



# Mobility for development

Dar es Salaam | Tanzania



University of Dar es Salaam



United Republic of Tanzania  
Ministry of Infrastructure Development



World Business Council for  
Sustainable Development

## About the WBCSD

The World Business Council for Sustainable Development (WBCSD) brings together some 190 international companies in a shared commitment to sustainable development through economic growth, ecological balance and social progress. Our members are drawn from more than 30 countries and 20 major industrial sectors. We also benefit from a global network of about 60 national and regional business councils and partner organizations.

**Our mission** is to provide business leadership as a catalyst for change toward sustainable development, and to support the business license to operate, innovate and grow in a world increasingly shaped by sustainable development issues.

**Our objectives** include:

**Business Leadership** – to be a leading business advocate on sustainable development;

**Policy Development** – to help develop policies that create framework conditions for the business contribution to sustainable development;

**The Business Case** – to develop and promote the business case for sustainable development;

**Best Practice** – to demonstrate the business contribution to sustainable development and share best practices among members;

**Global Outreach** – to contribute to a sustainable future for developing nations and nations in transition.

### Disclaimer

This report is released in the name of the WBCSD. Like other WBCSD reports, it is the result of a collaborative effort by members of the secretariat and executives from several member companies. A wide range of members reviewed drafts, thereby ensuring that the document broadly represents the majority view of the WBCSD membership. It does not mean, however, that every member company agrees with every word.



# Mobility for development

Dar es Salaam | Tanzania

## INDEX

<i>EXECUTIVE SUMMARY</i> .....	7
1. INTRODUCTION.....	12
a. Background to this case study.....	12
b. The concept of mobility .....	12
c. Mobility as a force for economic development .....	13
d. The importance of improved mobility to achieving Tanzania’s long-term economic development.....	13
2. TANZANIA .....	14
a. Geography.....	14
b. Population and demographics .....	14
c. Ethnicity.....	16
d. Education level.....	17
e. Economy .....	17
3. DAR ES SALAAM CITY “THE HARBOUR OF PEACE”.....	22
a. Location .....	22
b. Population .....	22
c. Urban structure.....	22
d. Land use .....	23
4. MOBILITY CHALLENGES IN TANZANIA .....	25
a. Manifestations of inadequate mobility opportunities .....	26
5. TRANSPORT SYSTEM CHARACTERISTICS .....	29
a. Road transport.....	29
b. Rail transport.....	31
c. Marine and other water transport.....	33
d. Air Transport.....	35
e. Dar es Salaam transport corridor and Regional trade .....	37
f. Pipeline transport .....	38
g. Fuel usage for the Mobility sector .....	38
h. Transport in Dar es Salaam.....	38
i. Alternative solutions .....	40
6. INFORMATION AND TELECOMMUNICATIONS SERVICES .....	43
a. Trends in Telephone Usage .....	43
b. The Internet and E-mails.....	46
c. Radio and Television Stations .....	47
d. Postal Services .....	48
e. The future for Internet and Telecommunications Technology (ICT) .....	48
7. 7. URBAN LAND MANAGEMENT .....	50
a. Orientation of urban land use plans and prospects for implementation.....	50
8. URBAN TRANSPORT POLICIES .....	53
a. Road infrastructure.....	53
b. Road Services.....	55
c. Traffic Flow Management .....	56
d. Land Use Planning.....	56
e. Transport for Disadvantaged Group in Urban Areas.....	56
f. Public Vehicle Design Standards and Specification.....	56
g. Institutional Arrangements for Urban Transport Management .....	57

h.	Road Transport and Environment Policies .....	57
i.	Urban Transport Financing .....	57
9.	ENVIRONMENTAL FOOTPRINT OF THE MOBILITY SECTOR .....	58
a.	Road Transport and Environment .....	58
b.	Rail Transport and Environment .....	59
c.	Air Transport and Environment .....	59
d.	Maritime Transport and environment .....	60
e.	Pollution Caused by Transport equipment .....	60
f.	Dust from Unpaved Roads .....	60
10.	COMPLETED AND FUTURE MOBILITY PROJECTS IN TANZANIA .....	61
11.	FEEDBACK FROM THE STAKEHOLDER DIALOGUES .....	62
a.	Preamble .....	62
b.	Feedback from the DAR ES SALAAM discussion groups .....	62
c.	Feedback from the TANZANIA discussion groups .....	64
d.	Feedback from the AFRICA discussion groups .....	66
12.	FUTURE PROSPECTS FOR MOBILITY IN DAR ES SALAAM & TANZANIA .....	68
a.	Institutional setup .....	68
b.	Transport policy .....	68
c.	Financing .....	69
d.	Infrastructure .....	70
e.	Land use policies and controls .....	70
f.	Environmental impacts of transport .....	70
g.	Opportunities for enhanced mobility in Tanzania .....	70
h.	Opportunities for enhanced mobility in Dar es Salaam .....	71
13.	IDENTIFIED AREAS FOR FURTHER STUDY .....	71
	<i>APPENDIX A – THE TANZANIAN ECONOMY .....</i>	<i>73</i>
	<i>APPENDIX B – ENERGY AND FUEL USE IN TANZANIA .....</i>	<i>79</i>
	<i>APPENDIX C – STAKEHOLDER DIALOGUE PARTICIPANTS LIST .....</i>	<i>81</i>
	<i>REFERENCES .....</i>	<i>83</i>

## LIST OF TABLES

Table 1: Comparative Demographic and Health Indicators (Tanzania, Sub Saharan Africa and the World).....	16
Table 2: Comparison of literacy rates in Tanzania and the rest of the world.....	17
Table 3: Sectoral contribution to overall GDP at factor cost (%).....	18
Table 4: Main economic activity of adults (%) .....	19
Table 5: Old and New NCPI Basket for Dar es Salaam .....	20
Table 6: Tanzania’s Exports by Major Commodity Groups (Million of TZS).....	20
Table 7: Tanzania’s Imports (c.i.f) by Major Commodity Groups (Millions of TZS) .....	20
Table 8: Tanzania’s Trade Balance (Million of TZS) .....	21
Table 9: Tanzania “Trading across borders” score according to World Bank Doing Business in 2007 report .....	21
Table 10: The Summary of Municipal Health Characteristics .....	27
Table 11: Road Network in Tanzania by year 2006 .....	29
Table 12: Vehicle categories in Tanzania (2005 & 2006) .....	30
Table 13: Vehicle Usage.....	30
Table 14: Road Accidents (2000-2006).....	31
Table 15: Accidents in Dar es Salaam According to vehicle type, 2000-2002 .....	31
Table 16: Accidents in Dar es Salaam involving students, 2000-2002 .....	31
Table 17: Railway Freight Performance .....	32
Table 18: Railway Passenger Traffic.....	33
Table 19: Railway Freight Performance indicators (000 Ton km) .....	33
Table 20: Railway Passenger Performance Indicators (000 Passenger Km).....	33
Table 21: Comparison of Marine transport in Tanzania with Kenya and Mozambique ..	34
Table 22: Capacities and physical conditions of infrastructure in selected airports.....	37
Table 23: Main Airport statistics .....	37
Table 24: Overview of urban Transport indicators.....	39
Table 25: Trend in Telephone Subscribers .....	44
Table 26: Telephone Phone Users by Service Provider.....	44
Table 27: TTCL (Network Capacity) .....	45
Table 28: Number of Telephone Subscribers (2004).....	45
Table 29: Number of Internet Users and Internet Hosts (2004) .....	46
Table 30: Regional distribution of internet host density in the world (2004).....	46
Table 31: Number of registered Internet Service Providers and Websites in Tanzania (2000-2005).....	47
Table 32: A comparison of seven African Countries in Internet related users (2004) .....	47
Table 33: Number of Television and Radio stations in Tanzania (2005) .....	48
Table 34: Postal Service Statistics .....	48
Table 35: Estimate of relative Lead Exposure in Selected Countries.....	59
Table 36: Recently completed infrastructure projects in Tanzania .....	61
Table A1: Real GDP growth at 1992 prices .....	73
Table A2: Share of total household income by source (%) .....	74
Table A3: Consumption expenditure per person (in TZS) .....	75
Table A4: Household consumption by type of item(%) .....	75
Table A5: Population in poverty (%).....	75
Table A6: Distribution of the poor by area (basic poverty line).....	76
Table A7: Cost of living index for high income group in Dar es Salaam 2001 = 100 .....	76
Table A8: Capital formation in public and private sectors in TZSbill/= .....	78
Table A9: The alternative energy sources including renewables (%) .....	79
Table A10: Total Fuel Consumption by type of fuel in Tanzania (metric Tons), 2006 ...	80

## LIST OF FIGURES

Figure 1: The role and benefits of mobility in an economy.....	13
Figure 2: Population Pyramid of Tanzania 2002 .....	14
Figure 3: Map of Tanzania showing main transportation links .....	15
Figure 4: Real GDP growth in Tanzania at 1992 prices .....	18
Figure 5: Map of Dar es Salaam showing main settlements and transport systems .....	23
Figure 6: Tazara train on its journey to Zambia .....	32
Figure 7: View of Dar es Salaam Port .....	34
Figure 8: Comparison of Dar es Salaam port with other African container ports .....	35
Figure 9: Location of domestic and international airports.....	36
Figure 10: Road conditions during rainy seasons .....	40
Figure 11: Driving lessons.....	40
Figure 12: The planned EASSY submarine cable connectivity.....	49
Figure 13: Traffic volumes on main road routes in Tanzania.....	54
Figure 14: Motor, non-motor and pedestrians use the same road in Dar es Salaam.....	54
Figure 15: Challenges and issues – congestion.....	55
Figure A1: Main economic activities of adults.....	74
Figure A2: Inflation Trends 1994 - 2005 .....	77

## **ACKNOWLEDGEMENTS**

A team of researchers from the University of Dar es Salaam has developed this case study for the World Business Council for Sustainable Development. The researchers include Dr Lucy M Mboma (Team Leader), Prof. Joseph S. Baradyana, Dr Davis Mwamfupe and Lic Diana Philemon. The study acknowledges several institutions, organisations and individuals whose contributions made it possible to compile this case study. Although we may not mention each and every person who assisted, let us mention a few including:

- Ministry of Infrastructure Development
- Ministry of Planning, economy and empowerment
- Ministry of Energy and Minerals
- BP Tanzania
- ERB – University of Dar es Salaam
- University of Dar es Salaam
- United Nations (studies/documents)
- REPOA
- Various Institutions which have uploaded information about their organizations through the Internet
- Various researchers as acknowledged
- The Dar es Salaam General Public

## **EXECUTIVE SUMMARY**

This case study was prepared as input for a Stakeholder Dialogue that was held in Dar es Salaam, Tanzania, on April 3, 2007. A draft of the case study was distributed to the participants prior to the meeting, and the principal findings and conclusions were presented during the meeting. Comments from the Stakeholder Dialog are briefly summarized in Chapter 11. The participants' comments are reflected in this revised version of the case study.

### **Objectives of the case study**

The University of Dar es Salaam has undertaken this case study on behalf of the *Mobility for Development* (M4D) Project at the World Business Council for Sustainable Development (WBCSD). The objectives of this case study are to assess the mobility challenges and opportunities within Tanzania with specific reference to Dar es Salaam. In particular, the study is designed to:

1. Raise awareness of the importance of the mobility as a driver for economic development.
2. Examine opportunities to narrow the “mobility opportunity divide”,<sup>1</sup>
3. Identify high priority sustainable mobility issues that can enable economic development in Tanzania and Dar es Salaam.

### **Mobility in Dar es Salaam**

Dar es Salaam is referred to as the harbour of peace. It is the former capital city of Tanzania and lies on the East coast of Africa on the Indian Ocean. The city has an area of approximately 1800sq km and roads represent the dominant form of transportation. It is the commercial centre of Tanzania and a trading hub that connects the country to the external world. It is connected by road, railway, water and air transport to other regions in the country. Dar es Salaam is also a transit gateway for six landlocked countries of Southern and Central Africa namely Malawi, Zambia, Democratic Republic of Congo (DRC), Burundi, Rwanda and Uganda.

Dar es Salaam is one of the fastest growing cities in Sub Saharan Africa. The population was 2.5 million in 2003 and is estimated at 3.7 million in 2007, equating to a population growth rate of 4.3%. The relatively high population growth rate is due to increased birth rates, migration rates, and more significantly by a transient population. This rapidly growing population is placing enormous pressure on the existing transportation systems that cannot keep up with the even more rapid rise in vehicle ownership. This is resulting in longer journey times, serious congestion, increased vehicle related accidents, pollution, and reduced mobility opportunities for the disadvantaged. The use of other non-road infrastructure including rail for commuter services in urban centres in Tanzania such as Dar es Salaam is almost non-existent.

---

<sup>1</sup> As defined in the final report of the WBCSD's Sustainable Mobility Project, “mobility divide” (or “mobility opportunity divide”) reflects the wide disparity in mobility opportunities between those available to the average citizen in the poorest developing nations and regions and the mobility opportunities experienced today by the average citizen in the developed world. The Sustainable Mobility Project emphasized that closing this divide does not require that people in any region travel a given number of kilometers per year. Rather, “the mobility opportunity divide” will cease to exist when people everywhere have comparable opportunities to “move freely, gain access, communicate, trade, and establish relationships.” (*Mobility 2030*, p. 131)

## **Mobility in Tanzania**

The road network in Tanzania covers 85,000 km and consists of trunk, regional, district, urban and community roads. In recent years the number of deaths and injuries from road related accidents has been increasing. On average 16,200 road accidents occur annually, where 2,100 lives are lost. It is estimated that 8% of deaths in hospitals are road accident victims.

Tanzania has two major railway lines with a total track length of 3,676 km out of which 2,706 km are operated by Tanzania Railway Corporation (TRC) and 970 km by Tanzania Zambia Railway Authority (TAZARA). These two railway lines link 14 of the 21 regions on the mainland and neighbouring countries.

Marine transportation services are divided into two - Indian Ocean and inland lake services. The Tanzania Harbours Authority (THA) operates the sea ports of Dar es Salaam, Tanga, and Mtwara and minor ports of Kilwa, Lindi, Bagamoyo, Pangani and Mafia on the Indian Ocean. Dar es Salaam is the biggest port with capacity of 11 berths of which 8 are for break bulk (6.4 million) and 3 for containers (120,000 TEUs).

Tanzania has over 200 airports including aerodromes and airstrips serving domestic and international traffic. Out of the 200, there are four international airports namely Dar es Salaam, Kilimanjaro, Mwanza and Zanzibar. The major domestic airports include, Mtwara, Dodoma and Tabora.

Pipelines play an important role in mobility of crude oil, gas and water. There are two pipelines in Tanzania. The oldest pipeline is TAZAMA pipeline which covers a distance of 1,750 km and transports crude oil from Dar es Salaam to Ndola in Zambia. The second pipeline is owned by SONGAS. It covers a distance of 232 km. The pipeline is used to transport gas from Songosongo Island to Dar es Salaam.

The ability to make efficient use of information technologies, such as the internet and telecommunications, is a key enabler to economic success, and thus the prosperity of society as a whole. In Tanzania as elsewhere in the developing world, the growth of mobile phones is far out-pacing the development of fixed land-lines: in 1995, 98% of telephone usage was through land lines, by year 2000 the percentage had dropped to 58% while in year 2006 it was a mere 4%. The reverse applies to mobile phones where their usage was 2% in year 1995, 42% in year 2000 and 96% in year 2006.

## **Challenges and Prospects for mobility in Dar es Salaam and Tanzania**

The Dar es Salaam case study has revealed some issues that need to be addressed in an attempt to narrow the mobility opportunity divide between the rich and the economically and socially disadvantaged groups in the city and in the country at large. However, much remains to be done to translate good intentions into practical initiatives that make a difference on the ground. In Dar es Salaam this is largely because the urban population is growing more rapidly than the development of infrastructure and basic services. In the country as a whole this is largely due to the vastness and sparsely populated nature of the country, making infrastructure development extremely costly and time consuming.

### ***Institutional setup***

The transport sector in Tanzania falls under the mandate of three lead ministries, with other ministries also involved. The lead ministry is the Ministry of Infrastructure Development which is responsible for transport development policy and its implementation, as well as for setting strategic goals for the sector's development. This ministry is also responsible for the construction and maintenance of trunk and regional road infrastructure.

### ***Transport policy***

A general weakness of the National Transport Policy is that it has placed more focus on facilitating vehicle movements rather than the efficient movement of people. In Dar es Salaam for example, the emphasis has been on the provision of urban roads for motorized vehicles towards the Central Business District (CBD) rather than on the major mobility modes (public transport, non-motorized transport). Given the agrarian nature of Tanzania's economy, the challenge is how to invest more on rural areas against the bias towards urban areas.

### ***Land Use Policies and Controls***

The land use pattern in urban areas is such that the CBDs continue to attract most commercial activities. The challenge is how to influence land use to encourage more development away from already congested areas and thereby reduce traffic congestion and the associated environmental consequences. Furthermore, over 75% of the urban population in Dar es Salaam resides in unplanned settlements. Some of these settlements are so poorly serviced that mobility is difficult. In most cases the majority of the residents here belong to the low-income category and therefore the challenge is on how to provide reliable transport services at affordable rates.

### ***Roads and rail infrastructure***

Roads are the predominant mode for freight and passenger transport in major African cities including Dar es Salaam. The challenge is to secure cost-effective improvements in services by expanding and improving road networks and by maintaining the existing road base. The challenge in the railway system is the age and non-standard nature of the network which is incompatible with each other and also uses outdated technology.

Limited road infrastructure that does not serve all citizens poses another challenge. Urban roads favour motor transport but are less conducive to cycling, pedestrians and disadvantaged groups. The narrow roads lead to congestion and accidents. There is also often poor linkages between different types of infrastructure and large regional variations in quality across the regions. Feeder roads to major corridors are generally few and not in a good state to facilitate mobility with ease. This further increases freight costs thereby affecting the income and expenditure patterns of the people.

### ***Other mobility challenges***

One of the major challenges lies in the provision of transport for less able people, and students who are currently poorly served.

The other challenge lies on the infrastructure development plans. While there are many plans to put the physical infrastructure in place there is a need to ensure that these developments take into consideration future expansion of the communities.

Another challenge is the cost of transport. Trips to town using public transport are relatively expensive, such that people living on the minimal wage in Tanzania cannot afford to use it. As a result they are compelled to walk up to 10km to their work places and back every day.

Another challenge is the cost of internet and the speed of connection. The latter is due to the insufficient bandwidth. The slow speed also limits the amount of information and scope of activity that can be done. The other problem related to this is reliability of the

network. Very frequently there is no network connection, making it difficult to rely on the internet as a means to communicate by email etc.

Another challenge is electric power. Frequent power cuts makes it difficult to use internet services, and internet providers who use generators have higher costs, making these services even more expensive.

### ***Financing***

Despite the good intentions of the various Ministries to invest in infrastructure, financial constraints continue to limit development of transport infrastructure both in Dar es Salaam and in the countryside in general. The budget allocated for development/capital spending has always fallen short of needs, including that for the rehabilitation and maintenance of existing infrastructure. Estimates by the Ministry of Infrastructure Development show that about 70 percent of financing for infrastructure is provided by international donors.

### ***Environmental Impacts of Transport***

The levels of motorization in Dar es Salaam and the country in general are much lower than those in other developing countries. However, since the bulk of the traffic is concentrated in few roads, the emissions of conventional pollutants are considerable along these corridors. This is further exacerbated by poor quality servicing of vehicles.

## **STAKEHOLDER DIALOGUE FEEDBACK**

The feedback from the stakeholder dialogue in Dar es Salaam on April 3<sup>rd</sup> 2007 forms a critical part of this case study. The Dialog participants were divided into three groups – one focusing on mobility implications for Dar es Salaam, one focusing on mobility implications for Tanzania, and one focusing on mobility implications for Africa.

### ***Implications for Dar es Salaam***

This group stressed Dar es Salaam's role not only as Tanzania's largest city, but also as the gateway to the rest of Tanzania and, indeed, to much of East Africa. Mobility problems in Dar es Salaam were identified as linked to the concentration of most of its key institutions/services in one area – the Central Business District (CBD). It was suggested that consideration be given to decentralizing some activities so that some offices, shopping centers etc., be moved away from the CBD. It was also suggested that Dar es Salaam develop more efficient means of mass transport, build more roads, maintain existing roads better, and seek solutions for utilizing road infrastructure more efficiently. The importance of redesigning roads to accommodate a range of users (motorists, pedestrians, cyclists, and the disabled) was stressed. It was suggested that the use of public-private partnerships such as Build Operate Transfer (BOT) should be explored.

Several stakeholders were identified as having key roles in improving the mobility situation in Dar es Salaam. Government was deemed to be responsible for providing policy, rules and regulations (including enforcement), and for being the main financier of mobility infrastructure development. The private sector was seen as a potential partner in investments and research, providing and operating various mobility-related services (such as Dala dalas, internet cafes, telephone services, virtual banking facilities, etc.), and for driving technology transfer. The international community was viewed as responsible for supporting the realization of development projects through Official Development

Assistance (ODA) and for facilitating Foreign Direct Investment (FDI). Civil society organizations were seen as the watchdogs for all stakeholders, promoting standards and for advocating the legal rights of the people.

### ***Implications for Tanzania***

Mobility was viewed as enhancing the growth of the Tanzanian economy by providing access to markets and easing the physical distribution goods; by providing various services (e.g., radio, TV, newspapers, mobile phones, and the internet), and by easing the administration of the country. The participants identified old technology (particularly the railway system), poor maintenance of existing infrastructure, corrupt practices, and excessively complex bureaucratic procedures as key barriers to mobility enabled economic growth. Suggestions were made for dealing with each of these barriers.

The roles of various stakeholders – government, business, the international community, and civil society organizations – were similar to those identified above for Dar es Salaam.

### ***Implications for Africa***

The group stressed the importance of mobility as an enabler for broader economic development in Africa. Mobility can provide access to national, regional and international markets. Lack of efficient services can seriously impact the competitiveness of goods and services within and outwith the Africa continent. Tanzania's importance as a facilitator of trade for several landlocked countries was highlighted. One factor hindering mobility was the absence of connections between East Africa and West Africa. Another was congestion in the port of Dar es Salaam hindering cargo travelling to or from foreign countries. The group recommended the creation of new infrastructure links to enable efficient transportation corridors, the overhauling of most of the current infrastructure, increased infrastructure maintenance and not least the need for political will to change. Among the strategic areas needing immediate attention were the promotion of entrepreneurship through education and training and the reduction of bureaucracy procedures with respect to immigration/customs/police.

The roles identified for the various stakeholders were somewhat similar to those identified above for improving mobility in Dar es Salaam and Tanzania. However, the importance of the private sector in establishing linkages with the rest of the world was stressed as was the role of civil society organizations in sensitizing the public to participate in affairs related to economic development and to help establish institutions for transparency and accountability

## **FUTURE AREAS FOR FURTHER STUDIES**

The authors of the case study identified various data problems that need to be addressed. They recommended the creation of annotated bibliographies of the literature dealing with mobility for development as one important task as well as further specific studies on the transportation corridors linking Dar es Salaam, Tanzania and East Africa. The authors also identified further work to look at maintenance and access to spare parts for the existing motorized vehicle fleet to identify how the private sector may be able to engage to improve efficiency, safety and the environmental impact of mobility.

# 1. INTRODUCTION

## a. Background to this case study

The University of Dar es Salaam has undertaken this case study on behalf of the *Mobility for Development* (M4D) Project at the World Business Council for Sustainable Development (WBCSD). The objectives of this case study are to assess the mobility challenges and opportunities within Tanzania with specific reference to Dar es Salaam. In particular, the study is designed to:

1. Raise awareness of the importance of the mobility as a driver for economic development.
2. Examine opportunities to narrow the “mobility opportunity divide”<sup>2</sup>,
3. Identify high priority sustainable mobility issues that can enable economic development in Tanzania and Dar es Salaam.

## b. The concept of mobility

Mobility refers to the time and costs required for travel between destinations. Mobility is higher when average travel times, variations in travel times, and travel costs are low. Therefore, the indicators of mobility are travel times and costs and variability in travel times and costs. The traditional concept of mobility denotes efficiency of movement, and in view of this, improvement in mobility meant maximizing the utility of moving people and goods while minimizing the cost. This mentality has prompted the building of more roads and development of high-speed automobiles in order to move more people and goods. This has translated into greater energy usage, more air pollution as well as emission of greenhouse gases which inadvertently, contribute to the degradation of our environment. With the recent trend towards sustainability, people are more aware of the need to conserve the environment. Within this premise, a new ‘mobility culture’ encourages sustainable transport alternatives that minimizes use of fuel and encourages those who have to travel to do so in a way that would limit environmental impact. It has also led to an increasing interest in “virtual” mobility such as telecommunications and the internet that can connect people to people and people to the markets without the need for physical transportation.

The WBCSD Mobility 2030 report defined “Sustainable Mobility” as “the ability to meet the needs of a society to move freely, gain access, communicate, trade and establish relationships without sacrificing other essential human or ecological value today or in the future.” For mobility to be sustainable, it must improve accessibility while avoiding disruptions in societal, environmental and economic well-being that more than offset the benefits attributed to greater access.

---

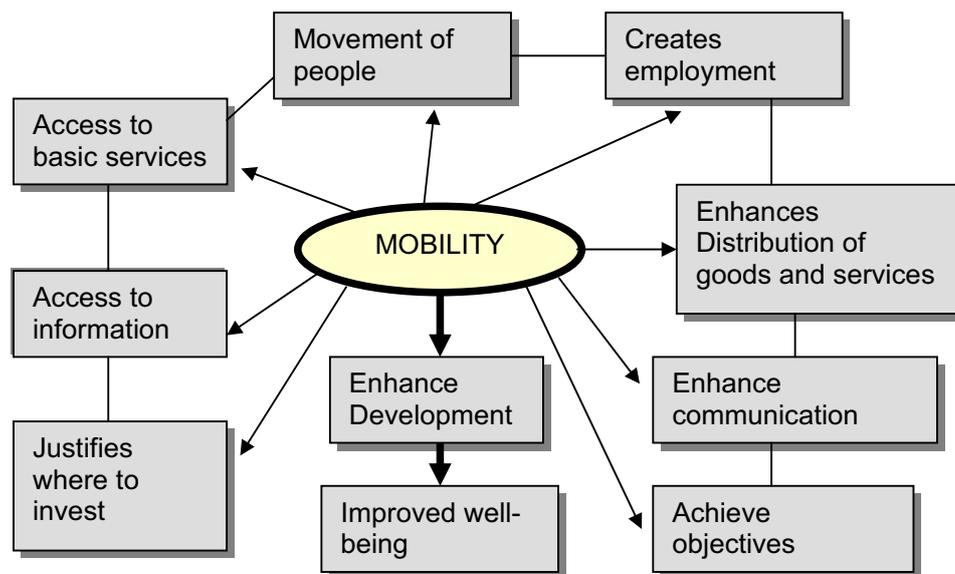
<sup>2</sup> As defined in the final report of the WBCSD’s Sustainable Mobility Project, “mobility divide” (or “mobility opportunity divide”) reflects the wide disparity in mobility opportunities between those available to the average citizen in the poorest developing nations and regions and the mobility opportunities experienced today by the average citizen in the developed world. The Sustainable Mobility Project emphasized that closing this divide does not require that people in any region travel a given number of kilometers per year. Rather, “the mobility opportunity divide” will cease to exist when people everywhere have comparable opportunities to “move freely, gain access, communicate, trade, and establish relationships.” (*Mobility 2030*, p. 131)

### c. Mobility as a force for economic development

Distance separates people's homes from places of work, sources of social amenities and points of business. Distance also separates people and companies from their sources of raw materials, from their markets, and therefore it impedes accessibility and competitiveness. Mobility enables people to overcome distance. Transport and communications infrastructure is necessary for socio-economic development because it provides essential links between centers of production and markets in economic sectors such as agriculture, industry, mining, and tourism. Transport facilitates the flow of goods and people along import-export corridors linking coastal ports and landlocked countries.

Transport is a key infrastructure sector that acts as a stimulus to economic growth and is an important element of strategies for poverty reduction, regional and national development. Improvements in the transport infrastructure would also reduce transport costs and make the goods consumed by the poor in the country more affordable and their produce more competitive. Furthermore, the provision, expansion and maintenance of transport infrastructure create employment that can reduce income poverty, while easier access to services such as health facilities and schools improves overall quality of life. The role and benefits derived from mobility are summarized in Figure 1 below.

**Figure 1: The role and benefits of mobility in an economy**



### d. The importance of improved mobility to achieving Tanzania's long-term economic development

Tanzania's long-term development goal is to raise the standard of living of its people. It is envisaged that, this could be achieved through the enhancement of both the productive and non-productive sectors of the economy from the present Gross Domestic Product of about USD 215 per capita (USAID, 2005) to the level of typical medium developed country, of USD 2,500 per capita as per National Vision – 2025. In order to realize this goal, rural road transport, telecommunications and postal services have been identified as among the priority sub-sectors in fighting poverty. Generally therefore, improved mobility is a critical factor and an impetus to sustainable economic growth and development in the country.

## 2. TANZANIA

### a. Geography

Tanzania is located in Eastern Africa, bordering the Indian Ocean in the east, Kenya and Uganda to the north, Burundi, Rwanda and Democratic Republic of Congo to the west, and Mozambique, Zambia and Malawi to the south (Figure 3). The total land area is 945,087sq km of which 886,037 sq km are covered by land and 50,050 sq km covered by water.

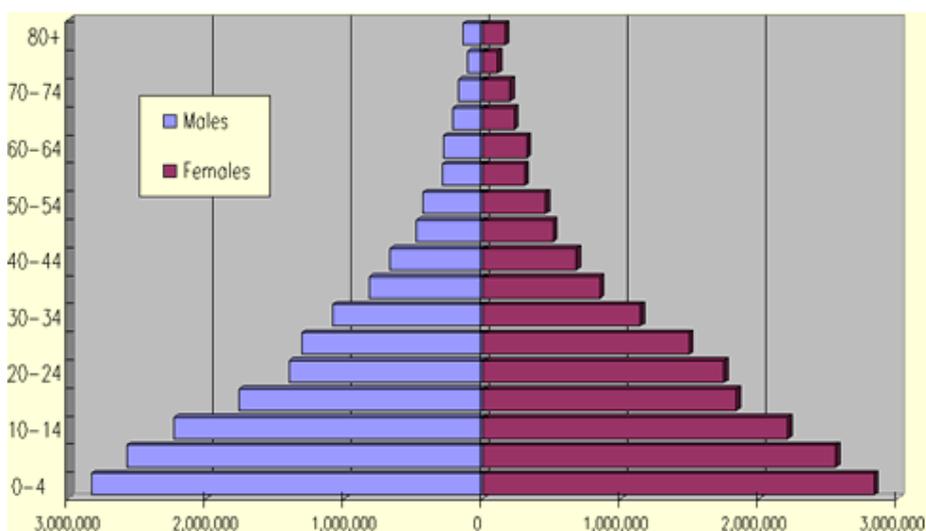
The Terrain is made up of plains along the coast, a central plateau, and highlands in the North and south. The highest point is Mount Kilimanjaro which is 5,895m.

### b. Population and demographics

According to the 2006 estimates Tanzania has about 37.4 million people of whom 51% are females and 49% are males. The population is estimated to be growing at a rate of 1.8% per year. Population distribution in Tanzania is extremely uneven. Density varies from 1 person per square kilometre (3 per sq. mi.) in arid regions to 51 per square kilometre (133 per sq. m.) in the mainland's well-watered highlands, to 134 per square kilometre (347 per sq. m.) on the island of Zanzibar. Around 80% of the population live in rural areas.

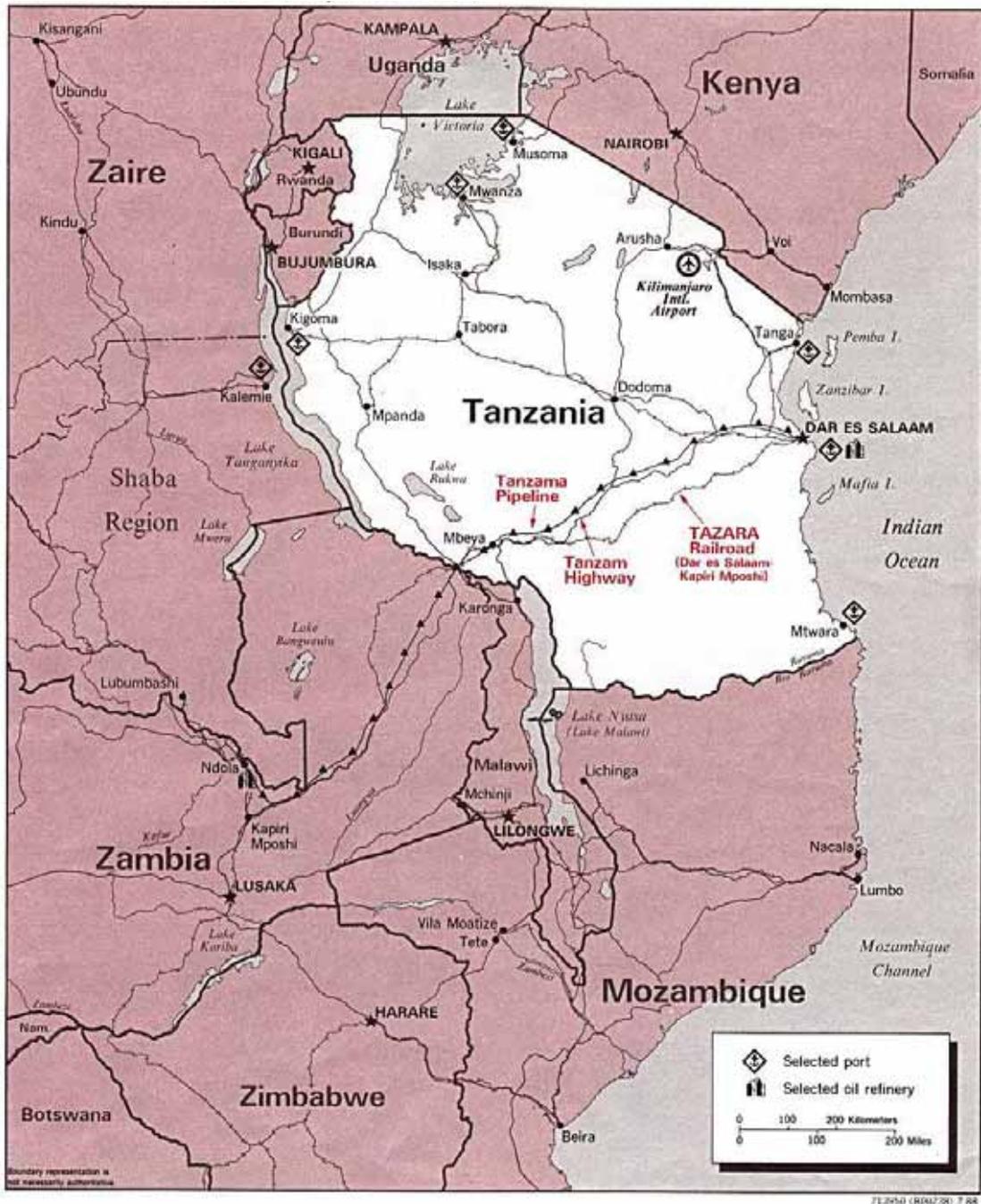
The demographics of the population in Tanzania shows a dominance of young ages (Figure 2). Both the 1978 and 1988 census data revealed that 46% of the population was under 15 years, 50% was aged 15-64 years and 4% was 65 years or above. The 2002 Population and Housing Census also revealed that the proportion of children under 15 was 44% while the working population (age 15 – 64) was found to be 52%, and about 4% was 65 years or above. The consequence of such an age structure is a high dependency ratio.

**Figure 2: Population Pyramid of Tanzania 2002**



Source: National Bureau of Statistics (2002)

Figure 3: Map of Tanzania showing main transportation links



From 1990, the rate of population growth in Tanzania has been decreasing. This mainly reflects the increased mortality rate due to deadly diseases including Malaria, Cholera, Tuberculosis and HIV/AIDS. These killer diseases have lowered the life expectancy that is now estimated to be 46 years for the total population with male life expectancy at 45 years and 46 years for females (CIA World Fact Book, 2007). This represents a notable decline in life expectancy from 51 years in 2002 (Tanzanian Demographic and Health Survey, 2004). In the 2002 census the population infected by HIV/AIDS was estimated to be 1.5 million people or 7.8%. Due to this, the distribution of the population by sex and age will change over time.

The growth of the population in absolute terms implies that there is increased demand for goods and services in general as well as social services such as schools, hospitals, water, sanitation and energy. This in turn requires more sustainable development of viable mobility solutions.

Table 1 describes the characteristics of Tanzania's population compared to the average in Africa and the World.

**Table 1: Comparative Demographic and Health Indicators (Tanzania, Sub Saharan Africa and the World)**

Demographic and health indicators		Tanzania	Sub Saharan Africa	World
Total population(000')	1950	7,886	176,775	2,519,495
	2002	36,820	683,782	6,211,082
	2025(projection)	60,395	1,157,847	7,936,741
Population density (per sq km)	2000	37.2	25.3	45.1
Average annual population growth rate	Total	1.4%	2.7%	1.6%
	Rural areas	1.1%	1.9%	0.9%
	Urban areas	2.6%	4.7%	2.4%
% of population	Under age15	44%	44%	29%
	Over age 65	3%	3%	7%
	Living in urban areas	20%	34%	47%
Average total fertility rate	1975-1980	6.7%	6.7%	3.9%
	2000-2005	5.0%	5.6%	2.7%
Infant mortality rate(/1000)	2000-2005	73	89	55
Under 5 mortality rate(/1000)	2000	165	175	83
Life expectancy at birth(years) 2000-05	Female	52.0	49.8	68.1
	Male	50.1	48.3	63.9
Births attended by trained personnel	1994-2000	36%	39%	57%
Adults and children infected with HIV/AIDS		1,500,000	28,500,000	40,000,000
% adults age 15-49 infected with HIV/AIDS 2001		7.8%	9.0%	1.2%

Source: National Bureau of Statistics (2002)

### c. Ethnicity

The African population in Tanzania consists of more than 120 ethnic groups. Although much of Zanzibar's African population came from the mainland, one group known as Shirazis traces its origins to the island's early Persian settlers. In total, non-Africans residing on the mainland and Zanzibar account for only 1% of the total population. Overall, the Asian community, including Hindus, Sikhs, Shi'a and Sunni Muslims, and

Goans, has declined by 50% in the past decade to 50,000 on the mainland and 4,000 on Zanzibar. An estimated 70,000 Arabs and 10,000 Europeans reside in Tanzania.

Each ethnic group has its own language, but the national language is Kiswahili. Although Kiswahili is Bantu in structure and origin, its vocabulary draws on a variety of sources, including Arabic and English, and it has become the lingua franca of central and eastern Africa. Other spoken languages are English and Indian. English is the primary language of commerce, secondary and tertiary education and administration.

#### **d. Education level**

About a quarter of Tanzanian adults have no formal education, 29% can neither read nor write. In rural areas 30% of the population have no education while only 8% of the population in Dar es Salaam have no education and 13% have no education in other urban areas. Very few adults in rural areas have been educated above primary level.

##### ***School enrolment***

Overall, school enrolment in Tanzania is expected to increase at all levels in the coming years. The government through Primary Education Development Program (PEDP) and Secondary Education Development Plan (SEDP) requires all children of school age to be enrolled in primary school and also to increase the number of those who join secondary schools. Equally, there are government initiatives and faith based organizations to open more universities in the country. At present there are 16 universities with a total of about 22,000 places (UDSM, 2005). Hence, the literacy rate and level of education attained by Tanzanians is expected to change tremendously in the nearby future. Before 2004 out of 490,018 primary school leavers, only 30% were able to get secondary education. After 2005, with the introduction of PEDP and SEDP program and plan respectively 49% are expected to get secondary education. A comparison of adult literacy rates for Tanzania, sub-Saharan Africa and the world is presented in Table 2 below.

**Table 2: Comparison of literacy rates in Tanzania and the rest of the world**

School enrolment and literacy(c)		Tanzania	Sub Saharan Africa	World
Adult literacy rate, 2002	Female	69%	55%	75%
	Male	85%	71%	86%
Youth literacy rate	1980	69%	55%	80%
	2002	92%	79%	87%

*Source: Demographic and Health Survey, 2004*

#### **e. Economy**

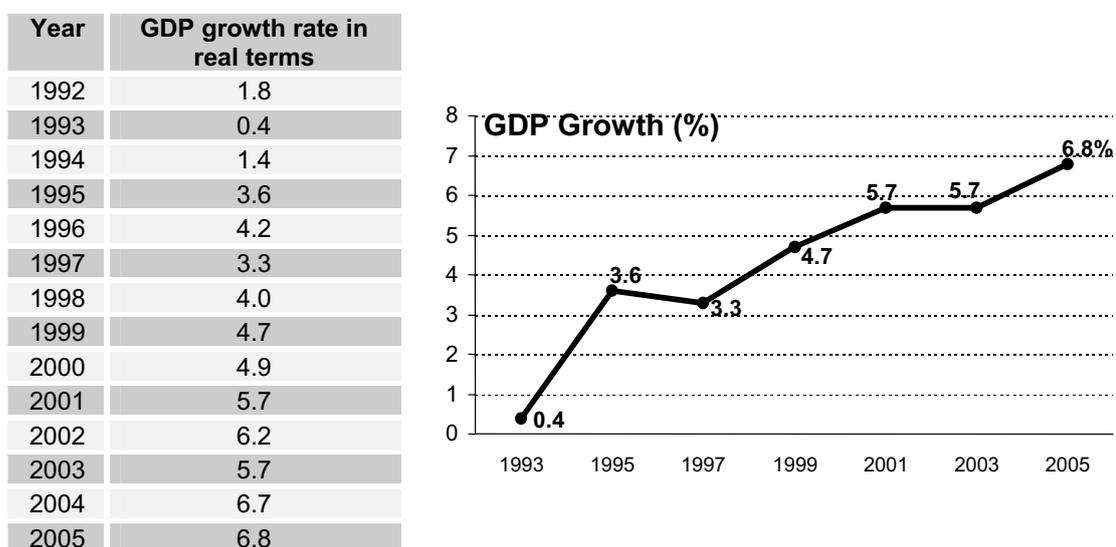
##### ***Composition***

Tanzania's economy depends heavily on agriculture accounting for about 44% of GDP, followed by services (38%) and industry (18%) of national GDP. Agriculture is the main source of livelihood for more than 60% of the population.

### *Growth of the economy as a whole*

The Tanzanian economy had an average GDP of USD 293 per capita in 2005. This income is still below the average of USD 407 per capita for sub-Saharan African countries. The Tanzanian GDP has however been growing steadily since the early 1990s. These rates compares with an average of 3.1% in neighbouring Kenya.

**Figure 4: Real GDP growth in Tanzania at 1992 prices**



Source: URT (2005), *The Economic Survey 2004*, the President's Office – Planning and Privatisation Dar es Salaam –Tanzania.

The growth has been attributed to a change in economic orientation to a more liberal economy, the exercise of new macro economic policies through monetary and fiscal measures, expansion of exports and debt relief. Sectoral contribution to overall GDP at factor cost is presented in Table 3.

**Table 3: Sectoral contribution to overall GDP at factor cost (%)**

Sector/Year	1997	1998	1999	2000	2001	2002	2003	2004	2004**	Rank
Agriculture	46.8	44.8	45.1	45.0	47.7	44.7	45.0	46.2	44.4	1
Mining and quarrying	1.2	1.5	1.4	1.5	1.6	1.8	2.1	2.5	3.1	8
Manufacturing	6.9	7.4	7.3	7.5	7.4	7.3	7.2	7.0	8.4	5
Electricity and water	1.7	1.6	1.7	1.7	1.6	1.7	1.6	1.6	na	9
Construction	4.4	5.0	5.1	5.1	5.3	5.4	5.6	5.7	5.2	6
Trade, Hotels and restaurants	13.1	12.4	12.4	12.3	12.2	11.9	11.7	11.7	16.2	3
Transport and communications	5.1	4.8	4.9	4.9	4.7	4.7	4.6	4.5	5.1	7
Financial and Business services	13.3	14.4	13.7	13.7	14.1	14.3	14.3	13.7	9.3	2
Public admin and others	10.6	11.0	10.9	10.6	10.5	10.3	9.7	9.3	6.8	4

Source: URT (2005), *The Economic Survey 2004*, the president's Office – Planning and Privatisation Dar es Salaam –Tanzania.

\*\* Sectoral contribution to overall GDP at 1992 prices.

Although the economy relies on agriculture, there is a shift to trade, hotels and restaurants (including tourism); financial services and Manufacturing. Construction, Transport, communication and utilities are also growing but at lower pace.

### ***Privatisation***

The majority of public companies have been privatized in recent years and the remaining few including Tanzania railways are in the process of being privatized. The national airline and utility companies such as water and electricity were once privatized, but due to poor performance and management were taken over by government. However plans are being developed to find better investors.

The business environment has improved by establishing a one-stop centre making it easy for entrepreneurs and businesses to register. There are still some challenges that hinder investment in Tanzania, among them being reliable power supply, ambiguous administrative procedures, and a weak financial sector with high interest rates.

### ***Sources and uses of household income***

The majority of adults are involved in agriculture and fishing (63%), 12% in the private sector and a small portion (3%) in government sector (Table 4)

**Table 4: Main economic activity of adults (%)**

<b>Economic activity</b>	<b>% adult population</b>
Agriculture and fishing	63
Non economic	13
Unpaid family helper	9
Self employed	8
Employee-private and other	4
Employees in government and parastatals	3
<b>TOTAL</b>	<b>100</b>

*Source: National Bureau of statistics: Household Budget Survey 2002*

### ***Income distribution and use***

Income distribution is not uniform in Tanzania, with considerably fewer people classified as poor in Dar es Salaam than in rural areas (see Appendix A).

Dar es Salaam has an attractive market size, high buying power and developed infrastructure compared with all other urban centres in the country. The improved access to communications, electricity power and roads allow people to travel and participate in economic activities. This has also increased the proportion of household income used on these services (Table 5). Transport costs have also increased due to oil price increases over the same period.

**Table 5: Old and New NCPI Basket for Dar es Salaam**

	Main Group	Year	
		1994	2001
1.	Food	71.2	55.9
2.	Drinks and Tobacco	4.4	6.9
3.	Rents	3.9	1.4
4.	Fuel, Power and Water	4.7	8.5
5.	Clothing and Footwear	3.7	6.4
6.	Furniture and Household Equipment	2.5	2.1
7.	Household Operations and Maintenance	1.5	2.1
8.	Personal Care and Health	2.2	2.1
9.	Recreation and Entertainment	1.2	0.8
10.	Transportation	1.2	9.7
11.	Education	1.5	2.6
12.	Miscellaneous Goods and Services	2.0	1.5
<b>Total</b>		<b>100</b>	<b>100</b>

Source: URT (2005), *The Economic Survey 2004, the President's Office – Planning and Privatisation Dar es Salaam – Tanzania, in National Bureau of Statistics*

### *Balance of Payments and Foreign Trade Developments*

**Table 6: Tanzania's Exports by Major Commodity Groups (Million of TZS)**

Period	Coffee	Cotton	Tea	Tobacco	Petroleum Products	Minerals	Manufacturer Products	Total
1993	39,428	31,697	15,176	7,097	5,632	28,074	21,625	181,148
1994	58,765	53,425	20,154	10,495	2,791	15,390	39,162	265,177
1995	81,168	69,238	13,216	15,372	6,215	25,545	63,042	390,378
1996	85,603	79,571	15,005	28,009	4,336	31,450	64,892	455,419
1997	72,744	79,623	19,498	33,060	66	31,303	67,716	459,549
1998	72,280	31,647	20,091	36,672	318	17,509	23,782	391,805
1999	56,995	21,745	18,306	31,999	na	56,090	22,413	412,204
2000	67,058	30,263	26,213	30,719	na	139,928	34,370	527,774
2001	49,603	29,173	25,275	32,292	na	270,028	50,322	681,156
2002	34,052	27,797	28,650	53,756	na	371,319	63,951	874,070

**Table 7: Tanzania's Imports (c.i.f) by Major Commodity Groups (Millions of TZS)**

Period	Transport equipment	Building and construction	Machinery	Oil	Fertilizers	Industrial raw materials	Food and stuffs	Other goods
1993	101,920	45,155	113,817	69,024	8,141	49,305	38,376	88,143
1994	122,589	54,620	155,399	75,824	5,972	65,411	64,756	118,058
1995	120,595	28,079	168,267	111,941	7,123	232,142	26,018	191,787
1996	117,233	24,473	148,201	92,441	13,720	202,157	30,277	178,801
1997	155,587	52,521	137,890	105,672	13,869	114,272	59,707	168,649
1998	160,192	87,741	258,992	68,080	7,776	102,564	150,949	206,802
1999	222,840	99,359	258,510	98,422	10,035	149,200	133,780	281,413
2000	185,195	104,455	228,493	113,789	13,583	132,276	144,993	306,895
2001	166,799	126,513	356,964	192,912	13,641	179,944	147,581	179,944
2002	210,733	130,304	355,643	188,348	19,619	201,210	142,409	357,175

Source: *Tanzanian economic survey, 2004*

**Table 8: Tanzania's Trade Balance (Million of TZS)**

Period	Domestic Exports	Total Imports (f.o.b)
1993	181,148	534,700
1994	265,177	666,258
1995	390,378	770,779
1996	455,419	702,353
1997	459,549	703,106
1998	391,805	907,494
1999	412,204	1,090,596
2000	527,774	1,094,414
2001	681,156	1,369,144
2002	874,070	1,460,951

Source: *Tanzanian economic survey, 2004*

In the World Bank's "Doing Business 2007" report, Tanzania moved up from a ranking of 150 to 142. Tanzania made significant improvements in 2 key areas: "Protecting investors" and "Trading across borders". The trading across borders data is shown in Table 9 below, which compares Tanzania with the rest of Sub-Saharan Africa and the average for OECD countries.

**Table 9: Tanzania "Trading across borders" score according to World Bank Doing Business in 2007 report**

<b>Trading Across Borders (2006)</b>			
The costs and procedures involved in importing and exporting a standardized shipment of goods are detailed under this topic. Every official procedure involved is recorded - starting from the final contractual agreement between the two parties, and ending with the delivery of the goods.			
Indicator	Tanzania	Region	OECD
Documents for export (number)	3	8.2	4.8
Time for export (days)	24	40.0	10.5
Cost to export (US\$ per container)	822	1,561	811
Documents for import (number)	10	12.2	5.9
Time for import (days)	39	51.5	12.2
Cost to import (US\$ per container)	917	1,947	883

Source: *World Bank Doing Business in 2007*

Additional macro- and household economic data is given in Appendix A.

### **3. DAR ES SALAAM CITY “THE HARBOUR OF PEACE”**

#### **a. Location**

Dar es Salaam is popularly believed to mean the “harbour of peace” (Swahili- Bandari ya Salama). It lies on the East coast of Africa on the Indian Ocean. The city has an area of approximately 1800sq km. It is the commercial centre of Tanzania and a hub that connects the country to the rest of the world. The city is connected by road, railway, water and air transport to other regions in the country. Dar es Salaam is also a transit gateway to six landlocked countries in Southern and Central Africa namely Malawi, Zambia, Democratic Republic of Congo (DRC), Burundi, Rwanda and Uganda. Dar es Salaam is a multicultural centre where the majority of its people are Africans who have migrated from rural areas.

Dar es Salaam has an equatorial climate. It is humid throughout the year (on average 96% in the mornings and 67% in the afternoons) with an average temperature of 29 °C. There are two main rainy seasons; a short rain season from October to December and a long rain season between March and May. The average rainfall is 1000mm (lowest 800mm and highest 1300mm).

#### **b. Population**

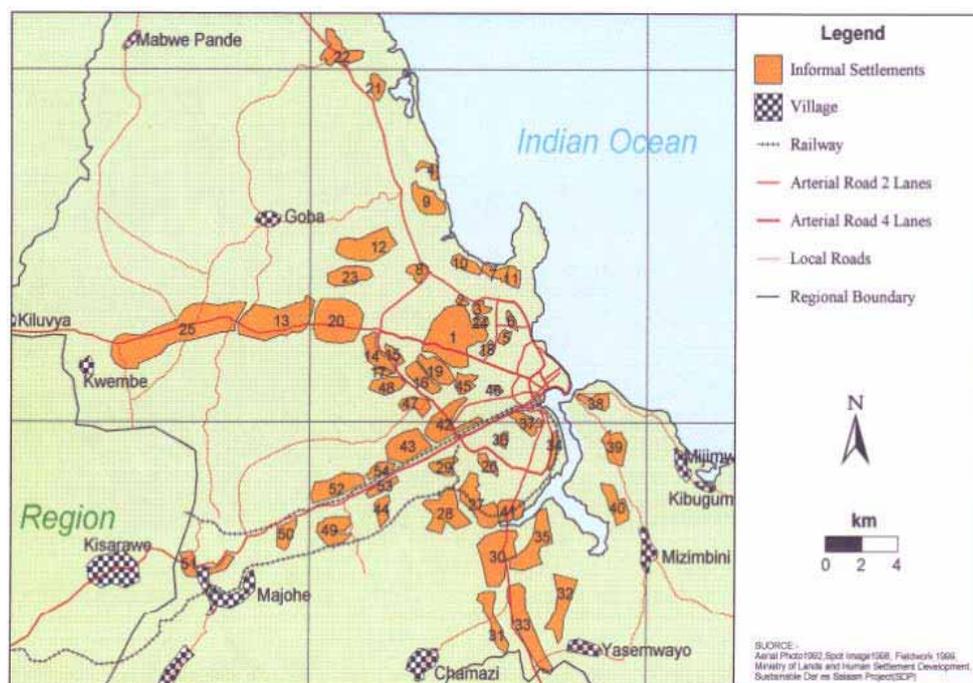
Dar es Salaam is one of the fastest growing cities in Sub Saharan Africa. The 1988 census recorded the city’s population to be 2,489,800 in 2003 while currently the city population is estimated at 3.7 million and is growing at 4.3%. The relatively high population growth rate reflects increased birth rates, migration rates, and more significantly a transient population. The Dar es Salaam population density as per 2002 population census was 1,787 per square kilometre; however the density now is estimated to be 2,055 persons per sq. km.

The age distribution of Dar es Salaam population is typical of the Tanzanian population distribution where by 34% of the population are children (up to 14 years), 64% of the population fall between 15-64 years, and only 2% are above 64 years of age.

#### **c. Urban structure**

Dar es Salaam is located on a narrow section of the coastal plain characterized by a complex creek system, a system that has contributed significantly to the morphological development of the city; in particular influencing the expansion direction of the city and producing some degree of spatial discontinuity (Figure 4). Another feature of the structure of Dar es Salaam is the expansion along the arterial roads. Thus, the expanding urban area of Dar es Salaam consists of rural territory pierced by finger-like projections of urban land use, especially residential. Between the arterial roads, there are large areas that have developed into unplanned and largely unserved settlements. Many of these areas are located in hazardous lands such as river valleys, flood-prone areas and hill slopes. Servicing these areas is difficult due to the nature of the terrain, and the density and layout of the settlements.

**Figure 5: Map of Dar es Salaam showing main settlements and transport systems**



Over the last decade, informal settlements have become increasingly denser as people have continued to move to Dar es Salaam and have tried to settle in those areas closer to job opportunities (often the older unplanned settlements). People have also started to live on land that was previously less attractive including many areas prone to flooding. This, and more formal development, has impacted the natural watercourses and made flooding more of a problem than in previous years.

#### **d. Land use**

Like many other urban centers, Dar es Salaam has a mix of land uses which include residential, commercial, the Central Business District, industrial, open spaces and urban agriculture. The city centre is located along the Indian Ocean coast and was planned and built between the beginning of the 20<sup>th</sup> century and the 1970s. The land use pattern on western part of the CBD consists of mixed commercial and residential use, while in the rest of the city centre it consists of commercial, institutional and very limited residential use. The residential population density in the centre is very low, ranging from about 97 persons person per hectare in the western part to about 7 persons per hectare in the eastern part (Kimaryo, 1996).

Apart from the CBD, the most dominant land use in the city is residential. This falls under two broad categories: planned and unplanned residential land use. Over 75 % of the residential land use falls into the category of squatter settlements. These correspond roughly with the low and middle-income residential areas. Some of the unplanned settlements are so poorly serviced that mobility is difficult. Nearly all these settlements are mixed with commercial land use. The city centre however remains the focal point for major commercial activities. Industrial land use is found mainly along the Nyerere Road and the Chang'ombe Industrial estates. These estates are located close to some residential areas but they draw the majority of their employees from other predominantly residential areas.

What is clearly notable in this land use pattern is that there is a marked separation of residential areas from places of work. Such a pattern has significant implications on transportation. It is not unusual to find people commuting from one end of the city to the work place located at the other end. Furthermore, the CBD remains a centre of attraction as people flock to this zone thus causing traffic congestion during peak hours.

Partly due to difficulties in accessing residential plots and the high costs of travel, the additional population in the city tends to settle within the existing residential areas. This has contributed to increased densification of the residential areas within the city, particularly in the unplanned zones.

#### 4. MOBILITY CHALLENGES IN TANZANIA

As far as mobility is concerned, Tanzania faces two critical issues: the challenges of connecting a sparsely settled population in a vast country, and the challenge of matching and improving the provision of services for a rapidly growing urban population. Other challenges include outward expansion of urban settlements which increases the distance to work, strong rural-urban social linkages which result in a lot of travelling, poverty, and inadequate financial, human and/or material resources from the government and/or private sector to meet the challenges. Remoteness is one of the key factors in explaining the high levels of poverty in Tanzania as it limits access to markets, increases prices of inputs and makes both economic and social services less accessible.

In urban areas the road is the most dominant mode of transport. It interconnects production with consumption and market centres. However, most roads are struggling to cope with rapid increase in traffic volumes. For instance, the roads in Dar es Salaam are also through roads for traffic from Bagamoyo, Morogoro, Pugu and Kilwa roads causing very high road traffic density especially in the Central Business District (CBD). The road network is even poorer or non-existent in rural Tanzania. Most of the rural regions are poorly connected to each other making it difficult for crops and other items to cross regional borders. Specific mention is made to peripheral regions of Lindi, Mtwara, Rukwa, Kigoma, Kagera and even a central region such as Singida.

In rural areas of Tanzania, walking and head-loading dominate travel and transport activities, and in most cases, the movements takes place on footpaths, tracks and trails away from the formal road network. The availability of buses, tractors, pick-ups, trucks and lorries is very low. Ownership of Non-Motorized Transport (NMT) vehicle is higher in rural areas with 39% of the households owning a bicycle. By way of comparison, 34% of urban and 12% of Dar es Salaam's households own a bicycle. In addition to bicycles, rural households use other non-motorized transport such as animal drawn carts and wheelbarrows to transport agricultural inputs and outputs from their fields. The NMT are also used as a source of income especially when made available for hire. The NMT is used at a varying scale depending on the income levels, availability of appropriate livestock, equipment, terrain and cultural factors.

Generally, motorized transport in Tanzania is relatively low. The motorization levels in urban centres are greater than in rural areas, mainly due to different income levels. Motorized transport services in rural areas of Tanzania are generally more expensive than equivalent forms of urban and intercity transport. The major contributing factors to the cost differences are related to vehicle operating costs (fixed and variable), low demand, and an uncompetitive operating environment (Starkey, 2002). Access to infrastructure poses a real problem for rural people where the paved road is often very far from the village centre. According to the latest household survey, only 38 percent of the rural population has reliable access to transport<sup>3</sup>. Additionally, access to public transport services is limited, with a mean distance to public transport of 54 km in rural areas compared with 0.5 km in Dar es Salaam and 0.8 km in other urban areas (URT, 2004).

Availability, affordability and frequency of transport services profoundly affect daily lives of millions of rural households. In rural areas with thin demands for passenger services due to low population densities, and where road condition is generally poor, transport services are often limited to a basic, daily or less frequent bus services, or to irregular 4-wheel drive vehicles and lorries on the poorer roads. Where the roads are better,

---

<sup>3</sup> defined as living within two kilometres of an all weather paved road

individual operators provide higher quality and more frequent services with smaller vehicles.

### **a. Manifestations of inadequate mobility opportunities**

#### **i) Increased difficulties in obtaining access to education**

Almost two thirds of Tanzania households are within two kilometres of primary schools even in rural areas. Schools in Dar es Salaam, Kilimanjaro, Lindi, Ruvuma and Rukwa are closest to households while those in Shinyanga, Kagera, and Dodoma are farthest.

The majority of children in rural areas in the country are compelled to walk long distances because of lack of privately owned means of transport e.g. cars, motorcycles and bicycle and there no public transport. Income poverty and low earnings in rural areas is higher than urban areas such that very few people can afford to pay for bus services and private means of transport. In urban areas like Dar es Salaam, students use commuter buses popularly known as *Dala dala*, *Mzunguko* (in Mbeya), *Kiford* (Arusha/Moshi), *Express* (Mwanza), *Matatu* (Nairobi) etc. However, they face serious transport problems as many bus operators refuse to take them because of the low fare they pay as per government directives (generally Tshs 50 in Dar es Salaam compared to Tshs 250 for adults). As a result, most of them arrive at school late. They also get back home very late after school hours. This has a negative impact on the overall performance of students since they waste a lot of time and energy scrambling for transport to and from school.

The problem of transport for school children is not confined to Dar es Salaam. Sokoni and Hambati, (2007) show how educational activities are constrained by problems of mobility in Mwanza (the second largest city in the country). In Mwanza city, late arrival to school was mentioned as a common problem among pupils in all schools where children had to walk long distances to school. Children travelling long distances often missed half of the time of the first lesson.

The transport problem for students particularly in urban areas is a challenge to the government of Tanzania and also a business opportunity for private investors to exploit this niche. A solution for this would be either to have special school buses or to subsidize bus owners with respect to student transportation. The Dar es Salaam Rapid Transport Project will also contribute towards providing a solution to the students problem as is the call to all parents to register their children at school as near home as possible.

#### **ii) Increased difficulty in accessing health care**

In urban areas there has been an increase in the number of health facilities e.g. hospitals, dispensaries and health centres. On average, in urban areas households are about 2-3km from a health facility. In rural areas households are on average c. 6 km from a health facility. As a result, some people die because they cannot get attention from health workers in time. Similarly a many expecting women give birth at home because dispensaries or health centres are far away.

In Dar es Salaam, health services are constrained in terms of both the number of facilities and the number of man-power available to attend the population. In terms of manpower, the physician to population ratio is 1:18,637 (18,637 persons are under the care of one physician) as shown in Table 10. The poor health status in the city is reflected in long queues to see doctors, congestion in hospital wards and poor facilities in general.

**Table 10: The Summary of Municipal Health Characteristics**

<b>Population per physician</b>	<b>1:18,637</b>
Population per health facility	1:5,333
Population per nursing staff	1:4,000

Source: *Dar es Salaam City Profile 2004*

### **iii) Increased difficulty in distributing goods**

Tanzania is characterised by different climatic conditions. There are areas with equatorial climatic conditions semi-arid, arid and tropical climate. Hence, regions differ in terms of their production capacity. Some areas can produce in abundance certain crops e.g maize which is a staple food for most Tanzanians while others cannot. While production capacity is still problematic in some regions, access to transport further constrains goods movement. This is particularly true in urban areas like Dar es Salaam which depend on supplies from other regions. For example, while rice is sold at Tshs 500/= per kg in Mbeya, in Dar es Salaam the price is Tshs 1300/= per kg (the two regions are some 900 kms apart). The main cost differential being transportation costs.

The mobility problem also has an impact on incomes of people in rural Tanzania. This is because there are no reliable roads connecting people in rural to urban centres hence most people in the rural areas fail to fetch good market for their products. As a result they are forced to sell to middlemen who visit them in villages and offer relatively low prices.

### **iv) Reinforcement of gender inequality**

Tanzania is committed to global development of women and to the fight against all forms of discrimination. There are significant improvements in political and public opportunities where both men and women are considered on the basis of qualifications and competence and compensated accordingly. More changes are felt in communities where access to resources (water, energy, health facilities, education, housing, transport and other basics) are in principle urged to be availed without discrimination. However, a strong patriarchy ideology in Tanzania (TGNP, 1993) deters implantation especially in communities.

Single male migration has been the most dominant form of migration in Dar es Salaam. Dar es Salaam population has more males than females that reflects that many youths leave rural areas in search of a better life in urban places. The youths either move to urban areas at the request of parents, or at the youth's own initiative, normally moving to urban relatives for temporary shelter before being independent. This movement has contributed to growth in unemployment, undermined well-being and quality of life by adding to already overcrowded housing, inadequate water supply, poor sanitation and inadequate solid and liquid waste disposal services. Short term strategies through informal businesses spread in different places of the city (Mboma, 1999), constraining movement of pedestrians as well as vehicles, and increased urban violence we see today.

Single male migration affects family structure, creating female-headed households in rural areas and male-headed households in urban areas. This transforms household structure, decision making, women's autonomy, survival strategies and changing patterns of employment. If male migrants' remitted money regularly those women were better off economically and gained independence in decision making.

However, development of urban areas has focused on employment, education and community services, physical infrastructure, transport, investment, problems of housing, water, sanitation and land use. These problems have not been assessed along gender lines. For example, ownership in housing by single women is not a new thing in Dar es Salaam.

Single men upon migrating to urban areas or when had their first employment often rented a room in a six roomed house owned by a single woman. The houses were built in surveyed or informal land areas such as Kariakoo, Ilala, Kinondoni and Mwananyamala in all districts of Dar es Salaam.

Wendy (2003) observes that ignoring gender issues in transportation planning increases the risk on women to access work places out of poor design and failure to provide efficient, reliable and convenient public transport.

Men and women respond differently to labour market and income earning opportunities. Women's access to education is lower than that of men, while access to employment is based on educational level attained hence fewer jobs go to women. Both male and female can access informal employment, but the sector cannot absorb all of them. Mboma (1999) observes that, women invest in SMEs that fall within their traditional tasks of cooking and services (cleaning) that are highly perishable unlike men who invest in higher return and less perishable merchandise –e.g. textiles. Where female-headed households are in place they face discrimination in terms of access to labour markets, credit and other basic services because of lack of collateral and single female parents are negatively perceived in the society.

Women are further disadvantaged by ending up in more poorly paid jobs and lower educated offers that further hinder mobility compared to men, who have better access to superior higher earning jobs, affordable transport, are regular users of family cars or have income to take public transport instead of walking. This pattern is reinforced by traditions based on domestic roles and chores that have significant consequences for their transport and travel status in urban area. Women are exposed to physical harassment and violent attacks while walking, driving or using public transport.

Traditional mobility - especially transport planning, infrastructure design and management - tends to focus on peak demand and travel to and from places of work. This ignores reproductive roles of women who may need transport services during off peak periods. The trend of more women joining the labour market demand is changing the demand for travel. At the same time, domestic chores have been taken over by other women, influencing the migration of young women from rural to urban areas. Certain areas of Tanzania have become famous sources of this female labour force.

As a result women workers have changed their life styles, while shopping and domestic chores in the residential areas are done by house assistants. The multiple movements lead to further increases in mobility among women. Where there is one car in the family, men tend to use the family car for work trips while a unemployed woman relies on public transport.

## 5. TRANSPORT SYSTEM CHARACTERISTICS

Transportation is critical to the social and economic development of Tanzania and other developing countries. This is because the performance in all major sectors contributing largely to the country GDP -- namely agriculture, industry and services -- depends very much on well developed and efficient physical and commercial infrastructure. In Tanzania, the transport sector is comprised of roads, railways, air, maritime and other water transport, pipelines and grid line modes. The different modes of transport move not only people but also facilitate the distribution of products to the market. Infrastructure facilitates the movement of water, petrol, gas, mails, parcel and information. However, the transport sector in Tanzania, just like many other sectors in the country, is characterized by high levels of inefficiency. This is due to a number of factors including lack of clear and timely infrastructure maintenance and rehabilitation, inadequate institutional arrangement, uncoordinated regulations and procedures, and inadequate capacity just to mention a few.

### a. Road transport

The road network in Tanzania covers 85,000km and consists of trunk, regional, district, urban and community roads. The coverage of each of these categories is as shown in Table 11 below:

**Table 11: Road Network in Tanzania by year 2006**

S/N	ROAD CLASS	LENGTH (KM)		
		PAVED	UNPAVED	TOTAL
1	Trunk Roads	3,830	6,470	10,300
2	Regional Roads	100	24,600	24,700
3	District Roads	30	19,970	20,000
4	Unclassified Roads	0	27,550	27,550
5	Urban Roads	470	1,980	2,450
<b>TOTAL</b>		<b>4,430</b>	<b>80,570</b>	<b>85,000</b>

*Source: URT (2007) 10 Year Transport Sector Investment Programm 2007/08-2011/12 (Phase 1)*

Only 5% of the road network is bituminized. This implies that, only 5% of the roads are passable throughout the year, while 95% of the roads are exposed to risk of closure or lengthy delays especially during rainy season. For example, a trip from Dar es Salaam to Singida that normally takes 12hrs (for buses) and 24hrs (for trucks), would take less time if bituminized. This situation is hampering the development of the economy, especially improvement of livelihood in rural areas who cannot access necessities. Equally, they cannot move their products to places where they could fetch better prices. Poor roads also result in high maintenance costs as tear and wear rate is very high. The governments long term objective is to bituminize all trunk roads and ensuring sufficient rehabilitation and maintenance of district and urban roads.

### i) Stock of road vehicles

The estimated number of vehicles in Tanzania by category is presented in Table 12 below.

**Table 12: Vehicle categories in Tanzania (2005 & 2006)**

S/N	Vehicle Category	Dec 2005	Dec 2006	% to total
1	Motorcycles(less than 3 wheels)	31,006	47,888	15.4
2	Motor tricycles	369	639	0.2
3	Light passenger vehicles (less than 12 persons)	113,138	148,872	47.8
4	Heavy passenger vehicles (12 or more persons)	18,943	24,443	7.8
5	Light load vehicles (GVM 3500 kg or less)	30,018	38,022	12.2
6	Heavy load vehicles (GVM>3500kg)	27,649	37064	11.9
7	Trailer	4,491	7,220	2.3
8	Agriculture tractor	4,271	5,836	1.9
9	Agriculture trailer	45	77	0.0
10	Construction equipment	1,030	1,378	0.4
11	Others	237	273	0.1
<b>Total</b>		<b>231,197</b>	<b>311,712</b>	<b>100.0</b>

*Source: Ministry of infrastructure development*

The assessment of vehicle categories shows that 15% are motor cycles and 12% heavy load vehicles. Trailers, Agriculture tractors, and Construction equipment are limited in quantities and quality. The usage of these vehicles is shown in Table 13 below.

**Table 13: Vehicle Usage**

S/N	Vehicle usage	Total	% total
1	Private or normal	163,247	70.6
2	Commercial	66,858	28.9
3	Taxi or cab	239	0.1
4	Emergency	31	0.0
5	Government	219	0.1
6	Diplomatic use	603	0.3
Total		231,197	100.0

*Source: Ministry of infrastructure development*

Private usage of vehicles is 71% followed by commercial activities that cover 29%. The commercial vehicles move people and freight within Dar es Salaam, within the country, and to the neighbouring countries of Kenya, Uganda, Rwanda, Burundi, Zambia, Malawi and Mozambique.

Public Road Transport is available and moves people, goods, letters, newspapers, farm produce to and from Dar es Salaam between regions, districts and villages (rural areas). The public road transport is faster and more flexible than rail transport. However, road travel is affordable, convenient and whether on a bus train in a long or short trip. This is due to general people's behaviour of conversing easily with other people – a culture that is not seen in European cities.

Up country buses vary in terms of services and price. Luxurious buses such as those of Scandinavia, Dar Express, royal Couch charge between TZS 17,000 to TZS 55,000 depending on the destination. The ordinary bus services is relatively cheaper and rates vary between TZS 6,000 to TZS 9,000. The first type of service is usually scheduled, reliable, not congested and does stop at limited points. The later will leave when the bus is full and stops along the way picking customers as it moves. Such buses are often crowded and take a longer time to arrive at the destination.

## ii) Road Safety

Road critics observe that road travel is subjected to higher risks of accidents with loss of lives and injuries. It is estimated that 8% of deaths in hospitals are road accident victims. ([www.climbmountainkilimanjaro.com](http://www.climbmountainkilimanjaro.com)).

**Table 14: Road Accidents (2000-2006)**

	2000	2001	2002	2003	2004	2006
Accidents	14,548	13,877	15,490	16,664	18,013	18,560
Deaths	1,737	1,866	1,994	2,155	na	2,884
Injuries	14,094	12,568	15,150	16,825	na	15,676

Source: Ministry of Infrastructure Development (2006), Chilingola (2005)

Table 14 portrays the road safety statistics that require serious efforts to address. The causes of such emanate from human behaviour, road infrastructure, poor conditions of vehicles, and laxity in enforcement of traffic rules among others.

**Table 15: Accidents in Dar es Salaam According to vehicle type, 2000-2002**

Year	No of vehicles	No of accidents	Persons killed	Persons injured
2000	9,440	5,099	284	3,664
2001	9,778	5,482	360	2,747
2002	12,227	7,384	465	4,161

Source: Dar es Salaam Regional Traffic Police (2003)

**Table 16: Accidents in Dar es Salaam involving students, 2000-2002**

	Deaths			Injured		
	2000	2001	2002	2000	2001	2002
Female	3	10	6	32	45	27
Male	3	15	12	50	47	54
Total	6	25	18	82	92	72

Source: Dar es Salaam Regional Traffic Police (2003)

Generally, the figures in the Tables above indicate an increase in the number of cars involved in accidents and number of accidents. Equally the number of deaths has been increasing. Private cars are leading, followed by the small buses called *Dala dala*.

## b. Rail transport

Tanzania Railway systems have a total track length of 3676Km out of which 2706Km are operated by Tanzania Railway Corporation (TRC) and 970Km by Tanzania Zambia Railway Authority (TAZARA). These two railway lines link 14 of the 21 regions in the mainland and neighbouring countries. The Tanzania Railway Corporation (TRC) has a design capacity of 5 million tonnes of freight per annum. The TRC network has a gauge of 1000mm and consists basically of two main lines. First is the central line that runs from Dar es Salaam to Tabora with two branches; one to Kigoma in the west along Lake Tanganyika. This link provides freight cargo transportation to the west of the country as well as the land-locked countries of Burundi, Rwanda and eastern part of Democratic Republic of Congo (DRC). The second branch runs from Tabora to Mwanza port on Lake Victoria, also providing transportation services to north and north-western part of the country including Uganda. The other line runs from Ruvu northward to Korogwe and then

branches to Tanga port on the Indian Ocean. Another branch goes north-west to Moshi and connects to Kenya railway system. Currently TRC is 100% owned by the government. However, arrangements are underway to privatize it.

**Figure 6: Tazara train on its journey to Zambia**



TAZARA is currently jointly owned by Tanzania and Zambia though the system is also up for privatization. TAZARA has a single track of 1860 km running from Dar es Salaam, Tanzania to Kapiri-Mposhi in Zambia. Of the 1860 km, 970 km are in Tanzania mainland. TAZARA has a gauge of 1067mm which conforms to other Central and Southern African railways. TAZARA links the port of Dar es Salaam with Zambia and handles freight cargo for the countries of Malawi, Zambia, Zimbabwe and Democratic Republic of Congo.

The performance of the two railway systems with respect to freight, passenger traffic and performance indicators thereof are shown in Table 17 through 20 respectively.

**Table 17: Railway Freight Performance**

Year	TRC FREIGHT (000 TONS)	TAZARA FREIGHT (000 TONS)	TOTAL RAILWAY FREIGHT (000 TONS)
1995	1,342	633	1,975
1996	1,244	633	1,907
1997	1,073	555	1,628
1998	955	632	1,587
1999	1,127	615	1,742
2000	1,165	634	1,799
2001	1,351	595	1,946
2002	1,446	552	1,998
2003	1,443	614	2,057
2004	1,333	610	1,943
2005	1,129	632	1,761

Source: Ministry of Infrastructure Development (2006)

**Table 18: Railway Passenger Traffic**

Year	TRC PASSENGERS TRAFFIC (000)	TAZARA PASSENGERS TRAFFIC(000)	TOTAL RAILWAY PASSENGERS (000)
2001	728	1,541	2,269
2002	685	1,069	1,754
2003	683	1,022	1,705
2004	628	929	1,557
2005	674	933	1,607

Source: Ministry of Infrastructure Development (2006)

**Table 19: Railway Freight Performance indicators (000 Ton km)**

Year	TRC (000 TON KM)	TAZARA (000 TON KM)	TOTAL (000 TON KM)
2001	1,380,219	806,542	2,186,761
2002	1,486,628	813,456	2,300,084
2003	1,468,179	869,219	2,334,398
2004	1,195,692	863,173	2,058,865
2005	992,645	937,799	1,930,444

Source: Ministry of Infrastructure Development (2006)

**Table 20: Railway Passenger Performance Indicators (000 Passenger Km)**

Year	TRC (000PAX KM)	TAZARA (000PAX KM)	TOTAL (000PAX KM)
2001	470,898	409,884	880,782
2002	444,720	296,831	741,551
2003	457,579	230,730	688,309
2004	447,724	242,333	690,057
2005	475,130	241,320	716,450

Sources: Ministry of Infrastructure Development (2006)

The Tables above indicate declines in terms of freight transport by railways as well as fluctuation of passenger transportation. Just like the road network, the railway transport is characterized by inefficiencies. The tracks and bridges are affected by floods during the rainy season causing delays of passengers and cargo. The wagons and locomotives are inadequate and very old. This also causes congestion of passengers and cargo which increases the real cost of transportation. The means of propulsion is also an old one, no electric trains which could provide speedy railway transport in Tanzania.

### c. Marine and other water transport

Marine services are divided into two - Indian Ocean and inland lake services. The Tanzania Harbours Authority (THA) operates the sea ports of Dar es Salaam, Tanga, and Mtwara and minor ports of Kilwa, Lindi, Bagamoyo, Pangani and Mafia on the Indian Ocean. Dar es Salaam is the biggest port with capacity of 11 berths of which 8 are for break bulk (6.4 million) and 3 for containers (120,000 TEUs). The port also has an oil jetty with capacity of handling tankers up to 40,000 dead weight tons (DWT). The port of Tanga has a rated capacity to handle 500,000 tons of general cargo per year and the total capacity of the port of Mtwara is 400,000 tons.

In Zanzibar, The Zanzibar Ports Cooperation (ZPC) operates the major ports of Malindi and Mkoani. Other minor ports include Chake Chake, Weshu and Wete in Pemba and Mkokotoni in Unguja.

**Figure 7: View of Dar es Salaam Port**



The portion of the Dar port that handles containers needs expansion and improvement of the rail network serving it to increase direct inter-modal use. The number of merchant ships registered in Tanzania is shown in Table 21 below along with freight handled by the port of Dar es Salaam. The use of the port for trans-shipment has increased from 15% of total tonnage in 2002 to 22% in 2004. When compared to neighbouring countries, the port of Mombasa in Kenya handles more container traffic than Dar es Salaam although the tonnage handled by both has increased markedly 2002 to 2004.

**Table 21: Comparison of Marine transport in Tanzania with Kenya and Mozambique**

	Tanzania		Kenya		Mozambique	
	Grt	Dwt	Grt	Dwt	Grt	Dwt
Total fleet	37	39	20	17	35	27
Oil tankers	8	14	5	8	0	0
Bulk carriers	0	0	0	0	0	0
General cargo	20	23	3	2	6	11
Container ships	0	0	0	0	0	0
Other types	9	2	13	7	30	17
Container traffic throughput (TEUs)	Dar es Salaam		Mombasa		Maputo	
2004	260,000		404,352		No data	
2003	204,000		330,748		No data	
2002	178,154		278,059		No data	

Source: UNCTAD (2006) *Review of Maritime Transport*. (Annex iii a & b)

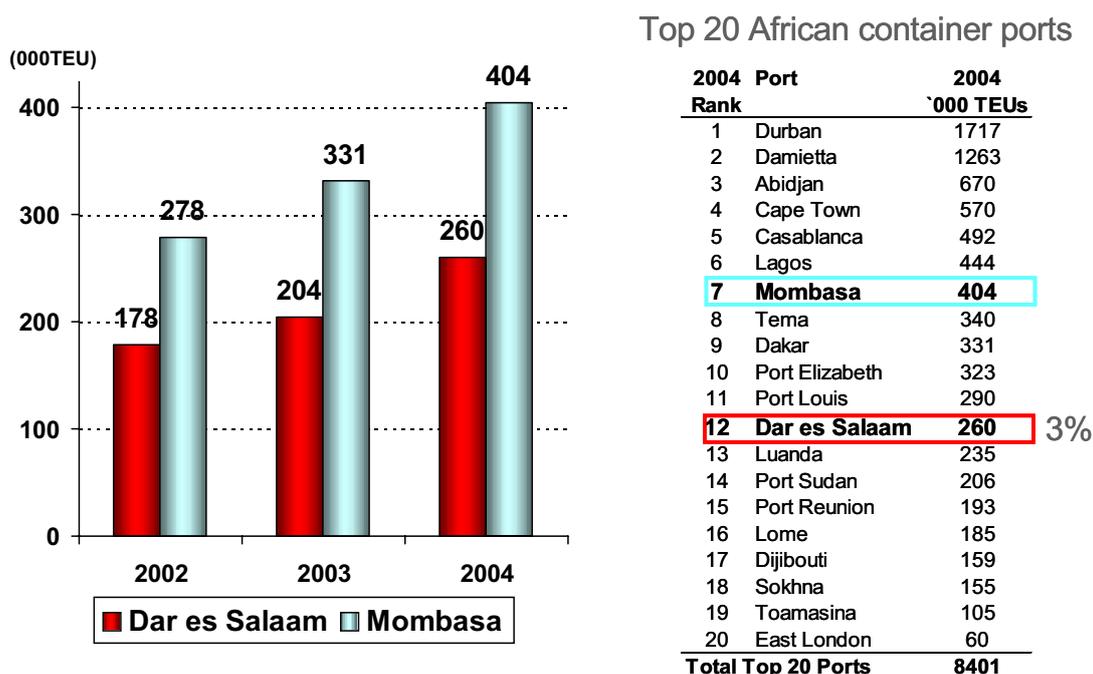
Notes: grt – gross registered tonnage ('000)

dwt - dead weight tonnage ('000)

TEU - twenty-foot equivalent units for a containerised cargo

There is also lake transport managed by the Marine Division of the Tanzania Railway Corporation (TRC). The major ports here are Mwanza, Bukoba and Musoma on Lake Victoria, Kigoma on Lake Tanganyika and Itungi on Lake Nyasa. There are freight cargo and passenger transport services on lake Victoria (linking Tanzania, Kenya, Uganda), Lake Tanganyika (linking Tanzania, Burundi, Democratic Republic of Congo and Zambia), and on Lake Nyasa (linking Tanzania, Malawi and Mozambique). Lakes Tanganyika, Victoria, and Nyasa are principal avenues of commerce between Tanzania and her neighbouring countries. There is also potential for navigation in Lake Rukwa.

**Figure 8: Comparison of Dar es Salaam port with other African container ports**



**Note: TEU as Twenty foot equivalent unit for containerised cargo**

Source: UNCTAD (2006) Review of Maritime Transport

#### d. Air Transport

Tanzania has 200 airports including aerodromes and airstrips serving domestic and international traffic. Out of the 200, there are three international airports namely Dar es Salaam, Kilimanjaro and Zanzibar. The major domestic airports include Mwanza, Mtwara, Dodoma and Tabora.

The national airline, Air Tanzania Corporation (ATC) is the major provider of domestic air travel linking all major towns in the country. ATC provide services to neighbouring countries and the Middle East. The private companies have also started providing scheduled service, and there are several charter services. The private companies that provide air travel include Precision Air, Coastal Aviation among others. There are other international airlines operating flights in and out of Tanzania with daily flights to Europe, India, the Middle East and Southern Africa. The capacities and physical conditions of existing selected airport infrastructure are shown in Table 22, while the main airport statistics are presented in Table 23.

Figure 9: Location of domestic and international airports



 Domestic and International Airports

**Table 22: Capacities and physical conditions of infrastructure in selected airports**

S/N	Name of the Airport	Runway dimensions	Surface type and condition	Pavement strength
1	Mwl J.K Nyerere International	3000mx46m	Bitumen(Excl)	PCN 60
2	Kilimanjaro International	3607mx45m	Bitumen(VG)	PCN 60
3	Zanzibar Airport	2462mx45m	Bitumen(P)	PCN 42
4	Mwanza	3300mx45m	Bitumen(VG)	PCN 60
5	Mtwara	2258mx30m	Bitumen(G)	PCN 32
6	Dodoma	2042mx30m	Bitumen(P)	PCN 15
7	Tanga	1268mx31m	Bitumen(P)	PCN 15
8	Moshi	1480mx30m	Bitumen(VP)	Not available
9	Kigoma	1767mx30m	Gravel(G)	PCN 15
10	Tabora	1786mx46m	Gravel(G)	PCN 32
11	Bukoba	1058mx28m	Gravel(G)	5700kg
12	Musoma	1600mx33m	Gravel(G)	PCN 15
13	Shinyanga	2000mx30m	Gravel(P)	5700KG
14	Mafia island	1600mx30m	Gravel(VP)	Not available
15	Lake Manyara	1220mx21m	Gravel(P)	5700kg
16	Singida	1070mx70m	Glass(P)	1800kg
17	Mbeya	1500mx30m	Glass(P)	16970kg

**Note: Pavement condition defined as:**

Excl: Excellent, VG: Very Good, G: Good, P: Poor, VP: Very Poor,

PCN: Pavement Classification Number

Source: TAA

**Table 23: Main Airport statistics**

AIRPORT	OPERATIONS	2001	2002	2003	2004	2005
DAR ES SALAAM	Aircraft movement	32,074	37,035	44,289	49,523	50,604
	Passengers	652,002	703,473	819,263	1,011,392	1,124,235
	Freight movement (Tons)	13,294	11,326	11,176	13,107	13,958
	Mail (Tons)	1,192	1,226	1,162	1,269	1,617
MWANZA	Aircraft movement	14,629	11,937	13,699	14,647	16,031
	Passengers	119,695	100,961	137,847	161,213	186,590
	Freight movement (Tons)	21,063	17,420	12,311	17,676	12,324
	Mail (Tons)	166	132	149	187	244
ARUSHA	Aircraft movement	14,766	14,569	14,159	13,509	15,588
	Passengers	81,453	95,176	99,487	86,700	83,405
	Freight movement (Tons)	0	194	275	323	139
	Mail (Tons)	0	17	2	2	1
MTWARA	Aircraft movement	906	936	1,082	1,093	1,014
	Passengers	23,163	20,921	21,391	27,992	28,937
	Freight movement (Tons)	177	123	86	136	172
	Mail (Tons)	58	57	60	76	73

Source: TAA

#### e. Dar es Salaam transport corridor and Regional trade

Dar es Salaam is one of the main gateways to the landlocked countries of Uganda, Rwanda, Burundi and Eastern parts of Democratic Republic of Congo (DRC). Goods

destined to these countries primarily transit through Kenya and Tanzania. This emphasizes the crucial role they play in facilitating trade within the region and to the outside world. The port reforms, including the successful restructuring of the Container Terminal through a concession, have led to more rapid through-put of goods in transit. Container dwell-time has been reduced tremendously. Initiatives to improve the transportation system further include the improvements to the existing infrastructure and associated linkages between different mobility types, and expansion of the road network that links highly productive agricultural regions that have the potential to serve as a regional bread-basket.

Prospects for greater trade are encouraging. The Tanzania Ports Authority (TPA) is promoting a \$44 million project to upgrade Dar es Salaam to take larger vessels and handle growing volumes of crude oil. The TPA was looking for joint venture partners to provide equity and possibly to manage and operate aspects of the project. The expansion will involve deepening and widening of the port entrance, dredging and strengthening of the berths, and the procurement of handling equipment. The improvements would cut turnaround time, lower freight charges, increase throughput capacity and ensure high safety standards.

It may be noted that the SADC region counts among its members the ports which are most open to local and international private operators, including Dar es Salaam, Maputo, Nacala, etc. These ports also benefit from a wide-ranging regional strategy with the development of a number of regional multi-modal transport corridors in which the private sector participates, including the Maputo Corridor, the Walvis Bay Corridor, the Tazara Development Corridor (Tanzania-Zambia) and the Nacala Development Corridor (Malawi-Mozambique).

#### **f. Pipeline transport**

Pipelines play an important role in mobility of crude oil, gas and water. There are two pipelines in Tanzania. The oldest pipeline is TAZAMA pipeline which covers a distance of 1,750km and transports crude oil from Dar es Salaam to Ndola in Zambia. The second pipeline is owned by SONGAS. It covers a distance of 232km. The pipeline is used to transport gas from Songosongo Island to Dar es Salaam.

#### **g. Fuel usage for the Mobility sector**

There are different types of fuel used in Tanzania including wood, electricity, oils, gas, coal, solar, wind and alcohol. The traditional fuels include wood and charcoal that complemented by saw dust and dry plant remains used mostly at homes. This type of fuel is used by more than 80% of the population in households. Wood fuel is no longer used to run locomotives since 1970s when diesel engines were introduced in Tanzania railway system. Further details on fuel usage can be found in Appendix B.

#### **h. Transport in Dar es Salaam**

In Dar es Salaam road is the major daily means of transport for movement of goods and services and people going to and coming from all kinds of economic activities. There are about four major roads connecting DSM suburbs to the city centre where most offices are located. This causes a problem of traffic congestion in the morning and evening. Literally, one spends 2 hours on the road from home to work and another 2 hours from workplace to

home. A recent survey conducted as part of this case study on the road between Kanduchi and the centre of Dar es Salaam, found that on average 40 productive hours are lost per person due to traffic congestion. Another problems lies on the way these road have been constructed. There is no provision for pedestrians and people biking this complicate the movement of these groups. The road system is also prone to flooding in the rainy season with resulting congestion or loss of routes.

### ***Community infrastructure upgrading program***

The “Demand Driven” Community Infrastructure Programme was established within a larger Project namely the Sustainable Dar es Salaam Project (SDP) and was initiated under the global Sustainable Cities Programme. Its major objective was building capacity of the City Council, in the planning and management of the growth and development of the city, using the new Environmental Planning and Management (EPM) approach.

### ***Problems of current public transport system***

Public transport in Dar es Salaam City is generally poor and unsafe, lacking professionalism, efficiency, quality and safety for the passengers. The main factors leading to the above situation include; rapid expansion of the City which has far outpaced the capacity to provide basic infrastructure (such as good roads) and services, poor state of majority of the buses, untrained bus drivers and conductors driven by the pursuit of daily revenue targets payable to the bus owners, non-adherence to traffic rules and regulations and lack of an organized public transport system.

Pubic transport services are dominated by small buses called *Dala dala*, of which there are about 9,000, with capacities ranging from 16 to 35 passengers. The service offered is poor due to overloading and overcrowded buses particularly during peak hours, reckless driving, route shortening, harassment of women and schoolchildren and polluting vehicles particularly during peak hours dominated by traffic jams on most major roads in the City.

**Table 24: Overview of urban Transport indicators**

<b>Residential Density: Dar es Salaam (2006)</b>	<b>2055 people per sq km</b>
<b>Personal trip rate:</b>	
Average daily trips per capita (2007)	4
Motorization rate	78 Autos 8.5 motor cycle
<b>Mode shares:</b>	
Share of motorized trips	Public transport 70.6% Private transport 29.4%
<b>Forms of available public transit service:</b>	
Rail based	TAZARA: DAR ES SALAAM_ TUNDUMA 970KM(41 stations Ordinal, 6 Stations Express)

*Source: City Council for surface area and Economic survey 2002 for population*

**Figure 10: Road conditions during rainy seasons**



**Figure 11: Driving lessons**

Driver's taking driving lessons is necessary: Both VETA and Transport institutes are available for the training.



**i. Alternative solutions**

The Dar es Salaam City Council has initiated an integrated transport program to improve public transit service in the city. Important elements of the program are the introduction of high capacity buses and modal integration. Effective implementation of the program

will bring lasting improvements for the urban majority. The integrated transport system will:

- Improve bus speeds and reduce bus operating costs by getting buses out of traffic congestion and ending conflicts with bicycles, pedestrians and private cars.
- Improve the quality of service by providing some modern buses and bus stops
- Reduce pedestrian and bicycle fatalities by ending the dangerous competition and providing improved facilities for non-motorized travel.

The introduction of high capacity buses is also expected to:

- Facilitate a smooth transition to a more efficient ‘trunk and feeder’ or ‘hub and spoke’ bus routing system.
- Increase private sector investment into the transit system.
- Change private bus operating contracts to include quality of service requirements.
- Facilitate integrated ticketing systems that allow for smoother transfer between different transits modes.
- Increase the capacity of the municipality to plan, manage, and regulate its transit system.

The need for a better mass transit system is supported by the recently approved National Transport Policy which puts emphasis on efficiency, effectiveness, competition, affordable services and environmental preservation. Its objectives so far as urban transport is concerned are clear and include:

- Improving the capacity and quality of the transport network in urban centres  
Establishing alternative transport network to make transport of the people and goods easier
- Establishing a transport system that aims at enhancing mobility and which is affordable to low income people
- Having the kind of urban transport that is sustainable and environmentally friendly.

The private bus owners confronted with high operating costs from their small vehicles; coupled with marginal profits, have created an avenue for easy acceptability of the project.

### ***Dar es Salaam Bus Rapid Transport project***

#### **i) Project Description**

The BRT System for Dar es Salaam is envisioned as a high-quality, low-cost public transportation system operating on specialized infrastructure with adequate incentives to offer affordable mobility, sustainable urban environment and better quality of life to urban population, especially the poor. The system will comprise elements for long-term assessment and specific technical, institutional and financial designs for implementation of a BRT corridor in the short term.

#### **ii) Characteristics of the Project**

The vision of Dar es Salaam City Council for the Dar es Salaam BRT Project is: “to have a modern public transport system at reasonable cost to the users and yet profitable to the operators using quality high capacity buses which meet international service standards, environmentally friendly, operating on exclusive lanes, at less travelling time”.

The Project Document also states that the Mission for the BRT Project is:

“To provide quality, accessible and affordable mass transport system for the residents of Dar es Salaam which will subsequently enable poverty reduction, improve standard of living, lead to sustainable economic growth and act as a pioneer of private and public investment partnership in the transport sector in the City”.

The BRT system is expected to include a 100-120 Km network of bus ways, with 200-220 route-Km of feeder roads. Infrastructure will be composed of:

- Segregated and priority bus lanes
- Boarding stations every 500-1000 meters with level access to the buses,
- Terminals at the end of the bus lanes and at major intersections between bus lanes,
- Pedestrian overpasses for safe access to stations where required, bikeways, Pedestrian and local access facilities and intersections among major roads.
- Around 1,200-1,400 high capacity, low emission trunk buses, combined with 600-800 feeder buses will provide service for around 2.0-2.2 million passengers per day (up to 15,000-17,000 persons per hour in the heaviest loaded sections).
- Centralized fare collection and operations control systems will provide support to ensure adequate handling of the revenues and compliance with high quality service levels.

## 6. INFORMATION AND TELECOMMUNICATIONS SERVICES

Many Governments in the world consider information and communication services as a great benefit to society, fundamentally influencing the quality of goods and services as well as the quality of life. For many this process has made the world feel like a small village. The ability to make efficient use of information technologies is key to economic success, and thus the prosperity of society as a whole.

With the dramatic expansion of various forms of electronic exchange, including electronic mail and the internet, opportunities for communication across national boundaries, and cross-fertilization of ideas are greater than ever before. Thus, access to electronic information can have a positive impact in promoting democracy, by providing civil society with greater leverage vis-à-vis the state and political elites. However, without parallel efforts to ensure that access to the internet is not restricted to urban, elite populations, political instability may result.

Tanzania has taken some steps in utilizing opportunities offered by ICT for its development (Malyamkono and Mason 2006). For example, the country created the Tanzania Communication Commission (TCCL) 1993; it developed the National Telecommunications Policy (NTP) in 1997 as well as the ICT Policy in 2003. In an attempt to improve efficiency, TTCL was partly privatized in 2001 with the sale of 35% shares (of USD750) to an international consortium. The consortium of Mobile Systems international (MSI) of Holland and Detecom of Germany. The company operates mobile service under Celtel. Nevertheless the level of Information Technology (ICT) in Tanzania is still low and very little of this is deployed in various areas of the economy (URT, 2005).

The 2004 statistical position was as follows:

<b>Digitisation of network</b>	<b>99%</b>
Digitisation of long distance network	97%
Installed fibre optic cable	199.2km
Exchange capabilities	248,132 lines
Fixed access lines in service	121,777
Data lines in service:	
Digital	77
Analogue	648

Transmission systems include ground earth stations, Atlantic and Indian Ocean Regions Standard A, link Africa standard B, Vsat, radio links and mini links.

The Tanzanian telecommunications is challenged by: fire and explosion, lightning, storm and floods, earth quake, vandalism and theft, riots, and malicious damage.

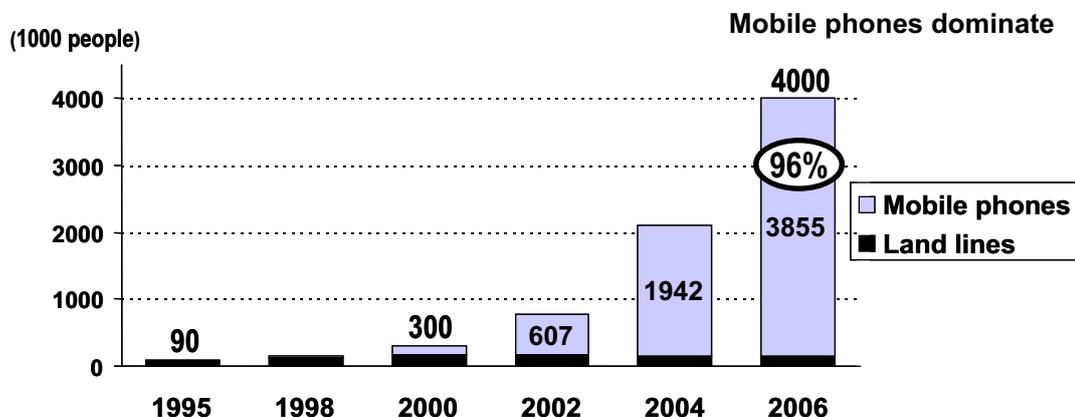
### a. Trends in Telephone Usage

Trends in telephone usage (Table 25) in Tanzania indicate that, usage of land lines as compared to mobile phones has been declining percentage-wise. In 1995, 98% of telephone usage was through land lines and by year 2000 the percentage had dropped to 58% while in year 2006 it was a mere 4%. The reverse applies to mobile phones where their usage was 2% in year 1995, 42% in year 2000 and 96% in year 2006.

**Table 25: Trend in Telephone Subscribers**

Year	Land Lines	Percentage	Mobile Phones	Percentage	Total
1995	88,000	98	2,198	2	90,198
1996	101,000	97	3,200	3	104,200
1997	114,600	85	20,045	15	134,645
1998	121,769	77	36,143	23	157,912
1999	150,220	75	50,100	25	200,320
2000	173,591	58	126,646	42	300,237
2001	177,802	39	275,560	61	453,362
2002	161,590	21	606,859	79	768,449
2003	147,006	10	1,295,000	90	1,442,006
2004	148,360	7	1,942,000	93	2,090,360
2005	154,360	4	3,389,787	96	3,544,147
2006	145,000	4	3,855,190	96	4,000,190

Source: Ministry of Infrastructure Development (2006)



The above trend is explained by prevailing competitive situation between TTCL and mobile phone service providers as shown in Table 26 below. This is in addition to TTCL's limited network capacity as indicated in Table 27 below. In this table, usage of mobile phones has been increasing for each of the service providers. In total, however, by year 2006, VODACOM had slightly over 50% market share. Mobile phones have a variety of uses including money transfer and especially making appointments for meetings and business transactions. Businessmen in Tanzania can exchange business information with their counterparts elsewhere in the world.

**Table 26: Telephone Phone Users by Service Provider**

Year	TIGO*	VODACOM	ZANTEL	CELTEL	TTCL	Total
2001	89,056	180,000	6,501	-	177,802	453,362
2002	160,000	300,000	26,770	120,089	161,590	768,449
2003	210,000	700,000	68,000	320,000	147,006	1,445,006
2004	303,000	1,050,000	85,000	504,000	148,360	2,090,360
2005	422,500	1,562,435	96,109	882,693	154,420	3,118,157
2006	590,000	2,082,500	230,000	952,690	145,000	4,000,190

\* The then Mobitel

Source: Ministry of Infrastructure Development (2006).

**Table 27: TTCL (Network Capacity)**

Description	Time		
	Dec 2004	Dec 2005	Dec 2006
Network Exchange Capacity	269,429	297,890	302,610
% Digitalization	96%	98%	100%
Telephone connections	148,360	159,637	168,281
PPA(Pre-paid Accounts)	60,163	78,191	85,288
PCC (Prepaid Calling Cards)	4,307	6,532	9,263
PosPA (post Paid Accounts)	83,890	74,914	73,730

Source: Ministry of Infrastructure Development (2006)

Tanzania split telecommunications and post services and created a regulatory body in 1993 through the Tanzania Communications Act of 1993. The National Telecommunications Policy was released in 1998. There are two licensed fixed line operators although one (ZANTEL) is only licensed to operate in Zanzibar. The main operator (TTCL) was recently privatized through the sale of a 35% stake to a German/Dutch consortium. Six companies have been licensed to provide data services only, the ISP and cellular market have been opened to competition and internet cafes are proliferating. A comparison of the number of phone connections between Tanzania and several neighbouring countries (Rwanda, Mozambique and Kenya) is shown in Table 28.

**Table 28: Number of Telephone Subscribers (2004)**

Item	Tanzania	Rwanda	Mozambique	Kenya
No. subscribers ('000)	2,090	162	778	2,845
Per 100 inhabitants	5.55	1.91	4.10	8.78

Source: World Telecommunication/ICT development report, 2006

The recent growth in the African telecom market has not only benefited local economies; but has also generated significant amounts of revenue for mobile giants. Going after the African market is not a money losing proposition for firms. According to the July 1<sup>st</sup> 2005 issue of the Economist, MTN, a South African mobile phone operator with networks in Nigeria, Cameroon, Uganda, Rwanda and Swaziland had an operating margin of around 50% outside South Africa. Telephone subscribers in Africa have also significantly increased in the past few years.

While Africa has experienced tremendous growth in the mobile services market there is still a room for growth with only 50% of Sub-Saharan Africa covered by a mobile signal. However, future expansion is constrained by infrastructure developments in terms of expansion of network to rural areas and high costs of handsets.

Mobile phones have minimized the cost of mobility in that people can access some important information while in their offices, homes or wherever. For example one can ask for information on his/her monthly salary, one can get information on the exchange rates etc. Also people in different parts of the country can get information on market situation hence can plan when to take their products to market centres.

The Tanzanian telecommunications' technology has changed from Analog to GSM by TTCL Private Companies in Mobile phone services have adopted technology over time. They are all moving from old technology to digitised systems. The levels of technology vary from Company do Company. Vodacom introduced 3 G HSDPA (third generation High speed Down link Packet access) and GPRS network provides the most recent mobile connection to the internet – 1.8mbps.

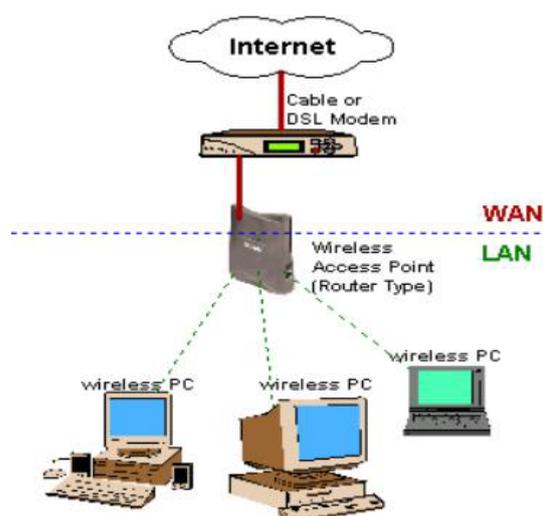
## b. The Internet and E-mails

The internet has changed the ways of communicating and the face-to-face discussion is no longer the only fashion (Davenport and Prusak, 1998). The internet now offers the possibilities of networking meetings and to utilize foreign advanced technology (Lu, 1998). It has thus opened a new field of international cooperation. In line with other parts of the world the growth of internet subscribers in Africa has increased from 2 million in 1998, and 28 million in 2002 to 82 million in 2004. Table 29 below shows number of internet subscriptions for three countries (Tanzania, Rwanda and Mozambique) in year 2000.

**Table 29: Number of Internet Users and Internet Hosts (2004)**

	Tanzania	Rwanda	Mozambique	Kenya
Number of Internet Users	333,000	38,000	138,000	1,500,000
Users per 100 inhabitants	0.88	0.45	0.73	4.63
Cost for 20 hours Internet use (USD)	\$117.00	\$55.34	\$50.00	\$68.34
Number Internet Hosts	5,908	1,744	7,167	10,016

Source: World Telecommunication/ICT development report, 2006



E-mail has facilitated communication among people. Instead of used days to get a response through postage, the e-mail response can be spontaneous thereby facilitating business transactions as similar.

Tanzania has one of the smallest number of internet hosts per capita in Africa. If we compare Tables 29 and 30, we note that out of 425,000 internet hosts in Africa, Tanzania has about 5,908 which is only 1.4%. On a global basis Africa still has a long way to go in the IT world. ICT technology has extended into several sectors of the economy. In the banking industry e-banking and cash withdrawal are becoming

prominent in Tanzania. Credit cards, cash and travellers checks are accepted petrol stations, hotels and some restaurants.

**Table 30: Regional distribution of internet host density in the world (2004)**

Region	No. of Internet hosts (millions)	Percentage of Total	Population (millions)	Host per 10k inhabitant
Americas	205.5	76.8	875.4	2,362
Europe	29.0	10.8	801.3	363
Africa	0.4	0.16	861.9	5
Asia	28.0	10.5	3,792.1	75
Oceania	4.6	1.7	32.5	1,427
<b>Total</b>	<b>267.5</b>	<b>100.0</b>	<b>6,363.1</b>	<b>422</b>

Source: World Telecommunication/ICT development report, 2006

Like many African countries and indeed in most developing countries, the number of registered internet service providers and websites in Tanzania is low. This number has to increase if the countries have to tap the many opportunities offered by the ICT (The Economic Intelligence Unit, 2001).

**Table 31: Number of registered Internet Service Providers and Websites in Tanzania (2000-2005)**

Year	Internet Service Providers	Websites
2000	11	56
2001	17	70
2002	20	90
2003	22	98
2004	23	113
2005	23	309

Source: Tanzania Communications Regulatory Authority

In 2005, a total of 23 companies were providing internet services, the same number as it was in 2004. Again, in 2005, the cost of internet services continued to be high due to inadequate infrastructure and other basic services required facilitating the provision of communication services, such as reliable electricity and adequate capacity of existing ICT national back bone infrastructure. In order to rectify the situation, TCRA introduced a new licensing system in February 2005 in order to attract more investment in the ICT sector; Furthermore, TCRA encouraged data and internet service providers to use the Internet Exchange Point (IXP) facilities located in Dar es Salaam. The use of IXP will reduce users' cost in local communication. In addition, IXP reduces the chances of leakages of confidential administrative and business information. Table 32 below provides comparative figure for selected African countries.

**Table 32: A comparison of seven African Countries in Internet related users (2004)**

Country	Internet Subscribers	International Bandwidth Mbps	Internet Hosts (Number)	No. PCs ('000)	Population (Millions 2000)	GDP/Capita (USD 2003)
Burkina Faso	14,200	64	436	29	13.4	345
Cameroon	7,000	9	461	160	16.3	670
Ghana	No data	12	373	112	21.4	358
Kenya	60,000	34	10,016	441	32.4	474
South Africa	1,000,000	881	350,501	3,740	45.2	2,293
Tanzania	50,000	16	5,908	278	37.8	282
Uganda	8,000	60	2,678	121	26.7	251

Source: World Telecommunication/ICT development report, 2006

### c. Radio and Television Stations

Despite the growing popularity of the internet, radio and television still represent the mode through which the majority of people in Tanzania receive information about national and international events. Radio is by far the most prominent source of information in the country, even when compared to television or newspapers because its versatility allows its use in various types of communications ([www.vault.com/finance](http://www.vault.com/finance)).

The new broad casting licensing system in the country was issued by TCRA in February 2005. The system took into consideration the importance of speeding-up delivery of communication services in the country by encouraging the establishment of community broadcasting stations to bring radio and television services to the villages and enable the majority of people to have access to a variety of news.

By the end of 2005, there were 33 radio stations in the country of which 14 were in Dar es Salaam. Likewise, there were 15 television stations and 17 cable televisions (URT, 2006).

Due to the mushrooming of broadcasting stations, the problem of scarcity of frequencies has arisen in some of the major cities of Dar es Salaam, Mwanza and Arusha. In order to address the problem, TCRA advised the government to allow the Medium Wave and Ultra-High Frequency (UHF) that were earlier prohibited to be used by private radio stations. Licensed Radio and Television stations are shown in Table 33.

**Table 33: Number of Television and Radio stations in Tanzania (2005)**

Year	Radio	Television
1995	5	4
1996	8	4
1997	8	4
1998	9	6
1999	12	9
2000	16	13
2001	22	13
2002	27	15
2003	29	15
2004	33	15
2005	33	15

#### d. Postal Services

Postal services vary from postage of letters, sending and receiving parcels, EMS letters and parcels, banking facilities, money faxes. With the advent of e-mail services and mobile phones, postal services have significantly declined in relative terms (see Table 34 below). It is, however, still a needed service since, bulk material may not easily be sent through an e-mail or otherwise and some material may not be soft copy ([www.earthtrends.wri.org](http://www.earthtrends.wri.org), USDOC, 2002). For this reason, the number of sub post offices and departmental post offices has gone down over years.

**Table 34: Postal Service Statistics**

Item	1998	1999	2000	2001	2003	2004	2005
No. Sub Post Offices	251	214	198	190	149	139	136
No. departmental Post Offices	141	145	152	151	154	91	92
<b>Total Post Offices</b>	<b>392</b>	<b>359</b>	<b>350</b>	<b>341</b>	<b>303</b>	<b>230</b>	<b>228</b>
Licenses issued for stamp selling	1,549	13,099	25,950	10,767	11,100	10,113	10,099
Franchised offices	80	71	81	83	85	91	92
<b>EMS letters and parcels:</b>							
Inland	NA	154,350	12,5523	260,486	309,736	247,268	297,061
Foreign	NA	16,688	9,795	19,675	29,409	30,693	37,331
EMS Money Fax	NA	54,248	156,701	188,790	216,710	25,9449	300,357
EMS Fax (Sent)	NA	2553	8745	4,440	16,112	NA	NA

Source: Tanzania Press, Media, TV, Radio, Newspapers Ads by Google:

[www.vault.com/finance](http://www.vault.com/finance); [www.iqpc.com/uk/sustproc](http://www.iqpc.com/uk/sustproc); [www.travel.nytimes.com](http://www.travel.nytimes.com)

#### e. The future for Internet and Telecommunications Technology (ICT)

ICT generally facilitates the acquisition and absorption of knowledge, offering developing countries opportunities to enhance educational systems, improving policy formulation and

execution, and widening the range of opportunities for business and the poor. One of the great hardships endured by the poor, and by many people who live in the poorest countries, is their sense of isolation. The new communications technologies promise to reduce that sense of isolation, and to open access to knowledge in ways unimaginable not long ago. The high expectations are based on the fast pace of technological developments in telecommunications and computing, and the decreasing cost of telecommunication services. There is a close correlation between socioeconomic growth and telecommunication services. An increase in telephone density could be the result of, as well as the cause of, economic growth.

ICT is a tool for enabling fast communications. Increased technological advancement has reduced the world to a small village. People now make decisions based on available information obtained from all over the globe. Any undertaking, including a transport undertaking, is enabled more efficiently and effectively using ICT.

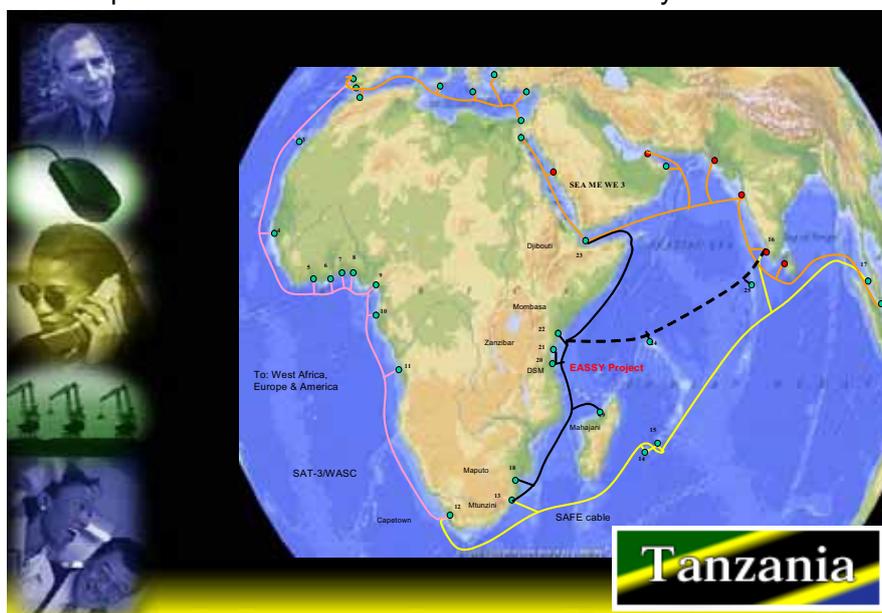
ICT can be used to increase the efficiency of mobility by providing:

- (a) Information flow on transport/logistics issues and opportunities;
- (b) Access to market information to facilitate the best price;
- (c) Monitoring the movement of goods;
- (d) Payment of services;
- (e) Monitoring and evaluation of transport services;
- (f) Office automation; and
- (g) Research and development

ICT is expected to enable flow of information, communication and dissemination of information that are crucial aspects in development of any society. Currently however, ICT in Tanzania faces the challenge of inadequate reach and access, relatively high costs, and low levels of familiarity and hence credibility. As a result the combination of telecommunication services and the internet with the existing electronic mass media (radio and television) is an imperative to arrive at optimal communications for development efforts. The concept of media richness demonstrates that, with respect to content of the message, a combination of all electronic media has distinct advantages over the isolated use of individual electronic media.

The future of ICT rests on current developments in the installation of submarine cable in Africa.

Figure 12: The planned EASSY submarine cable connectivity



## **7. 7. URBAN LAND MANAGEMENT**

Efficient urban land management is one of the prime pre-conditions for social and economic development. This is essentially because it enables the guidance and control of the orderly growth of towns and cities and their efficient functioning – the efficient provision of housing, urban services and facilities, etc. However, in Tanzania like elsewhere in the sub-Saharan Africa, the land management systems have fallen short of expectations largely because the urbanization process has not been an outcome of or supported by economic growth.

One of the outcomes of the phenomenal growth of towns and cities in Tanzania is the high demand for land and housing services that the booming population exerts on the already overstretched public capacities. Land use plans have been incapable of providing adequate land at the right time and at the right place and generally failed to ensure coherent urban land development. Subsequently, most of the urban residents in the country as elsewhere in sub-Saharan African cities are increasingly being accommodated in informal settlements that are often inadequately serviced and overcrowded. For example 75% of the urban population in Dar es Salaam lives in informal settlements. The corresponding figures for Addis Ababa are 85%, and over 50% in Lusaka, Ouagadougou and Freetown.

The current land management practices have been, by and large, inherited from the colonial systems and the independent government has not succeeded much to alter the situation. Indeed, the phenomenal urbanization in the country has had detrimental effects on the management and development of urban land, mainly because public institutions and instruments, that have the mandate to manage urban land planning, have had insufficient capacities to cope with the demand for land resulting from the booming population.

Some of the salient outcomes for the poor public performance in urban land management have been:

- ❑ Increased proliferation of and densification in informal settlements
- ❑ Chronic shortage of planned plots for housing
- ❑ Health hazards
- ❑ Increased environmental degradation
- ❑ Slow development of plots after allocation and under-utilization of prime sites.

### **a. Orientation of urban land use plans and prospects for implementation**

The growth of Dar es Salaam city has not followed any coordinated, long-term strategic plan. As a consequence, the city experiences a shortage of housing, inadequate urban infrastructure and services and a deteriorating environment.

Past planning efforts, such as the 1979 Master Plan, have not been successful in systematically addressing these problems, either because the plans were too sectoral or too ambitious. Lack of resources, insufficient investment in infrastructure, and the City Council's inability to effectively plan, coordinate and manage the city's operation and growth contributed to these problems.

In response to the challenges and constraints faced by the city, the Sustainable Dar es Salaam (SDS) project was launched in 1992. The project was the first demonstration city projects of the Sustainable Cities Programme (SCP), developed by UNCHS (Habitat) and the United Nations Environment Programme. Key to the project was the application of the

Environmental Planning and Management (EPM) process, aimed to guide municipalities in planning and managing urban development and growth, with emphasis on environmental sustainability and public and private partnerships. By 1994, the success of the broad participatory approach to urban management was evident, and soon other towns in the United Republic of Tanzania were interested in learning from the Dar es Salaam experience.

Since primary responsibility for sustainable development in the urban centres rested with the local authorities, a central focus of the government programme was to strengthen local government capacity to improve urban living conditions. Initially, due to limited resources, only the main cities, with high urbanization rates and accelerated environmental degradation resulting from this rapid growth, were selected for the national programme. Eventually, other urban centres, based on their importance as regional townships or on the urgency of developing their emerging urban areas, would also be included.

In 1998, the Tanzanian Government decided to officially change the urban planning system from the conventional "master" planning approach to the EPM process. In future, all the urban centres in the country will be required to apply the new process in managing growth and development. While the Government manages the programme, the municipalities are responsible for selecting staff and creating budgets for implementing the EPM process in their districts, as well as enabling other stakeholders to participate in the process. A major sponsor of the SCP, the United Nations Development Programme (UNDP) helps mobilize international funding and technical expertise. UNCHS (Habitat) provides technical assistance to improve management capacity and set up an efficient monitoring system to measure progress.

The Sustainable Cities Programme in Tanzania faces a number of challenges, most notably:

- **Lack of funding.** Due to inadequate revenues, the EPM programme is accorded low priority compared to other activities. Municipalities remain dependent on external support, which diminishes sustainability.
- **Inadequate support.** There has been inadequate support to the stakeholder working groups which are the engines of the entire EPM process. Without adequate support, action plans cannot be developed, with the result that funding available for demonstration projects is not released.
- **Increased demand.** More and more urban centres want to participate in the EPM process. The increasing demand exceeds the capacity of the supporting authorities, and the urban areas cannot receive adequate technical assistance in preparing their urban development plans.

Despite the various problems that the EPM process has been facing, it has been implemented with success in some other areas. The best example is the Participatory Community Infrastructure Upgrading of Hanna Nassif area in Dar es Salaam. The implementation of the project was through partnership between local institutions (community, non-governmental organisations, local government, and research institutions) and international organisations. The success of this approach therefore was based on the recognition of the varying roles and capabilities of the collaborating partners and appreciates the need for building synergies and alignment through these linkages.

The resulting successes and impact thereof for implementing this programme using the EPM policy framework can be summarized as:

- ❑ The 68 private contractors engaged to collect and dispose of waste have been able to create more than 3000 employment opportunities, mostly for the youth and women who were originally unemployed.
- ❑ A number of NGOs, CBOs and other community groups in all neighborhoods in Dar es Salaam have forged links with contractors and external processors of recovered materials from waste to upgrade their incomes.
- ❑ The neighborhoods, the roads and open space systems have been maintained to a higher degree of environmental cleanliness, where more than 45% of waste is collected and disposed (URT, 2001).

The Government of Tanzania has embarked on a process of replicating the approach in other Municipalities in the country. Already over nine Municipal officials, councillors and Mtaa/Ward leaders have visited and learnt from Hanna Nassif. Equally important is the formation of numerous CBOs dealing with environmental issues in other informal settlements in Dar es Salaam and in the upcountry municipalities. The government has also adopted a participatory community-based settlement upgrading approach in its National Human Settlements Development Policy.

## **8. URBAN TRANSPORT POLICIES**

Tanzania has policies and directives that govern the transport sector. The policies that govern mobility are spread in different ministries. Ministries of: Infrastructure Development; Works; Home Affairs; Finance; Regional administration; Vice President; Planning and Commission and Trading and Industry and Marketing. Furthermore, other areas of mobility such as maritime and air travel are also guided by international regulatory conventions, treaties and codes of conduct ensuring national rules and regulations conform with international standards and practices.

The urban transport policy stems from the need to ensure mechanisms exist to ensure effectiveness, coordination and communication between users, operators, regulators and government on all issues and future developments.

Since mid 1980s the government of Tanzania pulled out of business operations to take up the role of policy formulation, setting of strategic development, targets and regulations and monitoring and evaluation. Therefore, within the mobility arena the government is concerned with protecting long-term national interests, protection of infrastructure, safety, environment, standard performance and consumer protection against malpractices. All these tasks are geared towards ensuring that there is equitable development in the country, integrated mobility infrastructure and operations that are sustainable in terms of finance, social and environment.

The Urban Transport Policy directions addresses issues related to road infrastructure, road services, traffic flow and management, and land use planning. Other issues include transport for disadvantaged group, public vehicle design standards, institutional arrangements and the environmental impacts.

### **a. Road infrastructure**

The road is the most dominant mode of transport in urban areas. It interconnects production with consumption and markets centres. However, most roads are struggling to cope with the rapid increase in traffic volumes due to insufficient road capacities thereby causing very high road traffic density especially in the Central Business District (CBD) areas.

Traffic volumes are concentrated in some areas in the country as presented in Figure 13.

Furthermore, the inadequate physical planning and poor implementation of master plans coupled with lack of enforcement of urban by-laws also affect mobility, safety and accessibility in most parts of the urban areas, especially in densely used areas such as the CBD (Figure 14) and unplanned urban settlements

Figure 13: Traffic volumes on main road routes in Tanzania



Figure 14: Motor, non-motor and pedestrians use the same road in Dar es Salaam



In order to meet the expectations of the demand side in relation to the urban road infrastructure the policy direction calls for:

- Improvement in the capacity and quality of urban road infrastructure to accommodate the growing volume of road traffic
- The design of residential areas to be done in tandem with provision of adequate transport infrastructure.
- The enhancement of capacity building for future urban road traffic demand.
- Influencing land use planning and settlement patterns to achieve easy access to amenities.
- Private sector participation in road funding and decision-making forums.

### **b. Road Services**

The provision of transport services in urban centres is generally dominated by the private sector. In the city of Dar es Salaam for example there are about 9,000 small buses called *dala dalas*. The *dala-dala* operators control 90% of the market share. However, most of the *dala-dalas* have carrying capacities (16-35 people) below the standard buses and they tend to overfill the buses at the expense of passengers' comfort and safety. Services in most urban areas are concentrated in major arterial roads, which have better road conditions and higher passenger volumes. This has an adverse effect of reducing vehicle travel speeds due to traffic congestion.

**Figure 15: Challenges and issues – congestion**



In order to meet the transport service demand in urban areas in terms of customer safety, comfort and adequacy, the National Transportation Policy (NTP) has the following policy direction:

- Increase private sector participation in the provision of transport and alternative transport services

- Develop and operate modes of transport in urban centres on the basis of economic savings in fuel use, higher operating efficiency, reduced traffic congestion, and higher standards of environmental protection and safety.

### **c. Traffic Flow Management**

In order to minimize traffic congestion in the major Central Business Districts such as that of Dar es Salaam, the NTP underlines the pursuance of the following policy direction:-

- i) Design and development of more ring roads wherever appropriate to cater for through traffic as an alternative to radial roads across the CBD.
- ii) Promotion of public transport as the most effective and efficient means of travel in urban areas.
- iii) Development of rail and water transport wherever possible to complement road transport.

### **d. Land Use Planning**

The NTP also addresses urban transport problems related to land use planning. Presently, land use planning is not done in such a way that it locates industries and social amenities in the residential areas. Most of these services are situated in the CBD. In view of the identified transport bottlenecks related to land use planning, the NTP provides the following policy directions:

- Facilities such as light industries, schools, business and shopping centres, markets and other services to be located within or close to residential neighbourhoods in order to reduce the number of trips in urban areas.
- The provision of necessary transport infrastructure to meet present and future needs should be based on city, municipal and town master plans.

### **e. Transport for Disadvantaged Group in Urban Areas**

The existing transport system and vehicles in urban centers does not adequately take account of the needs of vulnerable groups including students, people with disabilities and elders. In order to adequately facilitate the movement of disadvantaged population in urban areas, the following policy direction is being pursued:

- The government, parents and operators be responsible and contribute towards solving the transport problem for these groups.
- Emphasis on the need for the communities to recognize the existence of the special needs groups in the population. Modalities for providing adequate transport should be considered without jeopardizing the commercial aspects for service providers.

### **f. Public Vehicle Design Standards and Specification**

In order to have appropriate and acceptable vehicle design, the NTP provides the following policy direction:

- Technical specification of buses.
- The sub-standard buses currently in operation are gradually removed and replaced with the licensing of more appropriate buses.

- Future importation and licensing of passenger vehicles with emphasis on higher capacity buses.

### **g. Institutional Arrangements for Urban Transport Management**

Management of various aspects of urban transport is presently divided between the government and urban authorities. In order to have an effective institution set up for urban transport management, the following policy directions will be implemented:

- Mandating one Ministry to undertake co-ordination of diverse transport activities
- A review of the existing institutional set up to improve inter-agency coordination and co-operation.
- Streamlining institutional functions and responsibilities
- Improving the capacity of urban authorities to effectively plan, manage and regulate the provision of efficient urban transport infrastructure and services

### **h. Road Transport and Environment Policies**

Lack of adequate road maintenance leads to poor drainage system, road flooding and damage to infrastructure.

The pollution in urban areas arises from several sources, including vehicle exhaust emissions, leakage and spillage from vehicles, garages, and fuel storage facilities. Traffic congestion exacerbates this situation, with reduced fuel efficiency, increased fumes, noise and vibration effects. This is also compounded by the illegal adulteration of some fuels with paraffin that further increases pollution.

In order for the urban residents to be provided with road transport that is environmentally friendly and sustainable, the following policy directions are provided in the policy pursued:

- Minimise traffic-generated pollution
- Enhance road traffic safety and management
- Raise environmental awareness and strengthen local environmental institutions
- Enhance human resource development
- Design, construction and maintenance of urban road infrastructure.

### **i. Urban Transport Financing**

Financing of road maintenance, improvement and development has been through disbursements from general funds of the urban authorities, the Central Government and donor assistance. However, funding levels from these sources have been inadequate. In order to ensure that there is adequate urban infrastructure planning and financing, the following policy direction will be pursued:

- i) User charges are to be introduced to recover pavement damage and general road maintenance costs.
- ii) Urban authorities to identify and mobilize resources including those from the private sector local communities.

## **9. ENVIRONMENTAL FOOTPRINT OF THE MOBILITY SECTOR**

Emissions from the transport sector represent the fastest growing source of greenhouse gas emissions. There is little prospect that this situation will be resolved with a single technological fix. As developing nations quickly move to catch up with the motorisation levels of developed nations, the sheer number of private vehicles on the roadways will overwhelm any advances made by cleaner fuels. By the year 2030, there is projected to be more vehicles in the developing world than in developed nations. However, most developing cities today still have the basis for a more sustainable future. Public transport and non-motorised transport (walking and cycling) still command a dominant share of travel in developing cities.

Different modes of transport offer different levels of mobility and accessibility in different circumstances. In an urban setting road transport provides the highest level of accessibility.

### **a. Road Transport and Environment**

Motorized transportation in Tanzania plays an essential role in economic and social development. However, ever increasing motorization, urban growth and land consumption, congestion, air pollution, noise and occupation of public and civic spaces by cars are all symptoms of a crisis in the transport systems for the country's cities.

Further, road accidents are on the increase due to non-adherence and enforcement of rules and regulations. Disregard of proper infrastructure for Non-Motorised Transport (NMT) introduces a heavy penalty to the poorest section of town dwellers. Services are concentrated on the major arterial roads with little penetration in neighbourhoods and newly developed peri-urban areas. Environmental problems (noise, air and water pollution) are on the increase everywhere as a result of traffic congestion.

The growing energy needs that Tanzania faces in the transport sector, especially in urban transport, present major challenges in terms of energy security and the environmental externalities associated with conventional and GHG emissions, which are growing at a faster rate than is population. The problem of air pollution is particularly relevant to urban transport, considering the high concentrations of urban population, rapid rates of urbanization, and inefficient transport systems in the country. The large, dense concentrations of motorized emissions in relatively small areas mean that many, if not most, cities exceed any reasonable health standard for key air pollutants.

At present, because the Tanzania vehicle fleet is small and the population dispersed, the impacts of airborne lead and other pollutants are relatively low in an international context for the population as a whole. However, the problem is concentrated in the major cities such as Dar es Salaam where the ambient atmospheric lead and associated health problem are larger and growing.

Unleaded petrol is an environmental friendly gasoline that does not contain lead. BP was the first Petroleum Company to introduce unleaded petrol into Tanzania in June 2003. The Government of Tanzania, along with several other African countries, signed the Dakar Protocol in 2003 under United Nations Environmental Program (UNEP). By the end of 2005, the Ministry of Energy and Minerals and the Tanzania Bureau of Standards issued a circular informing all Oil Marketing Company that only unleaded petrol is to be imported into the country.

Table 35 shows a rough estimate of the amount of urban lead exposure from gasoline for Tanzania in relation to other selected countries. The lead exposure in Tanzania (and

Ethiopia) is lower than in neighbouring Kenya, Ghana and Senegal. However, even though the overall lead emissions per capita in Tanzania may be lower, for those people whose main activities take place adjacent to major roads, their exposure can be expected to be similar to that observed in other countries where gasoline has a similar lead content to that used in Tanzania.

**Table 35: Estimate of relative Lead Exposure in Selected Countries**

Country	Ethopia	Ghana	Kenya	Senegal	Tanzania
Market Share of Leaded Gasoline (%) 2002	100	100	100	100	100
Motor Gasoline Consumed (a) (million litres)	188	806	458	242	165
% of gasoline consumed in urban areas	70%	80%	70%	80%	70%
Maximum Lead Concentration in Gasoline (gms/liter)	0.6	0.6	0.4	0.8	0.4
Average Actual Lead Concentration in Gasoline (gms/liter) <sup>2</sup>	0.1	0.1	0.2	0.2	0.2
Actual Lead Gas Emissions (metric tons)	11	81	92	48	33
Total Urban Pop ('000) 1995	8,695	6,222	7,763	3,629	7,279
Exposure to Leaded Gasoline (tons per M urban 95 pop)	0.9	10.4	8.3	10.7	3.2

Source: Adapted from WRI 2002

**Notes:** Gasoline consumption for Tanzania and Ghana is in 2002; for other countries in 1995.

<sup>1.</sup> Market share and fuel consumption data are for 2002 except Kenya which is 1995 data.

<sup>2.</sup> Lead content for Ghana is average actual for 2001/2002 (Jan 01 – May 02); for Tanzania, Senegal & Kenya lead content is assumed.

Rural transport in Tanzania is predominantly non-motorised walking and head-loading. Low demand of transport is due to low levels of affordability. Other modes of transport including trains, and water are not yet developed.

### **b. Rail Transport and Environment**

Railway mode poses some competitive advantages over road mode as it can move large number of people per trip. Therefore, in order to provide environmentally sound railway transport in urban areas, there is need for policy directions to promote rail transport for mass movements of passengers in urban areas so as to reduce the rate of pollution and congestion.

### **c. Air Transport and Environment**

Air transport mode poses some risk associated with infrastructure development requiring heavy investment, operational cost and human capacity. The economic base to exploit air transportation of large quantities of goods and passengers is not fully developed in Tanzania. Such goods include agricultural and industrial products, and passengers including tourism. In order to realize these goals there is a need to provide efficient and environmentally sound air transport to remote areas.

#### **d. Maritime Transport and environment**

The economic base to exploit water transportation for large quantities of goods such as agricultural, industrial products, and passengers is not well developed.

In order to provide efficient and environmentally sound maritime transport there is need to promote the development of transport waterways including both infrastructure and human capacity. In particular there is an opportunity to promote waterborne transport for mass movements of passengers and goods in appropriate areas accessible to reduce the transport demand for other modes. For example people from Bunju, Tegeta, Bagamoyo, Kawe etc. could use fast boats on the Indian Ocean to travel and from the city.

#### **e. Pollution Caused by Transport equipment**

Vehicles are the major source of toxic airborne pollutants, accounting for more than 95% of the atmospheric lead. In Dar es Salaam the vehicular population has been growing at 10% annually (??) since 1995 and is now estimated to be over 110,000. Unfortunately, this increase in the number of motor vehicles has not been accompanied with the improvement and expansion of the roads in the city thus resulting into severe traffic congestion especially in the city centre and at major road junctions. Vehicles are a major source of pollution in Dar es Salaam as they emit pollutants from their exhaust fumes such as atmospheric lead, nitrogen oxides, sulphur dioxide, carbon monoxide, carbon dioxide and suspended particulate matter (SPM - mainly dust and smoke). In Dar es Salaam most of the vehicles are second hand imports and are "smoking" due to poor maintenance and illegal adulteration of some fuels with paraffin. Worse still the fuel used in the country is leaded, hence significantly contributing to increased lead pollutant.

#### **f. Dust from Unpaved Roads.**

Dar es Salaam city has a total of 2005 kilometres of roads of which only 421 are paved. Hence the majority (1574 km) of the city roads are unpaved hence contributing significantly to the amount of suspended particulate matter especially those with heavy traffic.

## 10. COMPLETED AND FUTURE MOBILITY PROJECTS IN TANZANIA

During the last ten years, the government in collaboration with the donor community and the private sector completed (or rehabilitated) a number of mobility related projects. Some of these are summarized in Table 36 below. The private sector was more involved in the service sector i.e. ICT facilities, hotels and tour operators, and in the provision of public transport (road and air). The role of the government has continued to be in the heavy investment areas of infrastructure development.

**Table 36: Recently completed infrastructure projects in Tanzania**

National Level	Dar es Salaam
<b>Completed:</b>	
Kibiti – Mtwara Road	Ali Hassan Mwinyi Road
Chalinze – Morogoro Road	Morogoro Road
Arusha – Makuyuni Road	Nyerere Road (Rehabilitated)
Dar es Salaam – Bagamoyo Road	Bibititi Road
Mkapa Bridge on Rufiji River	Sinza – Manzese Uzuri – Magomeni Road
Mwanza Urban Roads	Kawawa Road
Arusha Urban Roads	Dar es Salaam Container Terminal
Dodoma Urban Roads	Ubungo Bonded Warehouse (Container Section)
Mbeya Urban Roads	Dar es Salaam Fish Market at Mogogoni
Chalinze – Segera – Tanga/Namanga Road	Construction and rehabilitation of tourist Hotels
Mobile phone infrastructure along Trunk roads	Construction of schools, hospitals and Universities
Installation of ATMs	Mobile phone infrastructure
Construction of schools, hospitals and Universities	Installation of ATMs
Radio stations, television stations	The 20,000+ plot project
	Radio stations, television stations
<b>In progress:</b>	
Dodoma – Singida – Nzega – Shinyanga – Mwanza road	Sam Nujoma Road
Mbalizi Airport	Shekilango Road
Mwanza International Airport	Kilwa Road
Rehabilitation of rural roads	Ultra Modern National Stadium
Construction of schools, hospitals and Universities	Water Supply & Sewerage Infrastructure rehabilitation
Development of the Mtwara Corridor	Construction of schools and hospitals
<b>Future Plans:</b>	
Mbeya – Sumbawanga Road	Mandela Road
Bukoba – Kigoma – Sumbawanga Road	Nyerere International Airport Expansion
Arusha – Dodoma – Iringa Road	
Arusha – Mara Road	
Rural Electrification Project	
Power Supply from Tanga to Pemba Island	

The nature of the sector involves huge amounts of investments. That is why it is urged joint investment is encouraged. For example, the Central railway network that serves east and central Africa; Uganda, Zaire, Burundi, Exporters from Europe, America and Asia may collaborate to improve this facility.

## 11. FEEDBACK FROM THE STAKEHOLDER DIALOGUES

### a. Preamble

On April 3<sup>rd</sup> 2007, the World Business Council for Sustainable Development (WBCSD) held its first dialogue at the Kempinski Kilimanjaro Hotel in Dar es Salaam, Tanzania. The Dialogue brought together about seventy high level stakeholders and officials from within and outside the country (see Appendix C).

After the official opening that was performed by the Minister for Infrastructure Development, two key presentations were made namely a presentation about the WBCSD by Dr. Shona Grant (Director at WBCSD) and the draft report on Mobility for Sustainable Development: Dar es Salaam – Tanzania by Mr. Temba (Director of Policy and Planning in the Ministry of Infrastructure Development).

The participants were then divided into 9 groups; where three groups each discussed mobility challenges and opportunities in Dar es Salaam, Tanzania or Africa. In order to promote debate the following questions were given although participants were free to discuss issues outside these questions. This chapter is based on the outcomes of the group and plenary discussions.

1. How important is mobility to economic development in Dar es Salaam/Tanzania/Africa?
  - ✓ What is restricting its growth?
  - ✓ What can be done to revitalize it?
2. What strategic areas need attention to enable mobility?
3. What specific capabilities need to be strengthened?
4. What should be the role of each of the following in mobility?
  - i) Government
  - ii) Private sector
  - iii) Civil Society organizations
  - iv) International community

### b. Feedback from the DAR ES SALAAM discussion groups

#### *Importance of Mobility in Dar es Salaam*

Participants in all groups were of the opinion that mobility is a crucial enabler for social & economic activities and thus an important factor to economic development in Dar es Salaam. Mobility has the role of connecting people to places of work, market, hospitals, etc. It was noted that Dar es Salaam is a gateway to neighbouring landlocked countries of Burundi, Rwanda, DRC, Zambia, Malawi and to some extent Uganda. It also connects Tanzania to the rest of the world. Supplies to and from upcountry regions are also facilitated or hindered by the condition of mobility facilities in Dar es Salaam. The efficiency of the Dar es Salaam port, airport, railway and the road network will, apart from bringing in income to the country also contribute to the economic growth of these countries and upcountry regions.

### ***Hurdles to the Growth of Mobility Enhanced Development in Dar es Salaam***

Although mobility plays a significant role in the economic development of a society, for Dar es Salaam in particular, mobility problems are experienced for a number of reasons. One major reason relates to the fact that most of the key institutions/services are concentrated in one area i.e. the Central Business District (CBD). The state house and all ministries, major shopping centres, National and other major hospitals, tourist hotels etc are mainly located within the CBD. In addition, Dar es Salaam has narrow and few roads to support the level of traffic flow. Lack of maintenance and traffic management also restricts the efficiency of road networks in Dar es Salaam.

Other problems include the poor condition of various infrastructures and the lack of feeder roads; little or no enforcement of traffic related regulations; poor planning and Lack of user friendly facilities for disabled

### ***Actions to be Taken to Revitalize Mobility in Dar es Salaam***

A number of measures can be taken to revitalize the mobility problems experienced in Dar es Salaam. The key ones include decentralizing some activities by creating satellite centres such that some offices, shopping centres etc are moved from the CBD. The growth of the city has been faster than national plans which calls for faster and better planning of the city. Strengthen law enforcement machinery and the introduction of more efficient mass transport means such as bigges busses, fast trains, boats along the coast etc. In addition, it is necessary to expand some of the major roads in the city, improve feeder roads, implement good road management and maintenance practises and, improve access and efficiency of ICT infrastructure and services.

### ***Strategic Areas to Improve the State of Mobility in Dar es Salaam***

Given the importance of mobility for the city of Dar es Salaam, strategic areas to improve the state of mobility would thus include revising the city plan in order to relocate some key institutions/services outside CBD to ease congestion; explore alternative solutions including public/private partnership such as Build Operate Transfer (BOT) introducing boats along the cost and use of the rail to facilitate travel. Construction of new roads (radial & ring roads), proper and timely maintenance, redesigning the facilities for different users (motorists, pedestrians, disabled, cyclists, etc) are yet other strategies.

### ***Specific Capabilities to be Developed for Enhanced Mobility***

The above strategies will bear better fruits if specific capabilities are developed in the city. Some of these capabilities include a change of mindset on, for example, responsible driving, better maintenance of the facilities, corruption free law enforcement, proper planning of the city and institutional capacity building especially within the traffic police force, TANROADS, SUMATRA etc. There also needs to be improved co-ordination among stakeholders and clearer definitions of roles and responsibilities.

### ***Roles of Various Stakeholders in Mobility for Development in Dar es Salaam***

Several stakeholders have roles to play to improve the mobility situation in Dar es Salaam. Specifically, the government (central and local), the private sector, the international community and civil society organizations have significant roles to play.

**(i) The Role of the Government**

The government is responsible for providing policy guidelines, rules and regulations including their enforcement and to ensure good governance. It is also the main financier of mobility infrastructure development.

**(ii) The Role of the Private Sector**

It is important to recognize that the private sector is the engine of many economies. The sector can discharge this task in the mobility sector through participating in investments and R&D efforts. These investments could be in form of BOT, joint ventures or otherwise. The sector provides a number of mobility related services such as internet cafes, telephone services, virtual banking facilities etc. They are a vehicle for technology transfer and thus responsible for developing affordable products and services that facilitate mobility.

**(iii) The Role of the International Community**

The international community is also referred to as development partners or donor community. In this group are included various United Nations agencies, the World bank, IMF, embassies and development agencies of various countries and foundations. They support the realization of development projects such as airport and port modernization as well as supporting the construction of the road network. They also inject into Official Development Assistance (ODA) to the city and can help facilitate Foreign Direct Investment (FDI). Through the international community technology transfer is made possible. The donor community has also supported training at various levels

**(iv) The Role of Civil Society Organizations**

The main role of civil society organizations is that of being the watchdogs for all stakeholders. In this regard, they constitute the pressure groups fighting for standards and legal rights of the people. Several of these organizations are also involved with public awareness & education.

**c. Feedback from the TANZANIA discussion groups**

***Importance of Mobility to Tanzania***

Mobility plays a significant role in the lives of Tanzanians. It gives access to the entire country; it enhances growth of the Economy and can attract foreign investments. Good roads, railways, sea and airports can facilitate access to market and ease the distribution of key inputs such as fertilizers, packaging materials, seeds etc. Administration of the country and the provision of various goods and services can also be simplified with improved mobility related facilities. This includes access to virtual mobility services – radio, TV, Newspapers, Mobile phones and the internet).

Apart from that, improved mobility can be a source for increased revenue especially foreign exchange through increased foreign trade. Access to information about importers & exporters can be obtained. Such information can be used to promote business. Mobility facilitates e-commerce and e-business and access to social and business information. Mobility facilitates sharing of resources and simplifies communication of people on topical issues, e.g. “RVF” etc.

### ***Hurdles to the Growth of Mobility Infrastructure in Tanzania***

Tanzania faces a number of mobility hurdles. These include old technology (railway system especially – small gauge, non standard), poor maintenance of mobility infrastructure. Lack of resources (human and financial) is yet another hindrance. Others are lack of adequate investment, under-utilization of current capacities, and poor management of investment and inappropriate allocation of resources. Poor maintenance programs, corruption, poverty and uncontrolled investments are also among the major hindrances.

### ***Actions to be Taken to Improve Mobility in Tanzania***

The first critical action is to set the right priorities. It is also necessary to outsource expertise and create an environment for attracting more foreign investment. The linkages between mobility modes need to be improved, corrupt practices should be eliminated and bureaucratic procedures should be simplified. Yet other steps are promotion of Private – Public Partnership (PPP), improved utilization of existing capacities (management, equipment), timely capacity building, proper maintenance of infrastructure, focusing on transport corridors (ports, roads, rails), avoiding over-centralization and balancing of rural & urban areas developments.

### ***Strategic Areas Requiring Attention for Improved Mobility in Tanzania***

Tanzania needs strategies that can help improve the mobility situation in the country and thereby contribute to economic growth. The strategies range from proper packaging of investment programs to awareness campaigns on investment opportunities and viewing mobility as a total logistics package. Plans to establish another port in Bagamoyo and improved railway system (standard gauge, axle loads and speed) will go a long way towards improving mobility. The impact of transport on other sectors i.e. viewing transport as a “service” function and making existing transport/mobility policies known to everybody

### ***Specific Capabilities to be Tapped for Improved Mobility in Tanzania***

Tanzania has to improve its efforts of capacity building in all mobility related fields especially with regard to skills development, adoption of new technologies, and change of mindset within policy makers. It should put more emphasis on mobility to international communities & investors as well as increase societal awareness of its potential and the investment opportunities

### ***The Role of Various Stakeholders for Improving Mobility in Tanzania***

#### **(i) The Role of the Government**

At national level, the government has a role of creating a conducive environment for investment through good policies, legal and regulatory framework, environmental standards, commitment and accountability, etc. It has a capacity building and proper knowledge utilization, application, management roles. The government is the main provider of funds for realization of mobility facilities.

#### **(ii) The Role of the Private Sector**

The private sector is recognized as the engine of economic growth. The sector should work closely with the government in looking for investment opportunities. The sector constitutes the majority shareholders in the provision of virtual mobility services such as

internet and mobile phones. They have to ensure compliance to standards and that the services are affordable.

**(iii) The Role of Civil Society Organizations**

Civil society organization are responsible for providing education/sensitization programmes to society on various issues including access for funding and use of the mobility resources/ facilities. They are the watch dogs of society and environmental lobbyists. They need to be committed and responsible if their actions are to bear fruit.

**(iv) The Role of the International Community**

The international community has the role of providing development aid. In this regard, the community provides resources to fund investment in mobility as a major input to economic growth. The development partners are also expected to provide advisory services on mobility. As part of their role, they should ensure a level playing ground for trade and assist in funding investment in infrastructure to facilitate trade. The community can help Tanzania to improve its standards as well as working with Tanzania in its initiatives to secure Public-Private-Partnerships (PPPs) to develop infrastructure.

**d. Feedback from the AFRICA discussion groups**

***Importance of Mobility for Africa***

The importance of mobility for Africa as a developing region cannot be overemphasized. Mobility provides access to national, regional and international markets and the cost and efficiency of the services can make or break the competitiveness of goods to and from a region. For Tanzania as a facilitator of mobility for several landlocked countries, improved mobility is also a key enabler for economic development in the countries it services.

***Hurdles to the Growth of Mobility in Africa***

Most African countries are poorly served with respect to mobility. For example, there is no connection between East Africa and West Africa (e.g. to go from Dar es Salaam to Abidjan one has to pass through Nairobi, and to fly from East Africa to North Africa one has to pass through France). In Tanzania the gauge of the Tanzanian railway system differs from that in other countries. The poor road network connecting countries in Africa is also one of the major mobility hindrances. These factors result in time wastage and costly movements. The situation becomes worse during the rainy season. The situation is further worsened by restrictive regulations among countries. Indeed lack of mobility discourages trade thereby hindering economic growth in the continent. The security situation in some African countries also impacts on mobility growth.

Other factors include congestion of cargo destined to foreign countries at the Dar es Salaam port resulting in the loss of good hence loss of opportunity to trade. Bureaucratic hurdles relating to immigration and customs highly also affect mobility in Africa

***Actions to Help to Revitalize Mobility in Africa***

Africa is a developing continent that needs serious attention with respect to mobility as a facilitator of development. Most of its infrastructure needs overhauling. There is a need for integrated regional transport solutions that are compatible (e.g. road-railway-port systems and connected corridors), and to establish efficient direct links between countries.

To do this there is a need to create political will and to create a conducive environment for business to play a role. The stakeholders should co-operate to form a stronger common voice in international negotiations.

### ***Strategic Areas to Improve Mobility in Africa***

Strategic areas that need immediate attention include improving infrastructure, ensuring peace and harmony (political stability) in the region, promotion of entrepreneurship (through education and training), and reduction of bureaucratic procedures with respect to immigration and customs. Others priority areas are good governance and accountability. Where immigration hurdles have been addressed such information has to be disseminated to people so that mobility is increased for development.

### ***Specific Capabilities to be Developed to enable Mobility in Africa***

Specifically, Africa needs to improve its legal and institutional framework (e.g. recovery of lost cargo), networking between and within countries, enhancing regional cooperation (ECOWAS, EAC, SADC etc), improving transit holding facilities (e.g. warehouse/storage facilities) and synchronizing railway system with the rest of Africa.

### ***The Role of Various Stakeholders in Enhancing Mobility in Africa***

#### **(i) Role of Governments**

Governments in Africa need to create an enabling environment for the growth of mobility (e.g. policy, framework, peace and security, good governance, transparency, accountability, economic diplomacy and political leadership), promotion of value addition on its agricultural, mining and other products as well as empowering its people for increased economic activity.

#### **(ii) Role of the Private Sector**

The private sector has the role of investing and operating mobility related infrastructure in Africa. The private sector has to establish linkages with the rest of the world – economically. In essence, the sector has to drive the economy (“the private sector should be the engine of growth providing the wagons and the goods while the government provides the rail lines and roads”). The sector has the role to promote inter Africa/regional trade and meet private sector obligations (pay tax, observe corporate social responsibility etc.).

#### **(iii) Role of the Civil Society**

At the national and regional levels, civil society organizations have the role to sensitize the public to participate in affairs related to economic development, to help to establish institutions for transparency and accountability, to advocate for the economic and social rights of the people and to be the watchdog for various stakeholders.

#### **(iv) Role of the International Community**

The donor community has the role of facilitating trade missions between governments/regional blocks, the role of strengthening inter-regional organizations, facilitating the establishment of inter-regional economic corridors and supporting infrastructure financing. Other roles include providing the opportunity for African states to speak out and be supported in international economic forums, like UNCTAD, WTO, and UN, and support Africa in adding value to agricultural, mining and other products.

## **12. FUTURE PROSPECTS FOR MOBILITY IN DAR ES SALAAM & TANZANIA**

The Dar es Salaam case study has revealed some issues that need to be addressed in an attempt to narrow the mobility divide between the rich and the economically and socially disadvantaged groups in the city and in some cases the country at large.

The crucial role of transport in the quest for sustainable human settlements and improving the lives of those living in poverty has now been acknowledged in the country. However, much remains to be done to translate good intentions into practical initiatives that make a difference to the lives of people living in poverty. This is largely because the urban population in Dar es Salaam is growing more rapidly than the development of infrastructure and the provision of services.

### **a. Institutional setup**

The transport sector in Tanzania falls under the mandate of three lead ministries, with other ministries also involved in a supporting role. The lead ministries are the Ministry of Infrastructure Development that is responsible for transport development policy and its implementation, as well as for setting strategic goals for the sector's development. This ministry is also responsible for the construction and maintenance of trunk and regional road infrastructure. The President's Office for Regional Administration and Local Government is responsible for planning the development and maintenance of rural and urban roads. The Ministry of Home Affairs is responsible for law enforcement, which includes the implementation of road traffic regulations and the enforcement of safety regulations in the sector. The challenge is to coordinate ministerial mandates towards the development of the sector.

The transport sector has been undergoing transformation marked by establishment of agencies. For example, the Tanzania Ports Authority (TPA) is responsible for both coastal and inland ports. The Tanzania Airport Authority (TAA) has the mandate to manage airports, oversee competition, undertake airport development, maintenance and expansion, and manage concession agreements. The Tanzania Government Flights Agency (TGFA) is responsible for the provision of air transport services for government officials. The Tanzania National Roads Agency (TANROADS) manages, develops and maintains trunk and regional roads. The Surface and Marine Transport Regulatory Authority (SUMATRA) is responsible for the licensing of operators, the establishment of standards and operational rules, the regulation of rates and charges and the monitoring of performance in the sub-sector. The Tanzania Civil Aviation Authority (TCAA) regulates air transport and is responsible for safety and economic regulations, as well as the provision of air navigation services.

### **b. Transport policy**

A general weakness of the National Transport Policy (NTP) is that it has placed more focus on facilitating vehicle movements than on the movement of people. The emphasis has been on the provision of urban transit roads for motorized vehicles towards the CBD. At the same time, the major movement modes (public transport, non-motorized transport) have been generally neglected. Given the agrarian nature of Tanzania's economy, the challenge is also how to invest more on rural areas against the bias towards urban areas.

Roads are the predominant mode for freight and passenger transport in major African cities including Dar es Salaam. The challenge is to secure cost-effective improvements in

services by expanding and improving road networks and by maintaining the existing road base. This calls for capital investment — most of which is likely to be based on external, improved domestic financing for maintenance, and efficient road management institutions. In addition, the urban transport infrastructure and services are generally inadequate, which reduces the productivity of investments and contributes to urban poverty. Currently however, there has been more attention on linking National Transport Policy and strategies to poverty reduction (e.g. National Strategy for Growth and Poverty Reduction). This provides an opportunity to address the problem.

The challenge in the railway system is the old age of its network that is not only incompatible to each other but also uses outdated technology.

Tanzania has a policy on transport in place to address mobility problems in the country. However, there are certain issues that need more vigorous solution which we think the current policy is not giving them due weight. For example, transport for disabled people, and students. While the policy is touching this issue still we think more serious and permanent solution should be crafted to address the problem. For example some years back there was a project for school buses to facilitate mobility of students to and from school however the project does no longer exist. Such arrangement could easily transport problem for students.

The other challenge lies on the infrastructure development plans. While there are many plans to put the physical infrastructure in place there is a need to ensure that these developments take into consideration future expansion of the communities. There is a need to ensure that the infrastructure being constructed can safely accommodate all mobility modes e.g. bicycles, motorcycles etc. At the moment in cities there are no provisions for pedestrians which could have instilled the culture among Tanzanians even income earners to use bicycles this could have minimized the congestion problem.

Another challenge is the cost of transport. Town trips are relatively expensive, such that people on or below the minimal wage cannot afford to use public transport. As a result they are compelled to walk up to 10kms to their workplaces and back every day. One of the reasons given by owners of vehicles is that the fuel price is high hence the costs of operations are high.

Another challenge is the cost of internet and the speed of connection. Internet could have been used to teach students in universities where lecturers and students could meet in the cyber space instead of physical space. Such arrangement could have solved the problem of too little infrastructure to accommodate the increasing number of students enrolled in the universities. This could also minimize mobility since students would not necessarily need to be on campus to access lectures. However the cost of Tshs 500 per hour on average for internet services is expensive and most students cannot afford pay for even a few hours on the internet. Connecting speed is also very slow which limits the amount of information and scope of activity that one could do per hour. This is due to insufficient bandwidth, The network is also very unstable such that all too frequently there is no network connection hence making it difficult to rely on this as a form of communication.

Another challenge is the power supply. Frequent power cut makes it difficult to use internet services, and internet providers who use generators increase the price making these services even more expensive.

### **c. Financing**

Despite good intentions from Government to invest in infrastructure, financial constraints continue to limit development of transport infrastructure both in the city and in the

countryside in general. The budget allocated for development/capital spending has always fallen short of needs, including that for the rehabilitation and maintenance of existing infrastructure. Estimates by the Ministry of Infrastructure Development indicate that about 70% of financing for infrastructure is provided by international donors.

#### **d. Infrastructure**

Limited road infrastructure that does not cover all regions as well as linking with other modes of transport poses yet another challenge in the sector. Roads do not provide mobility to different types of users. Urban roads favour motor transport but are less conducive to cycling, pedestrians and disadvantaged groups. The narrow roads lead to congestion and accidents. Feeder roads are few and not in a good state to facilitate mobility with ease. This further increases travel thereby affecting income and expenditure of people.

#### **e. Land use policies and controls**

The land use pattern in urban areas is such that the CBDs continue to attract most commercial activities. The challenge is how to influence land use to develop away from already congested areas and thereby reduce traffic congestion and the associated environmental consequences. Furthermore over 75% of the urban population in Dar es Salaam resides in unplanned settlements. Some of these settlements are so poorly serviced that mobility is difficult. In most cases the majority of the residents here belong to the low-income category and therefore the challenge is on how to provide reliable transport services at affordable rates.

#### **f. Environmental impacts of transport**

The levels of motorization in Dar es Salaam and the country in general are much lower than those in other developing countries. However, since the bulk of the traffic is concentrated in few heavily congested roads, the emissions of conventional pollutants and the associated environmental problems are considerable along these zones. This is further exacerbated by poor quality servicing of vehicles and poor quality of some fuels due to illegal adulteration with paraffin.

#### **g. Opportunities for enhanced mobility in Tanzania**

The government's overall policy in the transport sector over the last decade has been one of steady deregulation. Trade liberalisation and increased public spending on road construction has led to improved road conditions and increased business for transport service providers. This policy shift offers another investment opportunity in the transport sector. There is room for international community and business to invest further into infrastructure

Policy makers and urban administration are conscious of road transport challenges and have instigated more controls on traffic flow such as one directional flow of vehicles. The unfortunate thing is that these efforts are directed to vehicles and very little attention is given to the flow of passengers for the rest of the day, only focusing morning hours when people go to work or schools and afternoon when they get back home.

There have been deliberate policy measures to address the emissions from road transport. There has also been a directive restricting the import of private vehicles that are more than 10 years old.

The privatization of the Central Railway line in the country may also provide an opportunity of increased trade between Tanzania and the neighbouring countries such as Rwanda and Burundi. This will also depend on the expansion of the Isaka dry port in Shinyanga Region.

In the maritime sector the Dar es Salaam port will continue to serve as a regional hub for trade from East and Central Africa. With a forecast increase in trade volumes, the port is challenged to grow its capacity and efficiency in order to respond to the increased competition with other ports in East Africa.

The expansion of Mtwara and Tanga ports may reduce the congestion at the Dar es Salaam port. However, this presupposes the development of the Mtwara corridor which involves the construction of a paved road between Mtwara on the Indian ocean to Mbamba Bay on lake Nyasa. The expansion of the Bagamoyo port, which is only 70 km from Dar es Salaam, has the potential to divert congestion at the port and this offers yet another area of potential investment.

With respect to air transport the challenge is to improve the existing aerodromes and to save time used in the other modes of transport.

Given the Government objectives of enhancing domestic revenue mobilisation and reducing donor dependency, there are initiatives to improve the resources available for transport infrastructure development. This includes the establishment of a Ministry responsible for infrastructure development in the country. This will give some impetus to the sector and link it with the wider economy. For example the government envisages instigating user fees, earmarked as much as possible for the financing of public investment in the sector.

#### **h. Opportunities for enhanced mobility in Dar es Salaam**

Efforts are being made to upgrade existing infrastructure in and out of the CBD in Dar es Salaam.

Mobility for development implies improvement of livelihood. This type of outlook links mobility with the aim of poverty reduction in urban areas. This objective can be defeated by for example, the removal of informal traders from the CBD because they put up structures which narrow the road and obstruct movement of people and traffic without providing well development structures in alternative space elsewhere.

Water transport is not used within the city. Although there is a clear water way along the coast, there is a lack of landing sites that could enable mobility between Dar es Salaam and the settlements in the North (e.g. Bunju, Boko, Bagamoyo, Tegeta) and those in the South (e.g. Kigamboni, Mjimwema, and Geza Ulole).

There is potential for urban railway transport within the city e.g. Ubungo- City centre, Buguruni, Pugu – City centre and Kurasini – City centre. This line has the potential to offer mass transport but also reduce congestion along the Morogoro and Uhuru Roads. These lines exist but the infrastructure has never been put into use.

### **13. IDENTIFIED AREAS FOR FURTHER STUDY**

1. This study has been challenged by several factors, with one of main issues being the availability and ease of access to data. As a result it has been difficult to compute

comprehensive mobility indicators for Tanzania. This calls for a further study to develop such indicators that then can be used to guide actions and track progress on the provision of sustainable mobility within Tanzania.

2. Very little data was available to measure the effectiveness of mobility along the corridors linking Dar es Salaam to the hinterland and land locked countries. One of the main problems was related to how the data was collected and maintained at the port of Dar es Salaam which prevented it being retrieved in a short period of time. This gap opens another study to better understand the flow of transit cargo from Dar es Salaam to and from the hinterland. This study should examine all administrative and mobility hurdles that impact the efficiency of mobility and the competitiveness of the port of Dar es Salaam versus neighboring ports.
3. The strong presence of cars brands such as Toyota in Dar es Salaam, which were imported as used cars but whose parts are no longer manufactured by the Toyota Company, may offer local job creation opportunities. A study could be conducted on the availability and quality of spare parts as well as the overall maintenance levels of vehicles to assess the market opportunity for small businesses to improve vehicle servicing.
4. Compilation of this case study was challenged by the diverse and scattered nature of the statistics and data sources. Online searches facilitated access to overseas publications. A collection or compilation of different studies in a form of “annotated” bibliography will assist future studies in the area of mobility for development in Tanzania.

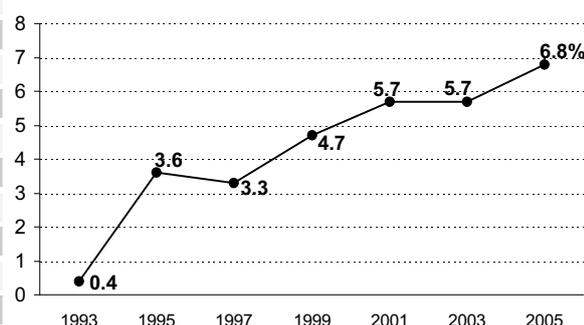
## APPENDIX A – THE TANZANIAN ECONOMY

### CHANGING PATTERNS OF INCOMES AND CONSUMPTION

Incomes have been increasing in terms of wages and salaries in both public and private sectors. The state of economy shows that there was growth especially in the recent years as presented in Table A1.

**Table A1: Real GDP growth at 1992 prices**

Year	GDP growth rate in real terms
1992	1.8
1993	0.4
1994	1.4
1995	3.6
1996	4.2
1997	3.3
1998	4.0
1999	4.7
2000	4.9
2001	5.7
2002	6.2
2003	5.7
2004	6.7
2005	6.8



Source: URT (2005), *The Economic Survey 2004*, the President's Office – Planning and Privatisation Dar es Salaam –Tanzania.

The Gross Domestic Product has been growing over years so is the total population that has been growing at a rate of 2.9% per annum. The trend of economic growth has been fluctuating over years with observable results where people were able to access goods and services. These growths were mainly attributed to the contribution of the different sectors of the economy including agriculture; trade, hotels, restaurants, tourism and manufacturing. Others were construction; financial, insurance, real estate and business services; mining and quarrying; transport and communication, public and other services and electricity and water. Despite the fluctuations the agriculture sector continued to contribute the biggest share in the growth of GDP due to its greater share in the overall economy. Furthermore, the amount of earning per person has been increasing in TZS. Per capital income was 4.06% on average in the most recent five years. The assessment of income by USAID 2005 observes and growth trend.

#### **Sources of earnings**

The earnings originate from different sectors of the economy, some of which are presented in Table A2. Overall average income has been increasing in the households of Tanzania, with high percentage increase in Dar es Salaam. This is reflected in the increase in household consumption. The average consumption in Dar es Salaam is 2.6% higher than the rural average consumption per month. Dar es Salaam has the highest share of total household in the country largely due to being the centre of commerce, industry and all government and diplomatic activities. Together with developed roads, communications, utility and having more than 75% of all vehicles all provide an attractive working environment and good earnings.

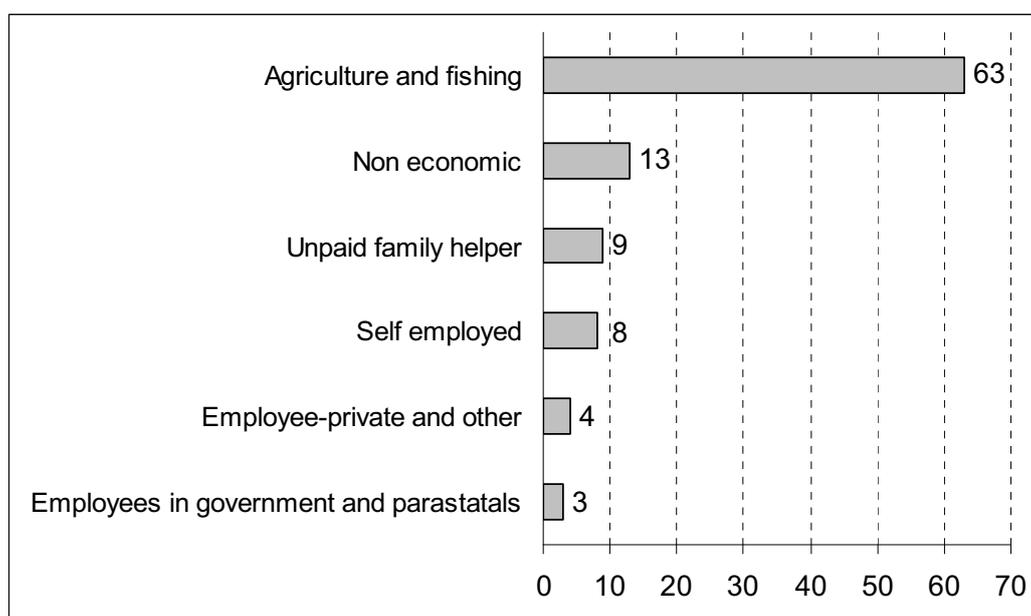
**Table A2: Share of total household income by source (%)**

Source	Dar es Salaam	Otherurban areas	Rural areas	Mainland Tanzania
Employment	41.7	24.5	8.3	12.5
Self employment (excluding farming)	29.1	32.8	17.8	20.6
Agricultural income	1.9	19.6	60.4	51.4
Rent, interest, dividends	2.0	1.3	0.3	0.6
Transfers	12.1	10.1	7.1	7.8
Other receipts	13.2	11.7	6.0	7.2
Total	100.0	100.0	100	100.0

Source: National Bureau of statistics: Household Budget Survey 2002

The majority of Tanzania depends on agricultural economic activities that have been changing every year. Government employment dropped from 5.2% to 2.5% of adults. The fall was biggest in Dar es Salaam. The Dar es Salaam employment rate dropped from 21% to 7% of adults in 1991/2001. While there was a drop in government employment there was increased in self employment and private firms. 40% of adults in Dare es Salaam and 31% in other urban areas were absorbed in private and private firms.

**Figure A1: Main economic activities of adults**



### ***Income distribution and use***

Income distribution is not uniform in Tanzania including Dar es Salaam. Poverty is a complex phenomenon that has been studied leading to different forms of social indicators. For example there is income poverty, gender poverty, education, water, newspapers and so on. Each form requires different strategy to address it. This case study has shown that different people earn different incomes and demand different goods and services on the market. The income earnings are utilised to buy food and none food items. Consumption

per person in Tanzania increased in 1991/2001 by 17%. Dar es Salaam's consumption was 47% higher than the national level in the same period of assessment (Table A3).

**Table A3: Consumption expenditure per person (in TZS)**

	Dar es Salaam	Other urban areas	Rural areas	Mainland Tanzania
2000/2001	21,949	14,377	8,538	10,120
1991/1992	14,896	12,733	7,661	8,686
% increase	47	13	11	17

Source: National Bureau of statistics: Household Budget Survey 2002

Further assessment on consumption at household level shows that a large portion of income (67.1) is spent on food followed by durable goods (29.7%) Table A4.

**Table A4: Household consumption by type of item(%)**

Item	Dar es Salaam		Other urban areas		Rural areas		Mainland Tanzania	
	91/92	00/01	91/92	00/01	91/92	00/01	91/92	00/01
Food purchased	67.1	52.2	56.9	52.8	30.5	35.2	35.8	38.6
Food own produced	0.7	2.1	9.4	7.9	41.8	31.8	35.5	26.8
Durable goods	7.6	7.8	7.4	8.0	7.2	7.1	7.2	7.3
Medical expenditure	0.9	2.9	1.2	2.4	0.9	2.1	0.9	2.2
Education expenditure	1.1	4.0	1.1	3.0	0.8	1.6	0.8	2.0
Other non durables	22.1	31.1	24.0	25.9	18.9	22.1	19.7	23.1
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

Source: National Bureau of statistics: Household Budget Survey 2002

**Changes in patterns of incomes and consumption are also reflected in the increasing trend of prices in consumer durables and fuel, power and water.** This has been influenced by increased global oil price.

**Table A5: Population in poverty (%)**

	Dar es Salaam		Other urban areas		Rural areas		Mainland Tanzania	
	91/92	00/01	91/92	00/01	91/92	00/01	91/92	00/01
Food poverty	13.6	7.5	15.0	13.2	23.1	20.4	21.6	18.7
Basic need poverty	28.1	17.6	28.7	25.8	40.8	38.7	38.6	35.7

Source: National Bureau of statistics: Household Budget Survey 2002

Table A6 above indicate that the percentage of people in poverty is lower in Dar es Salaam than in other urban areas and other parts of the country. The food poverty line was Tshs 5,295 in 2000/01 while in 1991/1992 it was 2,083/= . On the other hand, the basic poverty line was Tshs 7,253 in 2000/2001 and Tshs 2,777 in 1991/1992. As shown in Tables A5 and A6 Dar es Salaam residents are economically better off than the rest in the country. There is a lower percentage of poor people and a good percentage earn a salary.

**Table A6: Distribution of the poor by area (basic poverty line)**

	Dar es Salaam		Other urban areas		Rural areas		Mainland Tanzania	
	91/92	00/01	91/92	00/01	91/92	00/01	91/92	00/01
Number of poor ('000)	369	325	888	1,136	8,223	9,926	9,481	11,388
% of the poor	3.9	2.9	9.4	10.0	86.7	87.2	100.0	100.0

Source: National Bureau of statistics: Household Budget Survey 2002

Dar es Salaam has an attractive market size, high buying power and developed infrastructure compared with all other urban centres in the country. The improved and increased access to communications, electricity power and roads allow people to travel.

There is however upward pressure on the average price of goods and services. This is illustrated for the high income group price indices in Table A7).

**Table A7: Cost of living index for high income group in Dar es Salaam 2001 = 100**

Year	Average %	Change %
1996	73.4	17.0
1997	77.2	5.2
1998	78.7	1.9
1999	83.6	6.3
2000	88.8	6.2
2001	100.0	12.5
2002	100.9	0.9
2003	107.7	6.8
2004	115.4	7.1

Source: URT (2005), *The Economic Survey 2004, the president's Office – Planning and Privatisation Dar es Salaam–Tanzania.*

The trend of price indices for high income group has been increasing over time. Transport cost increased as a result of oil price increases. The price rise had direct impact on this group because they are the main users of petrol and other oils and they own cars and travel often. Analysis of changes in the price indices of goods and services consumed by high income groups shows that the price index had increased. The price index for this group increased by 6.6% in 2003 compared to 6.7% in 2002.

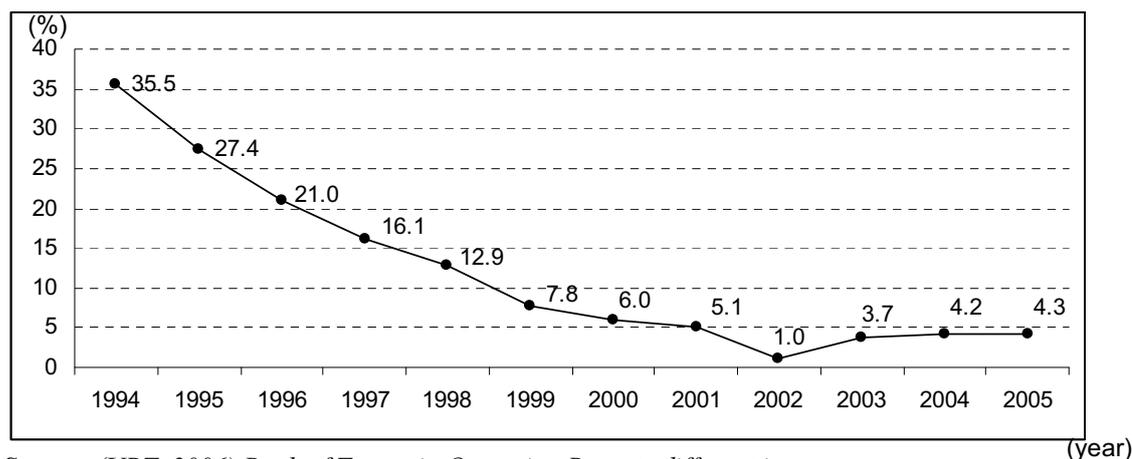
The price index for beverages and cigarette increased for high-income groups due to the increase in price of beer, which is highly consumed by that group. Drought, the price of food was still not affected much due to the government efforts in ensuring availability and supply of food. The price index of food for Dar es Salaam residents for high-income group food increased by 4.7% in 2003 compared to a decrease of 2.8% in 2002.

The increase in inflation in 2004 was caused by the increase in the average price of food following the prevalence of food shortages in some areas at the end of 2003 and the beginning of 2004. Furthermore, the increase in the relative prices of petroleum products caused an increase in transportation costs and thus induced the upward trend in the average price of other goods and services.

The inflation trends in the country show that after notching the lowest rate of 4.0% in January 2005, the rate of inflation, as measured by the National Consumer Price Index (NCPI), has continued to increase gradually reaching 6.5% by March 2006. The annual average rate of inflation for the year 2005 was 4.3%, compared to 4.2% in 2004. This up-swung in the trend of inflation is attributed to rising average prices of some food and non-food items, spurred by draught and the increase in average prices of petroleum products.

Food shortages in some neighbouring countries during the period, particularly in Malawi and Zambia, also contributed to some extent, in food supply shortfalls in some parts of the country, as traders sold foodstuffs across the borders. The average price increase of petroleum products in the world market compelled the government to spend more foreign exchange for the importation of petroleum products, resulting to a decrease in foreign reserves from a value equivalent to 8.2 months of imports in 2004, to a value of 6.4 months of imports in 2005. Figure A2 summarizes the trends for the period from 1994 to 2005.

**Figure A2: Inflation Trends 1994 - 2005**



Source: (URT, 2006) Bank of Tanzania Operation Reports different issues

The average rate of inflation in 2005 was 4.3% compared to 4.2% in 2004. The increase was attributed to rise in average prices of some food items, spurred by draught. The average prices of some non-food items also increased following an increase in the prices of petroleum products which in turn caused an increase in transportation and electricity costs. For the high income groups, the overall price indices increased by 8.2 and 7.1% in 2004 compared to 7.1 and 6.8% in 2003, respectively. The inflation rate is currently below low income sub-Saharan Africa which is 8% (URT, 2006).

The management of the economy through fiscal and monetary policies have stabilised prices and reduced inflation. This has had some effect on freight charges especially the internal transport as bus fares in Dar es Salaam remained stagnant on a route from Ubungu to city centre TZS 100 to TZS 150 per adult passenger for three years. The pattern has been however changed due to increased dry spell that led to low production of food leading to urgent importation of food, increased oil prices and other prices pushed for higher fares. The current bus fares have increased three times that of 1994. A similar pattern is observed on regional fares for air, train, and bus modes of transport.

### **Capital Flows**

Capital formation has been increasing over time with investments have been taking place in the following areas namely: construction of non residential buildings, particularly primary secondary schools, business buildings and equipments. It also included transport and communication facilities as well. Two sources of capital formation are in place; public and private.

**Table A8: Capital formation in public and private sectors in TZSbill/=**

Year	Public%	Private %	Total
1994	58.0	42.0	237
1997	9.8	90.2	1392
2000	17.3	82.7	2,531
2001	16.5	83.5	2,797
2002	19.9	80.1	3,597
2003	19.7	80.3	4,488
2004	18.4	81.6	5,164

Source: URT (2005), *The Economic Survey 2004*, the President's Office – Planning and Privatisation Dar es Salaam –Tanzania,

Capital formation has been directed to construction of buildings, roads and public institutions in support of transforming the education sector and primary and secondary levels. The move has increased importation of capital equipment from 7.0% in 2001 to 14.5% in 2002. The increase in investments contributed to the growth of other construction works especially land improvements and water.

Government expenditure has increased between 1997 and 2000 due to its commitment to public service delivery and addressing unexpected difficulties such as hunger due to drought where more food had to be imported. Government revenue collections increased although tax base remained that of commercial trade.

In 2005, transport and communication sector grew by 6.4% compared to 6.0% in 2004. The growth rate was attributed to improvement in infrastructure for transportation and communication services, particularly telecommunication. Specific contribution to growth in communication sector was attributed to the increase of communication activities due to increased number of cellular phone connections discussed above and also an increase of 5.9% in road, air and rail transport.

Capital Market Development.(CMD) was introduced in Tanzania in 1998. There are 8 companies listed at Dar es salaam Stock Exchange(DSE) out of which 2 are foreign companies and 2 are in transport sector\_DAHACO and Kagera Airways. We see improved services at Mwalimu Nyerere and Kilimanjaro international airports.

## ***APPENDIX B – ENERGY AND FUEL USE IN TANZANIA***

### ***Electricity power***

Electricity is another energy supply that has developmental impact than any of the other types of energy. It is used in industries as well as homes. There are two main sources of electricity energy; hydro and thermal sources. The hydro power production potential in the country are 4,700MW and produces only 61 MW (or 1.3%) on average per annum. The country's demand is 85KWh.

10% of all households in Tanzania have access to electricity supply. Out of these households 59% are in Dar es Salaam and 30% in other urban areas. Only 2% enjoy electricity supply in rural areas. The use of electricity energy as the main source of lighting is 9% while 84% use paraffin. Cooking relies more on firewood and charcoal as leading fuels as about 1% of households use electricity.

### ***Thermal Power Generation***

There are both industrial and domestic thermal electric power generators in Dar es Salaam, which use fossil fuels such as petrol, diesel and industrial diesel oils and gas. However, only a very small proportion of the urban population can afford this energy source. When these generators are widely used, there is a corresponding increase in the concentration of pollutants likes oils, grease and smoke/dust although at localized areas.

**Table A9: The alternative energy sources including renewables (%)**

<b>Source</b>	<b>Percentage</b>
Charcoal	90.0
Petroleum	8.0
Natural gas & Electricity	1.2
Coal, solar wind	1.0

Bio-Gas is produced at a limited scale and no statistics are available to show the extent of its use more in institutions such as schools and few health centres run by non governmental organisations. Other forms of energy such as coal and natural gas are in large quantities. The gas resources are being exploited and used to produce thermal electricity energy. Coal deposits are also available in areas such as Mbeya but not yet exploited fully.

### ***Oil consumption***

Oil consumption in the world is 82.5 million barrels per day or 30,112.5 Million barrels per annum. This amount grows at a rate of 1.3%. The consumption in East Africa is 32million barrels per year, where Tanzania takes only 3% of this amount. Tanzania spends 30-35% of foreign exchange earnings to import oil. Majority of large buyers include industry, institutions such as the army, university, airports and garages. The consumption of the oil indicates that 40% is used in transport, 24% in industry, 21% in domestic and 15% in mining, agriculture and commerce. The second market segment is that of domestic consumers who buy in small quantities but is a substantial market in aggregate. Further analysis of petrol consumption shows that, each vehicle consumes on average 84,705 litres per annum. The consumption of petrol however, is low compared

with other markets in the world. (For example, BP Africa has 4% market share in the global market).

**Table A10: Total Fuel Consumption by type of fuel in Tanzania (metric Tons), 2006**

<b>Fuel type</b>	<b>Metric tons</b>
Petrol	195,837,458
Diesel	631,226,692
Kerosene	105,666,883
( JET A <sub>1</sub> )	115,798,222
Crude	224,695,455
Gas	5,051,944
Jet Parafin	1,689,598
Base Oil	14,651,559
Industrial Oil	17,296,413
<b>Total</b>	<b>1,311,914,223</b>

*Source: Tanzania Revenue Authority, 2007*

## ***APPENDIX C – STAKEHOLDER DIALOGUE PARTICIPANTS LIST***

Note: The list is in alphabetical order by affiliation

<b>Name</b>	<b>Affiliation</b>
Evans Ntagwabira	African Development Bank
Isaack Kilato	Bank of Tanzania
Duncan Eggar	BP
Goddard James	BP South Africa
Rams Ramashia	BP South Africa
Abel Chanje	BP Tanzania
Frederick Kibodya	BP Tanzania
Joyce Singano	BP Tanzania
Jones Sikazwe	BP Zambia
Grace Makani	British High Commission
Kippi Warioba	Coca-Cola Kwanza
Adrian Njau	Confederation of Tanzania Industries
Kleist Sykes	Dar Rapid Transit Project
Debora Abdulrasul	Desk top Productions
Steven Mlote	Engineers Registration Board
David Luminza	Journalists Environmental association
D.M Maina	Kenya High Commission
Ezamo Maponde	Ministry of Industry Trade & Marketing
Abisai Temba	Ministry of Infrastructure Development
Andrew Chenge	Ministry of Infrastructure Development
Bathoromew Rufunjo	Ministry of Infrastructure Development
Luizer Mudane	Ministry of Planning
Ahadi Rashidi	National Institute of Transport
Ernest Bugingo	Rwanda Embassy
Boaz Kitaja	SGS Dar es Salaam
Morgan Mwaipyana	Strategic Grain Reserve
Israeli Sekirasa	Surface and Marine Transport Regulatory Authority
Kati Kerenge	Tanga Cement Company
Mark Leviri	Tanganyika Christian Refugee Services
Emmanuel Msambichaka	Tanzania Zambia Railway Authority
Aubax Baltazar	Tanzania Association of The Disabled
Adam Zuku	Tanzania Chambers of Commerce, Industry and Agriculture
Apronius Mbilinyi	Tanzania Civil Aviation Authority
Seif Kindamba	Tanzania Civil Aviation Authority
Peter Ulanga	Tanzania Communications Regulatory Authority
Richard Kayombo	Tanzania Communications Regulatory Authority
Subira Wandiba	Tanzania Electric Supply Company
William Chiume	Tanzania Investment Center
Jason Rugaihuruzza	Tanzania Ports Authority (TPA)
Fuad Abdallah	Tanzania Railways Corporation
Linford Mboma	Tanzania Railways Corporation
Ulimbakisyee Malasi	Tanzania Sisal Board
Mathias Assenga Benedict	Tanzania Tea Board
Peter Mwenguo	Tanzania Tourist Board
Abraham Saunyama	TAZAMA pipelines Limited
Beatrice Singano	The British Council
Stephan Herbst	Toyota Motor Europe
Willy Kishimbo	Transport Resource Center
Ernest Salla	United Nations Development Programme
Davis Mwamfupe	University of Dar es Salaam
Diana Mwiru	University of Dar es Salaam
Joseph Baradyana	University of Dar es Salaam
Lucy Mboma	University of Dar es Salaam
Maboko Makenya	University of Dar es Salaam
Z. A. Msambichaka	University of Dar es Salaam
Rachel Phares	Vodacom Tanzania

Joaquim Croca  
George Eads  
Mihoko Kimura  
Shona Grant  
Edward Shighula  
Royson Mkwena  
Sunday Chikoti

Vodafone  
WBCSD and CRA International  
WBCSD  
WBCSD  
World Vision Tanzania  
Zambia High Commission  
Zambia High Commission

## ***REFERENCES***

Bolnick B, Camoceans A, & Zislin J (2005), Tanzania Economic Performance Assessment, USAID, Nathan Associates Inc.

Brian Williams (2005), Gender and urban transport, in Habitat Debate, March Vol.11 No. 1.

Business Scope Re-definition, Sloan Management Review, Vol. 35, No. 2, p. 73 -87.

Charam, R. (1991), How Networks Reshape Organizations for Results, Harvard Business Review, Vol. 69, p. 104 - 115.

Chilingola (2005), Cultural Change and Tradition in a Shrinking World, July 3-6, 2001.

Davenport, T.H. and Prusak, L. (1998), Working Knowledge, Harvard Business Press.

Earth Trends (2003), Economic Indicators – Tanzania.

Earth Trends (2003), Environmental Institutions and Governance – Tanzania.

Grahan, M.B.W. (1996), Changes in Information Technology, Changes in Work, Technology in Society, Vol. 18, No.3 p.373 – 385.

High Beam Research, [www.highbeam.com](http://www.highbeam.com)

Howe J and Bryceson (2000), Poverty and urban transport in East Africa.

Hoyle, S. B (2004) Transport and economic development in less-developed countries: some reflections on the seaports of Kenya and Tanzania in Geo-Journal, Vol. 12, No. 3pp. 233-242, Springer, Netherlands.

Infoplease, [www.infoplease.com](http://www.infoplease.com)

Jacob L. Kimaryo (2001), Collective Influence Of Urban Design On Space Use.

Kimaryo, J. L. (1996), Urban Design and Space Use. A Study of Dar es Salaam City Centre.

Lyimo K (2007), Tanzania: The problem with Dar es Salaam port is getting out of it, East African (Nairobi) 6/3/2007.

Maliyamkono, T.L. and H. Mason (2006), The Promise, TEMA Publishers Company Ltd., Dar es Salaam.

Mboma M. L. (1995), HIV/AIDS: An economic and social Challenge to Women in Tanzania in Gender and Development in Tanzania, Njau, A and Mruma, T, (eds) Tanzania, pp 294-316.

Mboma M. L. (1998), Take a Second Look, Communications News, January p.32.

Mboma M. L. (1999), Entrepreneurial Factors Influencing Changes in Food Retail Shops In Tanzania; The Case of Dar es Salaam between 1985-1996, PhD Thesis unpublished in Strathclyde University -UK.

Mboma M. L. (1999), SMEs and Poverty alleviation in Africa; Developing the small scale retail sector, a break through to poverty alleviation, the case of Tanzania; Business Management Review journal vol 6, 2 pp 82-100 – Dar es Salaam.

Mboma M. L. (2000), The role of ICT in education improvement and development in Tanzania; The Convocation Symposium publications pp 79-82; Dar es Salaam.

Mboma M. L. (2004), The role of Small and Medium Enterprises (SMEs) in Job Creation and Poverty Eradication in Entrepreneurship as well as capacity building in a Globalised economy; 2nd International Entrepreneurship Conference Electronic Proceedings, 12th-14th May 2004, Published in a CD (deposited in UDSM Lib 2004).

Mboma M. L. (2005), ATM and customer satisfaction: a case of banking industry in Tanzania , in African Journal of Finance Management, Vol (2005) IFM, Dar es Salaam, Tanzania.

Mboma M. L. and Kimaro T (2005), Factors Influencing Commercial Ports' effectiveness in Enhancing Globalisation: The case of Dar es Salaam Port, in IFM journal (presented at International Conference IAABD in Tanzania, Dar es Salaam April 2005).

Mbwette, T. S. A and Mboma M. L. (ed) (2000), Proceedings of a workshop on the Importance of a common strategy of ICT applications in Tanzanian University and other institutions of higher education –UDSM, 21-23 June 2000 - UCC - UDSM.

Miller Esselaar and Associates (2001), A Three-Country ICT Survey for Rwanda, Tanzania and Mozambique, Sida, Stockholm.

Scaw-Newsletter, August 16 – September 2006 / 6000 Bedkit.

Setty Pendakur (2005), Non Motorized Transport in African Cities: Lessons from Experience in Kenya and Tanzania. SSATP Working Paper No.80

Starkey P (2006), Methodology for rapid assessment for rural transport, ITC.

Starkey, P. et. Al. (2002), Improving Rural Mobility: Options for Developing Motorized and Non-motorized Transport in Rural Areas: World Bank Technical Paper.

Tanzania Development Gateway: Tanzania Travel tips, [www.artidesphere.com](http://www.artidesphere.com)

Tanzania; The Convocation Symposium publications pp 79-82; Dar es Salaam.

TGNP (1993), Gender Profile of Tanzania, Dar es salaam.

The Economic Intelligence Unit (2001), Africa and the Internet: An Unrealized Opportunity, [www.ebusinessforum.com](http://www.ebusinessforum.com)

The Economic Intelligence Unit (2001), Traffic World: Prospects for e-business in Developing Countries, [www.ebusinessforum.com](http://www.ebusinessforum.com)

The World Bank, Economic Tool-kit and Workshops for Internet Connectivity in Africa, [www.infodev.org/projects/finafcom/html](http://www.infodev.org/projects/finafcom/html)

The World Factbook, CIA. <https://www.cia.gov/library/publications/the-world-factbook/>

Towards a Meaningful Use of Urban Spaces in the 21st Century”, A Paper in the Proceedings of the EDRA32 International Conference on Old World – New Ideas:

Environmental and Cultural Change and Tradition in a Shrinking World, July 3-6, 2001, Edinburgh, Scotland UK.

UNCTAD (2006), Review of Maritime Transport.

UNDP and UNCHS (1992), Managing the Sustainable Growth and of Dar es Salaam. Environmental Profile of the Metropolitan Area, Dar es Salaam: UNDP and UNCHS.

UNEP, The sustainable Dar es Salaam project 1992-2003 from urban environment priority issues to up-scaling strategies city-wide, The SCP documentation series, Vol. 3.

United Republic of Tanzania (2001), Environmental Planning and management in Dar es Salaam, Tanzania.

United Republic of Tanzania (2002), The 2000/01 Tanzanian Household Budget survey Dar es Salaam.

United Republic of Tanzania (2003), 2002 Population and Housing Census, Tanzania National Website.

United Republic of Tanzania (2004), Environmental Profile of the Metropolitan Area, Dar es Salaam: UNDP and UNCHS.

United Republic of Tanzania (2004), Transport Sector Snapshot – A World Bank Transport Sector Mission to Tanzania, may 2004.

United Republic of Tanzania (2005), The Tanzania Economic Survey, Dar es Salaam.

United Republic of Tanzania (2006), Budget Speech by the Minister for Infrastructure Development.

United Republic of Tanzania (2006), Review of recent Macro-economic performance, presented to the public : Expenditure review /NSGRPA consultative meeting, MOP&EE Dar es Salaam – Tanzania.

United Republic of Tanzania, TTCL Technical report 2004.

USDOC (2002), Overview of Tanzania's Internet and E-Commerce Markets.

Venkatraman, N. (1994), IT Enabled Business Transformation: From Automation to Business Scope Re-definition, Sloan Management Review, Vol. 35, No. 2, p. 73 -87.

Walter Hook (2003), Gender issues in urban transport in Asia and the pacific sustainable transport.

Wood Grace (2006), Getting around in Tanzania in SCAW News letter: Rural Transport in Zanzibar.

World Telecommunication/ICT Development Report, 2006. Measuring ICT for social and economic development. International Telecommunications Union

## WBCSD Focus Area: Development

Poverty remains one of the biggest challenges to sustainable development. The way businesses respond to this challenge, and their ability to generate wealth and opportunities, will prove crucial in the long-term. As a group of leading companies, WBCSD members work within a new mindset, beyond corporate philanthropy, to build inclusive business models that create new revenue streams whilst serving the needs of the poor through sound commercial operations.

Through the **Development Focus Area**, the WBCSD is seeking to:

- > **Raise awareness** – delivering tools and guides that advance our understanding of common development challenges and enable all sectors to address the corresponding opportunities
- > **Advocate the business contribution** – helping business work in partnership with all stakeholders to build synergies between Official Development Assistance and Foreign Direct Investment, to create the enabling business environment and international trading rules
- > **Get into action** – Working with our members, Regional Network partners, and other stakeholders to broker new business ideas that are both good business and good for development. This includes a partnership with the Netherlands' development agency SNV to broker real and sustainable business in Latin America

This Focus Area ensures cross-fertilization between WBCSD initiatives on *Water, Health, Energy & Climate, Sustainable Forest Products, and Ecosystems*.

**Advocacy at a national level** for the necessary enabling environment is taking place across the world through the *WBCSD Regional Network*.

*Cambridge University's Program for Industry*, in association with the WBCSD and *Oxfam*, has launched a **Business and Poverty Leadership Program** for senior executives and policymakers to examine the inter-relationship of business and poverty.

### Program structure and resources from November 2005

**Co-chairs:** Thulani S. Gcabashe (Eskom), John Manzoni (BP), Julio Moura (GrupoNueva)

**Working group:** 70 companies and regional partners

**Director:** Shona Grant

**Website:** [www.wbcds.org/web/development.htm](http://www.wbcds.org/web/development.htm)



Secretariat  
4, chemin de Conches  
CH-1231 Conches-Geneva  
Switzerland

Tel: +41 (0)22 839 31 00  
Fax: +41 (0)22 839 31 31

E-mail: [info@wbczd.org](mailto:info@wbczd.org)  
Web: [www.wbczd.org](http://www.wbczd.org)

WBCSD North America Office  
1744 R Street NW  
Washington, DC 20009

Tel: +1 202 420 77 45  
Fax: +1 202 265 16 62

E-mail: [washington@wbczd.org](mailto:washington@wbczd.org)