IMPACTS OF AD-HOC PUBLIC TRANSPORT SYSTEMS PROVISION ON THE PHYSICAL (PROPERTY) DEVELOPMENT OF DAR ES SALAAM CITY

A KA'BANGE and D MFINANGA*

PhD Candidate, Department of Transportation and Geotechnical Engineering, University of Dar es Salaam, P.O. Box 35131, Dar es Salaam, Tanzania.
Tel: +255 718 611670, Email: contactay@yahoo.com
*Associate Professor, Department of Transportation and Geotechnical Engineering, University of Dar es Salaam, P.O. Box 35131, Dar es Salaam, Tanzania.
Tel: +255 713 329690, Email: mfinanga@udsm.ac.tz

ABSTRACT

Development of an integrated public transport system is very essential for achievement of social, economic and environmental requirements of the people in the cities worldwide. For African cities, the need is more pronounced since public transport is almost a forgotten sector while the demand for the same is very high. Provision for public transport systems in African cities hardly considers the future socio-economic, physical and technical requirements of the systems despite the fact that the present and the forecasted modal splits for public to private transport put public transport on the higher magnitude. This paper discusses the impacts of developing public transport system on an ad-hoc basis to the city and property development. Findings reveal that ad-hoc implementation of the public transport systems has an insignificant effect on redressing the city public transport problems. It has, instead, negatively impacted the people through loss of their properties by demolition, loss of income through disrupted livelihood activities, and creation of bad relations between the people and the city authority. Other impacts include disruption of the Transit Oriented Development (TOD), existence of improper physical development especially along the major roads and loss of revenue to the government through property tax, business license fees and monthly returns from businesses. Planning and implementing an integrated public transport system that has been accepted by city residents, harmonising the land use and transport related legal provisions and exercising justice in compensation, are among the necessary actions to be taken for achievement of effective public transport systems provision in the city.

1. INTRODUCTION

1.1 Importance of Public Transport in Dar es Salaam

Dar es Salaam is amongst the rapidly growing cities in Sub-Saharan Africa. The city demographic trends reveal a growth in population from 3,500 in 1867 to 129,000 in 1957 and 273,000 in 1967. Physical expansion of the city in this period was only 2 kilometres radius covering the area from the Indian ocean to the city boundary in the hinterland (Lupala, 2002; Kombe *et al*, 2003; DCC, 2004). The rapid increase in population was further observed in 1978 when the city population increased about 3 folds to 769,000 and 1.4 million in 1988. The 2002 census revealed a city population of about 2.5 million with a growth rate of 4.3% (Lupala, 2002; Kombe et al. 2003; DCC, 2004). Current estimates put the city population at 4 million. Physical expansion of the city reached a 30 kilometres radius in 2001 (Lupala, 2002). This rapid expansion coupled with the sprawling nature of the city has

created travel demands, which do not match with the supply of transport services, and increased travel costs especially to the sub-urban dwellers (SUMATRA, 2011; DCC, 2004; Lupala, 2002; Kombe *et al*, 2003).

More than 70% of the city residents are living in unplanned areas (Lupala, 2002; Kombe *et al*, 2003; UN-HABITAT, 2010). As shown in Table 1 more than 80% (109,487 Ha) of the city land (unplanned mixed land use and unplanned residential) consists of informal development. Majority of informal settlements' residents, who constitute a larger portion of the poor, have no option except depending on the public transport for various trips to work, business, shopping, education and social undertakings. In 2007 the modal split between private car and bus was 11:89. According to JICA (2008) about 56% of the trips in the city are made by walking and 41% by public transport. Looking at the existing transport situation in the city, significant changes are quite unlikely.

The foregoing clearly manifest the importance of public transport in Dar es Salaam. Development of sustainably integrated public transport systems is therefore imperative for realisation of a sound social, physical and economic development of the city.

Table 1: Dar es Salaam city land use distribution

S/No	Type of land use	Hectares	Percentage
1.	Unplanned mixed land use	72,487	54.0
2.	Unplanned residential	37,000	27.2
3.	Planned residential	17,700	13.1
4.	Hazardous land	5,813	4.3
5.	Forest (reserve land)	2,000	1.4
Total area		**135,000**	**100.0**

Source: DCC, 2004

1.2 Methodology

Preparation of this paper entailed conducting a thorough review of secondary sources on the public transport in Dar es Salaam. The reviewed documents included both transport planning and legal documents governing transport in Tanzania. Data and information obtained from the secondary sources was further complemented by the fieldwork conducted in the various areas of the city where interviews and discussion with various stakeholders were conducted. The system development and performance was observed and photographs taken. Key informant interview was conducted to obtain data for filling the gaps identified.

2. PUBLIC TRANSPORT SYSTEMS PROVISION: EXISTING PRACTICE AND LEGAL FRAMEWORK

2.1 Conducive environment for ad-hoc transport systems provision: policies, plans and legal provision

Various authorities have the legal power to undertake public transportation systems provision in the city. The National Transport Policy of 2003 stresses the need for provision of residential areas together with adequate road infrastructure, cyclists and pedestrian lanes in urban areas. It further emphasises the merging of transport

and settlement planning, where road reserves shall neither be subjected to unintended uses nor left without strenuous efforts to effect development control.

The 'Urban Planning Act' and the 'Land Use Planning Act' give powers to the local authorities, through the use of municipal land use framework plan, to plan the city land use inclusive of transport systems (LUPC, 2007). The National Transport Policy emphasises the powers given to local authority to make sure that the provision of necessary transport services is done according to the city or municipal master plans. It also stresses the need for the transport system to be more inclusive by providing adequate infrastructure for the special groups which include students, the elderly and the disabled. Unfortunately the existing systems completely ignored this provision.

Other actors in the public transport systems provision in Dar es Salaam include Surface and Marine Transport Regulatory Authority (SUMATRA), Tanzania National Road Development Agency (TANROADS) and the Ministry of Works.

The existing situation on the ground reveal that there is no cooperation and coordination among actors involved in the transport systems provision in the city. The local authorities who are vested with powers to prepare the municipal land use master plan, which guides city development, are not effectively carrying out this task. The land use framework plan (city master plan) currently in place was prepared more than 30 years ago. This makes it incapable of addressing the current land use and transport systems' challenges of the city that is rapidly growing.

2.2 The systems' ad-hoc provision practice

The public transport system in the city is mainly motorised and non-motorised road based (SUMATRA, 2007; MoCT, 2003). Other major modes include railway and water transport whose development for public transport use is still insignificant or none existent (MoCT, 2003). Major strategy employed in provision of public transport system is based on addressing the current needs. This is manifested in areas where the population has increased and there is no transport, a connection is made to the existing network through improvement of road and allocation of a bus route. In some cases route allocation is made without any improvement in the road a situation which negatively affect reliability and efficiency of the system.

Provision of public transport in the city, and for that matter public transport system provision, is in some cases been done through changing the use of old infrastructure in favour of public transport. The recently initiated commuter train in the city is a perfect example of this case (see Figure 1 (a) and (b)). The old railway lines (which were left idle for a long time) were originally constructed for transporting cargo from Ubungo industrial area and the Dar es Salaam Habour to upcountry train stations in the city centre and the Tanzania-Zambia Railway (TAZARA) station respectively. From October 2012 these lines function as commuter train transporting people from Ubungo industrial area to city centre (about 11.6 kilometres) and from a peri-urban settlement called Pugu Mwakanga to Kurasini area near the Dar es Salaam habour (about 23.8 kilometres). The two commuter train lines suffer lack of integration to the existing bus system and hence the changes achieved little utility to the city residents. Their existence has not been felt by the majority of city residents as the relief in the public transport is minimal.

Figure 1 (a) Commuter Train from Ubungo industrial area to city centre

Figure 1 (b) the use of railway line before the public transport was initiated in November 2012

As earlier pointed out, the public transport system in the city is road based, development of road infrastructure has a significant input in the development of public transport system. Development of commercial complex (malls) has in some cases contributed to the improvement of parts of the road infrastructure and the public transport system. As shown in Figure 2 and 3**,** improvement of Sam Nujoma road (about 5 kilometres) was greatly influenced by the construction of Mlimani City shopping mall. As a pre-condition for investment, the foreign investor requested the government to improve this road to a dual carriage way to allow fast and efficient movement of customers to the shopping complex. Prior to the construction of the mall, the road condition was very poor to the extent that people could travel by public transport in this road section for half an hour or more for a distance of 5 kilometres only. This exemplifies the ad-hoc practice in the public transport system development. The public transport system for this section of the road, and the public transport services, tremendously improved after the construction of the Mlimani City shopping mall and improvement of Sam Nujoma road. The situation is very different when this road section joins Morogoro road at Ubungo where congestion and snail pace traffic flow are common practices.

Due to the inherent adoption of ad-hoc public transport system provision, demand forecasts for public transport in the city are hardly integrated with the city land use framework plan for reserving adequate areas of road space for future expansion. Development control as a city land use machinery is completely neglected to the extent that invasion of the road reserve is the order of the day in many areas of the city (MoCT, 2003). As a result expansion of major arterial roads involves massive demolition of properties where majority of the owners are neither compensated nor resettled elsewhere.

Provision of public transport systems (which is mainly bus-based) focuses on a single route, faces ineffective regulation, lack clear incorporation of the future demand/needs and absence of inter modal linkage.

Figure 2 and 3: Improvement of Sam Nujoma road which was influenced by construction of Mlimani City mall

2.3 Property owners' compensation or resettlement: A dilemma in the public transport system ad-hoc provision

Implementation of public transport system improvement on an ad-hoc basis faces a dilemma in paying the Project Affected People (PAP). The ad-hoc provision of the system, manifested by inadequate synchronisation of land use and transport planning, necessitate demolition of properties along the major arterial roads. When demolition is effected, PAPs continuously complain that compensation paid is inadequate, alternative assessment techniques are disregarded and that there are unnecessary delays in paying compensation (MLHSD, 1997).

The National Land Policy of 2003 and the Land Act No.4 of 1999, emphasise payment of full, fair and prompt compensation to the PAP. The two pieces of legislations provide that PAPs have to be paid: 'market value of the real property, disturbance allowance, transport allowance, loss of profits or accommodation, cost of acquiring or getting the subject land and any other costs or capital expenditure incurred to the development of the subject land'. It is also provided that 'compensation should be paid promptly, and if not paid in time, interest at market rate will be charged' (MLHSD, 1997). Experience from compensations made in the city for property demolition to pave way for transport systems improvement, and other projects, shows that PAPs have been paid only the cost of real property, in some cases without considering market value. Allowances, loss of profit, costs incurred in acquiring land and any other cost incurred have never been considered. This has been a source of complains, disagreement, chaos and even court cases filed by the PAPs against the authorities.

On the other hand international organisations (e.g. World Bank) stress the implementation of resettlement policy framework in projects that affect peoples' properties (MLHSD, 2008). Unlike compensation, the resettlement policy requires that the PAPs be provided with all that they have had to the new locations. The authority do not prefer this policy as its implementation is more costly than compensation while on the other hand the PAPs prefer resettlement policy. Despite the emphasis on resettlement policy by the international organisations, the national resettlement policy is not yet in place a situation which allows the authority to implement compensation. The policy remains a condition for implementation of

projects financed by these international organisations hence a huge dilemma in public transport systems projects implementation.

About 76 PAPs at Gerezani area, that was acquired for development of DART station, filed a court case No. 44 of 2012 demanding higher compensation than the one planned to be paid by DART authority. DART wanted to pay each PAP in the area between Tshs 19 - 40 million (about USD 13 - 27 thousand) while the PAPs want to be paid Tshs 1.5 billion each (about USD 1 million each) claiming that the amount demanded is the market price for properties in their area and surrounding areas like Kariakoo as provided for in the National Land Policy and Land Act No. 4 of 1999.

3. ANALYSIS AND DISCUSSION

3.1 Urban planning and the ad-hoc public transport systems provision

The city land use development framework has a great role to play in enhancing the development of an effective, efficient and expansive public transport system. The link between the city land use and the transport master plans has to be strong enough to allow smooth running and expansion of the system according to the increasing demand.

Currently, the link between the two plans seem to be weak. The city land use plan is ineffective and fails to address the dynamics of urban development in a rapidly urbanising city. Land use control and management instruments have failed to effectively allocate and regulate the city land use including the road reserve. Much of the land area in the city is developed without plan and hence lack of a proper road network for extending the public transport system. Lack of vibrant links between commercial areas and transport systems is a common phenomenon. The width of major roads is unclear and keeps on changing. For example, the road width for Morogoro road is specified as 60 and 120 meters (Road Management Regulations, 2007 - for Road Act, 2007) and 60 -70 meters (Town Planning Space standards, 1997 as revised in 2011). The legal framework has proved to be controversial in this matter. This situation gives more strength to the continued existence of ad-hoc nature of public transport system provision in Dar es Salaam.

The previous and current transport development master plans are hardly adhered to. The Dar es Salaam Transport Policy and System Development Master Plan of 2008 is not followed accordingly. It has, instead, been completely disregarded and the development on the ground continue to be ad-hoc.

3.2 Integrated public transport system: A means to replacing ad-hoc provision

The current demand for public transport in Dar es Salaam by far exceeds supply. It is estimated that Dar es Salaam residents generate more than 2.9 million trips per day while the public transport serves about 1.4 million people per day. (JICA, 2008). Demand forecasts continue to show an increasing trend. Improvement of public transport system in the city is inevitable. The Dar es Salaam Rapid Transit System (DART) currently under construction/implementation (Figure 5) is a timely decision to redress the situation. The system, which is integrated and comprehensive, covers the entire city. When fully implemented, it is expected to solve the public transport system problems of the city. With its rapid expansion nature, Dar es

Salaam city requires an integrated public transport system like DART. When the need arises to institute other modes (e.g. rail system) an attempt should be made to put in place an integrated system instead of a fragmented one.

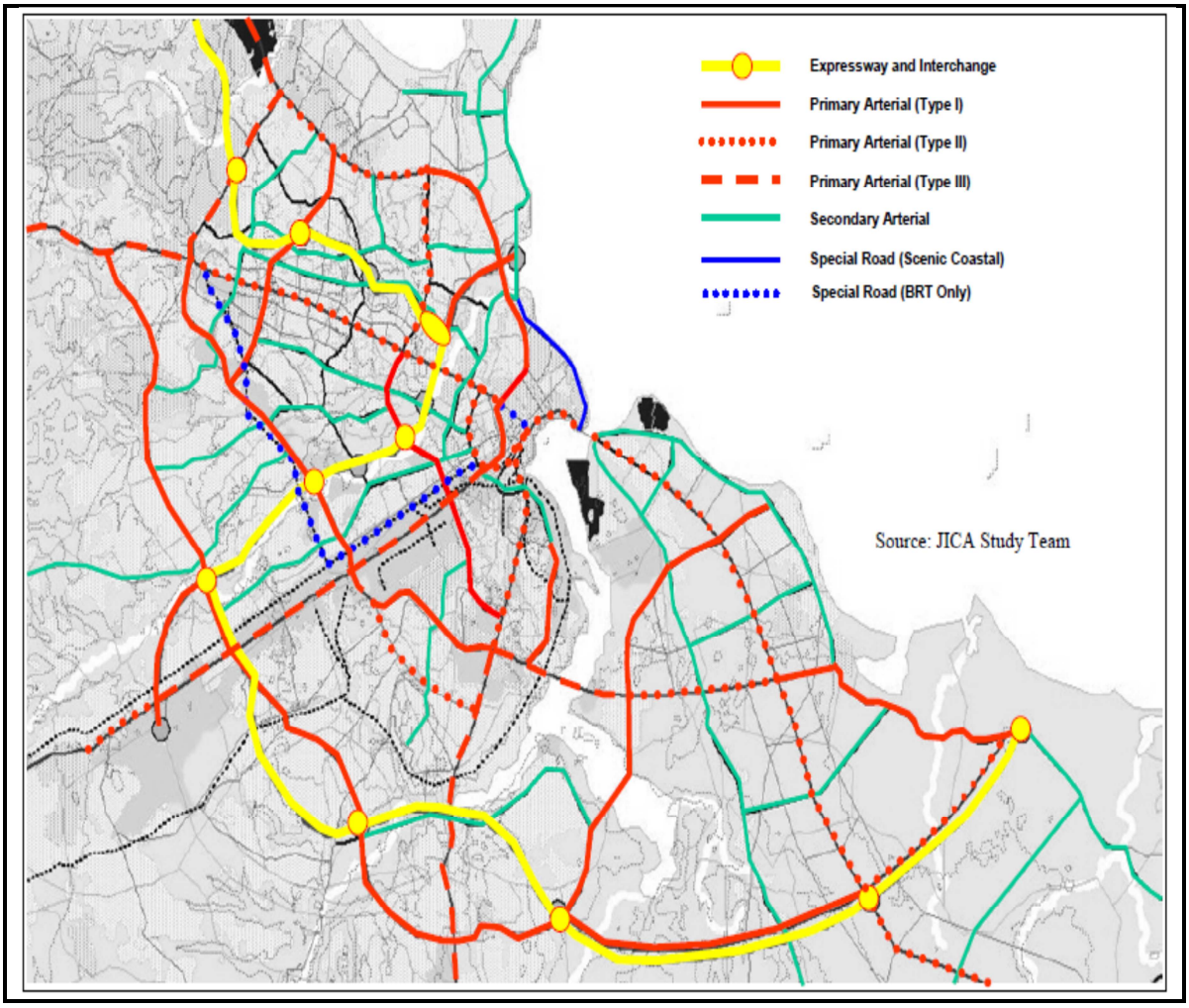

Figure 4: Proposed DART Integrated Public Transport System network

3.4 The ad-hoc system provision impacts

3.4.1 *Limited effect on congestion and traffic flow*

Ad-hoc public transport systems provision has limited effect on the congestion and traffic flow in the city. Almost all improvements done in the city public transport systems aimed at reducing congestion and improving traffic flow. Due to focus on ad-hoc provision, this attempt has achieved limited success. To date, city residents can spend up to two and a half hours travelling from Sinza (about 14 kilometres) and more than three hours from Kibamba (about 30 kilometres) to city centre respectively. The time lost on transit and late arrival at work places affect all sectors of the economy. Recent reports revealed that the city lose up to Tshs 4bn per day (about USD 2.7 million) or Tshs 1.5 trillion annually (about USD 2.9 billion) due to traffic congestion. The results of the survey done by the Confederation for African Industries (CTI) reveal a loss of profit of up to 20 percent to most business in the city attributed to the effects of congestion.

3.4.2 *Transit Oriented Development (TOD) affected negatively*

As the city growth has adopted the radial pattern and ribbon development along the major roads, transit oriented development exists along the major roads. The ad-hoc nature of transport system provision results in demolition of properties for road expansion. Since the developers are sometimes not compensated, they are reluctant to undertake meaningful development along the major roads. There is instead, a concentration of small businesses along the roads and at the bus stops.

3.4.3 *Resistance from the people*

Routine demolition of properties along the roads, especially major roads, as a result of ad-hoc system provision is creating chaos and disagreement between the people and the authority. In some instances people file cases in the court objecting the demolition of their properties without compensation. This has instilled a negative attitude to the people as regards development of a better transport system in the city. Majority of city residents owning properties along the road receive the news of transport system development as a bad omen instead of a necessary city developmental action. On the other hand, where a case has been filed in the court delay in the implementation of the system improvement is unavoidable. The delay increases project costs as the contractors demand compensation for the idle time they spent while mobilisation was already completed. Due to costs implications, best options are sometimes avoided.

3.4.4 *Improper physical development*

A well designed integrated public transport system network contributes to the better image of the city. It depicts an aesthetic view of the city which covers an extensive area. Implementation of ad-hoc public system provision in Dar es Salaam denies the city the chance to have a better image.

3.4.5 *Loss of revenue*

Routine demolition of the properties along major roads results in loss of revenue to the city authority and income to the residents. This loss is incurred due to the decrease in properties that are supposed to be charged the city property tax, monthly returns from businesses payable to the Revenue Authority and yearly license fees payable to the municipal authority. In the research for Land conflicts in Sub-Saharan Africa, Kilonzo (2009) reports that 10,000 houses were earmarked for demolition along the Morogoro highway. Considering Tshs 15,000 (about $10) charged per house, the municipality could lose Tshs 150,000,000 million (about 100,000 USD) on property tax alone. City residents whose commercial properties are demolished lose a substantial portion of their income and others even stay for a long time without getting an alternative income generating activity. Interviewing the PAPs from demolished Urafiki market, some traders claimed to have lost properties worthy Tshs 6,000,000 (about 4000 USD) on individual basis. Others claimed to have not known how to repay the loans obtained from banks, micro-credit finances and Savings and Credits Cooperative Societies (SACCOS) as their properties were demolished and they don't have alternative income sources.

3.4.6 *Government properties demolition*

Demolition of properties for expansion of public transport system has in some instances touched government properties. Expansion of Morogoro road to accommodate the Dar es Salaam Rapid Transit (DART) system necessitated the demolition of the office building for Tanzania National Roads Agency (TANROADS) at Ubungo as it was constructed in the area reserved for bus stand expansion.

Similarly, a strong debate among senior bureaucrats, and the public at large, emerged on the proposal by the works minister to demolish a multibillion building and headquarters of the Tanzania Electric Supply Company (TANESCO), on the grounds that it was constructed in the road reserve. The debate was so strong to the extent of attracting the intervention of the president who ruled out that the previous mistakes should not impose unnecessary loss to the people by demolishing the state owned multibillion building.

4. LESSONS LEARNT

The case has shown that there is a great need for developing integrated public transport systems rather than piece meal plans. Achievement of a properly functioning public transport system requires that the city land use master plan be coordinated/synchronised with the transport master plan.

The unplanned nature of the African cities, coupled with ad-hoc provision practice, presents a big challenge in improving public transport systems. Discussion, participation, openness and justice are the pillars on which the planned desired public transport systems' goals will be achieved.

In implementing public transport systems provision or improvement in African cities, fairness and abiding to justice are important in paying compensation to the affected people and the entire system improvement process. Contradictions in legal provisions create disagreements between the people and the government or city authorities. Harmonising legal provisions before embarking on the projects will be necessary for success of the provided systems.

The enacted laws have to be inclusive rather than segregative. Government or city authorities should refrain from allocating structures in areas that are legally not allowed, otherwise they will be duty bound to effect demolition of the government structures and hence a loss of the public resources.

5. CONCLUSIONS

Provision of public transport system in an ad-hoc basis has a number of negative impacts to the properties and physical development of Dar es Salaam city. Impacts, such as, disruption of Transit Oriented Development (TOD), unclear routes, demolition of road side properties, loss of municipal revenue and city residents' disagreement on demolition of their properties are a result of this practice. The biggest impact has been a limited effect on reducing congestion and improving traffic flows.

Development of an integrated public transport system, together with syncronisation of city land use and transport master plans, will assist in alleviating the impacts and hence improving public transport services in the city. However, increased unplanned settlements, lack of justice and fairness in paying compensation, and contradictions in legal framework present a big challenge to this endeavour. Eliminating the challenges will greatly contribute to successful improvement of public transport in the city.

Due to its integrated nature, DART integrated system currently under construction, is expected to substantially redress the public transport problems in the city despite

the fact that its implementation has endured some of the mentioned impacts like chaos in paying compensation and properties demolition. In overall basis, DART has been a well planned integrated system that has no elements of ad-hoc provision. Experience gained from this project has been a good lesson in improving future public transport system planning in the city.

6. ACKNOWLEDGEMENTS

The research presented in this paper was funded by the Volvo Research and Educational Foundations, and forms part of a broader research programme conducted by the African Centre of Excellence for Studies in Public and Non-motorised Transport (ACET, www.acet.uct.ac.za).

7. REFERENCES

DCC, Dar es Salaam City Council. (2004). *Dar es Salaam City Profile.* Dar es Salaam.

JICA, Japan International Cooperation Agency. (2008). *Dar es Salaam Transport Policy and System Development Master Plan.* Dar es Salaam: Dar es Salaam City Council (DCC).

Kilonzo, R. G. (2009). *Land Conflict in Sub-Saharan Africa: Development and Eviction along Morogoro Highway, Tanzania*. University of Minnesota.

Kombe, W., Kyessi, A., Lupala, J., and Mgonja, E. (2003). *Partnership to Improve Access and Quality of Public Transport.* Leicestershire: Water, Engineering and Develoment Centre - Loughborough University.

Lupala, J. (2002). *Urban Types in Rapidly Urbanising Cities - Analysis of Formal and Informal Settlements in Dar es Salaam, Tanzania.* Stockholm: Royal Institute of Technology (KTH), Department of Infrastructure and Planning, Division of Urban Studies.

LUPC, Land Use Planning Commission. (2007). *The Land Use Planning Act.* Dar es Salaam: Government Printers.

MLHSD, Ministry of Lands and Human Settlement Development. (1997). *National Land Policy.* Dar es Salaam: Government Printers.

MLHSD, Ministry of Lands and Human Settlements Development. (2008). *Resettlement Policy Framework, Private Sector Competitiveness Project, Land Reform Sub-component.* Dar es Salaam: Project Coordination Unit - BRU.

MoCT, Ministry of Communication and Transport . (2003). *National Transport Policy.* Dar es Salaam: Government Printers.

SUMATRA, Surface and Marine Transport Regulatory Authority . (2007). *Study on Road Accidents in Mainland Tanzania.* Dar es Salaam.

SUMATRA, Surface and Marine Transport Regulatory Authority. (2011). *Study on User Needs and Management of Public Transport Services in Dar es Salaam.* Dar es Salaam.

UN-HABITAT. (2010). *Informal Settlements and Financie in Dar es Salaam, Tanzania.* Nairobi: UN-HABITAT.