatory Capacity Q3	0
Institutional Capacity for sustainable PT in your city \Legal and Regulatory Capacity Q3\Q3 Evidence/Narrative	22
Institutional Capacity for sustainable PT in your city \Legal and Regulatory Capacity Q3\Q3 Existing Level (1-5)	20
Institutional Capacity for sustainable PT in your city \Legal and Regulatory Capacity Q2	0
Institutional Capacity for sustainable PT in your city \Legal and	19

Regulatory Capacity Q2\Q2 Evidence/Narrative	
Institutional Capacity for sustainable PT in your city \Legal and Regulatory Capacity Q2\Q2 Existing level (1-5)	19
Institutional Capacity for sustainable PT in your city \Legal and Regulatory Capacity Q1	0
Institutional Capacity for sustainable PT in your city \Legal and Regulatory Capacity Q1\Q1 Evidence/Narrative	21
Institutional Capacity for sustainable PT in your city \Legal and Regulatory Capacity Q1\Q1 Existing level (1-5)	19
Mandate & Perception on sustainable public transport in you cit	0
Mandate & Perception on sustainable public transport in you cit\Activities implemented with impact on sustainable PT (Table 1)	0
Mandate & Perception on sustainable public transport in you cit\Activities implemented with impact on sustainable PT (Table 1)\Impact on sustainable PT in your city Table 1	7
Mandate & Perception on sustainable public transport in you cit\Activities implemented with impact on sustainable PT (Table 1)\Activities/Tasks Table 1	21
Mandate & Perception on sustainable public transport in you cit\Perception of the institution on sustainable public transport	0
Mandate & Perception on sustainable public transport in you cit\Perception of the institution on sustainable public transport\Effective Public Transport	2
Mandate & Perception on sustainable public transport in you cit\Perception of the institution on sustainable public transport\Subsidized Sustainable PT	1
Mandate & Perception on sustainable public transport in you cit\Perception of the institution on sustainable public transport\Efficient Public Transport	6
Mandate & Perception on sustainable public transport in you cit\Perception of the institution on sustainable public transport\Security in BRT PT	2
Mandate & Perception on sustainable public transport in you cit\Perception of the institution on sustainable public transport\Employment Opportunities	1
Mandate & Perception on sustainable public transport in you cit\Perception of the institution on sustainable public transport\Available Demand for PT (BRT)	3
Mandate & Perception on sustainable public transport in you cit\Perception of the institution on sustainable public transport\Holistic Regulation	7
Mandate & Perception on sustainable public transport in you cit\Perception of the institution on sustainable public transport\Use of Clean Fuels	3
Mandate & Perception on sustainable public transport in you cit\Perception of the institution on sustainable public transport\Use of HOVs (BRT Buses)	10

Mandate & Perception on sustainable public transport in you cit\Perception of the institution on sustainable public transport\Transition to Digitilization	1
Mandate & Perception on sustainable public transport in you cit\Perception of the institution on sustainable public transport\Use of Clean Buses	6
Mandate & Perception on sustainable public transport in you cit\Perception of the institution on sustainable public transport\Creation of PT Authorities	4
Mandate & Perception on sustainable public transport in you cit\Perception of the institution on sustainable public transport\Dedicated Bus Lanes	4
Mandate & Perception on sustainable public transport in you cit\Perception of the institution on sustainable public transport\Local Goals on Sustainable PT	10
Mandate & Perception on sustainable public transport in you cit\Perception of the institution on sustainable public transport\Align Local Goals to SDGs	2
Mandate & Perception on sustainable public transport in you cit\Perception of the institution on sustainable public transport\Align Local Aspirations to National Policies	3
Mandate & Perception on sustainable public transport in you cit\Perception of the institution on sustainable public transport\Making Sustainable Basic Infrastructure Available	11
Mandate & Perception on sustainable public transport in you cit\Perception of the institution on sustainable public transport\Qn specific activities on the ground by AMA based on its vision	0
Mandate & Perception on sustainable public transport in you cit\Perception of the institution on sustainable public transport\Qn specific activities on the ground by AMA based on its vision\Answer specific activity on the ground based on AMA vision	1
Mandate & Perception on sustainable public transport in you cit\Mandate of the institution	0
Mandate & Perception on sustainable public transport in you cit\Mandate of the institution\Technical Partner/Support	5
Mandate & Perception on sustainable public transport in you cit\Mandate of the institution\Regulator	12
Mandate & Perception on sustainable public transport in you cit\Mandate of the institution\Supervisory and Monitoring Role	10
Mandate & Perception on sustainable public transport in you cit\Mandate of the institution\Policy and Decision Makers	17
Mandate & Perception on sustainable public transport in you cit\Mandate of the institution\Bring Together Stakeholders of PT	5
Mandate & Perception on sustainable public transport in you cit\Mandate of the institution\Encourage Environmentally Friendly Practices	5
Mandate & Perception on sustainable public transport in you cit\Mandate of the institution\Provide Mass Transportation (BRT) for PT	5

Mandate & Perception on sustainable public transport in you cit\Mandate of the institution\Social Benefits	18
Mandate & Perception on sustainable public transport in you cit\Mandate of the institution\Advisory Body to Local Authorities	1
Mandate & Perception on sustainable public transport in you cit\Mandate of the institution\Oversee Demand of PT Service	2
Mandate & Perception on sustainable public transport in you cit\Mandate of the institution\((Oversee) Supply/Operator of PT Service	10
Mandate & Perception on sustainable public transport in you cit\Mandate of the institution\Optimization of Road Space	2
Mandate & Perception on sustainable public transport in you cit\Mandate of the institution\Build Infrastructure	4
Mandate & Perception on sustainable public transport in you cit\Mandate of the institution\Infrastructure Department	2
Mandate & Perception on sustainable public transport in you cit\Mandate of the institution\Qn CSOs that represent public transport users in your city	0
Mandate & Perception on sustainable public transport in you cit\Mandate of the institution\Qn CSOs that represent public transport users in your city\Answer CSOs that represent public transport users in your city	2
Road-Based Public Transport in your city	0
Road-Based Public Transport in your city\If No, effects of unsustainable public transport in your city	0
Road-Based Public Transport in your city\If No, effects of unsustainable public transport in your city\Accidents	2
Road-Based Public Transport in your city\If No, effects of unsustainable public transport in your city\Economic Impacts	11
Road-Based Public Transport in your city\If No, effects of unsustainable public transport in your city\Social Impacts	3
Road-Based Public Transport in your city\If No, effects of unsustainable public transport in your city\Increased Travel Time and Travel Cost	12
Road-Based Public Transport in your city\If No, effects of unsustainable public transport in your city\Inadequate Supply of PT	2
Road-Based Public Transport in your city\If No, effects of unsustainable public transport in your city\Impassable Infrastructure in Rainy Season	3
Road-Based Public Transport in your city\If No, effects of unsustainable public transport in your city\Uncomfortable PT Service	2
Road-Based Public Transport in your city\If No, effects of unsustainable public transport in your city\High fuel consumption and cost	8
Road-Based Public Transport in your city\If No, effects of unsustainable public transport in your city\Increased health budget	4
Road-Based Public Transport in your city\If No, effects of unsustainable public transport in your city\Air pollution (Emissions)	18
Road-Based Public Transport in your city\If No, effects of unsustainable	8

public transport in your city\Undependable and inefficient public transport system	
Road-Based Public Transport in your city\If No, effects of unsustainable public transport in your city\Congestion on roads	14
Road-Based Public Transport in your city\If No, effects of unsustainable public transport in your city\Inhibitions on people's movement	6
Road-Based Public Transport in your city\If No, causes of unsustainable public transport in your city	0
Road-Based Public Transport in your city\If No, causes of unsustainable public transport in your city\Lack of Strong PT Authority	1
Road-Based Public Transport in your city\If No, causes of unsustainable public transport in your city\Fragmented Institutions (No Champion)	2
Road-Based Public Transport in your city\If No, causes of unsustainable public transport in your city\High Rate of Motorization	6
Road-Based Public Transport in your city\If No, causes of unsustainable public transport in your city\Rapid Urbanisation	1
Road-Based Public Transport in your city\If No, causes of unsustainable public transport in your city\Dependence on Road Transport	1
Road-Based Public Transport in your city\If No, causes of unsustainable public transport in your city\Old and Rickety Vehicles	5
Road-Based Public Transport in your city\If No, causes of unsustainable public transport in your city\Resistance	2
Road-Based Public Transport in your city\If No, causes of unsustainable public transport in your city\Inadequate Funds and Low Investment	7
Road-Based Public Transport in your city\If No, causes of unsustainable public transport in your city\Numerous Minibuses (Operators)	4
Road-Based Public Transport in your city\If No, causes of unsustainable public transport in your city\Inadequate Infrastructure	9
Road-Based Public Transport in your city\If No, causes of unsustainable public transport in your city\Users Accustomed to Minibuses	2
Road-Based Public Transport in your city\If No, causes of unsustainable public transport in your city\Operations Purely Based on Economics of it	8
Road-Based Public Transport in your city\If No, causes of unsustainable public transport in your city\Inadequate PT Service Controls (Regulations)	7
Road-Based Public Transport in your city\If No, causes of unsustainable public transport in your city\Law Enforcement challenge	10
Road-Based Public Transport in your city\If No, causes of unsustainable public transport in your city\Lack of political will	8
Road-Based Public Transport in your city\If No, causes of unsustainable public transport in your city\Few BRT Projects	3
Road-Based Public Transport in your city\If No, causes of unsustainable public transport in your city\Public Transport Regulator issues (GAPTE)	4
Road-Based Public Transport in your city\If No, causes of unsustainable public transport in your city\Disjoint btn Central Agencies and Local	1

Assemblies(Fin. Decent)	
Road-Based Public Transport in your city\If No, causes of unsustainable public transport in your city\Decentralised local levels (DoT) lack adequate funds	4
Road-Based Public Transport in your city\If No, causes of unsustainable public transport in your city\Weak Policy Implementation Mechanisms (Nat.Transport Policy)	14
Road-Based Public Transport in your city\Public Transport in your city sustainable or not	0
Road-Based Public Transport in your city\Public Transport in your city sustainable or not\Yes	8
Road-Based Public Transport in your city\Public Transport in your city sustainable or not\No	14
Road-Based Public Transport in your city\Public Transport in your city sustainable or not\Both	7
Road-Based Public Transport in your city\Public Transport in your city sustainable or not\No, Reason	0
Road-Based Public Transport in your city\Public Transport in your city sustainable or not\No, Reason\Lack of Intermodality of Modes	2
Road-Based Public Transport in your city\Public Transport in your city sustainable or not\No, Reason\Striving to Make it Sustainable	7
Road-Based Public Transport in your city\Public Transport in your city sustainable or not\No, Reason\Unsafe and Uncomfortable	6
Road-Based Public Transport in your city\Public Transport in your city sustainable or not\No, Reason\Inadequate law enforcement	2
Road-Based Public Transport in your city\Public Transport in your city sustainable or not\No, Reason\Lack of Political Will	6
Road-Based Public Transport in your city\Public Transport in your city sustainable or not\No, Reason\Choked city (Competition for road space-vehicles and humans)	1
Road-Based Public Transport in your city\Public Transport in your city sustainable or not\No, Reason\Congestion in CBDs due to LOVs	6
Road-Based Public Transport in your city\Public Transport in your city sustainable or not\No, Reason\Absence of full dedicated lanes (BRT)	5
Road-Based Public Transport in your city\Public Transport in your city sustainable or not\No, Reason\Poor infrastructure	8
Road-Based Public Transport in your city\Public Transport in your city sustainable or not\No, Reason\Operational issues	9
Road-Based Public Transport in your city\Public Transport in your city sustainable or not\No, Reason\Lack of institutional framework and PTA	4
Road-Based Public Transport in your city\Public Transport in your city sustainable or not\No, Reason\Dominated by informal private sector with LOVs	11

Road-Based Public Transport in your city\Public Transport in your city sustainable or not\No, Reason\Lack of capacity for the system	1
Road-Based Public Transport in your city\Public Transport in your city sustainable or not\No, Reason\Environmental hazards (CO2 emissions)	14
Road-Based Public Transport in your city\Public Transport in your city sustainable or not\No, Reason\Poor regulation of the PT service	5
Road-Based Public Transport in your city\Public Transport in your city sustainable or not\No, Reason\Old fleets for paratransit operations	9
Road-Based Public Transport in your city\Public Transport in your city sustainable or not\Yes, Reason	0
Road-Based Public Transport in your city\Public Transport in your city sustainable or not\Yes, Reason\Journey Time Savings	1
Road-Based Public Transport in your city\Public Transport in your city sustainable or not\Yes, Reason\Environmentally Friendly Buses	5
Road-Based Public Transport in your city\Public Transport in your city sustainable or not\Yes, Reason\Reliable External Sources of Funds	1
Road-Based Public Transport in your city\Public Transport in your city sustainable or not\Yes, Reason\Political Will	4
Road-Based Public Transport in your city\Public Transport in your city sustainable or not\Yes, Reason\Convenient and Efficient BRT Buses	3
Road-Based Public Transport in your city\Public Transport in your city sustainable or not\Yes, Reason\Introduction of Metro Trains	6
Road-Based Public Transport in your city\Public Transport in your city sustainable or not\Yes, Reason\Improved Infrastructure	8
Road-Based Public Transport in your city\Public Transport in your city sustainable or not\Yes, Reason\Pilot BRT	53
Road-Based Public Transport in your city\Public Transport in your city sustainable or not\Yes, Reason\Resilient Minibuses (Trotros)	11
Road-Based Public Transport in your city\Public Transport in your city sustainable or not\Yes, Reason\Presence of HOVs (MMT, Ayalolo)	3
Background of Respondent	0
Background of Respondent\Position	0
Background of Respondent\Position\Lower Management	0
Background of Respondent\Position\Middle Management	0
Background of Respondent\Position\Middle Management\Academic Staff	1
Background of Respondent\Position\Middle Management\Environmental Engineer	1
Background of Respondent\Position\Middle Management\Public	1

Health Scientist	
Background of Respondent\Position\Middle Management\Senior Planning Officer	3
Background of Respondent\Position\Middle Management\Senior Transport Specialist	2
Background of Respondent\Position\Top Management	0
Background of Respondent\Position\Top Management\Chairperson	2
Background of Respondent\Position\Top Management\Chief Executive Officer	2
Background of Respondent\Position\Top Management\Director	4
Background of Respondent\Position\Top Management\Head of Department	5
Background of Respondent\Position\Top Management\Industrial Relations Officer	1
Background of Respondent\Position\Top Management\Manager	4
Background of Respondent\Position\Top Management\Secretary General	3

Appendix 3.10 Philosophical Basis of the Research

Philosophy of Social Constructivism and Associated Philosophical Beliefs/Assumptions

Social Constructivism Philosophy:

- “A view about the social nature of science” (Detel, 2001, p. 14264), which Creswell (2013, p. 24), similarly affirms as “another worldview”, where researchers who employ this interpretive framework pursue an understanding of the world they live and work”.
- Lincoln (1990, p. 77) corroborates this premise avowing that, this “worldview” pertains to “human world/social world” rather than “the physical, natural world and needs to be studied differently”.
- Essentially, these researchers expound subjective meanings of their experiences, noting that these meanings are diverse and multiple (Creswell, 2013; Jennings, 2005a; Saunders et al., 2019, p. 148; Lincoln, 1990, p. 72). This leads the researcher to seek for “the complexity of views rather than narrow the meanings into few ideas” (Creswell, 2013, p. 24; Saunders et al., 2019)
- Ultimately, the researcher depends on the views of participants in a given situation, which are constructed in their minds through interactions (thus social construction) (Guba, 1990, p. 27; Creswell, 2013) as well as historical and cultural norms embedded in the lives of these participants (Creswell, 2013).
- Holistically, Saunders et al. (2019), note that social constructivist research seeks to construct “new, richer understandings and interpretations of the social world in context”.

Ontological Beliefs (the nature of reality)	Epistemological Beliefs (how reality is known)	Axiological Beliefs (role of values)	Methodological Beliefs (approach to inquiry)
i. “Multiple realities are constructed in the mind through interactions with others and our lived experiences, therefore relative” (Creswell, 2013, p. 36; Guba, 1990, p. 27; Denzin and Lincoln, 2005, p. 27).	i. ... and that of epistemology is subjective, that is to say, “how reality is co-constructed between the researcher and the researched and shaped by individual experiences” (Creswell,	i. Values of participants are held in high esteem and discussed among participants (Creswell, 2013, p. 36; Saunders et al., 2019, p. 145; Lincoln, 1990, p. 78)	i. Methodologically the social constructivist “proceeds in ways that aim to identify the variety of social constructions that exist among

<p>ii. Social constructivist ontological and epistemological approach specifically to institutions (Carlsnaes, 1992, p. 247; Wind, 2001, p. 63) are based on the belief that “human action in general is rule-governed, which means that – with the exception of pure reflexes or unthinking conditioned behaviour – it becomes understandable against the background of norms embodied in conventions and rules which give meaning to an action...”. “Accordingly, not only must an actor refer to rules and norms when he/she wants to make a choice, but the observer, as well, must understand the normative structure underlying the action in order to interpret and appraise choices” (Kratochwil, 1989, p. 11; Wind, 2001).</p> <p>iii. In context of this study, the research, with regards to ontological beliefs, will give account on the multiple viewpoints between the six categories of actors/unit of analysis/institutions related to the</p>	<p>2013, p. 36; Guba, 1990, p. 27; Denzin and Lincoln, 2005, p. 27).</p> <p>ii. Epistemologically social constructivist contend that, “subjectivity is not only forced on us by the human condition as the postpositivist avow, but rather it is the only means of unlocking the social constructions held by participants if reality only exist in the minds of these participants, then subjective interactions appear to be the only means to unlock them” (Guba, 1990, p. 26).</p> <p>iii. In light of epistemological beliefs in context of this study – the researcher will depend on subjective quotes from the units of analysis/the six category of actors/institutions related to the provision of road-</p>	<p>ii. Considering axiological beliefs in context of this research– the researcher will conscientiously indicate any biases – accept and work with these biases - to ensure that findings and conclusions are a true reflection of the phenomenon of interest under study.</p>	<p>participants and bring them as much into consensus as possible” (Guba, 1990, p. 26) or as Creswell (2013, p. 36) puts it, “the use of inductive method of emergent ideas (through consensus) obtained through methods such as interviewing, observing, and analysis of texts” and “the literary style of writing used”.</p> <p>ii. In context of this research, methodologically this study is pursued with an inductive mode of reasoning informed by the philosophy of social constructivism in</p>
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<p>provision of road based public transport in Accra city (Ghana) and that of Dar es Salaam city (Tanzania) as themes develop inductively from the content analysis as findings with the view of answering the research questions.</p> <p>As Patton (2015a, p. 131) asserts, bearing in mind the six categories of actors, it is pertinent to embrace the fact that “human beings are actors in the social world rather than re-acting like objects in the natural world”. Furthermore, Hay (2016, p. 532) adds to the ontology of social constructivism in this regard, positing that, the nature of reality is reflectively institutional – in that “it is institutions that characterize social as distinct from natural reality”.</p>	<p>based public transport in Accra city (Ghana) and Dar es Salaam city (Tanzania) as evidence and spend time in the field with these actors during data collection (in the case of this research - it was undertaken remotely – see section on method of data collection in this chapter), to become an insider.</p>		<p>the field of social sciences.</p>
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Source: Author’s Construct, June 2021

