

# Why they cycle more in Tanga than Dar es Salaam?

*A comparative study on challenges and  
Motivators to cycling in Tanzania*

**Thabit Mikidadi Kitamu**



Master thesis in Culture, Environment and  
Sustainability

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# Abstract

The world is facing new and challenging realities impacting our environment. Several efforts like the world climate conference try to reconcile nations and their interests to align on the common goal of reducing greenhouse emissions and limit the global temperature increase. The contribution of developing countries towards achieving this goal is necessary especially this time where emissions are shifting from the north towards the south, their contribution can be achieved through adoption of different strategies on national and international level. One of the strategies is through impacting the transportation sector, specifically urban commuting through bicycles. Bicycles have shown to be the most effective way of sustainable urban commuting because of being zero emitters and more efficient than walking. In many African cities especially South of the Sahara, cycling is underutilized as an efficient and cheap way of commuting even though cycling can bring many benefits like easy access to social services, employment as well as health and environmental benefits.

This study is based in Tanzania, in cities of Dar es Salaam and Tanga. The inspiration of this study is drawn from the underutilization of cycling in Dar es Salaam compared to Tanga. This study focus to find why there is low bicycle use in Dar es Salaam and why there is high bicycle use in Tanga. The objectives of this study is to generate knowledge through theory to explain reasons behind differences in commuting choices in cities, that is what make people commute the way they do.

Through the research questions: *What are the factors behind the low bicycle use in Dar es Salaam and what are the factors behind high bicycle use in Tanga*, this study found out that different aspects shape the way people commute in cities, even though these cities might have several similar characteristics. People base their commuting decisions through factors like safety and facilities, geographical features like weather, topography and city structure, availability of alternative transportation, history and cultural beliefs as well as influence of policy and advocacy.

Through the application of Social Practice Theory, specifically the study of cycling as a practice. These factors were able to be grouped according to elements of practice i.e. materials, competencies and meanings. Social practice theory enabled this study to narrow down its analysis to a single factor 'cycling'. Through the theory we see that these factors (elements of practice) are not independent, they depend and affect each other. Furthermore, these elements of practice show a pattern of influence, where a single element is so strong to influence a whole practice, in the case of this study: income was powerful enough to influence social norms and consequently enables the determination of the number of cyclist. Also, these factors together they carry a practice through an evolution, where we see practices evolve to become dominant and end up influencing other practices.

This study concludes: the reason why Tanga has more cyclists is because, income of residents is still low and with the prevailing social norms, if income starts to rise, people are likely to abandon cycling. Dar es Salaam has few cyclists because the commuting lifestyle is dominated by public transportation which affects cycling negatively. The study recommends the integration of non-motorized transportation especially cycling into the public transit networks and creation of barriers to reduce the dominance of motorized transportation in cities accompanied by massive public campaigns to normalize cycling in cities.

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# Abbreviations

SUM- Center for Utvikling og Miljø

CO2- Carbon Dioxide

UWABA- Umma wa wapanda Baiskeli

DART- Dar es Salaam Rapid Transit

PTU- Public Transport user

BU- Bicycle User

UDA- Usafiri Dar es Salaam

GDP- Gross Domestic Product

CBD- Central Business District

CO- Car owner

RRE- Regional Road engineer

MCU- Motorcycle user

# 1 Introduction

## 1.1 Cycling and sustainable development.

In the eyes of sustainable development, bicycles are considered as an important mode of transportation in urban areas (Buehler and Pucher 2012). Bicycles come with many benefits ranging from pollution reduction (both local and global), easiest to maneuver and operate, lowest costs in maintenance, as well as positive health outcomes. Cycling is more convenient in urban areas compared to private cars and public transport as it demands low infrastructure upgrade and also it doesn't occupy large parking space and saves time wasted in traffic. Also bicycles are important instruments in combating CO2 emission resulted from burning fuels in motorized transportation in urban areas.

The use bicycle has been on the rise and it is becoming a norm in many cities in the western world, with lot of supply side efforts like construction of bicycle lanes and strategic policy interventions like increasing parking fees in central areas; a dramatic increase of bicycle use in developed countries like U.S and Canada has been witnessed. Some North American cities have recorded a triple increase in bicycle commuting in a span of 20 to 30 years (Pucher, Buehler and Seinen 2011).

In the global south, greenhouse gases emissions in developing countries especially India, Brazil, Malaysia and China have been increasing rapidly in recent years. According to report published by PBL in 2014, emissions from big developing countries (India, China and Brazil) contribute to 12% of total global emissions while other developing countries contribute about 15% (PBL 2015, 24).

The 2015 Climate Conference in Paris has laid new goals and strategies to reduce emission, limiting global increase of temperature and reach sustainable development, perhaps it is the best deal we have right now. The outcome of the conference recognizes the urgent need for the developed countries to enhance the provision of finance, technology and capacity building in developing countries in order to facilitate mobilization of support in climatic change adaptation and mitigation (UNFCCC 2015). These new strategies will target local initiatives to support sustainable development in diverse sectors from transportation to agriculture.

To reach these new strategies, some measures like technological innovations, life style changes and new economic models sound promising (Dryzek and Stevenson 2011) but the use of simple and easily adaptable solutions like cycling in reaching these new goals is imperative. This is because, reducing emissions involves a significant change in the way economies operate, especially in production and consumption. Implementing changes like energy use, storage, transportation and generation is costly and it takes time (Epstein 2007) and not many countries can afford.

## **1.2 Africa, economic growth and the middle class; a challenge to cycling?**

Realities in Africa are different: While African economy is growing very fast, it does come with consequences. In 2010, the population of Africa was 1.1 Billion, with people in the middle class reaching 335 Million. In 2060 when the population is expected to be doubled, also the middle class will reach 1.1 Billion people (Deloitte 2014). Therefore Africa is expected to become a large consumer of power hungry households and transportation products.

In Africa, the urban share of population has increased from 19% in 1960 to 39% in 2011 and it is expected that in 2040 about half of Africa's population will be living in cities. Dar es Salaam, Nairobi and Kinshasa are among the fastest growing cities (ADB 2014, 8-9). The rising middle class led to increase in the demand of private cars in Africa; like other developing countries in the world, for people belonging in the middle class a car is an icon of inspiration for wealth, status and comfortable living. Likewise, it is also a way of showing off that you're successful in the new emerging economy (Hansen and Nielsen 2014, 74-75).

Majority of cars imported in Africa are second hand. Similarly, Africa has weak quality assurance institutions, which perpetuate importation of cheap cars which were rejected in the industrialized countries because they were hazardous to the environment.

Increase of motorized vehicles is not coupled with the improvement of infrastructure in most of the African fastest growing cities; hence, consequently, social, economic and

environmental negative impacts are widespread. Traffic congestion in major cities has been a talk of decade, for example in Dar es Salaam by 2010 it took 1 hour and 21 minutes to travel just 16 Kilometers (CEP 2010), moreover, air pollution, economic losses due to lateness in working places and fuel wasted in traffic jams culminates to worsened quality of life.

Ambitious infrastructure projects are planned and some have been launched, but they target to solve the problem of motorized traffic flow and not other environmental problems associated with the increase of motorized vehicles in cities. Bicycle use remained to be low, and seen as an inferior choice of transport. In Dar es Salaam for example, cycling fetch a lowest modal share estimated around 5% compared to other transport modes like personal motorized vehicles (10%), public transport (60%) and walking at 25% (JICA 2008). This study geared to find potentials and pitfalls to cycling in Tanzania, aiming to find solutions which will be able to integrate cycling in sustainable development goals.

## **1.3 Background of the problem and Rationale**

### **1.3.1 Bicycles in Tanzania (a short history).**

There is neither kept history on when the first bicycles arrived in Tanzania and how well they were used nor any documentation showing how bicycle plays a role in family or society dynamics. However, bicycles have been around during the colonial era (both German and British) and it is certain, bicycles were a norm even after the independence.

Bicycles have been used in Tanzania as a transport means in both rural and urban areas. Before people could afford cars and when there was no public transportation, bicycle were a second most dominant means after walking.



*A wooden Bicycle, a prototype made by children in villages in Tanzania, from a National Museum collection in Dar es Salaam, source [www.maladonadventures.blogspot.no](http://www.maladonadventures.blogspot.no)*

Earlier bicycles were mostly imported from western countries i.e. the colonial rulers (Germany or Britain) but during the Ujamaa period, most bicycles were imported from China and later on in 1970s a plant was established in Dar es Salaam. During the economic reforms of late 1980s and early 1990s, importation of much cheaper bicycles led to closure of the then only bicycle plant and as a result, since that time, many of the bicycles in Tanzania are imported ones. Large proportion of bicycles used in Tanzania are single geared one, they are more preferred due to their affordability.

Bicycle dominated the traffic flow in many towns for decades; they were both at the same time, personal transport equipment and also public one; (the practice of hiring bicycle taxis is still customary in Tanga, Shinyanga and Tabora). But when public transport became prevalent in many parts of Tanzania, the overall share of bicycle in urban transport has been declining. Bicycle is more and more pushed to the edges and seen as an inferior mode as most of the infrastructure favors motorized transport (Nkurunzinja et al. 2012).



*Bicycle rally in Dar es Salaam, 1973, source Uhuru Tuesday Feb 13, 1973.*

### **1.3.2 Personal Motivation**

#### *The case of Tanga and Dar es Salaam.*

I was born and raised in Dar es Salaam; bicycle was mostly a recreational item. When I was young we ride bicycles mostly in family compounds; we were not allowed to go with them on the motorway because it was dangerous. So most children grew up with the fear of using bicycles in roadspace and hence, overtime it impacted our choice over it. As I grew up bicycles were hardly seen around as more and more cars poured on the city roads. Street vendors (especially those who sell and transport eggs) were the one who use bicycles mostly as it was easy to maneuver with them across the city selling their product.

Surprisingly in Tanga, there is an overwhelm dominance of bicycles. In fact, bicycles outnumber motorcycles and cars and are the most dominant mode of transport excluding walking.

Children ride bicycles to schools, residents use bicycles to navigate the city and if you don't have one you can always lend one for few hours or hire on the bicycle taxi. The dominance of bicycles in Tanga is somehow strange because Tanga has many characteristics like Dar es Salaam but it does not host such a traffic nightmare like that



of Dar es Salaam. It is very easy to use bicycle in Tanga and it is a normal thing but not in Dar es Salaam.

When I moved to Norway for studies, I discovered that, bicycles can be a dependable transport mode. I came to learn that, Oslo Commune ultimately pointed out that it will not increase the capacity of roads to accommodate private vehicles and in future plans and transport needs, private cars will not be a priority (Dyblie 2014). Furthermore, Oslo sentrum is geared to become car-free in 2019 (The Guardian 2015). With an exposure to current environment and development trending, I learned that bicycles will be the future of urban sustainable transportation in all cities of the world both in developed and developing countries. Therefore I thought, it is important to investigate some factors in geography, culture, economy and politics so that we can develop appropriate measures to arrive in such a utopia.

This inspiration motivated me to investigate what makes people in Tanga use more bicycles than their counterparts in Dar es Salaam; also why in Dar es Salaam it is very hard to use bicycles compared to Tanga. From there, I will be able to know the barriers towards a successful and sustainable cycling in Dar es Salaam and Tanga.

### **1.3.3 Rationale**

Knowing why people commute the way they do and reasons behind their choices is an important input in sustainable policy formulation and implementation (Andenes 2014). The fact that Tanga has a vibrant, old cycling community compared to Dar es Salaam, and both of them being in an almost the same geographical location, share a close history and background gives the urge to investigate and find the full picture for this differentiation. Furthermore, the future of cycling will always depend on people, hence knowing their perspective on what they use to commute will help to foster the strategies to increase modal share of bicycles in cities in Africa.

The climatic challenges facing the world, transport problems in major cities and attainment of sustainable development drive a major rationale behind this study. The potential for bicycle transportation in Africa is huge; as a transport mode, bicycles can provide a better access of social services in urban areas as well as create employment opportunities especially to the poor urban population (Bryceson, Mbara and Maunder

2003, DFID 2002). Therefore, this study is geared to discover some knowledge about cycling in African cities, which will help to find solutions to multiple issues i.e. lowering of CO<sub>2</sub> emissions in cities, appropriate strategies for the introduction of cost effective and environmental friendly mode of transport which together eventually, will pave a way towards attaining sustainable development goals.

#### **1.4 Research question.**

The main problem which led to the birth of this study was a huge difference on bicycle modal share between Dar es Salaam and Tanga. With so many problems in public and private transportation in Dar es Salaam, the city can become a vibrant cycling city if certain factors will be considered in policy making and implementation. Moreover, to keep the current trends of cycling in Tanga as high as possible, all factors which might contribute to its decline should be known. Furthermore, appropriate policy intervention will be fruitful if we know how people perceive cycling as a mode of transportation.

Therefore, the main objective of this study is to investigate the factors behind low bicycle use in Dar es Salaam and high bicycle use in Tanga (both are cities in Tanzania). From that knowledge the study geared to find what are the challenges people face when they use bicycles and what are the motivators towards the adoption of cycling. Hence, this study will be operationalized through the following research questions.

**What are the factors behind the low bicycle use in Dar es Salaam?**

**What are the factors behind high bicycle use in Tanga?**

Through these research questions, the analysis will compare and contrast bicycle commuting in Tanga and Dar es Salaam. After discovering motives behind people decisions to choose or not choose cycling and the dynamics in the community, economy, geography and infrastructure which shape their choices; this study can be applied in formulating effective, sustainable policy interventions in urban transportation. Furthermore, by knowing how people perceive bicycle in their localities, will help to find effective ways to integrate a healthy and vibrant cycling culture.

## **1.5 Reader's guide**

This thesis will be organized in five chapters; the first chapter which is the introduction will be followed by the methodology. The third chapter which is the literature review and theory will look upon the background of cycling discourse which informed this study and explore the applied theory which is the Social Practice theory. The fourth chapter will present the findings from the field work, accompanied by the analysis and discussion through the lens of the Social Practice Model. The last chapter will be the conclusion which will highlight the implications of this study and present some recommendations.

## **2 Methodology.**

This chapter will discuss in details the methodological approach employed in this study. It will start with the motive behind the choice of the method, followed by the choice of respondents, issues in data collection and lastly, ethical considerations during the fieldwork. The research questions, length of time in the field, availability of resources and respondents together have influenced the choice of method in this study.

### **2.1 Choice of the method.**

With array of choice in methodological approaches, from quantitative to mixed methods, in this study, qualitative method has been employed. Qualitative method is the one in which the researcher often makes knowledge claims based primarily on constructivist or participatory perspectives or both. It is a method which also uses strategies of inquiry such as narratives, phenomenologist, ethnographies, grounded theory studies, or case studies (Creswell, 2003). Qualitative method approach includes different techniques like interviews, observations, document review and focus group discussion. In this scenario Qualitative method enables a researcher to conduct in depth study which helps to explore a phenomenon in its real-world setting, learn how people cope and thrive in different environments and capture the contextual richness and dynamic of people's everyday lives (Yin, 2011). Furthermore, among other attributes of Qualitative method is, it analyses phenomenon without specifically measuring variables even though the data can be expressed numerically (Wimmer and Dominick 1983, 19), hence, unlike the wide quantitative surveys, qualitative methodology considers a profound and integrated approach in finding information about social processes and individual experiences which are crucial in understanding different social phenomena. In this study, qualitative method has been used because of its ability to enable people to tell about their knowledge, perception and experience of everyday lives with relation to cycling culture.

### **2.1.1 Research Design**

Bryman (2008, 30-31) defined research design as a tool which provides a framework for the collection of data and analysis, alternatively, it is a structure that guides the execution of research method and the analysis of subsequent data. Research design represents the first step in organizing and planning the research process once the research idea and research hypothesis have been clearly outlined (Toledo-Pereyra 2012). The choice of the research design usually depends on the issue at hand or the nature of the phenomenon which will be observed and reflects decisions about the priority being given to a range of dimensions of the research process (Bryman 2008, 31) reflecting that, the priorities of this study were to observe the difference in urban cycling culture: the phenomena which involves people and their everyday practices. Yin (2003, 21) pointed out that, the main purpose of the research design is to avoid the situation in which the evidence does not address the initial research question, hence, careful execution of the research design will ultimately leads to the successful data collection parallel to the nature of the investigation.

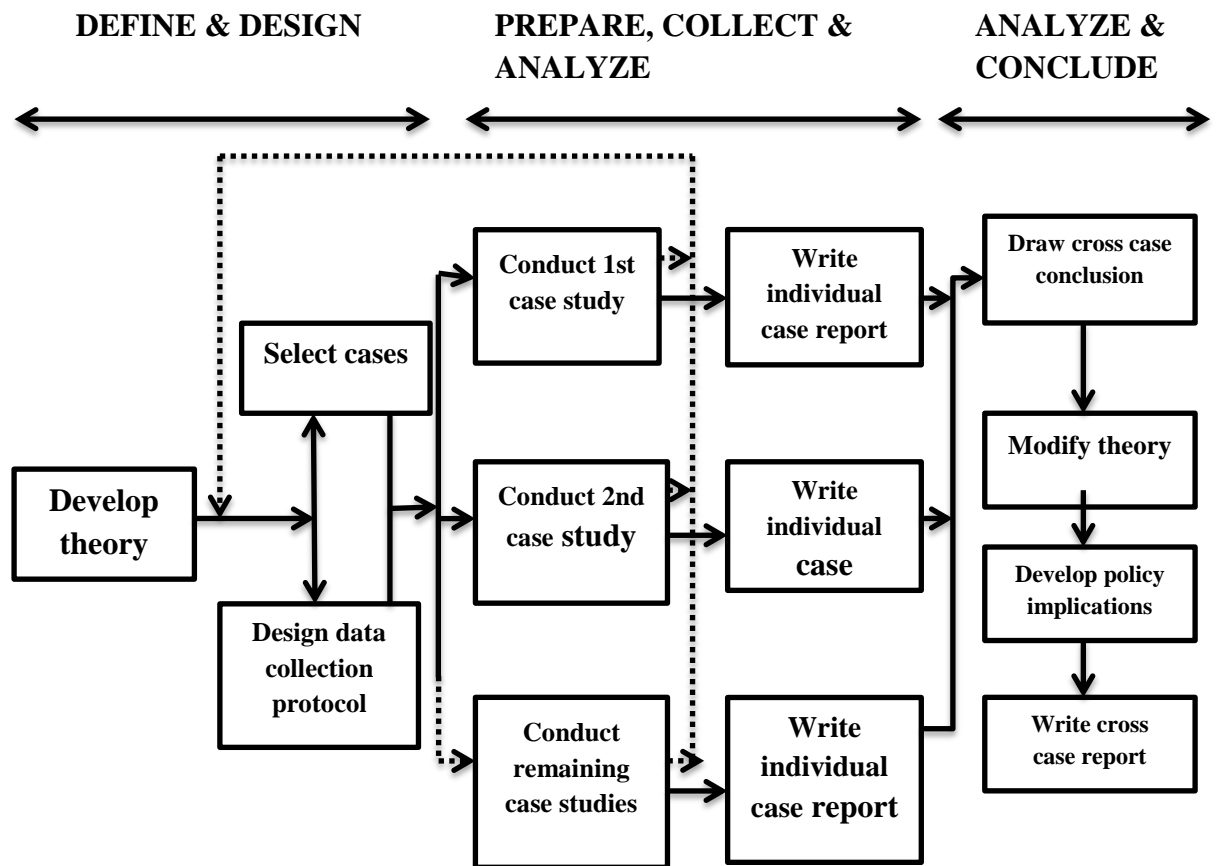
The research questions for this study were, what are the reasons behind a thriving bicycling culture in Tanga and what are the reasons behind a low bicycling culture in Dar es Salaam. Hence, this study involves two cities in Tanzania and it is trying to explain the reasons behind unparalleled conditions in cycling behavior between them; therefore for the investigation to be successful, this study adopted the comparative research design. Comparative research design is defined by Bryman (2008, 58) as the design which entails to study two contrasting cases using more or less identical cases, it implies that we can understand social phenomena better when they are compared in relation to two or more contrasting cases or situations. This study chose a comparative approach because of its ability to describe the contrasting patterns and layout between two or more societies.

Comparative research design is fundamentally a small sample size technique and typically used when researcher have substantial knowledge of each case included in the investigation (Lewis-Beck, Bryman and Liao 2004). Likewise, most comparative studies start with a simple idea that social situations may parallel each other sufficiently

to permit comparing and contrasting them (Lewis-Beck, Bryman and Liao 2004), just like Tanga and Dar es Salaam, the fact that the former has a thriving cycling culture compared to the later, was a reason behind the curiosity on why there is such a difference giving that, these two cities have a lot in common.

In this comparative study, the research employed the *multiple case study technique* in its design, multiple case study technique involves studying two or more case studies in depth with a light of finding similarities or differences between them, in this technique, every case which is investigated must serve a specific purpose within the overall scope of inquiry (Yin 2003, 47); hence, Dar es Salaam serve a specific purpose of telling what are the reasons behind a low modal share of bicycle in a typical African city and Tanga gives us the opposite. Each case was careful selected so that it either predict similar results or predict contrasting results for predictable reasons (Yin 2003).

The choice behind this technique follows the rationale where, results from the multiple case studies are considered more compelling and also the overall study is also considered more robust (Herriott and Firestone 1983 in from Yin 2003, 46). Furthermore, multiple case studies strengthen and broaden the analytic generalization in a manner similar to the role of multiple experiment (Bickman and Rog 1998) therefore, by comparing two or more cases, theory building capacity is enlarged and the researcher is in a better position to establish the circumstances in which theory will or will not hold (Eisenhardt 1989; Yin 2003 in Bryman 2008, 60). Case study tests are more appreciated when theories being tested involve complex relationships (Moses and Knutsen 2007, 139) this is because, case study research is not a sampling research, it does not study a case to understand other cases rather it aims at understanding what has been learnt and later on even modify our generalizations (Stake 1995, 4). Case studies in comparative study can involve complex, large relationship as well as simple relationships. While preparing the design of this study, the researcher adopted a simple model which illustrates the execution of the multiple case study research as seen in the diagram below.



*Case study Method*

Source: COSMOS Corporation in Yin 2003, 50

The above diagram summarizes the layout of how this comparative study was conducted by employing the multiple case study technique. The study involved cases of two cities in Tanzania, and aimed to understand the factors behind the difference in their cycling modal share. The first step which was theory development will be dealt with depth in the theoretical framework chapter. After the theory adaptation, the next step was the design of data collection tools given that, the cases were already chosen. The field work followed, which involved the collection of data in the cities of Dar es Salaam and Tanga and hence the writing of individual reports which gave the study important themes which were analyzed with accordance to theory. After the analysis of data from both cases, the conclusion was reached and policy implications were developed.

The multiple case study technique though effective is not the most superior in all scenarios, this technique still has some problems associated with it and they were considered during the execution of this study. Unlike other methodological approaches, one of the problems of the multiple case comparative study is the inability of this method to assess the prevalence of a phenomenon (Yin 2003, 47); this happens when there are more to investigate outside the cases and in order to keep the pace of the research focused, it becomes difficult to include everything; this makes the case study approach ineffective in generalization. The solution for this sort of a problem, as suggested by Punch (2009, 121) is to select cases which are ‘so important, interesting or misunderstood so they deserve a study on its own right or they might be unique in some very important respects hence, building an in-depth understanding of the case becomes valuable.

Another problem argued by critics of this method like Dyer and Wilkins (1991) is the tendency where researchers pay less attention to the specific context and more to the ways in which the cases can be contrasted, that is, researchers focus on distinguishing characteristics between the cases instead of specific attributes belonging to individual cases; the proponents of this technique on the other side, proposed to adopt in many instances, a more open-ended approach towards each case because the key to the comparative study is its ability to allow the distinguishing characteristics of two or more cases to act as a springboard for theoretical foundation about contrasting findings (Bryman 2008, 61).

## **2.2 Data Collection**

### **2.2.1 Informants**

#### **Selection of informants and Sampling.**

*‘The biggest questions all researchers need to ask themselves are; what they want to accomplish and what they want to know, the appropriate sampling will follow from that’.* (Palys 2008, 698)



All types of research involve sampling, this is because, no study whether qualitative, quantitative or both can include everything in its scope, even a case study, where the case itself might be straightforward, will require sampling within the case, this is because we cannot study everything even in one case (Punch 2005). Sampling is usually highly employed in quantitative research; this has created confusion on the use of the term 'sampling' in qualitative research (Neuman 2011, 241). This is because in qualitative studies it is rare for a researcher to collect a small group which will represent the whole population and hence reflect a mathematical accuracy reproduction or generalization but instead, in case study research we sample to identify relevant categories at work in a few cases (Neuman 2011). Case study research might be approached with different styles of sampling, there is no one best sampling strategy because which is best will depend on the context in which researchers are working and the nature of their research objectives (Palys 2008, 698). In that view, this study considered the use of *purposive or judgmental sampling* in the selection of informants.

*Purposive or judgmental sampling* is a valuable type of sampling for special situation where the researcher basing on his/her judgment use a wide range of methods to locate best subjects who fits to the criteria of his/her study (Neumann 2011, Kent 2007). This type of sampling involves selecting relevant people to interview who mirror the research question. Bryman (2008, 458-462, 184) outline a basic guidance for his type of sampling where, the researcher has the choice to use different approaches to reach the target population in his research. First, this type of sampling can use the snowball approach where the researcher use initial contacts to a small group of people who are relevant to the research topic and then uses these contacts to establish contact with others and second, the theoretical sampling approach where a researcher sample interviewees until his/her categories achieve theoretical saturation, from there the researcher can select further interviewees basing on the emerging theoretical focus.

This study adopted the snowball method, where with available resources at hand (time and funds) it was a more feasible approach. This study did not chose the theoretical sampling approach because it is an iterative one, involving moving forward and backward between sampling and theoretical reflection in order to reach the theoretical saturation (Bryman 2008, 458) and hence require a long time of processing.

For the cases of Tanga and Dar es Salaam, I use the snowball approach in selecting the interviewees for the study. First, with the help of the internet and mobile communication I was able to establish contacts with the organization of bicycle riders in Dar es Salaam (UWABA-Dar) which later on helped me to reach the organization of bicycle riders in Tanga (UWABA-Tanga). Likewise, by using the initial local contacts, I was able to establish contacts with all officers interviewed in this study.

The way the researcher sample, must be tied to their objectives (Palys 2008), hence, by reflecting the objectives of this study which are to discover the factors behind the low and high bicycle use in Tanga and Dar es Salaam respectively, in choosing informants, this study considered the following issues as outlined by Punch (2005):

- *Who will be interviewed and why?* This is to filters responses which will answer the research question. During the fieldwork, the following categories of people were interviewed: Bicycle users, Non-bicycle users (those who use motorcycles, public transport and private cars) and government officials. Bicycle users gave this study information on why they use bicycles, what are the motivators, challenges and their perspective about cycling, non-bicycle users responded on reasons why themselves and other people don't choose bicycles, additionally their perspective regarding cycling and lastly government officials gave this study knowledge on policy making and implementation in transportation sector, city planning and government priorities in environment and climate issues.
- *How many will be interviewed, and how many times each person will be interviewed?* This is to determine how many people will be enough to construct a relevant debate to answer the research question, also for the matters of clarity and consistence; how many times a person will be interviewed. The number of interviews also reflected the resources available i.e. time and finances. In this study, 27 people were interviewed in all cities; 6 bicycle users were interviewed in each city, 5 non-bicycle users were interviewed in Dar es Salaam and 4 in Tanga, while 3 officers were interviewed in Dar es Salaam and 3 also in Tanga.
- *The exactly location where the interview will take place:* to make the study relevant, the choice of interviewees was also based on their residences, all interviewees were selected from urban and suburban areas, that is, informants

were supposed to be living within the city limits. Interviews were conducted where the informants felt comfortable, in homes and places of work.

The following table summarizes the distribution of informants from both cities.

CITY	TYPE OF INFORMANTS	NO
Tanga	Bicycle users	6
	Non-Bicycle users	4
	Officers (city council)	3
Dar es Salaam	Bicycle users	6
	Non-Bicycle users	5
	Officers (city council)	3
TOTAL		27

A summary of information about informants is available in the appendix.

### **2.2.2 Field work**

This subsection will thoroughly discuss the fieldwork process. Prior to the launch of the fieldwork, the researcher planned to use about one month to finish collecting all necessary data and another month in organizing and transcribing. Furthermore, a study of literature which involve bicycling in general and developing countries in particular was undertaken in order to obtain prior information about the topic. The actual time used during the fieldwork was determined by the availability of informants and their readiness to contribute, also resources like funds. Therefore, the fieldwork process took about one and half month to complete and the data organization time took another two month to finish. Before leaving for Tanzania from Norway, the researcher was able to establish contacts with possible informants for example UWABA and friends, also using family contacts he was able to secure appointments with several officials in both Dar es Salaam and Tanga city councils. Main techniques of collecting data were interviews, participant observation and document reviews.

### **2.2.3 Interviews**

In studying social practices, there is an increase in the use of other methods differently from interviews like auto-ethnography, photo diaries and videos as a means of accessing certain important but ‘unspeakable’ aspects (Hitchings 2012), the use of interviews solely in studying practices is under scrutiny because, as argued by Hitchings (2012, 61) ‘practices are too difficult for respondents to talk about as a result of being sedimented down into unthinking forms of embodied disposition or because this method is out of step with a current enthusiasm for research styles that do not focus unduly on the representational’, because of this, the use of ethnographic methods is very important in studying how practices are performed, but it doesn’t mean interviews cannot capture the totality of practices as they are executed. Therefore, when making decision on what kind of methodology this study will employ, the researcher sided with Andesen (2014, 24) where together with Hitchings (2012, 62) opposed the critique of using interviews in studying social practices by outlining the importance of interviews in understanding why individuals carry certain practices and not other.

Because this study focused on understanding why individuals in societies make certain decision when they want to commute, the use of in depth semi-structured interviews was a viable option. Bryman (2004) defined Semi- structured interview as a type of interview where the researcher has a list of key themes, issues, and questions to be covered, often referred as an interview guide. The use of semi-structured interviews is hailed for having the possibility to obtain in depth information where the participants have a great chance to respond in their own words and express personal perspectives. Furthermore, there is opportunity to formulate implicit messages and the advantage of reformulation and clarification of questions to the participants while allow the most flexibility and responsiveness to emerging issues for both respondents and the interviewer (Kvale and Brinkmann 2009; Schwandt 2001, 135).

#### **Administration of interviews.**

Interviews are essential sources of case study evidence because most case studies are about human affairs (Yin 1989, 90). In conducting interviews in this study, flexibility and comfort was highly targeted to ensure reliability of answers. All interviewees were given a choice to choose where and when they are comfortable to conduct interviews.

While executing interviews with officers, most of them were working, hence periods of pause and breaks were numerous to allow them to attend their responsibilities. Interviews time ranged between 25 minutes to 1.5 hours, this was because of the nature of semi-structured interviews where the respondents with high degree of expression will take longer to interview compared to those who have low degree of expression. All interviews were recorded using a digital recorder and conducted with a guide of pre-prepared interview guides, interview guide in semi-structured interviews is important because it helps the researcher to focus on the major themes (Kvale and Brinkmann 2009). And lastly, to ensure the consistency of answers all interviews were asked the same questions, as suggested by Gilham (2005).

### **Access**

Gaining access to conduct interviews was not a challenge in this study, mostly because, many people were very interested to the topic as it was somewhat new, for example in Dar es Salaam, people were reluctant to believe that cycling can be a dependable mode of transportation in the city, so they were interested to hear my questions. To the bicycle users in Dar es Salaam, they were more interested because they believe this research will be able to address some of the problems they come across while cycling around the city. UWABA-Dar has been a huge help in the success of many interviews, as they were ready and very welcoming, they also provided contacts and introduction to UWABA-Tanga.

### **Challenges**

In the interview method, some challenges like logistics and the mechanism of arranging and conducting interviews, evaluating costs and benefits of various interview methods might occur (Schwandt 2001, 135). In this study, during the time interviews were conducted, some challenges were encountered, for example, some informants came late in the appointments others were in hurry to finish so they can return to their workplaces. Also, noise in recording caused by passing traffic especially to those interviews which the researcher had to conduct outside, interruption by family members or co-workers and sometimes power shift between the researcher and the informant especially if the informant is older and more talkative.

## 2.2.4 Observations

Though interviews are essential and good choice in investigating cases, we cannot rely on them fully, other methods better be applied to get a different and fresh perspectives of situations. When studying social practices in the area of commuting, during the fieldwork, the researcher became active by applying participant observation technique, which is defined as the method in which the researcher takes part in the activities, rituals, interactions and events of the people as one of the means of learning the explicit and tacit of their life routines (DeWalt and DeWalt 2002, 1) through participant observation, it is possible to describe what goes on, who or what is involved, when and where things happen, how they occur and why (Jorgensen 1989, 12).

Participant observation is a better method because it has a special interest in human meaning and interactions viewed from the insider's (participant) perspective, it involves observing everyday life situation or setting and hence useful in critical theory examination (Jorgensen 1989, 13). Participant observation also enhances the quality and interpretation of data obtained in the fieldwork, whether that data is obtained through participant observation or other methods like interviews (DeWalt and DeWalt 2002, 8).

During the fieldwork, the researcher was involved in using different or alternative transportation modes; he wanted to see critically different commuting choices by using multiple city transportation choices. *First* it was the public transportation, which is the most common in Dar es Salaam but not in Tanga, either way he was able to distinguish different features of this kind of transportation in both cities and why some people choose it others do not. The researcher took long route and short route buses in both cities and sometimes held casual chats with passengers, the conductor or the driver. *Second*, it was motorcycle taxis, known as "Bodaboda" in Kiswahili; they are the new addition to the public transportation choices and mostly chosen by people living in areas without bus networks or in hurry and cannot wait in the long traffic jams. Bodaboda transportation is also associated with the highest accident rates in the country as it has been so hard for the government to regulate them, but still it is seen as a suitable low cost transportation compared to taxis and private cars. The researcher used bodaboda to go to different places and also, He was able to distinguish between riding styles in city main roads as well as street roads. *Third*, the use of private cars, the researcher wanted

to get a glimpse of why people choose to use private cars even though mobility in Dar es Salaam roads is hard. *Fourth*, researcher used bicycles in both cities, in Dar es Salaam, he used bicycles to move from home towards town and back, especially during the time of document review where he was visiting various offices, also used a hired bicycle in Tanga to take him around the city suburbs and when visiting interviewees who wanted to be interviewed in their home and workplaces. *Lastly*, the researcher involved himself in observing how different transport users interact with each other, that is, how commuter buses and private cars interact with each other as well as with Bodaboda, bicycles and pedestrians.

### **2.2.5 Document reviews**

During document reviews; books, charts, statistical reports, maps, newspapers and articles were reviewed to find different connections which link social practices, economy and politics to cycling in Tanzania. The main sources of these documents were libraries (University of Oslo Library, The Central Library in Tanzania and University of Dar es Salaam library), The National Bureau of statistics, City/Municipal archives, internet sources and DART offices. Document reviews were very important as some information are extremely difficulty to collect through interviews or observation especially background information and statistics, also they provide inter-connectedness of documents as most of them they refer to, or a response to other documents (Bryman 2008, 527).

During the document search, many challenges were observed, for example, most of the government websites were outdated hence most of the information they had was unreliable, absence of a well stocked central statistical database in Tanzania hence, many reports are scattered in Ministries and Regional governments which makes finding statistics to be very hard and cumbersome, as the researcher had to follow many red-tapes in the bureaucracy which cost a lot time. Furthermore, access to some information was hard especially old post-independence information which most of it is not available easily to the public. Some documents were highly unreliable as they portray political bias, and lastly unsupportive staff in public offices which made access very difficult and sometimes impossible.

## 2.2.6 Ethical considerations

Ethical responsibilities are attached and an integral to the research topic, design and planning. Ethical responsibilities are essential at all stages of research process, from the design to the completion of the study (Thomas and Nelson 1990, 370). Because many researches depends on various methodological approaches, one set of ethical standards is not helpful and enough, however, researcher must adhere to the matter of confidentiality of data and respondents, follow the laws and regulations of whenever the study is conducted and also respect and follow reporting standards.

Before the beginning of this study, the researcher obtained a letter of introduction from his supervisor, which was submitted during the application of the research permits to the regional administration offices in Dar es Salaam and Tanga. After obtaining the research permits, the researcher started the fieldwork. During the interviews, informants were asked, if their names should appear in the report, many of them agreed but some especially officers in public offices refused. No cash or reward was given during interviews and this was made clear at the beginning of each interview.

Miller and Brewer (2003, 95) argued that, social research is a dynamic process that often involves an intrusion into people's lives and therefore largely depends on the establishment of the successful relationship between the researcher and respondents. In the realm of data collection and matters of relationships between the researcher and those who are researched, Thomas and Nelson (1990, 370) advised that 'the researcher must give a greater deal of thought to these matters before collecting data and must be able to explain the significance of the study effectively and convey the importance of the subject cooperation in the language that the subjects can understand'. Hence, while collecting data for this study, the researcher ensured that, those who were interviewed understood the subject matter of the study, were comfortable to the questions asked, and at all time, they must see the research permit obtained from the Regional Administration offices. Furthermore, their consent before asking question was sought even though none refused to be interviewed.



# **3 Literature review and Theoretical framework**

In social sciences, one can argue that, a theory is a simplification of the world, basically it tells an illuminating story about some phenomenon, one that provides new insights and broadens our understanding (Given 2008, 879). Theory helps us to draw a map of our perception of the natural world and human interactions and together with the help of data and literature in the field, the researcher has the ability to look beyond the familiar knowledge and gain a wider supportive or even critical perspective.

This chapter will focus on the theoretical framework employed in this study and the literature review. The researcher will explore the realm of social research literature with a definitive eye on transportation and cycling in particular with emphasis in areas that will help us to answer the research question and lastly, he introduce the social practice theory with a focus to explain the unparalleled bicycling culture in Dar es Salaam and Tanga.

## **3.1 Literature of cycling**

As cycling is gaining a dominant role as a transportation choice in cities in many developed and developing nations, the interest to pursue the workings, motivations and drivers which led people to choose cycling is increasing, thus, several fields of study ranging from transport engineering to psychology have covered this field for decades now. The inspiration behind this study was drawn predominantly in the developing world setting, and the researcher is admitting that, there is no enough literature covering many specific issues related to cycling in developing countries. On this section of literature review, the researcher will highlight some important groups of literature that covers bicycle commuting and cycling in general. There are many areas of knowledge regarding cycling with dedicated areas of concentration from sustainable development to politics. However, because of space, it is not possible to cover all of them, but here we will cover literature devoted to perception about bicycle commuting, cycling facilities and promotion in developed countries, an overview on cycling in Africa and lastly integration of gender in cycling focusing on women.

### **3.1.1 Perceptions**

The literature of perception towards cycling is based on the behavioral concept of users of different kinds of transport modes and what picture the public have regarding the whole manner of commuting using different modes, specifically cycling. For example, how other people see those who use bicycles and what kind of behavior users of bicycles exhibit, this shapes what other people think about cycling and cyclist. In this cluster of literature, perception towards cycling can be directed in many ways most important from the general public towards cycling. As Daley and Rissel (2011) argued that, public image of cyclist can act as a facilitator or barrier towards cycling and the whole image towards the use of bicycles can be broken down into, separate images i.e. image of cycling in general and image of cyclist in particular. While cycling is seen as ‘clean and fun’ it can also be seen as ‘dangerous and serious business’ also cyclist can be seen as ‘risk takers and law breakers’ or belonging to a sub-culture of people who care about the environment (Daley and Rissel 2011, 211). Apart from general/public view, other studies were conducted to see perceptions of road users towards cyclist, especially motorists. Hence, studies by (Bassford et al. 2002; Fruhen and Flin 2015) found out that, motorists hold negative view of cyclist, the aggressive driving behavior towards cyclist was among the major causes of accidents in motorways and this was largely shaped by attitudes and social norms (Fruhen and Flin 2015, 162).

These few studies give us a general understanding of results of human interaction with users of different modes of transport on society points of view. They are important when addressing problems facing cyclist by focusing on how to change certain social norms which does not accommodate the idea of cycling. But this is just one way to look at barriers and facilitators of cycling, other factors plays a huge role in this; next sections will look on the influence of physical establishments, geography, culture and promotions and their influence towards cycling.

### **3.1.2 Facilities and promotion in developed countries**

This cluster of literature is based on the idea that; ‘if you build it, they will use it’; that is, proper infrastructure in place plus promotion will influence people to adopt cycling. In the last decade, several studies conducted in various developed countries have shown that, there is a positive relationship and significant correlation between good cycling

environment and high number of cyclist in cities and towns: the presence of cycling infrastructure increases cyclist perception of safety. (Dill and Carr 2003, McClintock and Cleary 1996). On the other hand, other studies agreed that constructing dedicated lanes for bicycles to increase cyclist safety is necessary but not solely optimal. The use of promotions together with infrastructure is basically needed to induce people to embrace bicycle commuting. Martens (2007) pointed out that, Dutch cities were successful to increase their cycling share by adopting several promotion initiatives including bicycle parking in train stations and combined use of bicycles and buses, this enabled people to use different modes of transport together with bicycles. Consequently, in several U.S cities, the high cost of car parking, availability of adequate bicycle parking in the workplaces, safety education to bicycle commuters coupled with the increase in safety of cyclist in traffic were able to induce many people to adopt bicycles in their daily commuting (Dill and Carr 2003, Handy and Xing 2011, 911).

These literatures give us an ideal course of action which enable people to move from dependence on cars to bicycle, by evaluating initiatives which makes the use of car unappealing while bicycle use become easy, safe and approachable. Nonetheless in this regard, the dependence on facilities and promotional policies will not work in all scenarios; influences of culture and geography are still significant especially when we look into the case of developing countries in the next section.

### **3.1.3 Cycling in Africa**

The researcher came in acceptance that, literature concerning cycling in Africa is very limited, this could be because, overtime, the focus of many African states was to strengthen the infrastructure for motorized transportation, which enables interconnectedness and the growth of economies. Because of this, idea of environmental sustainability through transportation was not given the same importance as economic growth, cycling, which would have provided a solution to many of the mobility problem in African cities, has not been acknowledged by the planning authorities (Rwebangira 2001). Therefore, over time, there is an increase in motorization in African cities as well as auto-dependency, like elsewhere, the increase of dominance of car use is attributed to economic growth, demographic and urban spatial expansion, the rise of the

consumption-oriented middle classes, and persistent inefficient, inconvenient and expensive public transport (Pirie 2013, 19).

The sustainability agenda to which development planning is today subject suggests that the links between cycling promotion and poverty alleviation in development are now recognized and increasingly important to bodies such as the World Health Organization and World Bank. Because mainstream transportation planning models do not work sufficiently in Sub-Saharan African cities where there is widespread poverty, pedestrian and bicycle mobility are the transport modes that can bring a win-win situation between improved economic productivity, social coherence and environmental sustainability (Rwebangira 2001).

Unlike the developed world, the reality of cycling in developing countries especially Sub-Saharan Africa is diverse. Due to poor infrastructure development, transport sector dynamics are totally different from that seen in Europe, America or even Asia. Motorized vehicles have low ownership in many cities in Africa, thus public transport and walking have dominated much of the commuting by residents in cities (Olvera, Plat and Pochet 2013, 58). Although, bicycles use in Africa may provide a better access to activities and facilities that are important to the society, like education, healthcare, employment and social interactions (Bryceson, Mbara and Maunder 2003), bicycles have been highly under-utilized in Africa, especially in cities and towns compared to many Asian countries like China, Vietnam and India. However, surprisingly while there is deficit on the use of bicycles in cities, in rural areas bicycles remain among the dominant mode of transportation (Pochet and Cusset 1999, 44).

Transport disparities experienced by people in many cities in Sub-Saharan Africa are grounded in social-culture realities and conditions, (Bryceson, Mbara and Maunder 2003) and also economic and physical environment factors (Nkurunzinja et al. 2012 b). For example, low use of bicycle in cities of Bamako and Ouagadougou is attributed to certain cultural and economic perception like being dangerous in traffic, less efficient and also seen as a transport mode of the poor (Pochet and Cusser 1999). Furthermore, ethnical background of city dwellers may shape the pattern of bicycle use: for example, in Accra, Ghana, (Grieco and Kwayke 1994) found out that, in two areas of the city there was unparalleled cycling behavior among the residents, this was attributed by the dominant ethnicities residing on those areas. In *Nima* area, where many immigrants

from the north settled, cycling was a common thing; it become accepted because in the North of Ghana, cycling is common and hence these immigrants brought that tradition when they move into the city. However, in other area of Accra called *Jamestown* cycling was perceived by people as being dangerous and a using bicycle was seen as a deviant behavior, this was because, residents of the place are originated from coastal south of Ghana where cycling is not common. From these few examples we have seen that, it will take an extra effort in planning and policymaking to learn how break these social-cultural barriers to cycling.

Decisions behind choosing whether or not to use bicycles are not uniform and depend in several intertwining factors, which some are more prominent in decision making than others in relation to the person position, whether economic, social or geographical (Nkurunzinja et al. 2012 a). In their study which was evaluating stages of change modal in travel behavior in Tanzania, Nkurunzinja et al. (2012b) found out that, there are different segments in cycling markets in Dar es Salaam, which have different needs and motivated by different factors and thus, they need to be treated in different ways. Therefore, in Africa bicycle use might be a totally different experience motivated by different factors between several people who live in different locations within the city and belonging to different socio-economic classes.

To conclude; the option to provide bicycle infrastructure alone cannot guarantee that more people will cycle, especially in the context of Sub-Saharan Africa where diversity of people living in cities is very extensive and these people come from different backgrounds and belonging in different socio-economic groupings. The better option will be evaluating different conditions in different social segments, this can have an important implication in designing cycling policies and promotion at strategies that best fits the needs of many (Nkurunzinja et al. 2012 b).

### **3.1.4 Women and cycling**

Gender issues with relation to cycling have made a significant contribution in our understanding of barriers and motivators towards the use of bicycles. In this section, the researcher will explore few literatures in the gender aspects in order to capture what drives the imbalance of bicycle use between men and women.

The fear women have of using bicycles comes from a fear of their respectability to fear of traffic (Horton 2007). Van Bekkum et al. (2011) claimed that, women are less likely to be bicycle commuters compared to men because of multitude of factors one of them being safety. While it's true that safety can be a huge obstacle, some other factors like distribution of household responsibilities may hinder women to use bicycles more often compared to men. For example, a study conducted in UK shows that, even to those women who travel shorter distances to work, they use bicycle less often and they are equally dependent on cars, this is attributed to some household chores for example dropping and picking children from school (Dickinson et al. 2003). Furthermore, geographical characteristics of a place might complicate the safety issue as many women claim that bad weather and terrain contribute highly for them to favor cars over bicycles (Van Bekkum et al. 2011).

Baker (2009) further claimed that, women are indicators species for bicycle friendly cities, that is many cities with cycling paths attracts more women to cycle because of the sense of being more secure: hence, as more women cycle, less the risk in that city and vice versa. Yet, one study shows that, women usually like to use off road bicycle paths and they do not favor motorways with speedy traffic or congestion (Akar, Fischer and Namgung 2012). Furthermore, when a (Dickinson et al. 2003) conducted a poll to see whether better cycling facilities could motivate women workers to use bicycles frequently, there was a lower support for the claim.

In summary, as women are seen less likely to use bicycles because of the tendency of risk avoidance, it does seem a better solution for this would be constructing more bicycle paths. Nonetheless, from the discussion above we saw that, this situation is wide and involve multiple circumstances, from the family level to workplaces even geographical factors. Hence, good environment to support cycling is more than providing cycling paths, but other measures like provision of changing rooms in work places, ensuring more security while cycling and bicycle parking, employer support like not providing cars for workers might work (Dickinson et al. 2003).

The purpose of this review was to explore the literature on the motivators and barriers of using bicycle in cities which is parallel to the research question. It is clear from the literature that, different perceptions shaped in society affect the adoption of cycling as a dependable mode of transportation, relationship between different users of transport

facilities and the overall feeling of safety while cycling. Furthermore, we saw that, not only the choices to use or not to use bicycles are different and localized, but also cannot be solved by using universal methods. Different strategies to promote cycling should consider local realities like cultural background and even geographical characteristics. We also saw that; women play a role in determining the overall likelihood of a place to be bike friendly because of their tendency to be risk avoiders, moreover some research showed us that family responsibilities and conditions in working places also contribute to women to prefer cars than bicycles in some places.

The next section will deal with theory. The researcher will focus on the social practices and theoretical approach to understand why people use or do not use bicycles as a means of commuting.

## **3.2 Theory**

The social world is very complex. Just like the anatomy of human body, society as a complicated system, requires a systematic way to study and describe it and mostly important understand its inner workings. Because of its tendency to evolve overtime, studying the society has never been easy, and that is where the social theories become important. Social theories are vital because they help the society to analyze complex social mechanisms, which are otherwise difficult to grasp and provide to us some comprehensive conceptual understandings about the social world especially for things that cannot be pinned down like how societies work, how organizations operate, why people interact in certain ways etc. (Reeves et al. 2008). Because the social world is large, there are no 'one size fits all' theories that can explain it in total. Specific theories are always developed to understand a small segment of the society and through them we can gain understand of specific phenomena or solve a specific problem.

This study is based in passenger transportation, throughout the development of this study, several theories were considered to be used to explain why people in one place may opt to use bicycles and others in another place opt not. Hence, the focus of the study is primarily attentive on the drivers of human actions from a societal standpoint. It was obvious, as argued by (Andenes 2014, 14) that, social science theories are not in

accordance to where the drivers of human actions also called ‘agentive forces’ are located. Hence, many researches on passenger transport rely on economic and psychological theories to explain agentive forces that motivate people to commute the way they do.

Some psychological theories like the ‘the model of stages-of-change’ and economic models like the ‘utility theory’ can be useful to explain why people choose different kinds of transportations.

### **3.2.1 Conventional theories on bicycle commuting**

For example, in the model of stage-of-change by (Prochaska and DiClemente 1983, Prochaska and Velicer 1997) suggests that; behavior change is a transition through a time-ordered sequence of stages reflecting the cognitive and motivational difficulties people encounter in implementing a general behavior change goal into tangible actions. The model maintains that behavioral change is a process rather than an event, thus this process occurs in successive stages namely *pre-contemplation* (no intention to change), *contemplation* (growing intention), *prepared for action* (strong intention), *action* (initiation of a change) and *maintenance* (establishment of a permanent change). Although the model has been employed in several transportation studies (Rose and Marfurt 2005; Shannon, et al. 2006; Bamberg et al. 2011) and successful in studies of cycling behavior (Gatersleben and Appleton 2007; Van Bekkum and Williams 2011; Winters et al. 2011; Nkurunziza, et al. 2012c), it have been criticized for not be able to tell exactly who is likely to experience modal change and failed to model processes of change in travel behavior (Davies et al. 1997, Bamberg et al. 2011).

On the other hand, the utility theory tries to explain the forces behind choices by basing its assumption on rationality; where people choose the best mode of transport by looking on factors like costs, time, availability and effort. This insight reveals to us a force behind different choices people consider when choosing modes of transportation by basing their decision on the level of service characterized in the transportation system (Nkurunziza, et al. 2012a, 250): hence, this asserts that, the best affordable and reliable transport system will be easily considered by commuters. As a result, this model reflects the notion that, by supplying necessary infrastructure to support bicycle-commuting people will eventually be convinced to choose bicycles as a means of



commuting. Though we agree that improvement in cycling infrastructure is necessary (Tilahun, Levinson and Krizek 2007) but it is not sufficient in impacting travel behavior change. By using supply side mechanisms to impact behavior without stimulating demand, transport policies will be engaging in tackling symptoms (commuting facilities) and not the underlying limitations (attitudes, perceptions, preferences) (Dickinson et al. 2003; Heinen, Maat and Wee 2011).

### **3.2.2 The inquiry of Social Practice Theory.**

While behavioral changes and rationality in making choices are essential to understand what really make people choose bicycles or not; it will be difficult to incorporate them when complex social processes are intertwined in people commuting choices. By moving the point of analysis from people or objects solely and focus on the practice of commuting itself, it will help to understand the formation of commuting practices which are drawn on knowledge that is distributed between people, objects and ‘cultural grounded social structures’ (Sahakian and Wilhite 2014, 26-27). The social practice theory represents a particular way of understanding the society by taking practices as a fundamental unit of analysis (Kuijjer 2014). In Social Practice Theory objects, bodies, norms and institutions are treated as agents because they have a capability to be the sources and originators of actions (Ortner 1999 from Wilhite 2008, 122). The SPT takes these agencies and study their agentive distributions to understand how practices are performed and how they can be influenced.

Commuting is involved in social interactions and looked upon in different perspectives. One of the perspective is when commuting is viewed as a practice. To study commuting as a social phenomenon as well as a practice we use Social Practice Theory. In a general way, Practice is a verb and can be defined as a repeated performance or systematic exercise for the purpose of acquiring skill or proficiency (Kuijjer 2014, 24). However, in the Social Practice theory, Practice is treated as a noun and any action or behavior is viewed as a part of it (Kuijjer 2014, 24). Social practice theory has evolved to become a prominent theory in understanding human social patterns by isolating practices as a unit of observation. This is because, Social practices theory enables us to see and analyze a social phenomenon by giving us a conceptual framework or a system of observation,

which enables certain empirical statements and excludes others (Reckwitz 2002). In that sense, Social practice theory is essential because it facilitates the understanding of a society by making practices as a central unit of social analysis instead of human beings (Andenes 2014).

As argued by (Reckwitz 2002, 21) a social practice is a regular bodily activity held together by a socially standardized way of understanding and knowing, it is a routinized type of behavior which consists of several elements. These elements are found in both the environment where people are dwelling, societies they belong and also in their bodies and minds and together they make-up what Sahakian and Wilhite (2014) called *pillars of practices* or *materials, competences and meanings* by Shove et al. (2012). As argued by Sahakian and Wilhite (2014, 28), there are three pillars of practices: *the body*: which includes cognitive processes (knowledge, perceptions, reasoning, learning, communicating etc.) and physical dispositions (emotional outlook, mood, characteristic attitude etc.), *material world* which consist of physical infrastructure and technology and *social world* which consists of settings, norms, values and institutions. All of them together have a significant impact in shaping practices and in case one of them changes, it can affect a habit and shift it to influence overall character and mind of a person. This is because, the elements of practice are never static and with the arrival of new elements or other practices meanings, materials and competences (or pillars of practices) can move, mutate or switch places (Shove et al. 2012).

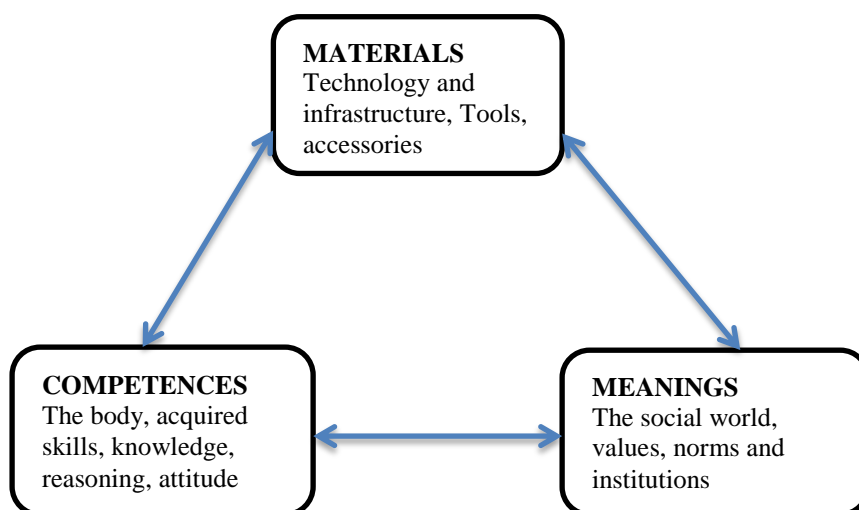


Figure 3.1: The elements of practice *Inspired from Shove and Pantzar (2005)*

### 3.2.3 Cycling as a social practice

In a single practice, elements of practice cannot weigh equally, some elements might be dominating while others might not, for example for some practices which involve less material utilization, meaning and competence elements might dominate the overall execution of a practice, for example the act of meditation. In this light, bicycle commuting as a practice evolved to have a high reliance on material objects (infrastructure, bicycles, gears etc.) compared to other elements like social cultural meanings and competences (Andenes 2014, 16), and this does not at all mean that these other elements are not crucial. Focusing on studying the material part alone also is not feasible, because these all elements are interconnected and influence one another (Reckwitz 2002). Therefore, is bicycle commuting a practice? Yes, as long as it echoes all elements of practices (materials, meanings and competences) and the interplay between those elements is visible, bicycle commuting is a practice.

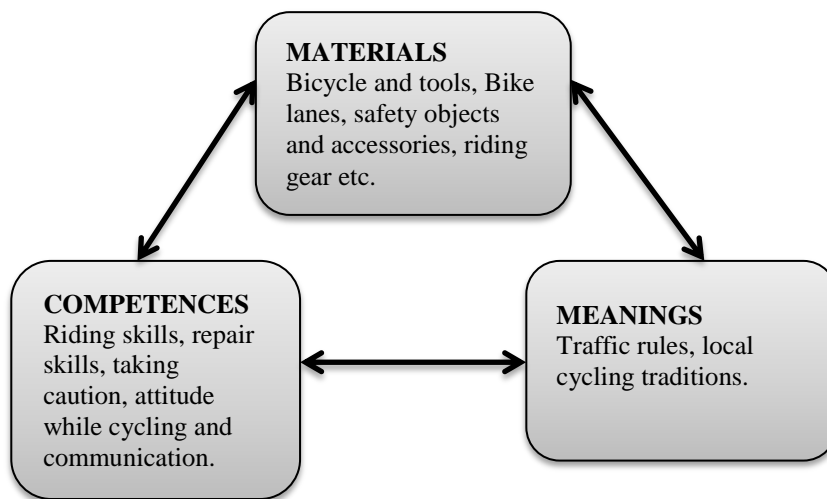


Figure 3.2: Integrating bicycle commuting in practice theory

Commuting may simply mean travelling between home and work place and can sometimes be totally different in the contexts developed and developing worlds. While in the developed world, commuter may be able to choose to use either several modes of transportation or using only one in their commuting process, in developing world, the choice is highly dependent on the availability and accessibility of any mode of

transportation. This signifies the narrow choice commuter face every day in their commuting process and hence many times a single commuter might stick in one type of commuting in his/her everyday life.

Schatzki (2001, 54) argued that, people are always carrying out this or that practice, that is practices includes behaviors/habits and actions done by human in their everyday lives. Practices can either be habitual or not, Shove (2012) defined habitual practices as those which are ‘recurrently and consistence reproduced by suitably committed practitioners’. These practices does not involve a lot of ‘reflection or engagement of cognitive self’ (Sahakian and Wilhite 2014, 28) examples of these habits including how we undertake household chores or clean our bodies (brushing teeth or taking shower). On the other hands, non-habitual practices involve high reflection of surroundings and engagement of cognitive parts of minds, they are not highly routinized (even though undertaken almost every day) but unlike habitual practices, they can easily be changed. So, is bicycle commuting a habitual or non-habitual practice? It is hard to tell given that; different people might view or conduct it in different ways. The influence of materials element might make bicycle commuting a habitual or non-habitual practice. For example if we consider infrastructure, people riding bicycles to work using dedicated bicycle lanes might developed that practice as habitual because bicycle lanes give a sense of security and thus less reflection on personal safety, unlike people who have to use shared motorways where reflection on personal safety is highly needed. In addition, how frequent a person uses a bicycle: dedicated users of bicycle might develop a bicycle commuting into habitual practice compared to occasional users. Moreover, it will be very interesting to know if bicycle commuting can be a springboard between these two types of practices, that is, some part of the whole conduct of this practice a person use habitual elements and in the other part use non-habitual elements.

### **3.2.4 Commuting as a competitive practice**

Bicycle commuting can be an outcome of other practices, largely work, leisure or errands. Furthermore, bicycle commuting is highly influenced by other kinds of commuting, especially when we consider that there is a competition between different types of commuting to gain users. In Africa, other forms of commuting also can be

regarded as practices, are prevalent, influence each other, and are influenced by the same environment.

These other practices constitute the daily mobility of people in cities and they are an immediate alternative to bicycle commuting, for example walking, public transport and private cars. Furthermore, they share some material elements especially infrastructure and setting. The use of one mode of transportation will affect the other and vice versa by creating an interaction, this may result in what Shove et al. (2012, 86) claimed; a mutual adaptation, destruction/synergy or radical transformation.

Therefore, it is hard to study one practice alone (in this case bicycling) and disregard other (walking, buses and Private cars) because of their high interaction. In social practice theory we accept that there is a connection between practices especially those which compete for practitioners. These competing practices can be studied as either 'loose-knit bundles' of co-location and co-existence (practices which exist parallel to each other) or closely more integrated complexes (how different practices affect a single practice and vice versa) (Shove et al. 2012). Furthermore, some practices evolve to become dominant among other practices, these are called dominating practices defined as those practices which are persistent and structure domains of social life and cannot be changed without disrupting collectively established realities (Swidler 2001), these dominating practices are important in explain the pattern of other practices, that is what direction other practices takes when influenced by these dominating practices.

In conclusion, the social practice theory is a large area of study and it has gained sophistication overtime. Even though practice theorists differ in some ways, for example on how material objects play their role in practices, but they all accept that practice should be the fundamental unit of analysis (Kuijer 2014, 25). Social practice theory has helped us to avoid delivering general explanations on how the social life works and it gave us a conceptual framework to give general and abstract account of many topics of study and advance our understanding in many different social phenomena (Schatzki 2001, 4). The next chapter will deal with research findings; from there we can see how different elements of practice influence how people use bicycles in Tanzania.

# 4 Findings, Analysis and Discussion.

This chapter will attempt to provide answers to the research question and generate knowledge through the analysis and discussion of field findings.

The theoretical approach of this study which chose Social Practice Theory helped to focus the collection of data, interpretation and its analysis. The elements of practice i.e. Materials, Competences and Meanings helped in clustering the field findings and identify the associations or influences between them. Furthermore, in looking on the unparalleled behavior people have towards cycling in Dar es Salaam and Tanga, Social Practice Theory gives a foundation of this comparative analysis by focusing on cycling as a single unit of discussion.

This chapter is organized into two main parts, the first part involves presentation of findings and analysis and the last part is the discussion.

## 4.1 Findings

The methodological approach employed in this study is Qualitative Research method. By using the multiple case study technique, data collection tools used were interviews, observations and document reviews. Because this study is a comparative analysis, we are looking on differences in cycling practice residents of Dar es Salaam and Tanga exhibit. This first section will be discussed through comparative presentation, where different themes will be presented and within these themes the comparative dialogue will take place. The overview of these two cities will begin this section.

Dar es Salaam is the largest city in Tanzania. Census results of 2012 shows that, the city contains about 10% of the entire population of the country. Territorial, Dar es Salaam is the smallest region in Tanzania this is because Dar es Salaam is coextensive with the Dar es Salaam region consisting of only three original administrative districts; Ilala, Kinondoni and Temeke (and newly formed Ubungo and Kigamboni districts). Historically, Dar es salaam was founded by Sultan of Zanzibar and hence its name Arabic origin 'the abode of peace', the city was later on chosen by Germany colonial

government as the administrative capital, after British took over, it continued to become the important city for Administration, business and transportation. The decision of the government to move the capital to Dodoma in 1973 has not been very successful as Dar es Salaam still remains the most important and influential city in Tanzania.

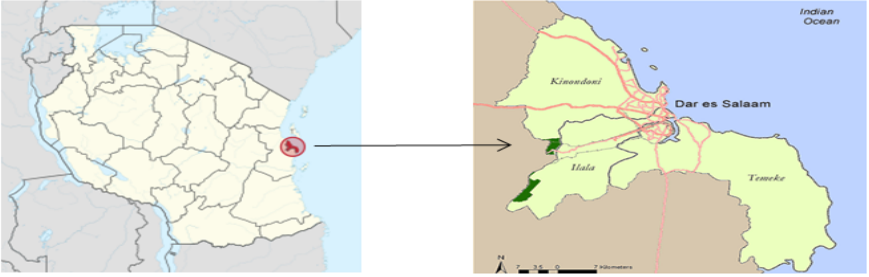
Tanga is the third largest city of Tanzania, located in the Tanga region. Field work of this study was conducted within the boundaries of the Tanga city council. Unlike Dar es Salaam; Tanga city is an administrative district within the Tanga region, other districts includes Muheza, Pangani, Lushoto, Korogwe, Handeni and Kilindi. Historically Tanga was a trading center for slaves and ivory controlled by Arabs from Oman, during the colonial period, Tanga was the first settlement of German East Africa colonial government before moving it to Bagamoyo and then Dar es Salaam. But it continues to be an important economic powerhouse for the Northern Tanganyika in both German and British colonial rule especially after the completion of the Usambara railway which later was extended to Moshi and Arusha. Sisal plantations and exports contribute to a booming economy in Tanga even after the Independence in 1961 and Tanga was designated as the Industrial city after the port of Tanga was completed and cement and fertilizer companies were built. Also, many other industries were built in Tanga, dealing in plastics, household items, textiles, chemicals and packaging. But after the socialist government under the first president Julius Nyerere collapsed in 1985 and economic reforms took over, Tanga faced a sharp decline in its influence and industry as many factories closed down coupled with underperforming railway and port and the decline in sisal exports. Today, Tanga still remain an important economic center especially due to prospective of future investments in oil pipeline, refinery and exports but other regions like Arusha, Mwanza and Dar es Salaam have highly overshadowed its influence in the past.

During the fieldwork, the total of 28 people were interviewed in both cities (15 in Dar and 13 in Tanga) to give their views on what they think is the reasons cycling fetches a lowest modal share in Dar es Salaam compared to Tanga. Among these, 12 were bicycle users, 8 were non-bicycle users and 8 were City council officers (3 Tanga city council officers, 3 Dar es Salaam city council officers and 2 DART officers). The observation work was carried through participant observation method where the researcher had to travel by using bicycles in short and long trips, public transport, bodaboda (hired

motorcycles) and also private cars to ensure the consistency of the information obtained from interviews. Through this, different aspects like state of infrastructure and relationship of different users of motorways were able to be obtained.

Field work results were categorized to give an accurate representation of the different outlooks. Hence in order to answer the research questions: *what are the factors for low bicycle use in Dar es Salaam and high bicycle use in Tanga*, the results are going to be discussed in different themes, which are possible explanation of the low share of cycling in commuting in Dar es Salaam and high share in Tanga. These themes are Economy, physical infrastructure, safety and traffic, geography (topology and weather), city structure, alternative transportation, history and society, policy standpoint, politics and planning.

**Dar es Salaam. overview**



Wikipedia

Population: (2012 census) 4.6 million  
Area: 1590 sq. km  
Location: 6°48' S, 39°17' E

**Economic activities**  
Trading  
Banking  
Construction  
Manufacturing  
Transportation (Dar port, roads and railways-Tazara railway and Central railway)

**Geography**  
Climate: Tropical hot and humid (temp: L=22.5°C H=32°C, Annual Avg prec: 998.2mm)  
Topography: Flat on eastern part, Hilly on western part.

**Politics**  
Government type: City Council  
Head: Mayor, Hon. Isaya Mwita Charles



### **Tanga. Overview**



Population: (2012 census) 273,332  
Area: 536 sq. km  
Location: 5°4' S, 39°6' E

#### ***Economic activities***

Trading  
Agriculture  
Manufacturing (Tanga Cement, Tanga fertilizer)  
Transportation (Tanga port, roads and Arusha-Moshi railway)

#### ***Geography***

Climate: Tropical hot and humid (temp: L=23.3°C H=30.8°C, Annual avg prec: 1037.40mm)  
Topography: Predominantly flat landscape.

#### ***Politics***

Government type: City Council  
Head: Mayor, Hon. Mustafa Mhina

## **4.1.1 Safety and Facilities**

Confidence cyclist have when riding their bicycles is a result of feeling safe. Cycling is among the dangerous ways of getting around especially in crowded and heavy traffic areas; this is because the riders' body is fully exposed while on speed. In this study, among the major reasons which respondents claimed to hinder them in adopting cycling or challenge them while using bicycle was safety issues and infrastructure (facilities). Infrastructure/facilities and safety go hand in hand in many cases as they complement each other. This first section presents findings from the field work which outline the influence of physical infrastructure and safety in people's choice over bicycles in Tanga and Dar es Salaam.

## **Safety issues and facilities in Dar es Salaam**

Dar es Salaam being the largest city has the most superior transport infrastructure compared to other cities and towns in the country, and the majority users of this infrastructure are those who operate motorized vehicles. Because of its huge population, many people depend on public transportation to get around the city and likewise private car ownership is increasing. This has led to the government to increase spending on public road works in order to alleviate traffic congestion which has engulfed the city since the last decade. Many new road projects (not all) are emphasizing more space for motorized transportation than non-motorized transportation.

During the fieldwork, majority of respondents in the interviews acclaimed that, good infrastructure to support cycling is necessary to entice people to adopt cycling as a way of everyday commuting. Furthermore, some of them accepted that, non-bicycle friendly infrastructure is among the impediments which inhibit them to either adopt cycling as a way of commuting or make it hard for them to use bicycles in their everyday life. Moreover, many of them mentioned that, cycling is very dangerous to them because there is no infrastructure to support it and other road users especially those using motorized transportation pose a threat in their lives because of not adhering to traffic rules.

Physical infrastructure may constitute a wide range of facilities, from roads to parking lots and even security at home and workplaces. The following excerpt below from a respondents in Dar es Salaam, shows how non-bicycle friendly infrastructure especially in parking and security is a hindrance to adopt cycling in commuting.

*.... If you look in the developed world, many roads have a bicycle lane, while here in Tanzania there is none... moreover, for those people like me who live in rented apartments there is no place to park and secure their bicycles..... so sometimes I am thinking, when I buy the bicycle where will I safely keep it? Both at home and in the workplace.... (Sanga, S) MCU*

Furthermore, absence of cycling facilities makes cycling a dangerous endeavor because other users of roads do not respect bicycle users or take them in higher regard, this happens many times when cyclists have to share the road with motorized vehicles. The following response shows that, if there was infrastructure for cycling many people would have been adopting cycling especially in short journeys because confidence on their safety will be increased.

*...it is sometimes very hard when crossing main roads, because I have to use pedestrian crossing and it became very hard when you want to cross and other roads users make it hard for you because they don't care that this transport mode is very important. Bicycle transportation is used more locally, if it was taken in high regard then the authorities would have put infrastructures in place and help people to reduce costs when they want to take short trips.... (Amani E.) BU*

Cars deliver the higher safety by guarding driver's and passengers' bodies during accidents unlike bicycles (or even motorbikes) where the riders' body is fully exposed and easily impacted in a crash. The following excerpt below is from a private car owner who believes that, safety reasons and traffic conditions especially interaction with daladala on the roads hinders people to adopt cycling.

*.... lots of people are afraid of using bicycles because of safety..... you see, while you are riding a bicycle and a car come in front of you without notice and hence cause an accident. It puts you in danger especially if you know that your body is very exposed there, it is not like your body is inside a car.... therefore many people are fearful.....especially those who do not have a good training on navigating on the roads.....(Manase) CO*

These, among other responses clearly give us the intensity of safety and facility issue when it comes to cycling in Dar es Salaam. Though there were respondents who clearly stated that, infrastructure and safety is never a problem for them to adopt cycling (Ramadhan Kwembea), through observation work, the researcher found out that physical infrastructure in Dar es Salaam has minimal space for bicycle commuters. Among the major city roads which are used extensively, only four major roads i.e. Nyerere Road, Bibi Titi Mohamed street, Sam Nujoma Road and the newly constructed BRT lanes on the Morogoro road have specific cycling lane. Furthermore, the use of

these lanes is very minimal too, as for many residents does not know that those cycling lanes are specific for bicycles probably because there is no public awareness or road signs to indicate them. The only road with designated bicycle lanes with clear signs is the new BRT Morogoro road. Through observation, many public buildings in the city does not have bicycle parking and the more you come close to the city center, the less you spot any cyclist around, parking areas in the center are dominated by motor vehicles as well as central streets are the most congested streets.



Section of BRT Morogoro road with a clearly marked cycling lane (Source: Researcher)



Cycling lane along Nyerere Road, No clear marking to show its purpose (Source: Researcher)

In the proposal for construction of the BRT lane on Morogoro road, bicycle racks were proposed to be built in the vicinity of bus stations (LGC 2006, 10) and to be integrated fully with pedestrian and other modes of transportation flowing along the road, this was purposely to induce people who use bicycle to have easy access to bus network. But upon completion of the project, none of the stations has a bicycle rack. Therefore, in Dar es Salaam, infrastructure could be a barrier to adopting cycling, but still even for the available supporting infrastructure its use is low, this can be attributed largely to lack of awareness among the public about cycling.

## **Safety issues and facilities in Tanga**

Even though Dar es Salaam has more superior infrastructure, but when it comes to sufficiency, Tanga has sufficient infrastructure to support motorized and non-motorized transportation. Tanga city limits are not vast as those of Dar es Salaam, thus there is no need for large freeways to ease congestion in the city. Tanga has a well-planned urban center, with well-connected streets and although very old many of them are paved. Traffic flow in Tanga is lower than that of Dar es Salaam and thus roads are not congested. Contrary to Dar es Salaam, in Tanga, cycling fetch a larger share in urban transportation.

The issue of safety in Tanga did not catch a higher prominence during the interviews with cyclists compared to interviews with non-cyclist. Non-cyclist especially owners of private cars argued that safety is a prominent reason for them not to adopt cycling in a daily commuting, this perhaps is attributed to the fact that Tanga has among the highest traffic offences in Tanzania about 35,601 in 2014 alone (TPF-NBS 2015, 22). With large number of cyclists, collision with other road users are prominent and also traffic offences caused by or involving cyclists are usually not reported because many of them are treated as minor incidents unless death occurs. The following excerpt from a car owner shows a view many car owner share in a bicycle dominant society of Tanga, where issues of safety against life threatening incidences are among the reason they choose car as a means of commuting.

*... compared to bicycle, a car gives me more safety because it is the most respected vehicle in the road..... Consider when accidents happen, if you're a cyclist or even a motorbike rider, you will fall instantly upon impact, but in a car at least you're still safe.... (Mlilo, Ipyana CO, Tanga)*

Among cyclists, safety was not an issue to them, especially when riding on roads, but road conditions were seen to be one of their difficult challenges, the following interviewee mentioned tiredness from riding on unpaved sandy roads. He complained that he sleeps tired especially when riding for longer distances.

*...The main challenge is roads.... roads have a lot of sand, many roads here in Tanga are very sandy especially those which are outside the town center... riding bicycle on them, especially on long distances makes you become very tiresome..... You sleep very tired.... (Vena, Rashid, BU, Tanga)*

Even though road conditions pose a challenge; many residents of Tanga especially those who use bicycles depend on that kind of transport for their daily economic activities, like the respondent below claimed using bicycle is vital in his life as it helps in his economic activities, thus regardless of the conditions he will continue to use bicycle.

*...one of the challenges I face when using bicycle is road conditions; roads which we use are very bad especially during the rainy season and especially when using an old bicycle... but yet, bicycle helps me a lot in my income generating activities by making it easier for me to transport different items....  
...even if it is raining and the road is bad I will still use the bicycle.... (Makata. H.)BU*

When it comes to cycling infrastructure, through observation, the researcher found out that, few roads in Tanga have dedicated cycling lanes and most of these lanes are shared with pedestrians. Because of the low traffic flow, most of the time, cyclist have to share the same road with other motorized transportation like cars and motorcycles. The fact that Tanga has many roads connecting different parts of the city and low traffic might contribute to the reason that the city has many people who use bicycles. Despite that,

accidents related to cyclists are prevalent, as one respondent mentioned that this is because different users use the same road space.

*.... many roads here in Tanga do not have pavements for pedestrians or cycling lanes, all users end up using the main road together.... this has led to many accidents which involve cyclists.... (Ngwale. Y.) MCU*

Through observation, the researcher found out, very few roads have cycling lane, only Karume Road, Independence Avenue have a visible cycling lane. Although the use of these lanes is extensive compared to the one found in Dar es Salaam, most of other roads have a shared use.



*Cyclists on Karume Road in Sahare area, they use a shared lane with pedestrians (Source: Researcher)*



*Cyclists in Ngamiani area, they share the road with cars and pedestrians. (Source: Researcher)*

Many public buildings in Tanga, like Banks and government buildings have bicycle parking facilities, bicycle racks are a common thing around the city. However, during the observation, the researcher found out that many of these facilities are not provided by the city council rather by owner of buildings they are located. Furthermore, these bicycle racks have low usage; a possible explanation about this could be; majority of cyclists do not work in these buildings and hence park their bicycles in their work areas somewhere else (workshops, markets etc.)



*Left bicycle rack outside a bank building in central Tanga, right another rack outside regional commissioner office. (Source: Researcher)*



Concluding this section, the connection between safety and facilities has different facets between Tanga and Dar es Salaam. Possible explanation for this disparity is the number of motorized transportation especially cars which are available in a particular city. As Dar es Salaam has better infrastructure, the city has more people and more cars likewise the issue of safety has become a paramount issue to cyclist compared to Tanga which does not have good infrastructure, hence fewer cars and consequently the concern about safety among cyclists become less significant.

#### **4.1.2 Alternative transportation**

Relationship between bicycle use and other mode of transportation was among the important themes in this study. Availability of different kinds of transportation can help to enlighten us on how people make their choices when it comes to bicycle commuting. This section will deal with the results from observations and interviews on different views people had on the influence of alternative transportation in their choices regarding bicycle commuting.

##### **Alternative transportation: Dar es Salaam versus Tanga.**

Residents of Dar es salaam depend on different modes of transportation to go around the city. Report by JICA (2008) shows that, cycling fetch around 5% of modal share of transportation, whereas the market shares of other transport modes such as personal motorized vehicles is around 10%, public transport is around 60%, while that for walking is estimated at around 25%. The dominant mode of transportation in Dar es Salaam is public transport or famously “daladala”. Large percentage of daladala are owned by individuals or households and few by companies (DART and UDA) while licenses to operate are provided by the city council. Another kind of public transportation that have gained a significant popularity recently is motorcycles known as “bodaboda” and tricycles known as “bajaji”. Because of this diversity, people in Dar es Salaam have a larger choice of kinds of transportation they want to use.

Daladala is a major transport mode used by many residents and it has many problems: Commonly are overloading, long travel time especially when roads are congested around peak hours, aslo poor comfort level and air pollution (Kanyama et al. 2004 and

Sohail et al. 2006). Because of this many people when their income rises they adopt private vehicles and some use bajaj and bodaboda because they are at least more decent compared to daladala. Due to this diversity in options between different motorized transportation, residents of Dar es Salaam have more grip to retain cycling as their least choice when they consider speed and convenience.

On the other hand, Tanga does not have a sophisticated public transport system like that of Dar, moreover, compared to Dar public transport which is rather old dated back to 1970s, Tanga has a very new established public transport, operated mainly by minibuses and has very few routes. Furthermore, most of the buses in Tanga bus station are those going out or coming from neighboring towns or long distance bus services. The reason for a frail public transport in Tanga is mainly attributed to bicycles, many people cycle around the city and they do not see a reason to pay money for a bus while they can get whenever they want using bicycles. Likewise, bicycle rental is normal thing in Tanga with many bicycle repair shop giving that service, also there is a dwindling bicycle taxi service which is being taken over by bodaboda.

As mentioned in the previous section, traffic flow of motorized transportation in Tanga is very low. This is because of small number of private cars owned by individuals. In addition, just like other parts of Tanzania, motorcycle taxis known as bodaboda are taking hold in Tanga, it has become as a more fast and convenient way of getting around compared to cycling which is slow and energy consuming or private cars which are very expensive and only available to few.

From the field-work, it was observed that, individual choice towards a certain type of transportation was determined by the *availability* and *affordability* of that particular type of transport. Furthermore, there was a hierarchy in those choices; those who own private cars had a more upper hand compared to those who depend solely on public transportation.

**Availability:** in Dar es Salaam, there is a high availability of alternative kinds of transportation (i.e daladala, bodaboda, taxi, bajaji, private motor vehicles and walking), this translates to a wider freedom of choice among residents. Since most of these alternatives offer speed and convenience especially in long trips, the likelihood of people to choose bicycles will eventually become lower. WHILE. In Tanga, most of

alternative transportation like those found in Dar are not available readily and are not convenient. Buses have fewer routes and do not operate after dawn, likewise motorcycles are few and costly hence people prefer bicycles because first it is better than walking and secondly it gave them fair speed and freedom of movement in absence of other choices.

**Affordability:** Affordable transportation was also a key to determine how people make their choices; this is directly related to economy, that is how well off financially people are in a particular place. When people were asked about costs, majority of respondents in Dar claimed that public transport is cheaper, even cyclist agreed that public transport is their second choice after bicycles when they want to travel long routes, while in Tanga, many respondents agreed that, using bicycles is cheaper compared to public transport, hiring a bicycle taxi is cheaper more than taking a bus route, and more convenient because it can take you anywhere, in the absence of bicycles many choose to walk. These results are supported by economic statistics of these two cities, Dar es Salaam is far better than Tanga. Dar contributes about 17.2% to the country GDP compared to 4.66% that of Tanga (NBS 2015, 46). Moreover, Dar has a more diverse economy than that of Tanga considering it is a de facto seat of the Government and country headquarters of many national and multinational corporations, hence, residents of Dar are well off than those of Tanga. Tanga economy depends on SMEs and a small manufacturing sector, other occupations including public sector, fishing and small scale farming (NBS-TRCO 2008, 25), thus, earnings of people in Tanga is lower compared to those in Dar es Salaam. While the cost of transportation in Dar and Tanga might be the same, the fact that income of people in Tanga is lower compared to their counterparts in Dar, lead to narrow choice of transport type and led people in Tanga to stick with the cheapest modes of transportation available; in this case cycling and walking.

### 4.1.3 Geography

While it is possible to change and improve certain things and make cycling comfortable and approachable, physical environment and weather are far from human control. This section presents how geography consisting of weather, topography and structure of cities influence choices people make while considering using bicycles as a means of commuting.

#### **Weather and Climate.**

Both Dar and Tanga lies on the Tanzanian coast line, Tanga is north of Dar es Salaam located 5° 4' south of the equator while Dar lies 6° 48' south of the equator. Both cities experience coastal tropical climate with hot and humid weather and seasonal rainfall. Both cities have almost similar weather conditions and are located in a same climatic region. While a predominantly weather condition is sunny and humid, the long rain season (Masika) starts in March and end up in June, and the short rain season (Vuli) usually occur during October and November.

During the fieldwork, the researcher observed a negative feeling on the issue of weather among different informants in both Dar and Tanga. Many of cyclists agreed that weather conditions are challenging and many of the non-cyclists pointed out that weather conditions prevent them to adopt bicycles.

Rain, heat and wind are the most frequent weather problem observed and talked about. During rainy season, not only that cycling will make one wet, but also road conditions are at their worst. Wind blows dust during dry season, reduce visibility and make a cyclist dirty while heat cause excessive sweating and dehydration as a result of an intense tropical sun exposure.

In an interview in Masiwani, Tanga, an informant gave a statement, which shows that, choosing to cycle in bad weather also depends on multitude of other factors like income and access to alternative transportation. Looking at the case below, if there were another type of transportation that the informant had access to and afford, he would go for it in the time of heavy wind and rain.

*.... Most of the time there is dust blown while cycling, other times there is rain.... but because we don't have another way of commuting we have to continue using bicycles....*

*We will continue to use bicycles because it is a kind of transport which enable one's life to be easier according to what he/she earns..... (Shekwavi, Yakobo, Tanga) BU*

In Dar es Salaam, many informant especially non-cyclist complained that heat is the primary cause for them not to cycle. Sweating make them uncomfortable especially after arriving at their destination like in offices downtown. Moreover, because of the availability of alternative kinds of transportation, respondents said that when it rains it is easy for them to switch to Daladala as it is readily available.

In two interviews (Stephen Sanga NC and Filbert Mbecha BU), respondents proposed the modification of facilities like changing rooms and bathrooms in offices to enable cyclist to have a proper place to get comfortable after the journey to work. Furthermore, tree-lining streets could be an attractive way to cycle as tree provides shade from scotching sun and cool down the temperature.

### **Topography and Structure of cities.**

In leading European cities with the highest proportion of bicycle commuters among the things they share the most is their flat landscapes. Amsterdam, Berlin, Copenhagen and Stockholm are relatively flat and enables the use of bicycles without requiring climbing gears. Furthermore, flat landscape make it easier for road widening especially when incorporating cycling lane, a process which is somewhat more expensive to roads located on hills due to processes like cut and fill to reduce road gradient (Allan 2013). The use of electric bicycles might provide a solution for climbing, but electric bikes are expensive compared to single geared city bikes.

Topography (the arrangement of the natural and artificial physical features of an area), plays a decisive role in influencing people decision to adopt bicycle commuting, hilly landscapes makes travelling less efficient and particularly bicycle commuting less attractive (Allan 2013).

Tanga has among the most flat town areas in Tanzania. Located East of Usambara Mountains, the gradient is very low as you move towards the ocean with absence of hills around the city, moreover unlike Dar es Salaam, Tanga does not have a major river crossing it hence there are no river valleys.

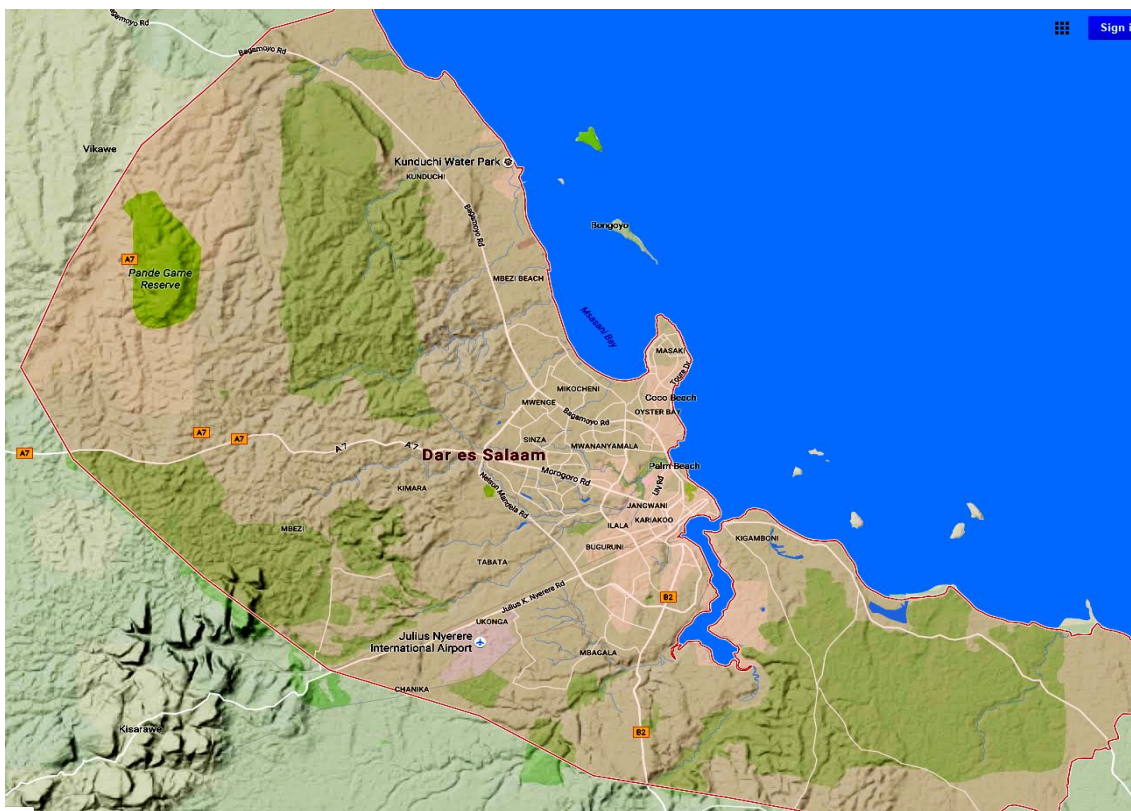


Map showing topography and structure of Tanga: (NB: not to scale) Source: Google earth 2016

In terms of structure Tanga is a well-planned urban area, with well-defined streets and a good infrastructure plan. Even though many important services are located in the center, navigation is easy as the center is well connected with other parts of the city. Tanga residents engage in different activities and most of them they do not live far from their homes, the main market is located centrally in Ngamiani and the industrial area is on the west. Public offices, schools and Banks dominate the central area.

With other factors that were presented before like low traffic flow and availability of alternative transportation, the landscape and structure of Tanga is sufficient to induce a healthy bicycling culture. From the observations, the researcher found out that majority of cycling trips are shorter consisting of children going to school, fishermen from or to the fish market, local vendors to the Ngamiani market or normal trips to hospital and public offices. Longer trips are made mostly by small scale farmers from areas like Kisiwani (not Kiriwani as shown in the map) in the south towards the center, especially to the market in Ngamiani. Therefore, in Tanga, because majority of users are not travelling long distances (2km to 5km) coupled by flat landscape cycling is attractive as it does not make cyclists tired.

Compared to Tanga, Dar es Salaam is 3 times the size of Tanga (1590km<sup>2</sup> while Tanga is 536km<sup>2</sup>) and it has a mixed landscape features. First, the central area is flat, covering most of the CBD, Kariakoo and Suburban areas of Kinondoni, Manzese, Magomeni and parts of Temeke. Second, the western suburbs of Kimara, Kinyerezi, Mbezi Louis, Mbezi Beach, University area, Makongo and Segerea are hilly. Lastly, Dar es Salaam has two major rivers Msimbazi and Kizinga, both of them have wider valleys where Msimbazi dominated large part of the central area and Kizinga dominating the southern suburbs like Mbagala and Mtoni.



Map showing topography and structure of Dar es Salaam: (NB: map not to scale) Source: Google earth 2016

Dar es Salaam is the largest city, with a largest population, and thus many of the features of the developing nation city are available, including unplanned settlements, slums and rapid outward growth of the city. Important offices in public and private sector are located in the Central hence the movement of traffic and commuters is towards the center where employment is available. Because the city is so wide, some residents living in the outer suburbs have to travel up to 20 km to and from their workplaces. Because of this, cycling in Dar es Salaam is not attractive. Those few who

use bicycles have to overcome many challenge from traffic dangers, hills, heat and in this case distance.

The researcher found out that in both Dar and Tanga, single geared city bicycles are the most dominant kind of bicycle owned by cyclists. This is because their price is lower compared to multiple geared bicycles. In Tanga, using a normal city bike is easy because the surface is even but in Dar es Salaam, it might become somewhat challenging especially when cycling on hilly landscapes in the west.

To conclude this section, we have seen that, there is an interplay between environmental factors, equipment (i.e. bicycles) and alternative choices, this interplay influence highly the choice people have over bicycles. While we have seen that Tanga is well favored in some environmental factors and hence hosts a vibrant cycling culture, Dar in other hand is well favored in alternatives which have a strong influence even though other factors were not friendly.

#### **4.1.4 History and Traditions**

Before embarking in constructing physical facilities to enable ease of cycling, authorities should consider the influence of human attitudes which are shaped through social learning (i.e. culture, history and traditions). Culture barriers are heavily influencing the perception of using cycling in commuting especially in cities of developing Africa (Pochet and Cusset 2012, 2). Therefore, to know why people in Tanga favors bicycles more compared to their counterparts Dar es Salaam, this section is dedicated in understanding the influence of history, culture and traditions.

##### **History**

There is hardly any historical documentation about cycling in Tanzania nor about bicycles. Bicycles have been around since the colonial times as they were first imported from Germany and United Kingdom. Throughout the post-independence time up to this day bicycles have been a crucial indication of family wealth, documented especially in the Household Budget Survey and recently Human Development report.



There was a bicycle manufacturing plant in Dar es Salaam (producing a brand swala) which was closed officially in early 2000s, it played a significant role during the Ujamaa period where the spirit of self-reliance was emphasized through consuming what is produced locally by import-substitution industries. Competition from cheap and high quality imported bicycles forced the plant to be closed and much is not known since then.



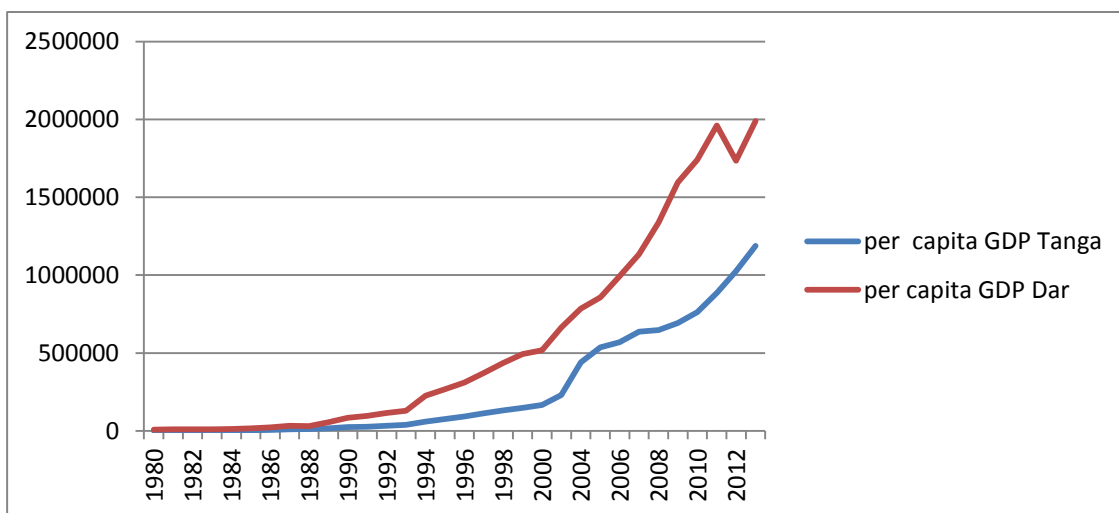
*Julius Nyerere on bicycle (notice the swala brand), as the founder of ideology of Ujamaa and self reliance, he plays a role in emphasizing consuming what is produced locally. Source [www.juliusnyerere.org](http://www.juliusnyerere.org)*

Accounts from 1960s to early 1990s shows that, bicycles were an integral part of urban transportation, both in Tanga and Dar es Salaam. During that time, public transport was not a common thing and walking was not suitable for long distances. Furthermore, because of low income among residents, ownership of private motorized transportation was reserved for elite class consisting of high public officials and businesspersons. One account from a resident of Tanga, shows that, the influence of different regimes in power determined what kind of bicycles people use to have over the course of history.

.... Bicycles arrived here since the German occupation... here in Tanga they were very famous..... when British came we started to use british bicycles... then in ujamaa time we used swala.... now much of the bicycles we use are imported from China... (Elder, Masiwani Tanga)

An interesting question that arose was, what changed Dar es Salaam from being a bicycle friendly city to become heavy dependent on motorized transportation? The answer is economic growth and Development. Hansen (2016, 34) argue that, a city can be beautiful and green when it is poor. Henceforth, in case of many cities in developing nations, when economic growth set in and wealth of residents increases, the status of cities being greener with low emissions due to use of non-motorized transportation is changed to heavy dependence on motorized transportation because of economic expansion.

When we look at Dar es Salaam and Tanga, their economic history diverged from each other from the late 1980s, this is when Dar es Salaam was ever increasing to become the most important city in Tanzania economically and at the same time, the decline of industrial importance of Tanga happened. The graph below shows the per capita income of residents of these two cities from 1980 to 2013. The plot reflects residents of Dar es Salaam were becoming wealthier compared to those of Tanga and hence to them access to alternatives transport modes was becoming more feasible and affordable thus easier for them to abandon bicycles in favor of more convenient and faster transport modes.



Per capita GDP of Tanga and Dar es Salaam, 1980-2012: Source: National Accounts of Tanzania by NBS (1980-2013).

## Traditions

*You become less respected when using bicycles, because people perceive bicycles as a means for low income people (Shekwavi, Yakobo BU, Masiwani)*

What people perceive about bicycle also determines how healthy the practice is. While perception can be constructed through media and information campaigns, what people have learned through many years in the society they grew up (traditions) is a crucial determinant of their choice of a transport mode. In this subsection, we will explore the way people in Dar and Tanga perceive cycling in the lens of traditions, through it we can compare how it reflect the overall use of bicycle in these two cities.

Dar and Tanga, being large cities consists of mixture of people of different backgrounds coming from different tribes. It is hard to link directly the influence of tribal background to the use of bicycle in these places; however, as one respondent claimed, *“there are people who don’t cycle at all in their tribes (Kawiche DCC)”* this reflects that, some people have a background of cycling as a tradition in their tribes which they bring with them when moving to town areas. Tribes like Sukuma, Nyamwezi and Kurya are famously known as being best cyclist attributed to flat landscapes of their ancestral land, in Tanga Digo and Bondei people are also good cyclist because they live on lower slopes of Usambara mountains compared to Sambiaa people who originate from the mountains.

In Tanga, no tribe seem to dominate the culture of cycling compared to Dar es Salaam where the Kurya people are famous for using bicycles to transport different products around the city. The influence of Kurya people in the overall cycling culture of the city can be noticed. Furthermore, Kurya boldness of using bicycles for long distances in dangerous traffic is translated by other locals as risky and hence society in Dar consider cycling is for the strong.

Through the fieldwork, the researcher found out that, people in Tanga have a more positive view about cycling and bicycles in general compared to those in Dar es Salaam. Overall, through interviews, many cyclists seem to be concerned with the feeling of being belittled by those owning or operating motorized vehicles as many of these

cyclists claim that, society perceive cycling is a means for the poor or people from the village and thus they ride uncomfortably because of constant honking which scares them.

*These people with vehicles (daladala and private cars) they belittle us cyclists. When you're cycling they honk on you and that scares us a lot. Sometimes they ask you "why are you cycling here? This is not a village". (Mbecha, Filbert. BU)*

When interviewing cyclist, the researcher found out that, cyclist in Dar es Salaam are more positive in the use of bicycles compared to cyclist in Tanga, where many of them explicitly shows the urge to graduate from using bicycles and shift to use motorcycles.

### **Women and cycling.**

The researcher noticed that fewer women cycle, so it interested him to pursue this further. In Dar es Salaam for example, during the fieldwork there was no woman seen cycling at all while in Tanga, very few women were seen using bicycles. Comparatively, women in Tanga cycle more than those in Dar es Salaam and the reason is because cycling environment in Tanga is more friendly compared to Dar es Salaam as illustrated in previous sections in this chapter.

When women and men were asked, why they think women don't cycle much, these were some of the responses:

*.....Women are not bold enough because of their biological makeup; hence they cannot tolerate those challenges cyclists face on roads..... (Magome, Charles PTU, Dar)*

*..... Women avoid to use bicycles because they are tidy; they are afraid their hair will be blown and misshaped or their status in the society will fall. (Mlilo Ipyana, CO Tanga)*

*..... For us women, it is very dangerous to bicycle because of the disturbances we get from bodaboda drivers. Also many roads are congested hence it is not safe for our valuables. (Richard, Lowema PTU Dar)*

.....*Women especially young girls are afraid of cycling because it is believed in our culture that when they do that they will lose their virginity.*  
(Palangyo, Neema PTU Dar)

So we see, people believe biological factors that make women less bold, women behaviors like tidiness, safety and customs of preserving girl virginity, plays a role in influencing women choice over bicycles. When the researcher pursued further to see if there is more understanding among respondents about the biological makeup, which hinder women to cycle, or a further knowledge about traditional customs, many did not have any further clue.

Cycling conditions affects both genders, there is no exception, barriers which face men are facing women as well. Therefore, if we consider other factors like safety, distance, income and availability of alternative types of transportation women will choose to cycle if conditions are favorable and vice versa, and because Tanga has more favorable cycling conditions compared to Dar es Salaam that is why comparatively Tanga has more women cyclists than Dar es Salaam.

#### **4.1.5 Policy and Advocacy.**

##### **Policy**

Transport policy of Tanzania (2003) recognizes that, among the bottleneck to successful implementation of the transport policy nationwide is the decentralized responsibilities of building and maintaining transport infrastructure and lack of coherent policy guidance to those concerned in planning development of the transport sector (URT-MCT 2003, 1). While there is a national transport policy, its implementation is carried out by more than one entity, principally, the ministry of works, regional administration and local government, ministry of home affairs and the ministry of finance. In the case of cities, regional and district governments and city councils are responsible, and all these entities have their own priorities when it comes to plan and construction of transport infrastructure.

From the fieldwork, the researcher found out that, city roads are owned, constructed and maintained by the city council while inter-regional long distance highways are owned

constructed and maintained by the National Road Agency (TANROADS). From this perspective, the researcher found out that each city i.e Dar es Salaam and Tanga have different priorities in the future of urban transportation.

Both, the National Transport Policy (2003) and The Road safety policy (2009) calls for integration of non-motorized transportation in planning and construction of road infrastructure to reduce accidents resulted from shared facilities, but both policies does not address a challenge of accommodating regional or local priorities and this results in a gap in policy implementation.

Gap in policy implementation was the main theme in interviews with officers, citing that, while policy may give directives to accommodate non-motorized transport infrastructure, but city officials and planners might have other priorities. For example, the following excerpt from an interview with the city planning officer shows that the increase in motorized traffic in Dar es Salaam is pushing politicians and officials in constructing wider roads for cars in expense of non-motorized road users.

*..... Look for example Uhuru road, from Karume to Kariakoo area. There were a heavy traffic on that section so we had to widen the road to relieve the congestion, but because the area is heavily built-up the we had to take a large part of the pedestrian sidewalk hence the sidewalk became narrow.....(Richard, Emmanuel, City planning officer)*

Furthermore, there a newer road projects in Dar es Salaam where space for non-motorized user is forgone to give way to wider motorways, for example a section of Bagamoyo road from Morocco to Mwenge and numerous street road projects. This in many ways could be a reason to make non-motorized transportation like bicycling and walking dangerous and unattractive, as spaces for them to thrive are getting narrow.

In Tanga, when speaking with the regional road engineer, Mr. Arafat Kaniki, the researcher found out that, in Tanga despite having fewer road projects, but several upcoming and completed road projects considered the integration of cycling paths in construction.

*.... Here in Tanga there are a lot of bicycles, thus new roads which we are constructing we try to create bicycle paths in order to reduce accident resulting from cyclists using car lanes. Karume road is complete and it has a bicycle path, now we are building Nguvumali*

*road and it also has a cycling path, because of low budget these cycling paths will be used together with pedestrians..... (Kaniki, Arafat, RRE)*

## **Advocacy**

Advocacy groups play a role in making cycling known to the public as a better, environmental-friendly and healthier choice in urban commuting. When preparing for this study the researcher was able to connect to prominent cycling advocacy group in Tanzania named Umma wa Wapanda Baiskeli, *Society for bicycle users* (UWABA) based in Dar es Salaam. UWABA from their website they claim to campaigning for better and safer road conditions for cyclists and providing cycle safety education. Members of the society are ordinary cyclists, disabled users of arm-tricycles and drivers of goods-transport tricycles (UWABA 2015). UWABA has another branch in Tanga and hence, the researcher was able to gain access to it and found out how they play a role in emphasizing cycling safety in Tanga too.

Many residents do not know UWABA but it was able to accomplish some policy lobbying. In an interview with a treasurer of the group Mr. Filbert Mbecha, he identify that, the group was able to lobby the planning committee of DART project to include a cycling lane in the newly constructed BRT roads both in phase one which is completed and the upcoming phase two (ADB 2015, 2).

*.... We were able to talk to them and gave them our proposal to put cycling lanes in the project. We were successful and now you can see there are bicycle lanes in BRT roads.... (F. Mbecha)BU.*

UWABA Dar es Salaam has also been able to prepare and conduct different events to familiarize people with cycling and together with authorities like the Police force they were able to arrange public awareness campaign on road safety of cyclists.



Left campaign poster of annual cycling caravan (2015), right road safety for cyclists campaign. Source [www.uwaba.or.tz](http://www.uwaba.or.tz)

While advocacy plays a good role in emphasizing that policy requirements are met, the real impact towards the increase in number of cyclists cannot be realized yet, especially at this time when politics dominates much of the planning process. In Tanga, the advocacy group is weak while the cycling is thriving conversely to Dar es Salaam where the advocacy group is strong and cycling is not famous.

Now we know what make people in Tanga cycle more than those in Dar es Salaam. This section explored the challenges and motivators of bicycle commuting in these two cities by giving us possible factors which influence people decisions on ways of commuting. With the application of Social Practice Theory these factors pave a way to more exploration on the next discussion section.



## 4.2 Discussion

Social Practice Theory informed this study by giving focus on what to look in the attempt of finding answers to the research question. Through the elements of practice i.e. Materials, meanings and competencies, findings from this study were able to be grouped accordingly and analyzed with relation to each other. This section will discuss the major findings of this study through the lens of Social Practice Theory and from it we can generate knowledge for further research or policy planning and modification.

### 4.2.1 Prelude

The study was based in Tanzania in two cities of Dar es Salaam and Tanga. The study geared to find out about the difference in urban cycling culture in these two cities through investigating the way people make their decisions when it comes to choose a way of commuting. The study employed comparative/multiple case study methodology in data collection and selected the participants (respondents) through purposive sampling.

The study found out that, Tanga and Dar es Salaam have differences in cycling culture because of multitude of factors which are *safety and facilities, alternative transportation, culture and history, geography and lastly the influence of policy and advocacy*. These factors are intertwined, depend on each other and have different intensities of impact. The researcher uses Social Practice Theory to explain how different aspects shape a prevalence of a certain practice, in this case urban cycling.

### 4.2.2 What does the study reveal? A social practice perspective.

As consumer theory treats commuting as any other form of consumption i.e. a desire created and mediated through the market, Elizabeth Shove (2003, 10) argued that, consumption is not just a mere demand nonetheless it is important to consider what is consumed, how consumption changes and what those changes mean for the practice and way of life to those who are involved. Hence to understand how routinized ways of life (consumption habits) are situated inscribed in tools, knowledge and norms we need to go beyond economic and market models (page 11).

The adoption of Social Practice Theory in explaining something which is dominated by other fields i.e. transportation, consumer economics and behavioral studies was not easy because of few available related studies. However, Social Practice Theory gives this study a broad perspective and ability to explain factors which other theoretical approaches could not, especially embedding issues which do not relate like weather and policy.

Practices are shaped by what Sahakian and Wilhite (2014, 28) termed, the pillars: which are ‘*the body-cognitive processes and physical disposition, the material world-technology, tools and infrastructures and the social world-settings, norms, values and institutions*’ or summarized as *materials, meanings and competences* in (Spotswood et al. 2015, 24). These elements are intertwined (have specific interconnectedness) and reducing one them will render hard to explain a practice in fullness (Reckwitz 2002).

In this study, the researcher focus was cycling as a practice and because of that, it must have elements, thus, from the findings, the elements of cycling practice are summarized here below.

**Materials (things):** these are communicators of symbolic meanings, they are directly involved in the conduct and reproduction of daily life (Spotswood et al. 2015, 24). In this study, the first material element is a bicycle itself, cycling involves operating a bicycle, whether it is a single geared city bike, multiple geared mountain bike or even an electric bike, they form the main base of cycling practice. Other material elements are infrastructures i.e. road space, bicycle racks etc., motorized vehicles i.e. cars, busses and motorcycles, tools and accessories relating to cycling and bicycles. Also physical environments i.e. weather and topography.

**Meanings:** relying on Pierre Bourdieu definition of *habitus*, that is, a system of dispositions for thoughts and actions including all those understandings about significances that are shared amongst the group and thus bring the group together (Bourdieu 1984). These are those behaviors or courses of actions which are seen normal to a group, locality or society, in this case, all traditions, beliefs, sense of belonging in a society, feelings of safety regarding bicycle commuting people have in a Tanga and Dar es Salaam.

**Competencies:** these are embodied knowledge, defined by Shove et al. (2012, 23) as multiple forms of understanding and knowledgeability. These are skills that a practitioner of practice is required to have when he/she wants to complete or execute a certain practice. In this study we saw that competencies or skills are those relating in using a bicycle, using a motorcycle or private car. Furthermore, skills to operate a bicycle in traffic, to maneuver it on difficult roads as well as repair and maintain it.

These elements have varied influences on the overall practice of cycling, the discussion which follows will see how elements of practice can influence others elements and affect commuting choices and lastly we will look on how cycling practices evolve, compete and dominate to create a pattern of choice to commuters.

### **Strong and subtle elements: influence of income in cycling**

The main entities in the SPT model are elements, practitioners, practices and bundles: the last three are agents while the first are objects used by the practitioners (Narasimhan et al. 2015, 5). A practice become widespread because of the repeated performance, that is: engaging the three elements together across time and space to create a norm. For the practice to be prevalent (alive), the elements are supposed to be linked (Shove 2003), this means, if the link between the elements fade out, the practice will cease to exist.

It is impractical to assume that, all elements have equal weight in the execution of a practice, there can be a dominance of one or two elements or the link between two elements might be stronger than the link between all three. Because of this, we understand that changes in one element might have a huge impact in the practice compared to the other. Also, one element can be seen so small but it can have a significant subtle impact in the performance of a practice.

If we look on the case of Tanga and Dar es Salaam we see that, material element (including bicycles, tools and facilities) dominates how the practice is carried out. For a person to be considered a cyclist he/she must be operating a bicycle. Furthermore, natural and built environment affects the overall performance of a cycling practice. As seen in the literature review, material element played a huge role in determining cycling patterns in cities.

There is another way of looking at this. As we have seen in Dar es Salaam, despite the availability of facilities like cycling lanes in several roads, the use of bicycle is still low contrary to Tanga. From the findings, there is clear evidence that, social norms play a significant but subtle role in the performance of cycling practice. As society believe that cycling is a means for the poor, it put income as a determinant of choice, as personal income increases, people are likely to abandon cycling as their primary and dependable way of commuting, money creates convenience by expanding personal choice across different ways of commuting and hence regardless of the availability of conducive facilities to support cycling, higher income could means less cycling. Residents of Dar es Salaam are getting higher income compared to their counterparts in Tanga. Because it is a norm in both societies to perceive cycling as a means for poor people, people in Dar es Salaam are less likely to adopt cycling and this also means in the future, Tanga will have less cyclist in case the income of residents of the city increases, unless there is a change of norms as in case of places like Copenhagen. Therefore, income influence social norms and consequently social norms influence cycling practice.

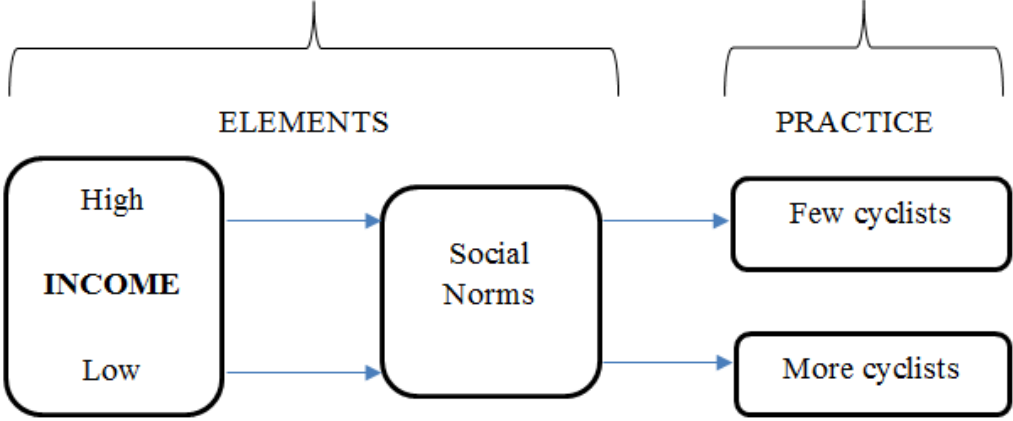


Fig4.1: Relationship between number of cyclists, as affected by social norms which are influenced by income.

### **Co-evolution, competition and dominance.**

Practices rarely occur in isolation, they come together as bundles to make up lifestyles or habits (Narasimhan et al. 2015). Cycling as a practice belongs in a bundle together with other practices to form a commuting lifestyle; cycling itself can be a result of other practices like work or leisure. As cycling is a type of transport, it evolves together and compete with other types of transportation like walking, public commuting, motorcycles or private cars. Moreover, we cannot ignore that practice of cycling is highly influenced and affected by other transport modes.

Efficient transport aims to move people and goods from two points in a most convenient, reliable, affordable and comfortable way at a safe high speed possible. Because of this, we have multiple way of accessing transport considering factors like location, income, availability, convenience and speed. None of the available transport modes gives us a perfect way and hence users tend to choose or move between transport modes by evaluating their options.

To understand the relationship between cycling and other modes of transportation in this study, we start with the concept of *co-evolution*. This is when certain practices and technologies evolve together and there is somewhat interdependence in their design (Shove 2003). To put it in a simple way, in road transport technology, there is a systematic way of design in the vehicles, whether cars, trucks, motorbikes or bicycles for them to operate together in harmony on the road. In this way, the road space is the main place where practitioners of different commuting practices meet and by practicing together, they affect each other.

Furthermore, cycling together with other types of transport are *competing practices*. Shove et al. (2012) argued that competing practices can be studied as either 'loose-knit bundles' of co-location and co-existence (practices which exist parallel to each other) or closely more integrated complexes (different practices affect a single practice and vice versa). Evidences in this study show that commuting practices (walking, cycling, driving and public transit) are parallel to each other and cycling in particular is affected by all other commuting practices. They are parallel because all of them happen on a designated road space and they affect cycling because they all compete for that same road space. In Dar es Salaam and Tanga, majority of roads are designed primarily for

motorized transport, because of this, as motorized traffic increases, space for cycling or walking become minimal. This competition is further intensified by the differences in size and speed of vehicles; if larger and speedier vehicles dominate the road, chances for accidents impacting cyclists are higher and vice versa. Because of this, the issue of safety in Dar es Salaam roads was prominent among cyclist compared to their counterparts in Tanga.

Given several conditions and resources commuters can change between on commuting practice to another, the findings from the field work evidently shows that physical environment i.e. weather and topography affects cycling. As weather deteriorate (rain, dust blows, heat and snow) or terrain becomes difficult, people switch into other means of commuting. Public and hired transport and private vehicles snatch bicycle users as they provide more convenient choice in case of geographical difficulties. However, as mentioned earlier, cycling belongs in a bundle of commuting practices and thus within that bundle, it is faced by strong influence of *dominating practices*. Dominating practices are those practices which are persistent, they structure domains of social life and cannot be changed without disrupting collectively established realities (other related practices) (Swidler 2001, 95). These practices anchor and organize other systems of practices and actions (Swidler 2001, 100) and cannot be ignored in this discourse. Tanga and Dar es Salaam both have these dominating practices and they affect heavily the way people choose certain commuting ways. In Dar es Salaam, public commuting practice using daladala has a dominance over other commuting practices, daladala culture is very ingrained in the lifestyles of residents and it influences highly how other commuting practices are carried out. For example, while even those who own private cars they use daladala occasionally, their decision on the road depends highly on their interaction with daladala drivers. Because daladala carry many passengers compared to any other kind of transport in the city, they have high influence in the road and dominates the way other drivers and passengers interact. From the interviews we saw, cyclists complained the harassment they get from the daladala driver like constant honking hence they have to exercise extra caution for their safety, likewise other road users see the harassment cyclists experience and that could be a reason why many would not consider using bicycles as a way of commuting.

In Tanga, cycling is a dominating practice. With fewer cars on the road and the high number of cyclists, bicycle commuting in general shape the way other commuting practices are carried out. As mentioned in the findings, people in Tanga are willing to ride their bicycles to avoid paying fares in public transit, this has caused the public transit to have few routes and low operation. Furthermore, the interaction on the road between cyclist and other road users i.e. drivers of private cars and motorcycles also depends highly with way cyclists behave because many roads does not have cycling lanes and hence all road users use the same space.

Therefore, in Tanga, cycling has dominance, this breeds confidence among bicycle commuters and become easier to attract new users while in Dar es Salaam public transportation has dominance and because of the arrogance of drivers towards cyclists, cyclist safety is threatened and this could be the hindrance new users face when they want to get in.

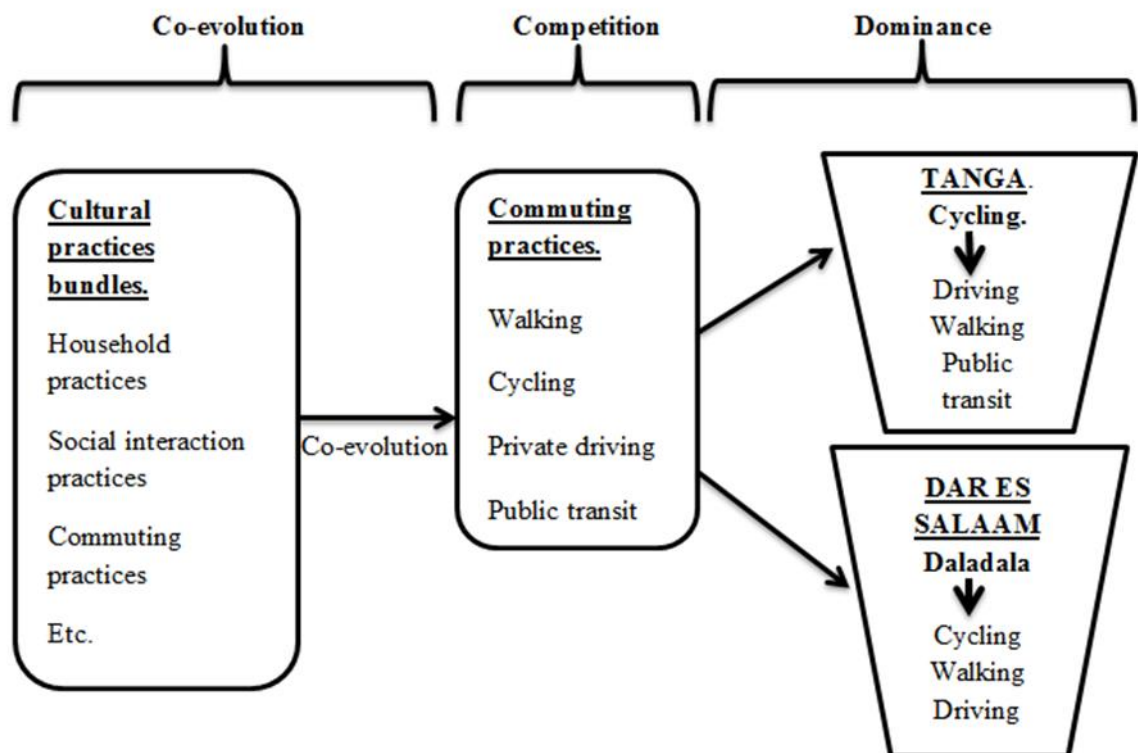


Fig 4.2: How practices evolve, compete and dominate others

To conclude this section, we have seen that. Elements of practice have varied influence towards a practice. In the first argument the researcher outline the way income have a very significant but subtle influence on cycling practice. Income influence cultural norms by making itself a determinant of choice, as people are getting higher income likewise it is hard for them to adopt cycling and vice versa because the society believe cycling is a commuting means for poor people. In the second argument, the researcher tried to show how practices evolve from a group of bundles, compete with each other and dominates others within the bundle and this determine different ways cycling get its users in Dar es Salaam and Tanga.

### **4.2.3 Studies with similar results**

Other studies conducted in the similar topic have shown similar results. A study by Nkurunziza et al. (2012) examined the effects of various motivators, barriers and policy related interventions on bicycle commuting in Dar es Salaam. By using the theory of stages of behavior change, particularly the stages of change model, the study found out that, addressing physical barriers alone will have little impact on inducing people to adopt bicycle commuting. Also the study discovered that perceived motivator variables which are low bicycle price, cycling training and direct cycling routes are strongly associated with bicycle commuting. Furthermore, factors like bad weather, social status, social insecurity, uncomfortable feeling when riding a bicycle have negatively impacted bicycle commuting in Dar es Salaam. The study suggests that, policy related intervention like bicycle tax exemption, car congestion charges and provision of security to bicycles in public places will have strong impact to induce people to choose cycling.

Another study by Spotswood et al. (2013) used Social Practice Theory to provide an alternative way of understanding the complex dynamics between the elements that constitute cycling. The study takes a detour from dominating theories by focusing cycling as a social issue rather than an individual behavior. By using qualitative and quantitative databases which explores views and experiences of both cyclists and non-cyclists, they found out, cycling practice is described according to three elements material, meanings and competencies. The study concluded that cycling is embedded as



a system within other systems, initiating change in that setting is hard but SPT may help provide an initial logic for coordinating diverse measures in that complex system.

### **4.3 Limitations of the study.**

This study has several weaknesses. These weaknesses can be corrected by further studies in the field through application of diverse theories and data collection techniques. The following are identified weaknesses of this study.

- In methodological approach, the researcher might have succumbed to bias in selection of tools and respondents. Furthermore, most of the informants of this study were obtained through referrals and thus randomness in selections was minimal, especially in the selection of cyclists. Some data were omitted due to issues like space and simplification of context, thus some more interesting information could not appear in this study.
- Women being the integral part of the society were highly misrepresented in this study. As cycling is dominated by men in Tanzania, getting women cyclist was not an easy matter, especially in Tanga where field work was short because of logistical and financial constraints.
- The theoretical approach was good for this study, but Social Practice Theory is still not well developed as an applied set of tools for managing behavior change (Spotswood et al. 2013, 31), hence the application of this theory in policy level is taking slow compared to other well-tested psychological approaches (Cairns et al. 2014). With more studies and findings, appropriate and diverse ways to integrate SPT in social policy debates will be able to break this barrier.

## 5 Conclusion

This study was successful in identifying the differences in cycling culture between Dar es Salaam and Tanga in Tanzania. By using the comparative case study approach, the study employed qualitative research techniques in gathering and comparing information obtained in the field work. In the attempt to answer research question: *what are the factors for low bicycle use in Dar es Salaam and factors for high bicycle use in Tanga?* The study found out that different aspects shape the way people perceive and later choose bicycle commuting. Factors like safety and facilities, culture and history, policy and advocacy, geography and alternative transportation were behind the prevailing cycling cultures in Dar es Salaam and Tanga. These factors in different ways made people in Tanga prefer using bicycles while people in Dar es Salaam prefer to use other commuting ways. In the discussion, through the employment of Social Practice Theory, we saw, the influence of elements of practice like income which shape how people evaluate their commuting decision through cultural norms. Furthermore, the researcher attempts to draw a pattern on how commuting practices evolve from cluster of cultural practices, through competition with each other and lastly one of the commuting practice end up to dominate other and influence commuting decisions in a locality.

This study was limited to two cities in Tanzania; namely, Dar es Salaam and Tanga. In the light of this research limitation, based on the size of the Tanzania, in order to enhance the representativeness and transferability of the results, it is recommended that a more comprehensive survey of the attitudes of people regarding cycling be extended to other cities. Moreover, this study could not cover many other things, like how policy plays a direct role in influencing practices, but the evidences suggest that, many interventions through policy level will impact different elements of cycling practice to influence a change in behavior or habits.

## 5.1 Implications of the study

This study was successful to discover new ways to look on the bicycle commuting in African cities. Through the use of theory, new knowledge has been generated, for example.

- The study found a new way to explain how social norms are affected by income in a society where people believe cycling is a means for poor people. This study discovered the missing link where, the number of cyclist in a city can be determined by the overall income generated by residents i.e. the study shows as income increases, number of cyclists declines. Income creates convenience and choice and influence the way people perceive cycling in the first place.
- Also, we saw how the study demonstrates the way commuting lifestyle is shaped. Through studying the dominant commuting practices, cycling was affected and affects other means of commuting through their interaction on the road space. It is now possible to determine number of cyclist in a road by looking on which commuting modes are prevalent and dominating and how they affect other modes on the road space. From the study, as motorized transportation especially public commuting dominates the road space (as was the case of Dar es Salaam), cycling is less regarded due to issues like safety and when there is less motorization on the road space, cycling thrives like the case in Tanga.

The study objective was to find the factors behind the uneven cycling culture in Tanga and Dar es Salaam. Results from this study can help in benchmarking policy intervention especially transport policy in an attempt to incorporate non-motorized transport in mainstream transport corridors. Also, in finding appropriate ways to mainstream cycling as a sustainable urban transportation. Among the problems observed in this study were the inability of local transport realities to be connected with national transport policy, this study provides a way in efforts to pursue other local transport realities which need to be integrated into the planning and implementation of broad policies.

## 5.2 Recommendations.

This study recommends that, bicycle commuting should be embraced in developing countries. As cycling provides both economic, environmental and health benefits compared to other transport modes in cities, if facilities to support cycling are improved and campaigns to normalize bicycle commuting are initiated, cycling can be among the cheapest and most efficient type of urban transport in Africa.

Because this study was conducted in Tanga and Dar es Salaam, the study recommends the following:

- In ways to make Dar es Salaam more bicycle friendly: The government should increase its efforts to integrate public transport and cycling through launching of new bicycle paths and parking facilities in bus stops. Reduction of bicycle importation taxes to make them more cheaper. Creation of exclusive cycling roads in the city center and at the same time allow the bicycle renting business, this will reduce number of cars entering the CBD and likewise people will opt to use bicycles for navigation. Massive public awareness on cycling, free bicycle training and education on road safety: this will enable the new unused bicycle paths to be used as cycling will be normalized.
- In ways to retain Tanga as bicycle friendly city: The government should initiate a systematic planning to incorporate cycling and efficient flow of traffic as the city is expanding now. As income of residents of Tanga is increasing, and we have seen income can be a reason for people to adopt other transport measures, creation of barriers for dominance of motorized traffic through high parking fees, limiting navigation through exclusivity of roads for cycling purposes only, high road toll fees and prioritizing cycling in public areas coupled with campaigns to normalize cycling even to people who don't cycle, this will have significant impact to help Tanga remains a green city.



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# Appendix

## Short profile of respondents.

### TANGA.

#### *Bicycle users*

Jacob Shekwavi, Male 36 years old.

He is a security guard, living in Masiwani. He use bicycle in his everyday trips around the city.

Makata Hamisi, Male 33 years old.

He is a small scale farmer, use bicycle to transport his produces to the market.

Swalehe Ali, Male 25 years old.

He is a small scale vendor.

Mussa Mohamed mzimbili, Male 34 years old.

He is a peasant, use bicycle in his everyday routine.

Ayadi Rama, Male 30 years old.

Work in bicycle repair, lives in Chumbageni.

Rashid Vena, Male 29 years old.

He is a market vendor in Ngamiani Market, a major market in Tanga.

#### *Non-bicycle users*

Ipyana Mlilo, Male 29 years old.

Owens a car, works as a lawyer, living in Nguvumali area.

Fred Lyimo, Male 27 years old.

Owens a car, work as an economist in the regional commissioner's office.

Juma Ramadhani, Male 28 years old.

Bodaboda Driver, lives in Chumbageni area.

Yusuph Ngwale, Male 30 years old.

Owens a motorcycle, works as a statistician in regional Commissioner's office.

***Officers.***

Joseph Mafuru.  
City planning officer.

Shaaban Mruma.  
City planning officer.

Arafat Kaniki.  
Regional road engineer.

**DAR ES SALAAM.**

***Bicycle users***

Julius Katembo, Male 68 years old.  
Retired serviceman, lives in Segerea area. He commutes entirely with bicycle.

Abdallah Hatibu, Male 46 years old.  
Works in bicycle repairs, also a member of UWABA

Filbert Mbecha, Male 36 years old.  
Works as a bicycle delivery messengers, lives in Kimara, also a member of UWABA.

Athumani Kwembea. Male 66 years old.  
Small scale vendor, lives in Tabata.

Athuman Rajab. Male 22 years old.  
Small scale shopowner, lives in Tabata.

Emmanuel Amani, Male 22 years old.  
A bachelor student lives in Tabata.

***Non-bicycle users***

Lowema Richard, Female 27 years old.  
Officer at the tax office, she use public transport.

Stephen Sanga, Male 27 years old.  
Owns a motorcycle, works as a research assistant lives in Makoka area.

Neema Palangyo, Female 24 years old.  
Employed, use public transport.

Manase, Male 32 years old.  
Owns a car, works as a car mechanic.

Charles Magome, Male 26 years old.  
Public transport user, employed in a food factory.

### *Officers*

Mr. Kawiche.  
City planning officer.

Emmanuel Richard  
City planning officer

Juma Robinson  
City Environment officer.

## Research permits and introduction letter

UiO • **University of Oslo**  
Centre for Development and the Environment

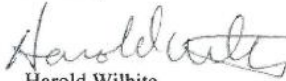
28. August 2015

To whom it may concern

This is to confirm that Thabit Mikidadi is a Masters student at the Centre for Development and the Environment.

Mr. Mikidadi will be conducting research for his masters thesis in Tanzania in the autumn of 2015. Please accord him the privileges of a research scientist.

Sincerely



Harold Wilhite  
Professor



Postal address: Postboks 1116 Blindern, 0317 Oslo  
E-mail: [info@sum.uio.no](mailto:info@sum.uio.no)  
Telephone: 22 85 89 00

THE UNITED REPUBLIC OF TANZANIA  
PRIME MINISTER'S OFFICE  
MINISTRY OF REGIONAL ADMINISTRATION AND LOCAL GOVERNMENT

KINONDONI DISTRICT

Telephone No. 2170169 / 2170183

To reply please quote:

Ref. No. AB.320/378/01/145



THE DISTRICT COMMISSIONER'S OFFICE,  
P.O BOX 9583,  
KINONDONI,  
DAR ES SALAAM,  
TANZANIA.

9<sup>th</sup> September, 2015

*To Whom it may Concern*  
.....  
.....  
.....

**RE: RESEARCH PERMIT**

**Thabit Mikidadi Kitamu** is a student/researcher from University of Oslo. He has been permitted to undertake field work research on "**Comparative Study on Bicycle Use in Dar es Salaam and Tanga Regions.**" from September, 2015 to November, 2015.

I kindly request your good assistance to enable him to complete his research.

A handwritten signature in blue ink, appearing to read 'N. Shirima'.

N. Shirima

**For:-District Administrative Secretary  
KINONDONI**

THE UNITED REPUBLIC OF TANZANIA  
PRIME MINISTER'S OFFICE  
REGIONAL ADMINISTRATION AND LOCAL GOVERNMENT

DAR ES SALAAM REGION

Phone Number:  
2203156/2203158

In reply please quote:

**Ref. No. FA 282/293/01P/**



REGIONAL  
COMMISSIONER'S OFFICE,  
3 Rashidi kawawa Road  
P.O. Box. 5429,  
12880 **DAR ES SALAAM**  
**08 SEPTEMBER 2015,**

District Administrative Secretary,  
Ujala, Temeke and Kinondoni,  
**DAR ES SALAAM.**

**RE: RESEARCH**

Pro/Dr/Mrs./Ms/Miss: **MR. THABIT HIKIDAO KITAMU** is student/**researcher**  
from **UNIVERSITY OF OSLO** has been permitted to undertake  
a research on **COMPARATIVE STUDY ON BICYCLE USE**  
**IN DAR ES SALAAM AND TANGA REGIONS**  
from **NOVEMBER** 2015. **SEPTEMBER**  
to **NOVEMBER** 2015.

I Kindly request your good assistance to enable her/his to complete her/his  
research.

**For; Regional Administrative Secretary**

**DAR ES SALAAM**

Copy: **UJALA MUNICIPAL DIRECTOR**  
**KINONDONI MUNICIPAL DIRECTOR**  
**TEMEKE MUNICIPAL DIRECTOR**

## **Interview and observation guides.**

### **INTERVIEW GUIDE FOR BICYCLE USERS**

#### *Preliminary information*

**Name:**

**Gender:**

**Age:**

**Residence:**

**Occupation:**

Questions.

1. What is the motive of using bicycle in most of your day-to-day transportation demand? Why not other means?
2. How long have you been using bicycle?
3. Do you think bicycles are better than private cars? In what sense?
4. What do you think is a reason that other people do not want to use bicycles?
5. Do you know any environmental/health/any other benefits of using bicycles instead of cars?
6. (a) What are the major challenges you face when using bicycles in commuting? (b) What are the barriers
7. Do you have plans to change to other modes soon if you have a chance
8. What do you think are the disadvantages of using bicycle?
9. What would you like the government do to enhance the use of bicycle in your town?
10. (*For occasional users only, do not ask question number one*) why you do not use bicycle in regular interval/ what barriers make you use bicycle less often. What other transport mode you use in the absence of bicycle.



11. If you happen to own a car (or motorbike), are you still going to use bicycle? Why?
12. Between private cars, public transport, motorbikes and bicycle, please rank the most suitable transportation mode to a less suitable. What is the basis of this ranking?

## **INTERVIEW GUIDE FOR CAR OWNERS WHO DON'T HAVE/USE BICYCLES**

### *Preliminary information*

**Name:**

**Gender:**

**Age:**

**Residence:**

**Occupation:**

### Questions

1. Why did you choose car and not other transport modes?
2. Do you have any plans of using bicycle in some of your transportation needs, if yes Why? If No, Why?
3. Do you know any environmental/health/any other benefits of using bicycles instead of cars?
4. Apart from you, what do you think is the reason other people don't want to use bicycles in this place.
5. What do you think should be done by the authorities to encourage you or any other non-bicycle users to use bicycles more often?
6. Between private cars, public transport, motorbikes and bicycle, please rank the most suitable transportation mode to a less suitable. What is the basis of this ranking?

## INTERVIEW GUIDE FOR PUBLIC TRANSPORT USERS.

### *Preliminary information*

**Name:**

**Gender:**

**Age:**

**Residence:**

**Occupation:**

### Questions

1. Why do you chose public transport from other transport modes?
2. Do you think public transport is better than others, why?
3. Do you have any thought of using bicycle in your regular basis?
4. If yes why? If no why?
5. Do you know any environmental/health/any other benefits of using bicycles instead of cars?
6. What do you think are the challenges/barriers of using bicycle in commuting in this area/town?
7. What do you think should be done by the authorities to encourage you or any other non-bicycle users to use bicycles more often?
8. Between private cars, public transport, motorbikes and bicycle, please rank the most suitable transportation mode to a less suitable. What is the basis of this ranking?

## OBSERVATION GUIDE

This guide is purposely to collect non-verbal information on sites visited. It aimed at collecting physical, infrastructural, traffic conditions of areas visited.

Guide:

### *Physical.*

1. What is the terrain of the surrounding area? Hilly or flat?
2. Is the area closer to the sea or far?

### *Infrastructural and traffic*

1. Are the majority of roads paved? At what level (bitumen, tarmac etc.).
2. In area visited, are the streets planned or people live in unplanned areas (squatters)?
3. Is there any infrastructure which is bicycle friendly? This includes bicycle lanes if any.
4. What types of bicycles are mostly used (imported/domestically produces, simple city bikes or multiple geared bikes).
5. What is the dominant mode of transportation seen (Cars, Public transport, motorcycle, bicycles)
6. Observe the obedience of traffic regulation, and how users of cars and motorcycles treat bicycle users.

**Per capita GDP of Tanga and Dar es Salaam, from 1980 to 2013,  
source NBS- National Accounts of Tanzania. Compiled by author.**

	<b>per capita GDP Tanga</b>	<b>per capita GDP Dar</b>
1980	1896	9072
1981	2160	9871
1982	2492	10453
1983	2816	11100
1984	3105	12927
1985	4218	16065
1986	5803	21953
1987	9633	31808
1988	12724	30143
1989	16321	54542
1990	24444	83325
1991	27213	96672
1992	33621	114723
1993	38947	129919
1994	60038	226386
1995	76778	267976
1996	92948	311065
1997	112777	371811
1998	130741	435859
1999	147589	492518
2000	165496	518351
2001	229192	664688
2004	440305	785985
2005	537227	856391
2006	569319	992362
2007	636262	1133503
2008	646284	1337257
2009	692939	1594976
2010	763203	1740947
2011	886343	1961074
2012	1026432	1734842
2013	1187044	1990043