Transitions to Sustainable Urban Mobility in Sub-Saharan Africa

T-SUM

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Transitions to Sustainable Urban Mobility in Sub-Saharan Africa

Client Deliverable

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Foreword

During the months we spent working in this research project, we became intimately familiar with the challenges, in particular urban mobility ones, faced by the cities of Maputo, Mozambique, and Freetown, Sierra Leone. We realised the immense difficulties city officials face in pushing for Sustainable Urban Mobility (SUM) in the face of very immediate and real needs – for instance, with the recent flooding disasters hitting Freetown and wreaking havoc in its infrastructure and housing. As many other Sub Saharan African cities, they will become increasingly vulnerable to the effects of climate change, accelerating rural-urban migration, and increasing the exposure to a variety of risks.

However, through our investigation into the case studies of good sustainable mobility practices and participatory process, we realised that sustained political leadership can play a key role in advancing a SUM agenda. Hence, communicating effectively with key government authorities, as well as engaging other influential figures in the private sector, academia and civil society, is crucial to increase the relevance of sustainable development. Furthermore, the process of building and effecting a sustainable mobility strategy, cannot be imposed from the top, rather requiring an alignment between different societal actors, who need to change both their mindsets and practices. Continuous participation and stakeholder engagement in all the planning stages, is a recipe that we believe will increase the odds of long-term success. The best way to achieve success, is that everyone gets to "own" the strategy.

We also saw the importance of agency and opportunities other case study cities took in turning threats and scarcities to their advantage. Dire situations in urban mobility (i.e. high congestion rates, pollution) within the context of resource paucity became a source of innovation. The innovations of the Bus Rapid Transit (BRT) system, emerged from Curitiba, Brazil due to series of failed rail projects. Curitiba's BRT system is an example of how innovations emerging from the Global South could gain traction across the globe. By 2019, 170 cities have adopted the BRT system. This was further innovated into a lite version by Lagos, Nigeria that did away with some of the infrastructure designs to save costs. This is a testament to the innovative infrastructure designs that can arise from limited resources and the agency that Maputo and Freetown will have to similarly innovate around these challenges and limitations.

The future is highly uncertain. We should remain humble, since we cannot predict it, and our current knowledge about complex urban dynamics in a rapidly changing XXI century cities, is very limited. But even in the face of uncertainty, developing a sense of agency, taking actions in order to achieve a desired future, is a key step to build a new trajectory that sets an example to the rest of the world.

Signing off
Grace, Mario, María and Nicole

00 Executive Summary

"T-SUM: Transitions to Sustainable Urban Mobility in Sub-Saharan Africa" is a transdisciplinary and collaborative project led by the UCL Development Planning Unit (DPU), that aims to **identify pathway conditions to accelerate sustainable and inclusive transport and land use development** within the cities, specifically within **Maputo, Mozambique, and Freetown, Sierra Leone**.

As STEaPP, our involvement in the project was to support in the development and implementation of **two focus areas** :

1. Identifying some of the **key factors that enable transitions to Sustainable Urban Mobility and build case studies** of comparable cities that have exhibited **good-practice approaches to SUM transitions**.

2. Analysing **best practices in participatory governance, processes and workshop design** with the goal of providing a guideline that will be used as a manual for this project.

In this respect, the data collection consisted of carrying out desk research, conducting semi-structured interviews, reviewing the results of field trips to the cities of Maputo and Freetown, assisting to conferences and holding bi-monthly meetings with the partners. Afterwards, the data was analysed and the results informed the discussion about enabling factors for SUM transitions and participatory processes which are presented in the analysis section of this document.

The first part of the analysis was based on the theory of **"socio-technical transitions"** (Geels, 2007), which is used to explain the challenges and processes involved in pursuing a **successful transition towards a sustainable urban mobility pathway**. This part of the analysis illustrates that transitioning from a "car-centric" to a sustainable transport and mobility socio-technical regime, is a complex long-term endeavour, that requires alignment between multiple stakeholders. In this context Maputo and Freetown share a similar set of problems in the transport and mobility field, where some of their biggest problems are related to the lack of basic road infrastructure and insufficient supply of public transport. Coordination among several layers of government and multiple stakeholders is also one of their biggest challenges, which affects the effectiveness of policy planning processes. Likewise several urgent problems concentrate the attention of the authorities, and therefore challenge strategy-making processes that require long-term thinking.

The second section of the analysis is focused on the **factors enabling transitions to SUM**. This section presents the rationale behind the construction of individual case studies featuring good SUM transitions (found in Appendix 1) that are intended to be used as a conversation trigger as part of the participatory workshops. Similarly, it informs about the enabling factors to consider whilst undertaking SUM transition projects; which are **political leadership and commitment, infrastructure design, stakeholder engagement, institutional coordination and regulation, and lastly, funding**.

The third section consists of **participatory governance and how participatory processes can enable transitions towards a Sustainable Socio-Technical Regime**, by creating

the **basic conditions to align stakeholders into building and committing to a common vision, while prioritising actions and practical steps to implement.** The analysis emphasizes that participatory processes need to be **suitable for the local context**, and that the principles of equity, diversity, trust, openness, transparency, and accountability must be ensured. The rest of the section focuses on presenting the requirements, logistics, conditions, and tools for the effective implementation of these processes, while also providing in Appendix 2) a Manual of how to use tools for participatory workshops. The section finishes in presenting risks and limitations of participatory processes.

The last section of the analysis, integrates how for Maputo and Freetown to transition from their current Socio-Technical Regime to a SUM-based one, **assurances of principles for effective workshops, use of adequate tools to align the vision**, and **inspire the approach through the use of case studies** can successfully pave the way to a Sustainable Socio-Technical Regime. Likewise, it highlights how the principles of **credibility, legitimacy and relevance of the process must also be ensured to succeed in the creation of this pathway**.

To achieve this, recommendations on the subjects of **1) conditions for the effectiveness and continuity of the T-SUM project; 2) effective implementation of participatory workshops and; 3) additional suggestions regarding the case studies** are provided at the end of the document.

Lastly, the report concludes that even if some mitigation actions have been recommended to address some of the project risks; there are still certain constraints that could hinder the impact of this project's contribution to T-SUM. It is argued however, that with the right combination of leadership, collaboration and ingenuity, the cities of Maputo and Freetown could become a platform for successful transport and mobility policy experimentation and, that this research project, is a relevant contribution towards this goal.

01 Introduction

1.1 T-SUM Project Overview

"T-SUM: Transitions to Sustainable Urban Mobility in Sub-Saharan Africa" is a transdisciplinary and collaborative 2.5-year project led by the UCL Development Planning Unit (DPU), that aims to identify pathway conditions to accelerate sustainable and inclusive transport and land use development within the Global South cities , specifically within Maputo, Mozambique, and Freetown, Sierra Leone. Other T-SUM partners include UN-Habitat, the World Bank, AFD (*Agence française de développement*), WRI (World Resources Institute), ITDP (Institute for Transportation and Development Policy).

Maputo and Freetown have been selected as the initial case studies of cities facing typical urban development trajectories and encountering the challenge of integrating the "built and social fabric along attaining lasting and inclusive economic growth" (T-SUM, 2019). Further, both cities are categorised by the OECD's Development Assistance Committee (DAC) as 'Least Developed Countries' (OECD, DAC, 2018) and have in recent months experienced the impact of climate change exhibiting their vulnerability and lack of resilience towards its effects.

It is therefore imperative that these cities embark on a SUM- based model of development in order to build resilience and help address the root causes of climate change; taking advantage of innovative solutions in order to "leapfrog" car-oriented mobility and pursue a sustainable and inclusive mobility trajectory will be crucial to achieving this model.

It is T-SUM's ultimate objective to identify mechanisms to accelerate that Sustainable Urban Mobility (SUM) trajectory through institutional and governance processes.

The project is structured into four Work Packages (WP):

- WP1: Conceptual framework and empirical evidence;
- WP2: Mobility, Accessibility and Land-use assessment issues in Maputo & Freetown;
- WP3: Vision pathways and implementation strategies; and
- WP4: Legacy and impact

Figure 1 below illustrates the structure of the T-SUM project and interconnections between the different work packages and their respective outputs. The STEaPP's MPA Group Project will specifically support the development of **WP3 "Vision pathways and implementation strategies"**. This Work Package is a core component of the project, since it articulates the inputs of WP 1 and WP2, by running deliberative workshops in each city, based on the findings from both Work Packages.

These workshops are aimed at generating the necessary alignment between actors through the articulation of a common vision, and ensuring commitment to future actions. The results of these workshops will provide basic inputs for the design of two documents: A **Prioritization Report** and a **Mobility Action Plan**.

STEaPP's contribution to T-SUM project has two key focus areas:

1. Identifying some of the **key factors that enable transitions to Sustainable Urban Mobility and build case studies** of comparable cities that have exhibited **good-practice approaches to SUM transitions** in order to evidence and analyse these factors; these sample cases will inform the workshops and provide a reference guide for attendees in order to inspire potential policies to address relatable issues.
2. Analysing **best practices in participatory governance, processes and workshop design** with the goal of providing a guideline that will be used as a manual for this project, with the potential to be transferable to other projects.

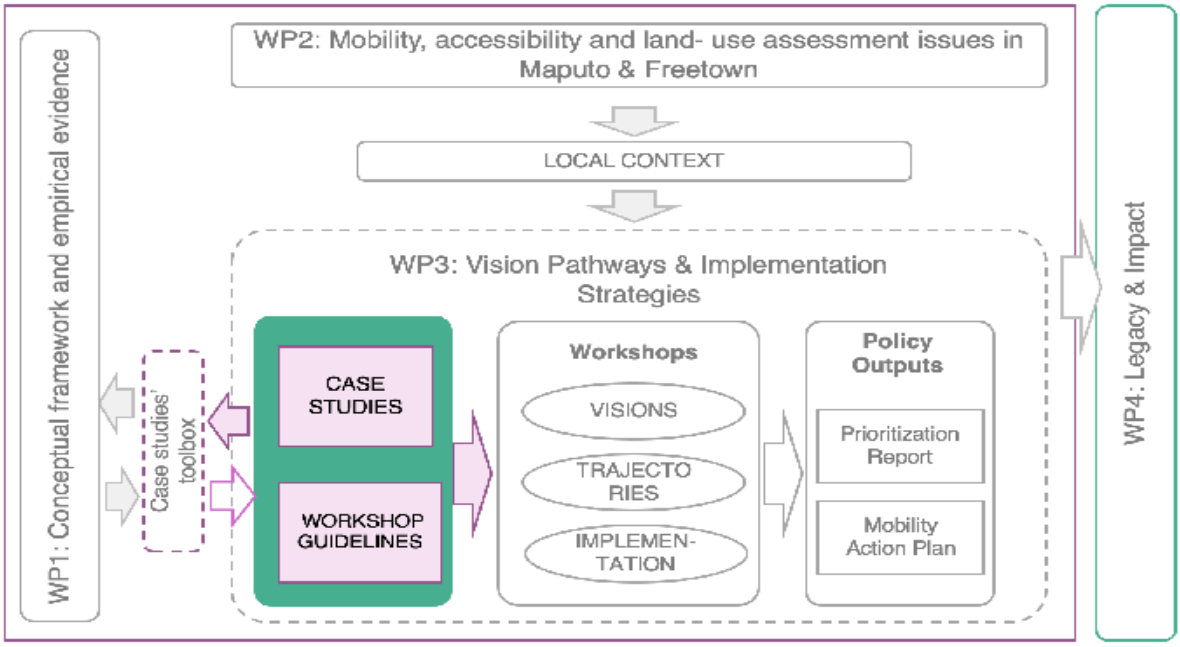

Figure 1: STEaPP's contribution to T-SUM Source: Author

1.2 Report Outline

The aim of this document is to i) present the aforementioned enabling factors to SUM transitions through the analysis of case studies in comparable cities and ii) offer a reflection on how participatory processes could be used in order to align stakeholders to achieve the vision of sustainable urban development. The next chapters will present:

- A description of the methodology used;
- Analysis and discussion, based on the results of the data collection process;
- A set of final recommendations for T-SUM;
- Concluding remarks

02 Methodology

In order to analyse each of the focus areas, the following research questions were formulated after a process of negotiation with the client:

1- What are the enabling factors and their applicability for implementing Sustainable Urban Mobility Transitions in the context of comparable cities?
2.- What are the key elements for the design and implementation of participatory workshops, in the context of Sustainable Urban Mobility strategy-making processes in Global South Cities?

The aim of this project is mostly descriptive, practical and applied, rather than explanatory. Rather than answering the "why" question, it seeks to answer "what" and "how" questions.

Due to the nature of our research that seeks to investigate expert viewpoints and is not amenable to measuring and counting, a qualitative research approach was deemed to be appropriate (Hammarberg et al., 2016). For these reasons, the methods to address these interrogations were selected based on their pertinence to fulfil both of the research questions.

2.1 Data Collection Process

The data collection process took place between the months of May and July 2019. It included the use of the following methods (see Table 1):

Method	Outcome	Further Details
Desk Research	• Grounded understanding of sustainable urban mobility (SUM) practices and participatory process. • Identification of knowledge gaps. • Informed the selection of specialists to interview and the direction of the semi-structured interviews themselves.	• Consulted sources were academic journals, policy papers, institutional reports and articles. • Research on governmental, think tank and NGO websites was also conducted.
Semi-Structured Interviews	• Explored in more depth of detail the research questions and obtained large amounts of information in a short period of time. • Identification of new sources of research and possible interviewees.	• 12 semi-structured interviews with experts in SUM and participatory planning were conducted (Appendix 3). • Experts were initially selected according to their expertise in SUM and participatory methods, being recommended mostly by our client. However, some interviewees recommended the names of new experts.

Method	Outcome	Further Details
Conferences and Workshops	• Identified complementary sources of information and research for the project. • Learnt from different experiences in the field of participatory processes and SUM.	• 4 national and international conferences concerning SUM practices (Appendix 4)
Debriefing Sessions	• Expanded our knowledge about Maputo and Freetown challenges. • Improved contextualization of the cities about their most pressing needs in terms of SUM. • Received feedback and define next steps of the process.	• Bi-monthly meetings with the client, and debriefing sessions about fieldwork in Maputo and Freetown were held.
Review of Data Inputs from Work Package 2	• Reinforced data collection • Improved contextualization of the cities	• This Work Package provided an evaluation of base conditions in Maputo and Freetown, and an assessment of past and present transport and urban policies in both cities
Conference Calls with Local Project Partners	• Expanded our knowledge about Maputo and Freetown challenges. • Aligned expectations with local partners • Defined next steps of the process	• 1 Conference call with the representative of UN Habitat in Nairobi, Kenya. • 1 Conference call with the lead representatives of T-SUM partner WAZA in Maputo. • 1 Conference call with the Mayor of Freetown.

Table 1. Data Collection Methods (Source: Author)

Similarly, as Figure 2 demonstrates, the on-going research process for this work, was **not linear**, but instead, an **iterative** cycle that complemented each of the stages. **The dialogue with the client and project partners was a fundamental part of this cycle**, that contributed to define our methods, select the sources of literature, choose the relevant conferences that we could attend, and to find expertise that was fundamental for the project.

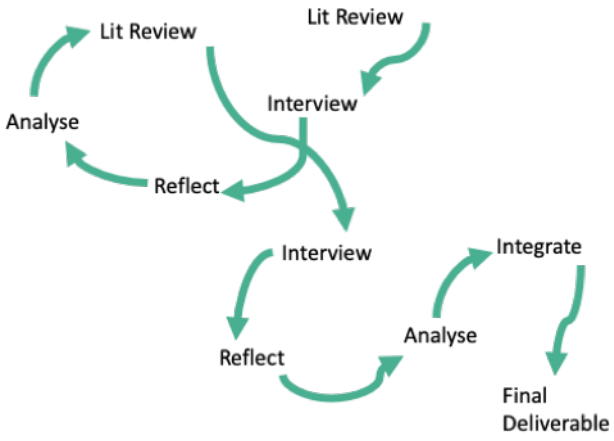

Figure 2. Research Cycle (Source: Author; adapted from Coghlan and Brannick, 2001)

2.2 Data Analysis

The Data analysis was mostly performed in August 2019. It involved performing content analysis of both the literature, and the transcripts of the interviews. According to Bengtsson (2016), the purpose of content analysis is "to organize and elicit meaning from data collected and to draw realistic conclusions from it".

Data analysis was performed in the four stages suggested by Bengtsson (2016): Decontextualization, recontextualization, categorisation, and compilation. This analysis involved reading the documents and finding common patterns, for which labels or codes were assigned. The coding process was implemented with the help of NVIVO software. With the support of this software, it was possible to measure the codes or labels more frequently mentioned. During the categorisation phase, the meaning units were condensed into smaller and more meaningful units. The summary of the categories and themes identified, was used to inform the discussion between the researchers, and used during the compilation phase to reach a deeper understanding of the problem. The result of this informed process of analysis and discussion is presented in the next sections.

At the end of this process, we were capable of drawing realistic recommendations and conclusions, providing an answer to the initial research questions. In the next section "Analysis and Discussion" we will present the research's results.

03 Analysis and Discussion

3.0 Structure of the Analysis

This section aims to integrate the results of the literature review, interviews and inputs from other data collection activities, into one analytic chapter that attempts to answer the two initial research questions. The structure of the analysis is shown in Figure 3. The analysis has been based on the theory of "socio-technical transitions" (Geels, 2007), which is used to explain the challenges and processes involved in pursuing a successful transition towards a sustainable urban mobility pathway. As seen in the previous figure, this section is divided into four subsections which we view as T-SUM's process to assisting Maputo and Freetown position themselves towards the SUM pathway:

- The first subsection, **"Socio-Technical Transitions and Context: Maputo and Freetown"**, introduces the **notion of "socio-technical transitions"**, showing how this theory relates to the context of Maputo and Freetown. This presents the most relevant problems that both cities face, and briefly outlines the conditions and challenges for pursuing a transition towards a more sustainable configuration.

- The second subsection, **"Factors Enabling Transitions to SUM: Case Studies"**, introduces the **evidence brought by the case studies**, and seeks to **answer the first research question**, showing how the "enabling factors" can help cities speed up a path towards SUM. It showcases cities that are currently transitioning towards a more sustainable socio-technical regime, and certain practices that enable them to speed up their transition. Each of these cities represents one or more enabling factors for sustainable mobility transitions. The experience of these cities, even though context-dependent, can inspire the authorities and stakeholders of Maputo and Freetown.

- The third subsection, **"Participatory Governance", introduces an analysis of participatory methods and conditions for effective workshop design and implementation**. This section attempts to **answer the second research question**, explaining the conditions under which stakeholder engagement can be effectively pursued in both cities, and considerations for the successful implementation of participatory workshops in Maputo and Freetown.

- The fourth and final subsection, **"Building the Path towards a Sustainable Socio-Technical System"**, provides a **discussion on key issues that could hinder a transition towards a sustainable transport and mobility socio-technical regime**. This section integrates the findings of the previous subsections, showing how both the participatory methods and the case study findings can be used in order for T-SUM to help Maputo and Freetown advance its transition towards a sustainable mobility socio-technical regime.

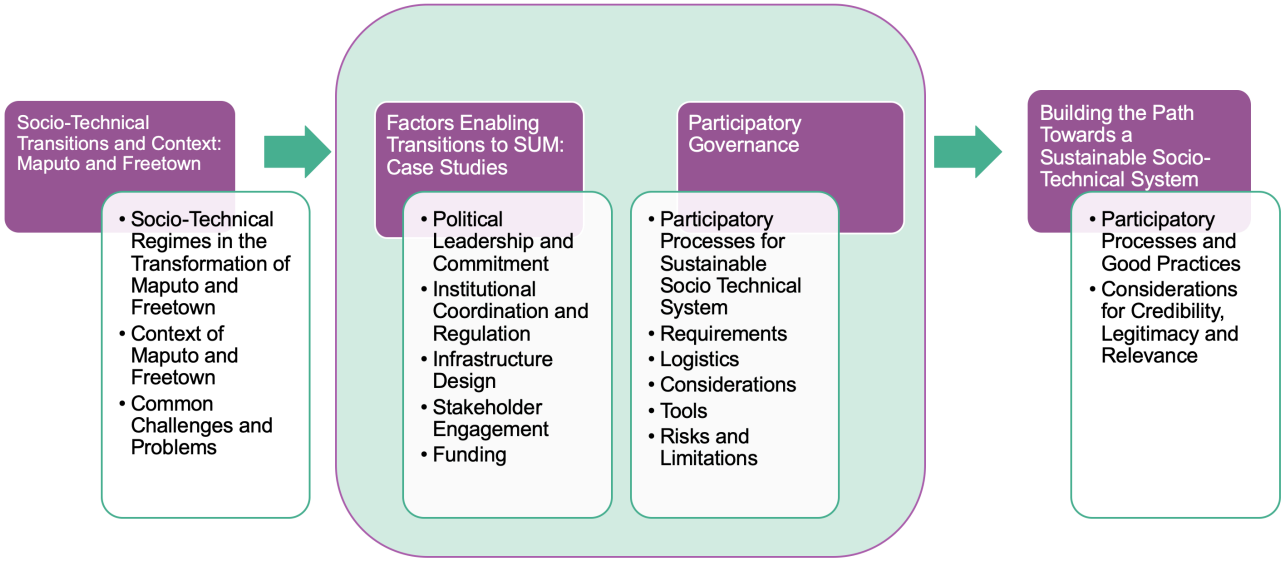

Figure 3. Structure of the Analysis (Source: Author)

3.1 Socio-Technical Transitions and Context of Maputo and Freetown

3.1.1 Socio-Technical Transitions

The **"socio-technical systems/regimes/transitions"** literature offers an overarching theoretical framework that **explains the conditions under which sustainable mobility can be achieved**.

A **socio-technical system** is defined as a "*a configuration of elements that include technology, policy, markets, consumer practices, infrastructure, cultural meaning and scientific knowledge*" (Geels & Kemp, 2012: 49).

It is a holistic approach, that highlights the "co-evolution and multi-dimensional interactions between industry, technology, markets, policy, culture and civil society" (2012:50). While the socio-technical systems refers to tangible elements, the concept of **"socio-technical regime"** refers to "more intangible rules on which actors draw in concrete actions" (2012:57). This meta-coordination is shown in Figure 4.

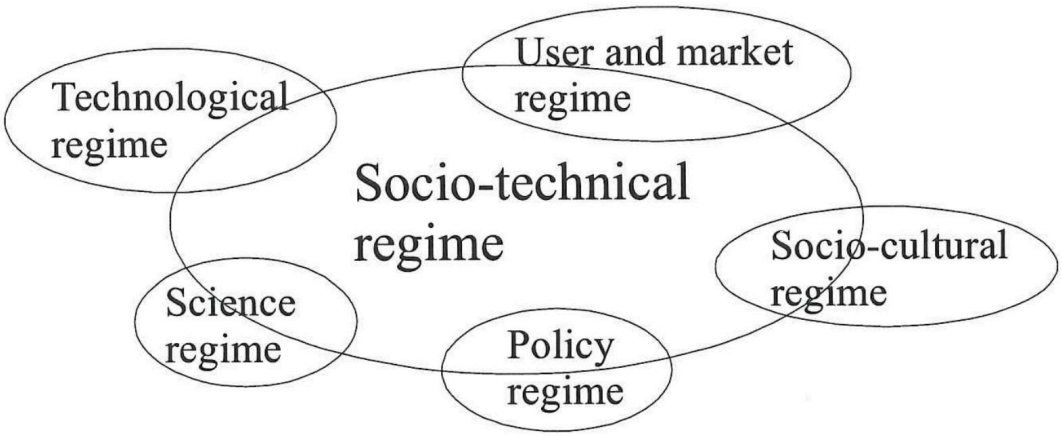

Figure 4 Meta-coordination through socio-technical regimes (Geels and Kemp; 2012:55)

Existing regimes are characterized by **stability, lock-in and path dependence, giving rise to incremental change along a very predictable trajectory**. Technological innovations not aligned to a current socio-technical regime remain marginal, since they compete with technologies that have benefitted from well—functioning systems operating around them.

The pathway followed by several developed economies during the 20th century can be described as a **"Car-centric" transport and mobility socio-technical regime** (also called "Automobility regime" by Geels et al, 2012). This regime was supported by technologies, regulations and cultural practices that perpetuated the regime over time, and made disruptive change difficult to achieve, despite several negative externalities (e.g. air pollution, segregated cities, decreased accessibility). Several external pressures (climate change, depletion of natural resources, increased relevance of sustainability, cultural change), have opened cracks in the regime, however, and promoted a transition to a more sustainable alternative. This socio-technical regime is explained in Table 2.

This is the case prevalent in Maputo and Freetown, which **still have a legacy from a "car-centric" socio-technical regime, even though conditioned by severe economic and institutional constraints.** The risk of following an unsustainable pathway is high, as people's expectations and culture might not always be aligned with sustainable mobility. Lack of urban planning might reinforce a non-sustainable pattern of growth characterized by low density. Moreover, both cities face several urgent problems, such as the lack of paved roads, poor transport infrastructure, insufficient regulations, and lack of governmental capacity to deliver basic services. Transport and mobility are also only one among many other competing social priorities, and usually not the most pressing.

The project's conceptual framework is rooted in the **concepts of sustainability and sustainable development,** defined as "the improvement in the quality of human life within the carrying capacity of supporting ecosystems" (World Wide Fund of Nature, 1993). The concept of "sustainable urban mobility" draws on the principles of sustainability and "livable urbanism", which tries to satisfy demands for mobility and accessibility, but preserving the environment, and achieve the UN Sustainable Development goals. Even though "Global South" cities still have low motorization rates, and non-motorized and public transportation modes still have the largest shares in passenger transport (Hidalgo & Huizenga, 2013), there is a strong increase in ownership and use of cars and motorcycles. Government policies tend to reproduce a car-centric mobility pathway, and cultural practices still favor car usage.

Transitioning towards a new **"Sustainable" transport and mobility socio-technical regime** (shown in table 2) requires changes in different subsystems, including **access to new technologies, new regulations, new markets and a new culture.** This transition will take many decades and it's not easy to achieve. Bringing new technologies is not enough, on its own, to achieve a successful transition. Neither improving the regulatory regime will suffice. Different systems need to be working in coordination.

The notion of **"socio-technical transitions"** relates to the present and future challenges of cities like Maputo and Freetown. They both experience strong internal and external pressures, such as high population growth, environmental threats, and the desire to "leapfrog" car-oriented mobility, towards a more sustainable mobility and city development. The desire to build and pursue a long-term vision conflicts with short-term immediate pressure for these two cities that lack resilience and are vulnerable to the threats of climate change that increases the risk of natural disasters, resulting in socio-political instability. On the other hand, the existence of multiple and even contradictory interests and needs, is a reality that always threatens overarching coordination efforts.

To achieve an **appropriate alignment between key stakeholders, both cities can speed up a transition** that could take the form of a vision-driven approach that might use a mix of internal capacities and external resources.

It is worth noting that a **"sustainable" transport and mobility socio-technical regime has not been fully achieved anywhere,** but it is rather a work in progress. This will be increasingly enabled in the next few decades via emerging technologies (e.g. electric & hydrogen vehicles, automated vehicles, mobility-as-a-service, etc.), improved policies, creation of new markets and a culture that supports it. The following table is the result of our own interpretation of the main features of the two socio-technical regimes.

	"Car-centric" transport and mobility socio-technical regime	"Sustainable" transport and mobility socio-technical regime
Policy/Regulations	• Emphasis on motorized transport • Top-down policy making • Lack of integration between transport and land use • Narrow focus on traffic • Exclusive use of economic evaluation in transport policies, without considering social and environmental aspects	• All modes of transport considered, often in a hierarchy with pedestrian and cyclist at the top and car users at the bottom • Stakeholder and citizen participation and co-creation • Fuel taxes, congestion charges • Environmental policies • Vision-driven urban development • Multicriteria analysis in transport policies, considering also environmental and social aspects
Science and Technology	• Carbon-based technologies • Car-centric transport infrastructure	• Clean technologies • Policies supporting investment in R&D of clean technologies
Markets	• Take-make-consume-dispose • Non-sustainable value chains • Unsustainable consumption	• Circular economy • Sharing economy • Mobility as a service (MaaS)
Culture	• Motorized vehicles as symbols of status • Highways and car infrastructure as symbols of modernity • Suburban lifestyle • Public transport or cycling as symbols of low socio-economic status	• Sustainable lifestyles • People value walkable cities

Table 2. "Car-centric" vs "Sustainable" Transport and Mobility Socio-Technical Regime (Source: Author)

One key challenge in both cities is that **sustainability has yet to be deemed a key principle in policy making.** As mentioned by Geels & Kemp (2012), **cultural framing is crucial**, since it provides social legitimacy to new technologies, which has an impact on public acceptance, government support and access to external funding.

In the next paragraphs, we will introduce some baseline information of Maputo and Freetown, showing how their challenges link with the theory of socio-technical transitions.

3.1.2 Context Overview of Maputo and Freetown

Our understanding of the context of Maputo and Freetown has been informed by baseline data available for both cities, and additional data collected by T-SUM researchers, including semi-structured interviews and focus groups. The interviews were conducted to the most relevant stakeholders of the transport and mobility system, and the focus groups were conducted to citizens from diverse socio-economic settings. The following Table 3 summarises the basic demographic and economic indicators of both cities, highlighting the common mobility challenges (data obtained from T-SUM, 2019; and T-SUM, 2019a).

Indicator	Freetown	Maputo
Population	Approx 1.1 million (2015) 15% total	3.2 million
Population Growth Rate	4.22 % (2010-2020)	4.7% (2010-2025)
Contribution to National GDP	30%	20.2%
Shared Mobility Challenges between Freetown and Maputo	• Limited institutional capacity in both human and economic terms, limiting the enforcement capacity • Lack of coordination between transport and other government agencies • High reliance on internatonal donors • High reliance on informal sector for collective transport •Limited land use planning and regulation • High road fatality rates • Poor infrastructure vulnerable to natural disasters • Limited accessibility • Low but rising levels of motorization	• Limited institutional capacity in both human and economic terms, limiting the enforcement capacity • Lack of coordination between transport and other government agencies • High reliance on internatonal donors • High reliance on informal sector for collective transport •Limited land use planning and regulation • High road fatality rates • Poor infrastructure vulnerable to natural disasters • Limited accessibility • Low but rising levels of motorization

Table 3: Demographic and Economic Indicators, and Shared Challenges of Maputo & Freetown

Both cities belong to countries still recovering from the consequences of recent civil war. Mozambique and Sierra Leone are among the poorest countries in the world, with low human development index, and relying heavily on international development funding. According to the "Fragile State Index" (The Fund for Peace, 2019), they are both considered "high warning" countries. The lack of state capacity and legitimacy compromises the effectiveness of government policies, exacerbating risks, and diminishing their resilience. Even if having shared problems, each city faces specific challenges.

Freetown, Sierra Leone

Freetown, the capital and largest city of Sierra Leone, is the administrative, financial, cultural and educational centre of Sierra Leone and home to the world's largest natural deep-water harbors. With a growing urban population - projected to double by 2028 - Freetown faces several developmental challenges, not least in relation to mobility.

As most cities in low-income countries, Freetown still has a **low motorization rates, with a modal share dominated by walking and cycling. The reach of public transport does not satisfy the demands of the population.** The main provider of public transport in Freetown is the informal sector and consists of a mix of few large buses, *poda-podas* – minibuses carrying approx. 15 passengers- shared car taxis operating on fixed routes, *kekeh* – three-wheelers- and *okadas* - motorcycles carrying paying passengers. While this sector has the largest share of the market, the quality of service is both poor and expensive.

Rapid population and urban vehicle growth in addition to inefficient traffic management has resulted in **high traffic congestion**. Further, the city faces challenges relating to infrastructure, including poor road conditions and damaged or non-existing pavements resulting in unsafe pedestrian walkways.

The city government has developed **"Transform Freetown"**, a three- year plan to address some of the most pressing challenges the city faces, including mobility; the plan has two main targets: i) to reduce congestion by at least 50% in five locations by 2022 and ii) increase public awareness and understanding of traffic and road safety by at least 50% by 2022. The process of building "Transform Freetown" is highly innovative, since it involved a **participatory process**, gathering inputs from multiple stakeholders. The data collection process included a needs assessment of residents' views, online channels of feedback, validation workshops, and the operation of multi-stakeholder working groups. However innovative this process is, in terms of fostering collaboration and grounding policymaking in people's real needs, it also has shortcomings. **The plan focuses on very concrete, localized and short-term targets, and it does not build a long-term vision for Freetown.**

Maputo, Mozambique

Maputo is the capital, commercial and business district (CBD) and the highest contributor to the economy of Mozambique. Its metropolitan area – composed of four large districts- Matola, Marracuene, Boane and Maputo- is inhabited by a population of 3.2 million, mostly located on the outskirts of the city.

As many cities in its region, Maputo is experiencing a **growing population in the outskirts posing several challenges for the city**. Maputo has a low motorization rate (44 vehicles per 1000 inhabitants in 2012), even though it is growing steadily, accentuating traffic problems. Lack of collective and public transport supply as well as compromised accessibility are some of the main issues particularly for the greater metropolitan area, where there is a lack of alternatives to private car use. The informal sector is perceived as part of the problem, as well as part of the solution, since it provides coverage, but lacks basic standards of safety and quality of service. The current transport set up includes chapas- minibuses from 15 to 26 seats, buses – both public and private, taxis and txopelas- mototaxi. Inter-city transport includes buses, Metro-bus train and Myloves - informal trucks transporting workers to rural areas. In addition, there are motorbikes, and private cars which are also in operation, while active modes represent almost 46% of the share.

The Greater Maputo has already built an **urban development vision, aiming to become a "Socially and Environmentally Sustainable International Gateway Capital"**. The strategy behind this vision, involves developing a multi-core urban structure, that alleviates traffic due to concentration of services in the CBD. Some ambitious initiatives are currently being advanced, such as the attempt to formalize and integrate private transport operators into cooperatives.

Common Problems and Challenges

With a growing urban population, the challenge for both cities will be to **avoid a motorized trajectory and develop a transport policy that is both socially and environmentally sustainable**. With that in mind, a modal shift from public cars to an integrated public transport system is key, to reduce the environmental impact, transport costs travel time and improve accessibility.The assessment has been validated by the fieldwork. The following Table 4 summarizes the main findings from the interviews implemented in Maputo with stakeholders (T-SUM, 2019b).

Land Use and Urban Planning Issues	• Informal settlements. • Horizontal growth. • Outdated urban plans. • Lack of implementation and enforcement of plans. • Lack of integration between transport and urban planning. • Lack of accessibility and concentration of services in the city centre.
Transport Issues	• Recognition of the significance of transport and mobility issues. • Lack of public transport supply. • Lack of reach and accessibility to public transport. • Insufficient infrastructure and lack of resilience. • Informal transport operators are part of the solution.
Governance Issues	• High reliance on international donors, whose priorities don't always perfectly align with the local ones. • Lack of vertical and horizontal integration of policies. • Lack of vision and strategy at the metropolitan area.

Table 4: T-SUMs semi-structured interviews findings in Maputo (adapted from Cavoli, 2019)

T-SUM has also conducted focus groups with residents in both cities, belonging to different socio-economic levels, validating several of the problems identified in the interviews. The focus groups also help to understand people's expectations. Car ownership and owning a land plot are considered aspirational goals. **These cultural expectations might reinforce an unsustainable pattern of low-density horizontal city growth and increasing car-ownership rates.**

Building a strategy and aligning towards a common vision is particularly challenging in both cities, since they face **many immediate short-term problems that concentrate governmental attention.** Freetown is highly exposed to climatic disasters, such as flooding during the rainy season. Building resilience is a major challenge in both cities. Strategy-making processes, even though necessary, might be perceived as a luxury in cities that have pressing problems to solve. Coordination might additionally be challenged by the existence of **multiple layers of authority** (at the national, metropolitan and city level), and the insufficient vertical and horizontal coordination between them. In addition, local authority figures (e.g. religious or ethnic), have a strong influence over the population. Collaboration is further complicated by t**he existence of multiple unregulated and informal private transport operators.**

The developing institutional and socio-economic context limits the potential success of T-SUM in both cities. Solutions that have worked in advanced economies, might not work here, due to institutional gaps. This relates to what Srinivas & Sutz (2008) call the need for **"scarcity-induced innovations"** that operate effectively in a context where resources are scarce, and institutions are weak or nonexistent. Nevertheless, local R&D capacities tend to be weak, which further limits the capacity for adapting and building innovative solutions suitable to the local context.

In addition, the electoral cycle might introduce a **short-term bias in policy making**. This bias might be reinforced by the urgency of many of the needs of the population. The electoral cycle might also generate incentives to invest in policies that are highly visible (e.g. building new infrastructure), rather than investing in policies with high impact but less public visibility (e.g. infrastructure maintenance). The complexity and scale of the problems require sustained long-term investment and learning, informed by a vision.

In conclusion, Maputo and Freetown both face the **threat of following an unsustainable and car-centric mobility pathway, reinforcing the characteristics of the current socio-technical regime**. They experience major gaps in their public transport supply, and in the integration and regulation of different modes of transport. Current cultural expectations tend to reinforce a car-centric pathway and challenge the success of a sustainable mobility strategy. Advancing a transition towards sustainable mobility will require a higher degree of coordination between multiple levels of government and societal stakeholders. It will also require adaptability and ingenuity, the capacity to devise and adapt solutions with limited resources.

The following sub-section (3.2), will show how certain "enabling factors" can facilitate the transition towards a "sustainable" socio-technical regime. These enabling factors will be illustrated by case studies of cities in the developing world, that have taken decisive steps towards sustainable transport and mobility. Section 3.3 will showcase how participatory governance can be used to align multiple stakeholders and achieve a common vision. The final subsection (3.4) will integrate the findings of the previous section, showing issues that might hinder the pursuit of a successful transition.

KEY TAKEAWAYS

- Policies or technologies don't have impact in isolation, there needs to be an alignment of the whole socio-technical regime, including industry, technology, markets, policy, culture and civil society.
- Transitioning from a "car-centric" to a sustainable transport and mobility socio-technical regime, is a complex long-term endeavor, that requires alignment between multiple stakeholders.
- No city has fully achieved a transition towards a "sustainable" socio-technical regime, but many policy and technology innovations, as well as cultural change, are making it feasible.
- Cultural framing is essential for the inclusion of sustainability as a key principle in policy making.
- Maputo and Freetown share a similar set of problems in the transport and mobility field.
- Some of the biggest problems are related to the lack of basic road infrastructure and insufficient supply of public transport.
- Coordination among several layers of government and multiple stakeholders is one of the biggest challenges, which affects the effectiveness of policy planning processes.
- Several urgent problems concentrate the attention of the authorities, and therefore challenge strategy-making processes that require long-term thinking.
- Adapting solutions to a resource-constrained context is a key issue.
- Cultural expectations in Maputo and Freetown are still aligned to a car-centric regime.

3.2. Factor Enabling Transitions to SUM: Good Practice Case Studies

3.2.1 Case Studies

Although the individual case studies featuring good SUM transitions (found in Appendix 1) are intended to be used as a conversation trigger as part of the participatory workshops, the research team has done a further cross-case study analysis to evidence the enabling factors for SUM transition. This analysis will inform a separate T-SUM work package investigating the same area, as well as possibly to inform stakeholders, including Maputo and Freetown city officials, on the enabling factors to consider whilst undertaking SUM transition projects.

Furthermore, it should be c**aveated that the case studies' intent is not to present best practices for Maputo and Freetown to replicate, as current research has evidenced the limited prospect of replicability across differing policy contexts** (Pojani and Stead, 2015). This was echoed by Dalkmann (2019) who indicated this difficulty, as well as how the **importance of each enabling factor is context specific.** Tyler (2019) further highlighted that such **optimums do not exist, rather there is an "infinite number of sub-optimums"** that policymakers must learn how to mitigate.

Additionally, our findings were based on six case studies across different Global South cities focusing on different areas ranging from:

a. Road Safety;
b. Transport-Oriented Development;
c. Centralised coordinated institutions;
d. Redistributed public funding;
e. Walkability; and
f. Minibus fleet renewal.

The findings should be treated as an indicative view, instead of a holistic assessment of the representative enabling factors for SUM transitions.

3.2.2 Rationale for Yin's case study methodology

The case studies utilised Yin's case study methodology because it afforded an investigation into the hows and whys of real-life contemporary phenomenon, such as, which the research team had limited control over (Yin, 1994). Additionally, the individual case study, as well as a multi-case study comparison would allow broad generalisations and key learning points to be derived (Yin, 1994).

For added rigour, the research had used multiple evidentiary sources that include reports, articles and conducted interviews that allowed the team to triangulate the data to validate the formulated theory. This is further validated across the case studies.

The case study included three phases as illustrated in Figure 5 (Yin, 1994) and as delineated below.

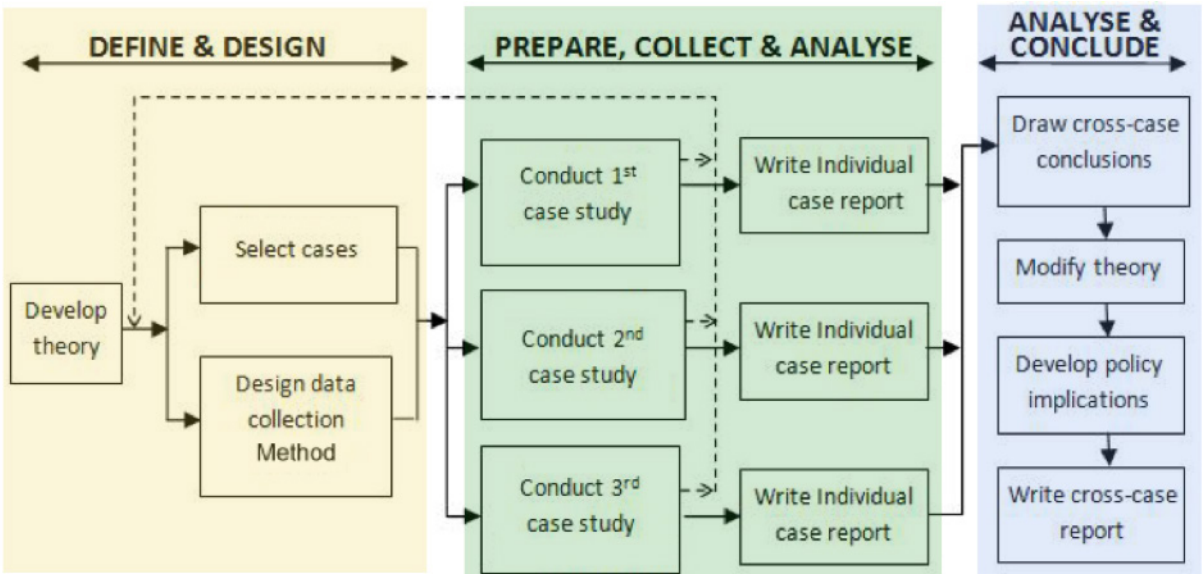

Figure 5: Case Study Methodology (Yin, 1994), image derived from Afsari (2012)

3.2.3. Case Study Methodology

A. Define and design

Based on a literature review of successful (and unsuccessful) Bus Rapid Transit (BRT)[1] implementation across Global South cities, it was hypothesised that the most frequently mentioned enabling factors would apply to a range of SUM practices (such as road safety, walkability) relevant to Maputo and Freetown. These enabling factors corresponded to the ones highlighted by the eight interviewed urban mobility experts. Significantly, they were ranked similarly vis-à-vis the literature review, they include (see Table 5):

Enabling Factors	Literature Review Mentions (out of 7)	Interview Mentions (out of 8)
Political Leadership	7	8
Institutional coordination and legislation	7	6
Stakeholder engagement	6	6
Funding	5	5
Infrastructure Design	5	1

Table 5. Ranking of enabling factors. (Details can be found in Appendix 5)

1 BRTs was selected as a means to elicit SUM project enabling factors, owing to BRTs (as a bus-based transit system that delivers train-level capacities) is characteristic of sustainability practices, such as reducing greenhouse gas (GHG) and air pollutant emissions; and improving traffic safety. ("4 Ways Cities Benefit from Bus Rapid Transit (BRT)," 2013; "What is BRT?," n.d.)

B. Case Study Selection Criteria

The case study selection were informed by two criteria:
I. Good examples of SUM practices (defined by the research team as having met at least three of the eight identified SUM indicators). These eight SUM indicators were drawn from a set of 20 common urban mobility indicators used by international agencies[2] and include:

a. Inclusive access;
b. Reduced pollution;
c. Reduced road congestion;
d. Integrated land-use planning;
e. Non-motorised mobility;
f. Public transport system adequacy;
g. Road safety; and
h. Sustainable funding.

II. Focus areas that are of relevance to Maputo and Freetown's current challenges.

In turn the focus areas (as previously mentioned) were selected based on their mobility challenges that were of the most relevant to Maputo and Freetown. To further ensure their relatability to the cities' stakeholders[3], Global South cities were intentionally selected.

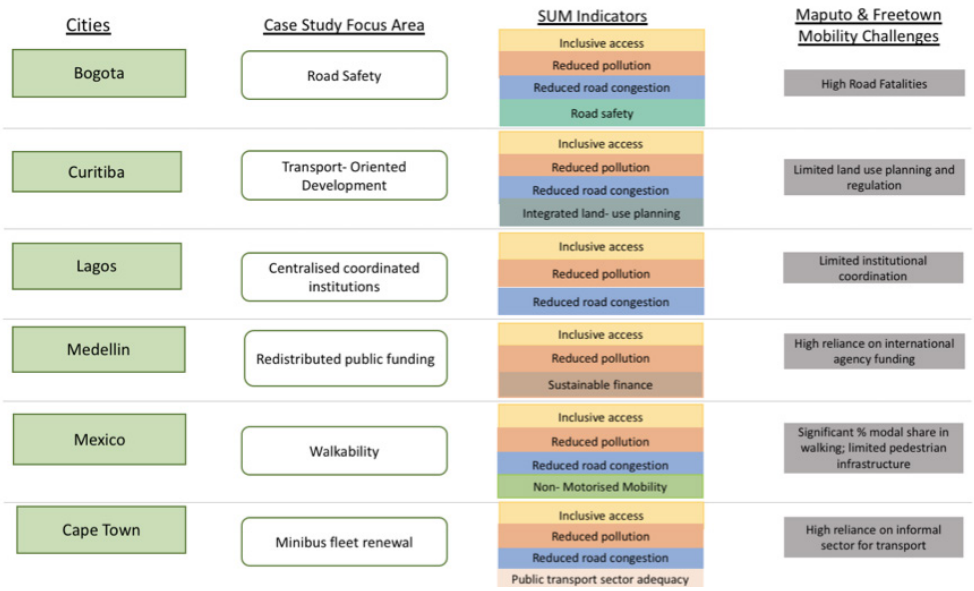

Figure 6 Basis for Case Study Selection (Source:Author)

2 The T-SUM Team drew the 20 indicators from the following international sustainability indicators,
a. United Nations Centre for Regional Development (UNCRD);
b. World Business Council for Sustainable Development (WBCSD); and
c. European Union Sustainable Urban Mobility Plans (EU SUMP).

3 This was based on Maputo and Freetown city officers' feedback.

It was decided that instead of common comparability metrics, such as population size and Gross Domestic Product per capita, the above-mentioned criteria took precedence because this allowed for more avenue to scope case studies that would provide a richer discussion. These mobility challenges and final case selection were further validated with our client, interviewees and key stakeholders. For instance, several of our interviewees (such as Julio Davila's lead on how Medellin financed its mobility projects via redistributed public financing) had highlighted several relevant case studies that would have otherwise not been considered.

C. Prepare, collect, analyse

The case study preparation was undergirded by Yin's (1994) data analysis strategies. The case study's data derived from reports, articles and interviews were examined vis-à-vis the theory that SUM transitions are enabled by the abovementioned five enabling factors.

D. Analyse and conclude

Analytic techniques (such as pattern matching across the case studies) were used to collect data, validate and revise the hypothesised enabling factors. Following the individual case studies reports (in Appendix 1) and the cross-case comparison, the final enabling factors and rationale for revision are as follows (see Table 6):

Hypothesised Enabling Factors	Final Enabling Factors	Rationale for Revision
Political Leadership	Political leaderhsip and commitment	Several case studies evidenced that policy comitment were crucial
Institutional coordination and legislation	Institutional coordination and regulation	Beyond legislation, othe regulatory tools were used
Stakeholder engagement	N/A	N/A
Funding	N/A	N/A
Infrastructure Design	N/A	The understanding of infrastructure as physical such as roads was expanded to include vehicles following furhter literature reviews

Table 6. Enabling Factors and Rationale (Source: Author)

3.2.4 Our cross-case findings

Vis-à-vis the enabling factors across the cases, the findings include

3.2.4.1 Political Leadership and Commitment

"I am able to do my best, but above all to call people to do their best"- Antnas Mockus

All the cases saw **strong prevailing political leadership and the consistency of its policy approach towards SUM goals across its administrations. Political leadership that created the atmosphere for the right things to happen was crucial** (Tyler, 2019). This allowed for **significant policy gains that went beyond individual administrations.**

In particular, Bogota saw significant policy gains across seven administrations following Mayor Antanas Mockus' first administration (1995–1997) (Vergel-Tovar et al., n.d.). Under his administration, the suite of policies under the "Life is Sacred" programme set the direction for reducing traffic fatalities (Vergel-Tovar et al., n.d.). His policies **reframed traffic fatalities from a personal responsibility to a public health issue. This resonated with citizens and gained considerable traction** ("Bogota.pdf," n.d.). Education programmes and social marketing policies created new social norms where citizens were expected to demonstrate road safety behaviours ("'Life Is Sacred,'" 2018). This perspective change created deeper public support for mobility policies ("'Life Is Sacred,'" 2018).

Across the subsequent administrations that continued Mockus' approach, Bogota's traffic fatality rate continued to fall by more than 60% from 1996 to 2006 ("Cities Safer by Design," 2015). By 2016, Bogota's fatality rate had fallen from 22.3% in 1996 to 7.2% ("Cities Safer by Design," 2015). This was a feat considering the rising rates in Columbia and in comparison to the much higher rates amongst other Latin American cities, such as Curitiba, Brazil's 20% or Guadalajara, Mexico's 26% in 2015 ("Cities Safer by Design," 2015).

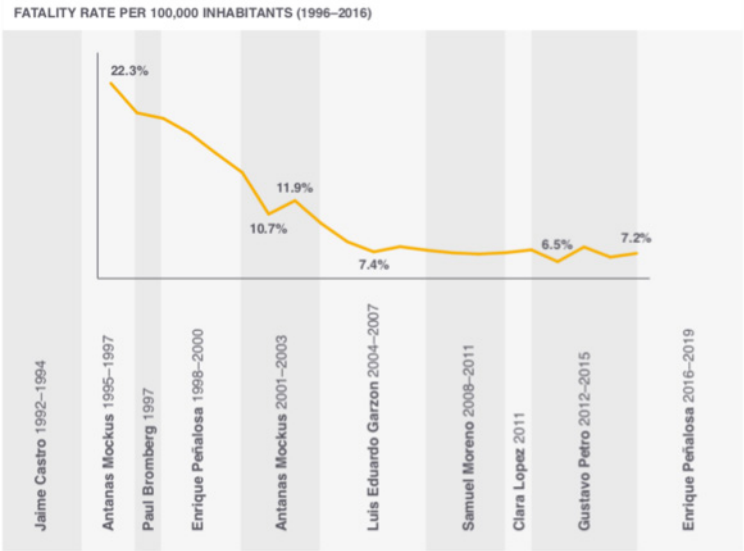

Figure 7. Traffic Fatality rates across Bogotá mayor administrations (Vergel-Tovar et al., n.d.)

3.2.4.2 Institutional Coordination and Regulation

"If everyone is moving forward together, then success takes care of itself"- Henry Ford

Dependent on the nature of the project, **each city has used different institutional structures and regulatory instruments (ranging from legislation to economic regulation) to advance their policies.** In cases where the cities had faced coordination issues across various agencies, Lagos, Curitiba, Mexico City and South Africa had created a centralised authority to overcome this. In particular, the centralised authorities in Lagos and Curitiba's Bus Rapid Transit (BRT) implementation that involved transport and land-use policies were crucial for its success.

In Lagos, Lagos Metropolitan Area Transport Authority (LAMATA) was set up in 2002 to coordinate plans, implement, regulate and franchise public transport operations and infrastructure in the Lagos Metropolitan Area ("Lagos Metropolitan Area Transport Authority (LAMATA)," n.d.). It oversaw the intermodal integrated transport system that includes the Lagos BRT System and the Lagos Rail Mass Transit. As a unified central transport authority, it allowed the effective coordination with other ministries and agencies to deliver the BRT ("Lagos Metropolitan Area Transport Authority (LAMATA)," n.d.). LAMATA worked closely with the Lagos State Traffic Management Authority (LASTMA) that oversaw the primary traffic enforcement and management. LASTMA provided the traffic enforcement and BRT exclusive roads (Bank, 2016). Legislation further bolstered LAMATA's power to collect and levy user charges for its service provision (LAMATA Act 2002) and regulatory and planning functions across the different transport modes (LAMATA Act 2007; Mitric, 2013).

Whereas Curitiba's BRT plans were situated within its Transit Oriented Development (TOD) Masterplan that developed businesses, residential and recreation area in high density areas in close proximity to public transport stations to encourage public transportation use (Cervero, R., 1998). The Instituto de Pesquisa e Planejamento Urbano de Curitiba (IPPUC) in 1966 was created to develop, monitor, implement and update the TOD masterplan ("ICLEI Case Study," 2016). IPPUC had a high level of autonomy from the municipal authority that made it less susceptible to political change and pressures(Cervero et al., 2013). IPPUC was able to redevelop the city with TOD and transit in mind (Cervero et al., 2013). Although IPPUC did not have legislative powers, economic regulation such as incentives and limits were used for the planned zoning ("ICLEI Case Study," 2016).

However, **where there was sufficient alignment of policy goals and coordination across agencies via a compelling campaign** (such as Bogota's "Life is Sacred programme"), **there was no need for such a centralised authority.** In addition to police reforms, there were education programmes and social marketing policies aligned to create new social norms where citizens were expected to demonstrate road safety behaviours ("'Life Is Sacred,'" 2018). This perspective change has synergistically deepened public support for transport policies ("'Life Is Sacred,'" 2018).

Bogota and Medellin were also empowered via the decentralisation of Colombia's municipality policy responsibilities to local governments. This was crucial as local governments are able to respond better to the needs of its community. However, Davila (2019) cautioned that the prerequisite for such decentralisation is that the local government needs to have the necessary capacities to implement these policies. For instance, Bogota's 1991 National Constitution empowered the city to approve and fund its projects and programmes without the national government (Amézquita, n.d.). Through bond sales, and tax reforms, this gave Bogota greater security for funding the Bus Rapid Transit (BRT) system and non-motorised transport infrastructure projects that would provide road safety outcomes (Vergel-Tovar et al., n.d.).

3.2.4.3 Stakeholder Engagement

"People Ignore Design that Ignores People"- Frank Chimero

All the cases featured stakeholder engagement to different degrees. However, **they were key to increasing the buy-in (and mitigating the resistance) from key stakeholders**, including the public. It created a sense of ownership amongst the stakeholders, and presented a crucial information source to inform policy and its relevance to its stakeholder's needs and interests. At the same time, Davila (2019) highlighted that even though a degree of stakeholder consultation is required to understand their needs and wants, policymakers will eventually have to make a judgement and evaluate policy trade-offs vis-à-vis long-term visionary plans.

In Lagos, in addition to the creation of the BRT-lite system that was less infrastructure intensive, the stakeholder engagement contributed to the project being completed within 15 months (Peer Experience and Reflective Learning, 2015). LAMATA had strategically engaged its unions early into the development of the BRT system to encourage their participation and support for the project (Dayo Mobereola, n.d.). This is especially so as previous attempts to formalise public transport was unsuccessful because unions were not effectively engaged (Dayo Mobereola, n.d.). Additional levers were used to incentivise them to cooperate via the LAMATA-operator union bus franchising scheme (Dayo Mobereola, n.d.).

Engaging the public also provided the principles that developed the localised BRT-lite concept, as it considered different user needs (such as reliability, affordability and safety) for the system's design. This engagement **garnered public's support and developed a sense of local ownership** that led to the perception that the project belonged to the citizens, rather than the bureaucrats (Bank, 2016).

In Mexico City, **pilot projects were utilised to engage stakeholders and to demonstrate the benefits of the pedestrianization of its historical centre** (Ortega García, 2015). To address resistance from merchants located on the streets, a pilot programme where the street was closed in incremental frequency. This was followed with an impact evaluation with the shop owners before the street was fully closed after the three-month pilot (Kazis, 2012). This resulted in an increase of commercial activity in the street by 30% (C40 Cities, 2016). Similarly, in Medellin, officials put **social capital as a central asset** in the Urban Integration Project (PUI) initiative. It allowed the regeneration of the spaces to be **aligned with the needs and desires of its communities. It empowered citizens and promoted social inclusion, enhanced trust, transparency and a sense of ownership** of the upgraded areas (Milan and Creutzig, 2017). This was in stark contrast to the implementation of a similar cable car project (i.e. Teleferico) in Rio de Janeiro, Brazil, where the local communities were not consulted on their needs. This resulted in the project being eventually shut down as a result of low usage (Davila, 2019).

3.2.4.4 Infrastructure Design

"Scarcity- the fountain of Innovation"- Unknown

Whilst all the cities' projects/policies were enabled by innovative infrastructure designs, Curitiba and Lagos evidenced that scarcity (or limited resourcing) fuelled their BRT innovations.

In 1974, Curitiba launched the world's first Bus Rapid Transit (BRT) system (Nakamura et al., 2017). The BRT was a result of a 40-year series of sociotechnical struggles of failed rail projects (Duarte, 2012).

These rail projects had been offered as a solution to expand the city's mobility capability, however these projects were abandoned several times due to the lack of funding (Duarte, 2012). Working with the limits of their funding, the city innovated to create a bus system that gave buses as many advantages as train systems (such as pre-boarding fares, quick passenger boarding and disembarking) and the dedicated bus lanes that would allow buses to run as fast as a light rail (Reed, 2015).

This was complemented by TOD planning where the city was redeveloped with structural axes that radiated out from the downtown ("Public Transportation," n.d.). Curitiba also pioneered a trinary road system that distributed and facilitated the demand for public transport as well as mitigated traffic congestion within the structural axis zones where it was positioned (Duarte, 2012). The trinary road system used existing infrastructure for lower costs (Duarte, 2012). Designed to minimise traffic, the core of the system had a two-lane road dedicated BRT for accelerated transit. Sandwiching this road were parallel roads with each leading in and out of the city respectively. In order to increase the level of accessibility and reduce dependence on vehicles ("ICLEI Case Study: Curitiba, Brazil: A model of transit oriented planning, 2011 – EcoMobility," n.d.), Curitiba's government mandated that all large and medium scale residential and commercial developments be sited at the structural axes and BRT corridor .

Curitiba's BRT system evidenced how innovations emerging from the Global South could gain traction across the globe. In 2019, 170 cities had adopted the BRT system, including 44 European cities ("Global BRTData," n.d.). Lagos evidenced how BRT was further innovated within the scarcity limits to create a lite-BRT. This system saw retaining the most attractive characteristics of the BRT such as comfortable, large buses with bus shelters, fixed fares and routes and reliable journey times that was a conspicuous innovation to its city inhabitants (Bank, 2016). At the same time, Lagos removed the expensive infrastructure and technical specification of the conventional BRT. Instead of a full segregation of the BRT, it was constructed within the existing road infrastructure (Dayo Mobereola, n.d.). Lago's BRT-lite had bus lanes on the roadway outer lanes, rather than being built along the median (Peer Experience and Reflective Learning, 2015). This saw the project costing less than three times the cost (i.e. USD 1.7 million per km) in relation to other comparable BRT projects such as Curitiba's BRT (Dayo Mobereola, n.d.). Lagos' BRT does not require an operating subsidy (World Wide Fund for Nature, 2012). **This highlighted how a high capacity BRT does not require implementation of the highest specifications used internationally, but can be cost-effective and relatively low-tech** (World Wide Fund for Nature, 2012).

3.2.4.5 Funding

"Money is not everything, but everything needs money"- Unknown

While in all cases funding was featured as an enabling factor, **the means with which the projects were funded ranged from being funded by the cities or international agencies or a combination thereof**. In particular, Medellin was unique in its self-sustainable funding policy. The Metro de Medellin is one of the few metros in the world that is entirely self- financed (Dávila et al., 2013). This was achieved via its co-ownership with Medellin's publicly owned utilities company - Empresas de Servicios Públicos de Medellín (EPM) that provides energy to the metro and contributes to the construction of its Metro Cable. As a whole, the EPM statutorily contributes 30% of its surplus to the Municipality (Davila, 2011).

The amounts transferred to the city are shown in Figure 8 below and were made for capital investment projects in the city.

	2008	2009	2010	2011	%
Ordinary transfers	333,327	399,519	509,343	437,346	55%
Discretionary transfers	187,500	187,500	337,500	360,154	45%
Total transfers	520,827	587,019	846,843	797,500	100%
Annual change in transfers		13%	44%	-6%	
US$ equivalent (millions)*	265	272	446	431	

Figure 8 EPM transfers to Medellín Municipality 2008-2011 (in millions of Co$) (Source: Dávila et al., 2013)

Medellin's **innovative property taxation** (i.e. impuesto a la valorización or betterment taxes) provided the city with capital to fund projects, including urban mobility projects. This valorisation tax stems from the principle that projects with high social impact have a greater benefit to the site value than the cost of the project itself, and therefore the investment and operating costs can be recovered without exceeding the benefit to the owner from the increased value of his property (Rhoads and Bird, 1967).

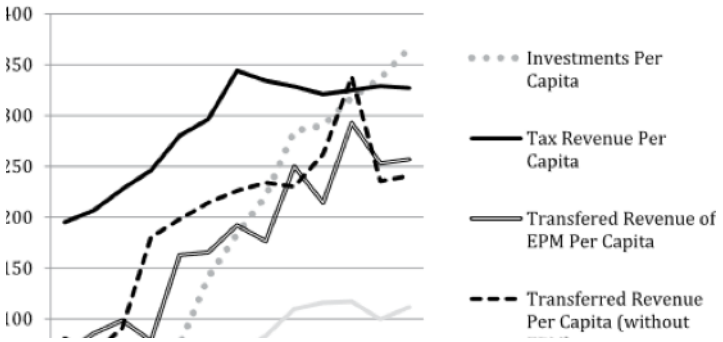

Figure 9. Sources of Revenue and Investments per capita Medellín 2000-2012 (Source:Franz, 2017)

Whereas in South Africa, the minibus taxi fleet renewal funding structure presents another self-sustaining model for examination. Instead of covering the full cost of renewing the minibus taxis that augment's South Africa's public transport system, its Department of Transport (DOT) grant provides one quarter of the new vehicle's cost, if the vehicles meet stipulated levels of safety. The remaining balance would be financed by the operator. It was crucial that South Africa had the necessary credit availability for these operators via its banking system. **For cities with less developed banking systems, international agency funding could be considered as an alternative funding source. T**hese agencies have the added benefit of compelling local governments to be more transparent and accountable in their decision making (Anonymous, 2019). In order to ensure that minibus taxi was profitable (with the loan payment considered) at the same time being affordable, the fares were set in consultation and negotiation between the DOT and the associations.

KEY TAKEAWAYS

- Political leadership was the condition sine qua non for the SUM transition policies.
- Visionary leaders set the direction and drive the coherence between policies across agencies
- Political leaders are the catalyst for the other four enabling factors – via the political mandate for financial, institutional, regulatory and fiscal reforms that allowed synergistic policy effects.
- Innovative infrastructure designs can arise from limited resources.
- Infrastructure designs do not require specifications used internationally, but can be innovated for cost-effectiveness.
- Crucial to engage key stakeholders in the development of the mobility project early to encourage their participation and support for the project
- Public engagement can provide knowledge on how to localise mobility projects.
- Phased pilot projects are suitable levers to demonstrate the project benefits.
- Contextual needs and available regulatory levers should be examined to formulate a suitable policy.
- Self-sustaining funding mechanisms could take the form of re-distributing of public financing into mobility projects, and fares that balance affordability and profitability.

3.3. Participatory Governance

3.3.1 Rationale and Basic Conditions for Participatory Processes

Stakeholder and community participation are fundamental to build the basic conditions to set the direction towards achieving sustainable socio-technical regimes. This is so because they have the capabilities to improve the effectiveness and integration of the process (OECD, 2004) and to increase the acceptability (Böhler-Baedeker and Lindenau, 2013) of the transition towards a different path. Similarly, **the benefits of participatory processes include: achieving greater transparency in decision-making; enhancing mutual understanding between citizens and governments; and adding a diversity of ideas and know-how** (ibid.).

Participatory processes can create the basic conditions to align stakeholders into building and committing to a common vision, while prioritising actions and practical steps to implement. In this sense, the use of participatory workshops for T-SUM, will be divided into the topics of “Visions for the Future”, “Sustainable Mobility Trajectories” and “Practical Implementation” , and have the potential to establish the first steps towards transitioning into Sustainable Urban Mobility.

In this context, to build the right direction towards this path, participatory workshops design and implementation needs to be carefully considered and planned to be suitable to the project’s purpose and requirements (Steenmans, 2019). Similarly, for cities like Freetown and Maputo, assurance that the planning and design of participatory processes is **suitable for the local context is essential**.

Hence, participatory workshops design needs to **guarantee flexibility and adaptability** and answer to the questions of 1) what is the purpose?; 2) what are the needs?; and 3) what is the context? (ibid.). In this respect, **the design needs to be grounded on the desired outcome and impact that wants to be obtained from them**.

Participatory processes involve different methods, that can be applied in multiple settings, and in different stages of policy planning and implementation. Workshops are only one of the settings that could be used to engage the community and stakeholders. Additionally, participation can involve online consultations, Delphi method, and other smaller-scale activities.

3.3.1 Principles of Participatory Processes

To achieve successful participatory processes, even though there is no existing blueprint about how they must be implemented, our analysis suggests that **the principles of equity, diversity, trust, openness, transparency, and accountability need to be ensured** (Papadopoulos and Warin, 2007; Gaventa, 2004). Following these principles, it is crucial that participation from all sectors of society is achieved, including not just the government, but the private sector, academia, civil society, and within the private sector, companies that operate in informality (Dimitriou, 2013; Baranda, 2019).

Research by Mansuri and Rao (2012) suggests that in participatory interventions the main beneficiaries have mostly been the most literate, least geographically isolated, and most politically well-connected; deterring the collaboration among vulnerable groups, and the credibility of the process. **Designing participatory workshops that ensure equity and diversity in the process, and guarantee a constant channel of communication, has the potential of enhancing policymaking processes** (Fung and Wright, 2003) and improving cooperation among various social groups (Bednarska-Olejniczak et al.,2019).

3.3.2 Requirements of Participatory Workshops

Preparation ahead of the workshops to gather data and communicate with the participants, are also fundamental to ensure the success of the workshops and avoid conflicts (Steenmans, 2019; Chi Cervera, 2019; Tyler, 2019). Similarly, **conducting interviews** with the main stakeholders in the planning process before the workshops is a form to **align expectations and to gain trust and credibility throughout the process** (Steenmans, 2019).

In the context of Freetown and Maputo, the T-SUM partners have conducted preliminary work regarding stakeholder mapping and engagement. Yet, the ongoing process of stakeholder engagement can be complemented and strengthened by establishing different channels of communication among participants i.e. invitations from WhatsApp or similar platforms (Chi Cervera, 2019) and by conducting a stakeholder analysis that identifies, and invites, stakeholders with more invested interests in the process that could provide much valuable inputs for their implementation.

Furthermore, before the workshops, it is essential to **clarify their purpose and to communicate it**

effectively to all the stakeholders (Steenmans, 2019), it needs to be clear **how the workshops fit within the whole process of the project, and the specific role stakeholders will be playing in shaping the final policies.** Additionally, participants need to know explicitly what they will obtain from taking part in the workshops (ibid). Böhler-Baedeker and Lindenau (2013) claim that an unclear purpose is a barrier for effective participation.

3.3.3 Logistics

For participatory workshops to be effective, the role of logistics and room conditions also need to be considered in their design (Mathieu, 2019). **For people to express freely and engage in these events, they need to feel comfortable and safe in the space where they are participating** (ibid.).

Therefore, for the design and planning of participatory workshops the following questions must be considered:

1. Will the organizers provide guest transport or could they arrange transportation for the groups?
2. Is the venue a place where participants feel safe?
3. Are there facilities around the venue that could be of interest and useful for the participants needs?
4. Is the venue well-ventilated and has good lighting?
5. Is there plenty of space for the participants and the planned tools and hardware?
6. What equipment will be available and what will the organizers bring?
7. Is the furniture comfortable enough for participants and facilitators? Will all the furniture be provided?
8. Are the tables suitable to work on?
9. Is there space for participants to communicate with other people?
10. Is there a space for people to eat? Will food and beverages be provided?
11. Is the schedule well established and do participants know the times they will have to be there?

3.3.4 Considerations

The execution and content of the participatory workshops should be led by a **facilitator that understands and knows the local context and that is capable to be aware and address power relationships** (Muluguetta, 2019; Chi Cervera, 2019).

Moreover, Chi Cervera (2019) agrees that the facilitator and their team must be capable to translate the language of the workshops to different types of expertise so that everyone feels included. **Similarly, participants should feel that they are in a safe space and enough time is provided for everyone to be heard and share their experiences; not just those who are more vocal, have more power or are better connected** (Steenmans, 2019; Chi Cervera, 2019; Clearly; 2019). Hidalgo (2019) and Steenmans (2019) confirm that **people who attend workshops like to be heard and share their experiences that they consider to be unique**. Likewise, vulnerable communities and sectors of society need to be integrated into these processes (Raibaud, 2015). Meeting these principles of trust, openness, diversity and equity can mitigate risks associated with the credibility of the process.

In the context of Maputo and Freetown, these two cities have had different encounters with participatory processes. The results of T-SUMs fieldwork and the debriefing sessions, have illustrated that people in Freetown have had many encounters engaging in participatory processes and workshops, being more

accepting towards an approach of participatory governance itself. On the other hand, the city of Maputo has not had as much experience with them, making it more crucial to ensure that people feel safe and listened when becoming a part of a participatory process. Moreover, the country of Mozambique is a portuguese speaking country, hence, the implementation needs to be done either in their own language or work with translators so communication is effective.

In terms of transparency and accountability, participants must understand the results and work they have been producing during the workshops. Consequently, there ought to be a team qualified for processing data and presenting in the following meeting the results and plans of the workshops. **Likewise, to ensure trust and credibility of the workshops, the commitment of high-level, visible leaders, even if they do not participate directly in the workshops is crucia**l (UN Habitat, 2001). **Local champions that attract and pull people into getting involved in the process can also play an important role in the success of the workshops** (Muluguetta, 2019). Furthermore, trust and accountability for participatory processes can also be ensured by making commitments that are public (ibid.). The legitimacy of the project could be affected if these considerations are not met (Dimitriou, 2013).

3.3.5 Tools for the Workshops

For participatory workshops to achieve a successful outcome, there needs to be a c**lear understanding about what the purpose of the workshops will be and select the tools according to how they are aligned with these participatory processes**. Our research in participatory governance and techniques has also highlighted that the chosen tools for the workshops need to **fit within the local context and resources**. Similarly, there is no such thing as a perfect tool for participatory workshops, yet, what needs to be guaranteed is that **"the chosen techniques match with a purpose"** (Steenmans, 2019).

Hence, the selection of tools must be based on **their suitability to the local context, the availability of resources, complexity, qualitative and quantitative data requirements, time, adequacy to resource- constrained environments, and complementarity with other methods** (UNIDO, 2005).

In this regard, research on manuals such as Technology Foresights from UNIDO (2005), the Futures Toolkit (2017), Nesta DIY Kit (2018), Civil Society Toolbox (2019), BSR Participatory Learning and Action Toolkit (2017); and interviews with experts in participatory processes, helped identify a set of effective participatory engagement methods that could be put into practice based on the goals of T-SUM.

Appendix 2, provides a Manual with the different chosen tools that could be used during the workshops. These tools can be adapted, are not fixed to a template, and can be easily customized according to specific needs. All of the tools were carefully selected based on the following features:

1. Purpose. The tools in the Manual were carefully selected and analysed based on type of intelligence and how they respond to the purpose of the Workshops. That is to say creating a common vision (setting direction), trajectories (understanding system's behaviour), and implementation (exploring alternatives and understanding risk).
2. Time. Since workshops need to be managed efficiently all of the recommended tools in the Manual last between 20 minutes and 3 hours.

3. Resources. The selection of the tools was made under the assumption that the workshops will be implemented in environments that may be resource-constrained. Therefore, all of the tools have minimum resources prerequisites such as markers, pads of sticky notes, and large sheets of white paper.
4. Complexity. Most of the suggested tools in the Manual have a low-degree of complexity in order for them to be accessible to all stakeholder groups and maintain the groups engaged in the process.
5. Data Requirements. Most of the suggested tools do not need any additional data requirements that go beyond the results of the previous field work and the creation of the Case studies about the enablers for good Sustainable Urban Mobility (SUM) practices.
6. Complementarity. The tools suggested in the Manual are matching with many of the other selected tools. For instance, goal mapping can go hand in hand with both visioning and personas.

This manual also provides a step by step on how to use them, what are the requirements to have in place before using them, and what are the outputs that will be obtained from their use. Examples of these tools are Budget Simulation, that gives the participants the opportunity to make decisions about how to allocate resources and prioritize the activities that are seen as most important (Hidalgo, 2019); or the SWOT analysis that can provide a good understanding of what the issues of programme are and to explore potential actions to implement (ibid.).

Similarly, a fundamental piece of work containing case studies with good Sustainable Urban Mobility (SUM) practices has also been developed for the Trajectories Workshop to inspire and give evidence to people about the different paths towards SUM. The use of the case studies have also been integrated in the development of the Manual. Moreover, in the context of T-SUM and the implementation of the workshops in Maputo and Freetown, the outputs of the workshops should not be considered definite, but rather an initial attempt of aligning diverse stakeholders around a common vision for the future of mobility, which will progress over the course of the following year.

3.3.6 After the Workshops

Experts like Chi Cervera (2019), Muluguetta (2019), and Tyler (2019) have sustained that **participatory processes need to be on-going and for the effective implementation of plans and policies, engaging with stakeholders after the workshops is crucial. Participatory processes should not be constrained to participatory workshops, but it needs to be an on-going process proceeding and following these events** (Chi Cervera, 2019).

Continuing communication after the workshops and throughout all the process can be done through small but effective things such as providing social media of the event, posting on the internet the results and following steps of the plan, and personally calling and inviting stakeholders to continue being involved in the process (Muluguetta, 2019; Chi Cervera , 2019).

3.3.7 Risks and Limitations

Participatory processes and workshop design are not risk free, and limitations can be found through their implementation. **Lack of accessibility and public reluctance to engage are some of the main barriers that affect the credibility of the process** (Chi Cervera, 2019; Raibaud, 2015). Thus, designing a participatory process that is open and accessible to stakeholders from different backgrounds, and that clearly defines the aims of the process in a comprehensible language can help mitigate this barrier.

Additionally, it is likely that people representing several stakeholders and organisations will lack of technical expertise and knowledge, which can risk the understanding and communication of the issues (Chi Cervera, 2019). In this regard, having a team ready to translate into the same language the findings and objectives of the workshops can improve the results of the process.

Moreover, **the risks of reaching a false consensus that does not reflect the diversity of opinions is something that must be taken into account**; actions to mitigate these effects, such as having a facilitator capable of dealing with power relationships and making people feel safe, can have a positive effect in the outcome of the workshops (Tyler, 2019). Coordinating the workshops so that every participant has equal time to share their experiences and using activities such as personas, scenarios, or user journeys, can encourage taking the perspectives from different stakeholders.

Furthermore, when putting in practice participatory tools during the workshops, **organizers and facilitators need to be aware that the vision that the people will be working on must come and be supported from within** (Clearly, 2019). The proposals and outcomes have to be something that represents the local people and context, and need not to be an imposition of a vision.

Lack of clarity of purpose is a limitation of participatory processes that needs to be addressed. The first steps to designing any participatory process is to define a clear purpose of what wants to be achieved (Steenmans, 2019). Moreover, time management could also limit the process, since too much time or not enough time, can result in lack of motivation from participants (Chi Cervera, 2019; UN Habitat 2001). Finally, ahead of the workshops, risks of not ensuring very close coordination with local partners and local city authorities to unify expectations, suitability and timeliness, can have a direct impact on the legitimacy and relevance of the process. **Having a constant channel of communication with the local stakeholders and partners can help guarantee that expectations, adequacy and priorities are aligned.**

KEY TAKEAWAYS

- Participatory processes can create the basic conditions to align stakeholders into building and committing to a common vision, while prioritising actions and practical steps to implement
- Participatory processes need to be suitable for the local context, and the design needs to be grounded on the desired outcome and impact that wants to be obtained from them.
- Principles of equity, diversity, trust, openness, transparency, and accountability must be ensured
- Preparation ahead of the workshops to gather data and communicate with the participants, are fundamental to ensure the success of the workshops and avoid conflicts.
- For people to express freely and engage in these events, they need to feel comfortable and safe in the space where they are participating.
- Commitment of high-level, visible leaders, and local champions can attract and pull people into getting involved in the process and can also play an important role in the success of the workshops.
- Selection of tools must be based on their suitability to the local context, the availability of resources, complexity, qualitative and quantitative data requirements, time, and complementarity with other methods.
- Having a constant channel of communication with the local stakeholders and partners can help guarantee that expectations, adequacy and priorities are aligned.

3.4. Building the Path Towards a Sustainable Socio-Technical System

For Maputo and Freetown to transit from their current Socio-Technical System to a SUM-based system, the research team's analysis has evidenced how **principles for effective workshops, use of appropriate tools to align the vision, and inspire a formulated approach through the use of case studies (where certain factors are required to enable the transition, of which political commitment is crucial) can successfully pave the way to a Sustainable Socio-Technical Regime.** However, the key contextual factors such as **credibility, legitimacy and relevance of the process must also be ensured to succeed in the creation of this pathway.**

In terms of credibility whilst the institutional setting of having UCL as well as other international partners would normally attach credibility to the process, prior processes that may not have been deemed effective, impactful or met the expectations of stakeholders, would have impaired their trustworthiness. Similarly, concerning legitimacy, not having the support, buy-in and a local sponsor taking action within the governmental realm could deter the success of the process overall. Additionally, non-governmental structures in which multiple sources of power exist could work to the detriment of the legitimacy of the city government. Lastly, regarding relevance, there are a number of **factors that could challenge the process: i) adequacy of timing;** this applies with regards to the political cycle as well as other more pressing challenges that may arise ii) **the perceived appropriateness** of the objectives, suggested process, tools and measures, and iii) the compatibility and alignment with the policies and actions that have been put in practice through other policies.

The absence of these factors could obstruct the effectiveness and salience of the process. Thus, the following section offers a set of recommendations to maximise the effectiveness of the workshops and to mitigate the risk vis-a-vis the credibility, legitimacy and relevance of the participatory process.

04 Recommendations

Throughout our research and analysis of challenges we have identified a number of **risks mitigants and general recommendations that could improve the likelihood of success, effective implementation and continuity of the project.** All these recommendations are directed to T-SUM's project team, and should be implemented during the lifetime of the project. The recommendations are clustered into three different themes.

4.1 Conditions for the effectiveness and continuity of the T-SUM project

4.1.1 Ensure political support: Achieving the buy-in of one key authority in each city is **essential to gain political legitimacy for the project**, since, as shown in the case studies, sustained political commitment is a requirement for advancing a process of ambitious transformation.

4.1.1.1Engage closely and frequently with the government authorities of Maputo and Freetown: the Mayor of Freetown, the Metropolitan Transport Agency in Maputo, the City Council of Maputo (and the City Councils of neighboring districts in the Metropolitan Area, such as Matola), and the regulators at the national level for both cities.

4.1.2 Frame the issue in a relevant, relatable way: In a context in which more urgent, pressing problems exist, the issue of sustainable urban mobility can easily be regarded as non-essential or non-compatible with the context. The perceived absence of relevance is a risk that might hinder any well-intended effort.

4.1.2.1 Re-frame the approach in terms of "resilience" or concepts that, although compatible with sustainable development, can also be easily connected to the short-term priorities of both cities. This re-framing should be tested during the next meetings with local authorities, and before the implementation of the workshops.

4.1.3 Encourage the continuity of the project: Further **engagement with international partners is key to leverage additional resources.** UN Habitat, The World Bank, and AFD should be informed, invited to the workshops and should take a role in its preparation and development. They could help to reinforce the key ideas and suggest alternatives to ensure the continuity of the project- other suggestions include:

- Engaging with development agencies to help align **funding with the stated vision and action plan and at a later stage support the policy design and implementation.**

- **Transferring capabilities to a government agency in each city** (e.g. the Mayor of Freetown and the City Council in Maputo) and appoint a local counterpart in the local government agencies, who can be trained by UCL.

• Implementing **data repositories** that store key information gathered through the project's research could be implemented in conjunction and collaboration with the local partners.

• **Foster the preservation of the built social capital:** Ongoing communication among all stakeholders and participants in the workshops will help ensure the social capital and good will gathered through the process is maintained and that other future similar initiatives garnish credibility in their wake.

4.2 Effective implementation of participatory workshops

Each of the three workshops has specific requirements, considerations, and inputs, as shown in the following table:

	Workshop 1: Visions for the Future	Workshop 2: Sustainable Mobility Trajectories	Workshop 3: Practical Implementation
Requirements	• Stakeholder mapping •Stakeholder communication • Invitations	• Stakeholder mapping • Stakeholder communication • Invitations	• On-going communication • Invitations • Result Documents from previous Workshops
	• Facilitator that understands the local context and has experience dealing with power relationships • Invite high-level, visible leaders	• Facilitator that understands the local context and has experience dealing with power relationships • Invite high-level, visible leaders	• Facilitator that understands the local context and has experience dealing with power relationships • Invite high-level, visible leaders
Input	Results from city field trips	Case Studies	Results from Workshops 1 and 2.

Table 7 Requirements, Considerations and Inputs for Workshops (Source: Author)

As referred to in section 3.3.7 **certain conditions are to be met ahead of the workshop execution** and generally adopted in order to implement successful stakeholder engagement.

The following are the means to achieve the following principles:

4.2.1 Transparency: Transparency can be guaranteed by **communicating the purpose, process, outputs, of the project as well as the objectives and contents of the workshops** to the local stakeholders, government officials and partners, in a way that is **accessible, relatable, and relevant,** in order to achieve buy-in and commitment.

4.2.2 Equity and Diversity: Invitations should be forwarded towards a diverse group of stakeholders that are not only the government, but NGOs, academia, representatives of communities, businesses, should be sent out. These should communicate and guarantee that they will all be given the same opportunities to collaborate and contribute to the process, and that a neutral, credible and trustworthy organization will lead the workshops.

4.2.3 Accountability: Facilitate the communication in order to encourage alignment of purpose, objectives, process and methods among local government stakeholders.

4.2.3.1 Close and ongoing coordination with stakeholders will provide more visibility in ters of current policies and related regulation that is relevant and should be aligned with the project's efforts.

4.2.3.2 Committing to goals and actions that are measurable and connected to the partners in T-SUM is a form to attain accountability in the process.

4.2.4 Trust: Appoint a **neutral facilitator** (or facilitators) with an understanding of the local context, the capability to deal with power relationships and the ability to create a safe space for participants to engage.

4.2.4.1 We suggest that **local people with experience in facilitating workshops** join the process, to either inform or co-lead the workshops.

4.2.4.2 Appoint a dedicated team that will follow through with the outputs of workshops, documents, results and next steps to promote the continuity of the process.

4.2.5 Beyond these principles, the **tools should be used effectively by align with local stakeholders in terms of purpose, aims, resources, and constraints** (i.e. timing and logistic) of each of the workshops. Once these are agreed, ensure that the workshop design and tools are in line with the stated purpose and context.

4.2.6 In particular, the case studies are recommended to be used during the second Workshop of "Sustainable Mobility Trajectories" **to inspire and evidence good SUM practices.** This could be in the form of summarized slides which should be shared in printed and digital versions We suggest that the facilitator be familiar with the case studies, and that the focus lies the enabling factors and the mitigants in absence of them.

4.3) Additional suggestions regarding the case studies

4.3.1 Pursue Additional Research: As mentioned before, the **case studies serve practical goals,** such as informing the discussions during the implementation of the workshops. They are not a systematic account of international best practices in SUM. Therefore, additional research needs to be pursued in order to systematise best practices and **build a repository of international experiences.** This research could be pursued either by T-SUM, local partners (e.g. WAZA and SLURC), or international partners (e.g. UN Habitat).

4.3.2 Foster International Partnerships: The identification of international best practices could be followed by **building partnerships and networks** with cities that are facing similar problems or pursuing a similar mission, within Sub-Saharan Africa or the Global South, in order to exchange best practices and knowledge- This responsibility needs to lie with the local relevant partners and we believe could be a very impactful legacy of the T-SUM project.

05 Conclusion

For the purpose of addressing T-SUM's initial request, this project has embarked on a research and analysis that is comprised of two main research questions that would inform the implementation of T-SUM's Work Package 3 ("Vision pathways and implementation strategies"). These questions aimed to **identify the key elements for participatory workshop design and implementation and the enabling factors for sustainable urban mobility (SUM) transitions.**

The aim of this research project has been mostly practical and applied, to support T-SUM to improve its potential impact, by providing guidance for the implementation of participatory workshops to be performed in the cities of Maputo and Freetown and building case studies in SUM transitions that will inform the workshops.

The analysis has been grounded on the theory of Socio-Technical Transitions. Additional T-SUM's fieldwork findings have also been integrated into the analysis. The results of the research highlight conditions precedent for effective and successful participatory processes and workshops, that will **contribute to the alignment of stakeholders in the articulation of a common vision and prioritization of actions.** Further and through the case study analysis, good practices in the realm of SUM transitions have been identified and further **outlined key lessons that might help inspire Freetown and Maputo policymakers.**

By evaluating certain challenges that could impair the success and continuity of the project, the research team has identified certain factors that could hinder the overall process; in this regard, some of these challenges have been tackled in the recommendations section. However, **there are certain constraints that limit the impact of this project's contribution to T-SUM.**

In terms of the case study selection, while they might be useful in addressing some of the challenges that Freetown and Maputo face, some will be more applicable than others owing to resource and capacity limitations. Although the research team endeavored to focus the projects in aspects that were relatable to both cities, the direct relevance of the chosen cities might be limited in some cases and might eventually be contested by the local stakeholders (i.e. the scale and timeframe of some of the projects are probably out of reach of Maputo and Freetown, yet, they will have been instrumental in illustrating important aspects that could be transferable).The results of the case study methodology are not generalisable, and therefore more research is needed in order to systematically assess factors and practices that positively impact sustainable urban mobility transitions in the context of high-growing cities in Sub-Saharan Africa.

With regards to participatory processes, limitations might include factors relating to the context, venues, and data that might be unavailable during their implementation. Similarly, even though the proposed tools aim to respond to the objectives of the workshops, there is no certainty about the availability of resources and logistics required for effective implementation. Moreover, workshops rest on the assumption that a skilled facilitator is available, capable of adapting content to the local-context.

Finally, during the course of the project, the impact of climate change and natural disasters has made itself present in these vulnerable cities, and it further underscored the **imperative need to implement as many measures as possible to ensure the wellbeing of future generations and enhance the resilience also through sustainable mobility measures.**

Scarcity and resource constraints can inspire innovation. The several constraints of Maputo and Freetown could also provide inspiration for innovative solutions and be an opportunity for these cities to flourish and become an example for several Global South cities facing similar challenges. **Given the right combination of leadership, collaboration and ingenuity, Maputo and Freetown can become a platform for successful transport and mobility policy experimentation and become an example of liveable cities to the rest of the world.** In this regard, **this research project,** even if modest in its aims and reach, **is a relevant contribution towards this goal.**

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