TANZANIA

Transport Sector Review

AFRICAN DEVELOPMENT BANK GROUP

Acknowledgement

This Review was undertaken by the African Development Bank (AfDB) as part of its economic and sector work program in Tanzania. The country's needs for transport infrastructure and services are immense and well beyond the financing limitations of the Government, multilateral institutions, bilateral donors and the private sector combined. It is, therefore, important to identify priorities to ensure that investments are properly integrated and generate the maximum economic and social benefits to the economy. This Transport Sector Review was based on discussions with a wide range of transport and infrastructure institutions and individuals in the country including the donor community together with a review of the large number of sector reports and studies that have been completed over the past several years.

The recommendations of this Review are based on the priority requirements in the various modes and their inter-linkages but taking into account projects that have been committed to by other donors and the Government and the level of resources that are expected to be available to AfDB during the next African Development Fund program cycle.

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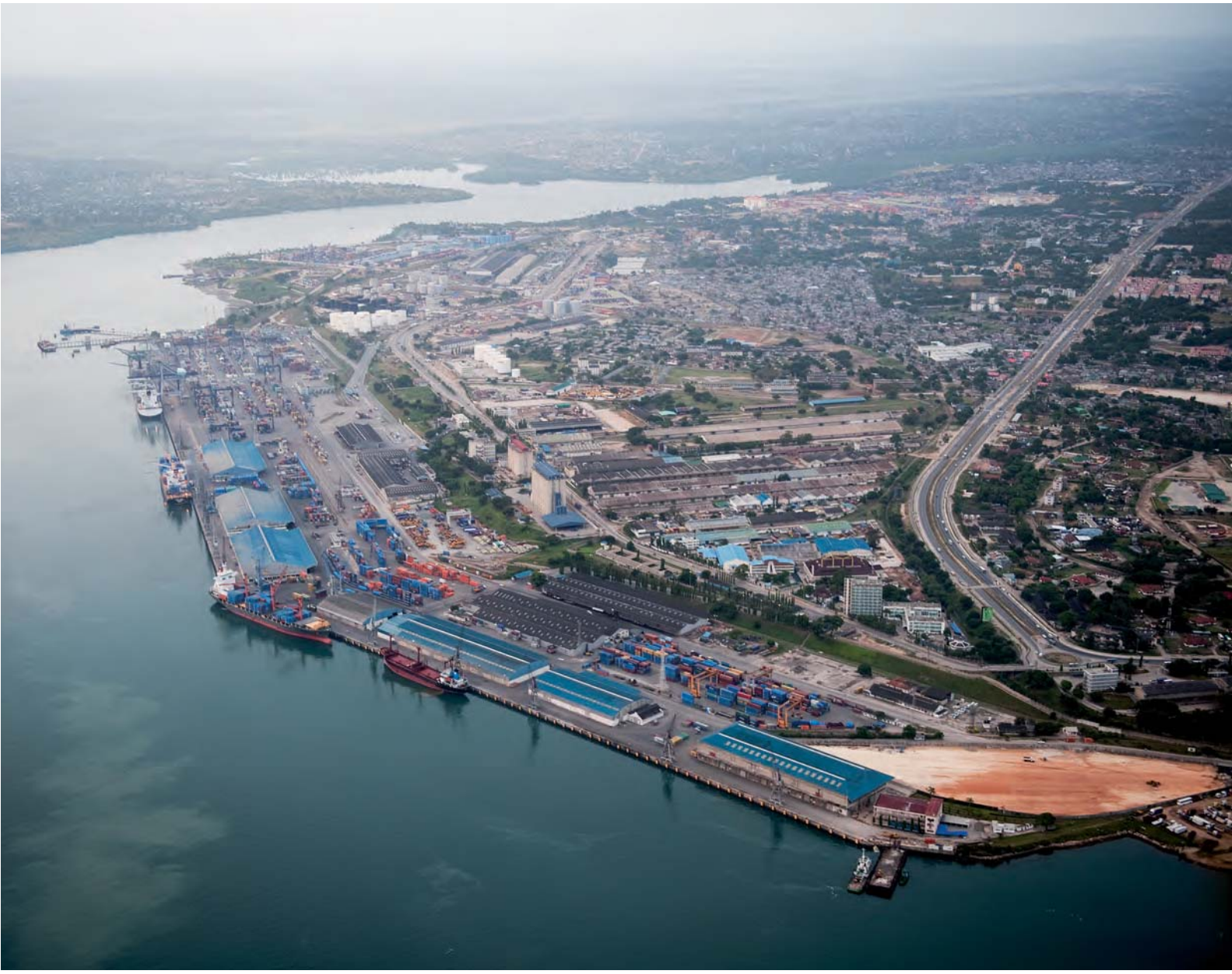
TANZANIA

Transport Sector Review

Transport & ICT Department, September 2013



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EXECUTIVE SUMMARY

A | Background

Tanzania's national development strategy emphasises that extensive and efficient infrastructure is critical to ensure the effective functioning of the country's economy. It is in this context that the African Development Bank (AfDB) aims to strongly focus on infrastructure as an enabling sector of the economy. Thus, a sizeable share of the Bank's new commitments will be directed to infrastructure investments, focusing on reducing travel times between regions, integrating the national market and connecting it to other markets in the East African Community, and eliminating non-tariff barriers to trade.

Tanzania is the international gateway for several of its landlocked neighbouring countries. Burundi, Rwanda, Uganda, DR Congo, Zambia and Malawi are all dependent to some extent on the country's transport network for their access to global markets.

B | Development Context

The development of Tanzania's transport infrastructure will be undertaken within the scope of existing plans for development. These plans include those that are oriented towards the general development of the economy such as the Vision 2025, the National Strategy for Growth and Reduction of Poverty known, by its Swahili acronym, MKUKUTA, and the First Five-Year Development Plan, and those that guide the development of the transport sector such as the Implementation Strategy of the Transport Policy of 2011 to 2025, the Local Government Transport Programme (LGTP) and the Transport Sector Investment Programme (TSIP).

C | Overview of the Transport Sector

The transport system in Tanzania consists of five modes: roads, rail, water, air and pipelines. A high proportion of the infrastructure was not modernised over time due to limited resources to invest and a large amount of infrastructure and equipment is now beyond its economic life. The economic reforms that were initiated in the 1990s have delivered significant change to the structure of the economy through the introduction of market-based pricing and loosening controls on trade. However, for market forces to be successful, good transport services are essential.

In this respect it is necessary to look wider than just the infrastructure to make sure that complementary bottlenecks and non-tariff barriers are also removed. Such bottlenecks are encountered when policies do not promote high quality services and bureaucratic administrative procedures limit efficiency. Removal of non-tariff barriers is also important for the efficient transport of long distance freight. Harmonisation of rules and regulations between countries is needed to promote the flow of goods and services between neighbouring countries.

1. Roads Subsector

The road network in Tanzania currently comprises 86,472 km of roads in the formal inventory of which 12,786 km are categorised as trunk roads, 21,105 km as regional roads and the remaining 52,581 km as district, urban and feeder roads. The trunk and regional roads are under the responsibility of the Tanzania National Roads Agency (TANROADS) which is a semi-autonomous agency under the Ministry of Works. The district, urban and feeder roads are the responsibility of local government authorities (LGAs) who are under the oversight of the Prime Minister's Office Regional Administration and Local Government (PMO-RALG). PMO-RALG has an oversight function of preparing policies and strategies in consultation with stakeholders as well as coordinating, monitoring, and providing support to LGAs in road works implementation activities.

PMO-RALG is currently preparing the second phase of LGTP covering 2012/13– 2016/17 where it is intended to accelerate the size of the local roads program based on the lessons learned from past experiences. The primary objectives of the program are to provide an adequate minimum level of access to social and economic services for

all, and improve roads leading to areas of high agricultural potential or areas of economic importance.

The Roads Fund has provided a stable base for funding road maintenance. It obtains its resources primarily from a levy on fuel which historically contributes about 96% of the total funding. In addition, fees are raised from transit charges and overloading.

Despite the increase in funds, the overall road maintenance situation has not shown substantial improvement in recent years since the total amount of funds collected remains below requirements. The general conclusion is that funds for maintenance should continue to be increased to meet the full costs of maintenance. In the short term, resources could be sourced from development partners and the government could add directly to the fund through the annual budgetary process.

The construction industry is still in an embryonic form as the thrust to build transport infrastructure and undertake maintenance using contractors is relatively new having only commenced in mid-1990s. The weak position of the domestic contracting industry has led to the import of many of the required skills. Since the inexperienced local contractors are less competitive than their foreign counterparts, the foreign contractors are awarded the majority share of the work. There is a need to scale up the assistance to the local construction industry through both technical and business skills development training as well as packaging works to attract more local contractors in the tendering process.

The regulation of the road transport industry is the responsibility of the Surface and Marine Transport Regulatory Authority (SUMATRA) which was enacted by SUMATRA Act No 9 of 2001. Within the roads subsector, the functions of SUMATRA are road transport and economic regulation. In this respect it is primarily responsible for licencing and regulating passenger fares. It monitors freight rates but does not regulate them.

As part of the enforcement procedures, SUMATRA conducts roadside inspections to monitor compliance with licensing conditions. A large number of offenses suggest that there is widespread abuse of license conditions despite the imposition of fines. SUMATRA need to review why the abuse of license conditions is so widespread and whether it is attributable to operators attempting to extract economic rents from users or whether the license conditions are unrealistic with fares set at levels below operating costs.

The key operational issues in the road subsector concern road safety and overloading. Despite rapidly increasing vehicle ownership and increases in deaths and injuries on the road network little attention is given to promoting road safety. The institutional framework to address road safety is absent and needs to be addressed and needs to involve all the major organizations including education, health, police and the private sector as well as road organizations. Within the road sector much more attention could be given to promoting safer roads by instituting compulsory road safety audit processes and implementing black-spot remedial programs.

Overloading is common with about 25% of trucks exceeding axle load limits. However, few exceed the 5% overload limit which is permitted under existing laws. Given the high numbers of overloaded trucks to below this permitted overload limit a review should be undertaken to examine whether this is a skill permitted by law or whether wider governance issues exist. International haulers complain about the frequent number of stoppages to weigh and inspect vehicles. These processes should be reviewed and simplified. The need to weigh empty trucks needs to be reviewed.

The other key sector issues concerning national roads are

- the widening gap in maintenance funding and the large backlog in preventive maintenance
- absence of a prioritized road plan for trunk and regional roads
- the need to improve development of the local construction industry
- pay greater attention to the capacity building needs of the sector, and
- develop a research capacity in the sector to provide feedback into the road development process.

In the local roads sector the primary issues are

- the priority of the sector accorded by government
- institutional issues relating to strengthening of agencies responsible for the infrastructure
- sustainability of rural road programs
- lack of connectivity issues in planning expenditures
- monitoring programs to provide feedback and further improve programs, and
- improved knowledge sharing amongst institutions in the sector.

Given the large investments made in the road subsector addressing these issues will result in better future programs, improved management of the sector and improved outcomes for the economy.

2. Urban Transport Subsector

The towns and cities account for the majority of the country's physical, financial, knowledge and technological capital. They produce more than 50% of Tanzania's GDP. However, rapid urbanization has strained the capacity of the cities to provide needed infrastructure and services to urban residents which has contributed to the creation of informal and illegal settlements. Investments in urban infrastructure have not kept pace with urban population growth.

While the primary focus in the urban transport sector is to address issues in Dar es Salaam, long-term urban transport plans for other cities in Tanzania have not yet been considered. Indeed there are few cities where land use planning is used to guide the direction and growth of the urban area and thus there is no history of linking land use with transport requirements. A conventional urban transport study was completed for Dar es Salaam in 2008 that identified a wide range of project solutions for the city covering road plans, truck routes, public transport and traffic management.

The plan placed high priority on promoting public transport and movement of people and goods and recommended a BRT plan at the core of the city's transport system. The first phase of a 6 phase BRT system is under implementation and a traffic demand management scheme has been prepared for the central business district. A key deficiency in managing urban transport is the lack of an institutional authority and this needs to be taken up urgently by the government.

At the regional cities level, urban transport is a local responsibility but no city authorities have a capacity to undertake transport planning or traffic management. PMO-RALG only gives advice but this has been limited to providing assistance to upgrade some city roads to a paved standard largely under externally-assisted projects.

The important issues in urban transport are

- institutional, particularly in Dar es Salaam where the existing city is under the responsibility of three municipal councils
- financial as few resources are allocated to urban transport problems and issues and resource mobilization has yet to be fully examined or assessed,
- land use issues as without good control of land use it is not possible to focus transport plans on resolving the problems and
- commitment of the government to achieving efficient urban transport systems and services and leadership at the local level to delivering improved urban transport services to the communities.

3. Port Subsector

The development of ports in Tanzania has a long history extending well over a century commencing with the initial coastal settlements at Dar es Salaam and Tanga in the 19th century. Lake ports were also developed at these locations to serve the lakeside communities and provide trading nodes to surrounding settlements.

The coastal ports became important ports of call for both freight and passenger shipping movements and were the main gateways for international travel between the country and foreign destinations, particularly in the Middle East and Europe.

The Tanzania Ports Authority (TPA) was established under the Ports Act No 17 of 2004 to take over the functions of

the Tanzania Harbours Authority and the Marine Services Company. Its major responsibilities are to develop, manage and promote the port subsector in Tanzania mainland.

TPA's network of ports serve a large market which includes the whole of the country's hinterland and the neighbouring landlocked countries of Burundi, Rwanda, DR Congo, Uganda, Zambia and Malawi. The main seaports, especially Dar es Salaam, provide vital access to world markets for this region. The ports on Lake Victoria, Tanganyika and Nyasa are also important for local and international trade although they now suffer from competition from road transport in many locations.

The performance of the ports are regularly monitored by both TPA and development partners. The inefficiencies in port operations are a major cause of total delays to cargoes in the logistics chain. Ship turnaround time has improved significantly over the years due to the removal of the exclusivity clause in the TICTS concession as a larger number of berths are now available to handle the container trade. The key issues in the ports subsector are a major concern for both Tanzania as well as its neighboring countries that rely on them for international trade access.

The important issues concern

- the increasing inefficiency of Dar es Salaam Port
- the large investments required in the subsector to provide additional capacity and increase efficiency
- the need to increase the role of the private sector in port operations
- the development of a new port at Mbegani-Bagamoyo to provide additional capacity in the longer term
- the development of Mtwara Port to meet the off-shore and on-shore developments in the Mtwara region and
- development of the Lake Ports to meet local trade requirements.

4. Railway Subsector

Tanzania has two railway systems of different gauges that were constructed at different times and for different purposes.

a. Reli Asset Holding Company/Tanzania Railway Ltd.
The first and oldest system is the Reli Asset Holding Company (RAHCO)/TRL system which was constructed in colonial times. The rail system was constructed to a 1 metre gauge (1,000 mm) standard. The mainline comprises the central corridor between the port of Dar es Salaam in the east, linking central and western areas of the country and terminating at Kigoma on Lake Tanganyika in the west. A second east-west line from the port of Tanga to Moshi was built between 1899 and 1911, and was subsequently extended to Arusha and linked to the Kenya and Uganda rail system at Voi in 1925. Branch lines were constructed to Mpanda in 1949 and to Kidatu in 1965. Another line was constructed in 1965 linking the central corridor line with the Tanga line. The total system length is 2,707 km.

From 1977–2007, it was operated by the Tanzania Railways Corporation (TRC) and following the concession agreement in 2007, it was operated as TRL. The latter was jointly owned by RITES of India (51%) and the Government of Tanzania (49%) with the former having management responsibility. Simultaneously, with the award of the joint operating partnership, the Government created RAHCO, a government company that owned the assets of the railway. However, this concession experienced major difficulties, did not improve the services, and the system suffered further depletion of its services. At present, the Government has appointed an interim management team to revive TRL operations.

b. Tanzania–Zambia Railway Authority
The Tanzania–Zambia Railway (TAZARA) is the second railway system constructed from 1970 to 1975, financed by the Peoples' Republic of China. It was constructed to the cape gauge standard, 1,067 mm, similar to the rail systems of Southern Africa to which it links with Zambia. The line is 1,860 km in length, of which 975 km is in Tanzania and 885 km in Zambia. An interface was constructed between this railway and the TRL system at Kidatu to facilitate freight traffic interchange between the two rail systems.

Commercial operation commenced in July 1976. The railway is jointly owned by the Governments of Tanzania and

Zambia and is managed by TAZARA. The performance of TAZARA over the past 30 years has been below expectations primarily because it was undercapitalized from the start. The railway owes its survival to the continued technical support provided by the Government of China. Since 1976, a total of 14 protocols have been signed between the three governments. These protocols have provided needed locomotives, rolling stock, rail infrastructure and technical assistance to maintain its operations.

The key issues in the rail subsector concern how to improve the operation of the railway systems so that they contribute effectively to the transport needs of the economy. On the TRL system the main focus needs to be on revival of the system. This will require some investment in the track, locomotive power and rolling stock as well as working capital to improve train services in the central corridor. Trains must be able to meet business plan requirements and provide an effective and predictable service. An improved operating environment will demonstrate whether a demand for freight train services will return to the subsector. Once a revival plan has demonstrated that train services can be successfully operated and that there is a demand for such services a rehabilitation plan should provide additional longer term support. In the long term competitive rail services should be introduced.

On the TAZARA system there needs to be agreement between the governments on how to energise the management and business operation of the railway. It is likely that the railway could be operated more efficiently and provide better quality services to customers with improved capitalization and business skills. A business plan to unleash the potential of the railway should be a priority action.

5. Airport Subsector

Airports in Tanzania play an important part in the country's transport infrastructure. In addition to providing international gateways, airports have historically been used in domestic traffic and have been indispensible for pioneering development opportunities in remote rural areas. Overall, the country has 368 airports with the Tanzania Airports Authority (TAA) responsible for 58 airports on the mainland. The majority of the airports are private airfields owned by mining companies and tour operators.

Despite the long history of air transport sector in the development of the country, operations of few international airlines and the national airline, Air Tanzania, do not play a dominating role in the development of the air transport industry. While many routes are long distance and require long trip times by road, the demand for air travel has remained relatively small and has not developed as fast as in many other countries. Low demand coupled with high operating costs and limited competition has resulted in high fare structures when compared to other parts of the world and this has also had an adverse impact on the growth of the industry.

The subsector is highly dependent upon capital investment from the government for undertaking airport improvements. Such contributions are not part of the balance sheet of TAA and the debt incurred for airport improvements is handled by the government.

The key issues in the airports subsector include

- the need to prepare a subsector plan to provide the framework for identifying the subsector's needs
- additional investment in the subsector is required to improve airports across the country
- continued emphasis on safety needs to be undertaken
- reforms in the management of the subsector by moving towards an autonomous authority will promote better business operation, and
- development of a new terminal at Julius Nyerere International Airport is urgently required and investment from the private sector should be sought for its construction and operation.

6. Zanzibar Transport

Zanzibar is an archipelago in the Indian Ocean and consists of numerous small islands and two large ones known as Unguja, the main island often referred to as Zanzibar, and Pemba to its north. The islands have a long history and culture and were part of the early trading routes linking East Africa with Europe, the Middle East and Asia. In 1964, the islands joined Tanganyika to form the United Republic

of Tanzania and today the islands have their own government known as the Revolutionary Government of Zanzibar (RGZ).

Zanzibar is semi-autonomous and has its own government. Within this structure the transport sector is under the RGZ's Ministry of Infrastructure and Communications (MOIC). The exception is regulation of civil aviation which remains a national activity and is the responsibility of TCAA.

The transport sector in Zanzibar is relatively well developed but improvements are required in certain areas. In the ports sector the key need is to provide additional handling equipment to meet the increasing containerization trends and to promote reforms to promote greater participation of the private sector in port operations and moving the Zanzibar Port Corporation towards a landlord authority.

In the airport sector substantial improvements have already been made to improving the runway and a new terminal building is currently under construction. While no immediate need for additional infrastructure is required consideration needs to be given to outsourcing the management of the airport to the private sector to improve its efficiency and increase passenger services.

The roads subsector is currently implementing a series of reforms to create an autonomous roads agency and a separate regulatory agency. While no problems are anticipated at this stage it is possible that further assistance will be required to support road asset management practices.

7. Pipelines

At the present time there are three pipelines in Tanzania which are all related to the energy sector. They are the TAZAMA pipeline which transports crude oil from Dar es Salaam port to an oil refinery at Ndola in Zambia over a distance of 1,710 km, the Songo-Songo pipeline which transfers natural gas from Songo-Songo island to Dar es Salaam over a distance of 232 km and the Mnazi Bay pipeline which transfers natural gas from the Mnazi gas field to a power plant in Mtwara over a distance of 28 km. The oil and gas industry is currently expanding at a fast pace as new sources of supplies are being discovered.

The development of additional pipelines are in the planning stage and further developments will also be undertaken in line with new oil and gas discoveries. These new investments in pipeline facilities will largely involve investment by the private sector and will be under the responsibility of the Ministry of Energy.

D I Strategies for Future Development

Over the next 5 years, the government will continue to place high priority on infrastructure. While two-thirds of the funds allocated to the transport sector will be for roads, higher priority will be given to rural feeder roads, sea ports and railways than in the past transport sector investment program.

1. Roads Subsector

The development of local roads is urgently needed in rural areas where poor access to rural towns and villages prevents rural populations from participating in and benefiting from a range of government programs designed to benefit rural populations and poverty groups. Achievement of the policies outlined in the MKUKUTA II strategy requires rural accessibility to be improved which will also have the added benefit of helping to achieve the Millennium Development Goals.

Upgrading of trunk roads to a bitumen standard remains an overall goal of the national road subsector and further support for trunk roads improvement is tentatively programmed in 2016. It is expected that this project will focus on upgrading the roads that are included for study under the recently approved Road Sector Support Project II.

2. Urban Transport Subsector

The deteriorating urban transport sector in Dar es Salaam will also need to be addressed as a matter of urgency to maintain mobility and reduce levels of increasing congestion. It is proposed to implement a further phase of the Dar es Salaam BRT project for which phase 1 is currently under construction. The detailed designs for phases 2 and 3 have been completed and are ready for tendering once a funding source has been identified.

It is recommended that a traffic engineering and traffic demand management component is identified to support the identified BRT corridor to provide a holistic package of urban transport improvements to promote sustainable urban transport in the city.

3. Port Subsector

Major constraints affect international trade with the increasing congestion and capacity in Dar es Salaam port, the country's main port. The capacity of the port to handle additional container traffic is limited as facilities are already operating beyond the capacity design limits. Additional berths are required and the expansion plans are expected to be supported with assistance from the Peoples' Republic of China. The proposed support from AfDB will be to improve berths 1 to 7 to increase the capacity for bulk cargoes as well as some container traffic, deepening the alongside depth the handle larger vessels and deepening the channel to better cater to larger vessels using other berths and port facilities. The project will also provide assistance through the private sector window for break bulk and liquid bulk handling facilities and quayside handling equipment.

Further assistance to improve handling and storage of containers quayside and in ICDs outside of the port gate will be proposed as well as the intermodal interface between the port, road and rail services. The project which is being prepared with assistance provided through TradeMark is also expected to address port sector reforms and processing procedures to reduce the time required for cargo processing.

It is also proposed to incorporate an engineering loan under the project using funds from regional sources to carryout planning studies and detailed engineering designs for the new port at Bagamoyo. Construction for the first phase of this project is not required until 2017.

4. Railway Subsector

The government has identified a strong desire to support the central railway system. However, the investment required is high and also involves high risks as the operational aspect of TRL has fallen to low levels due to neglect by previous governments and poor business management from railway operations. It is expected that a revival project will initially determine the viability of the railway and if substantial improvement can be achieved it will be followed by a larger rehabilitation program. This latter program will require substantial resources and probably the involvement of several development partners in a cofinancing arrangement. However, such an arrangement will only be possible once the initial revival project has adequately demonstrated the viability of the railway to operate trains to an agreed timetable at agreed costs and fare structures. If demand can be demonstrated then a rehabilitation project would be a possible option to continue development of the central railway corridor.

E | The Way Forward

In selecting and prioritising proposed projects, reference was made to the proposed work plans of the individual agencies and the overall transport sector investment program which is under preparation. The latter is expected to be finalised prior to the beginning of the fiscal year commencing July 2012.

The table below lists potential projects to build upon existing work programs of the transport agencies and covers a number of different transport subsectors where constraints are currently impeding economic growth and reducing the effectiveness of other complementary programs.

A technical assistance is warranted in a number of areas to support the continued development of the sector. The table includes priorities in capacity building at MOT for public-private partnership operations which is a major policy theme of the government to diversify sources of investment in infrastructure by harnessing additional investment from non-traditional sources. The proposed assistance is to help MOT build the necessary capacity to identify and deliver some potential projects in the transport sector.

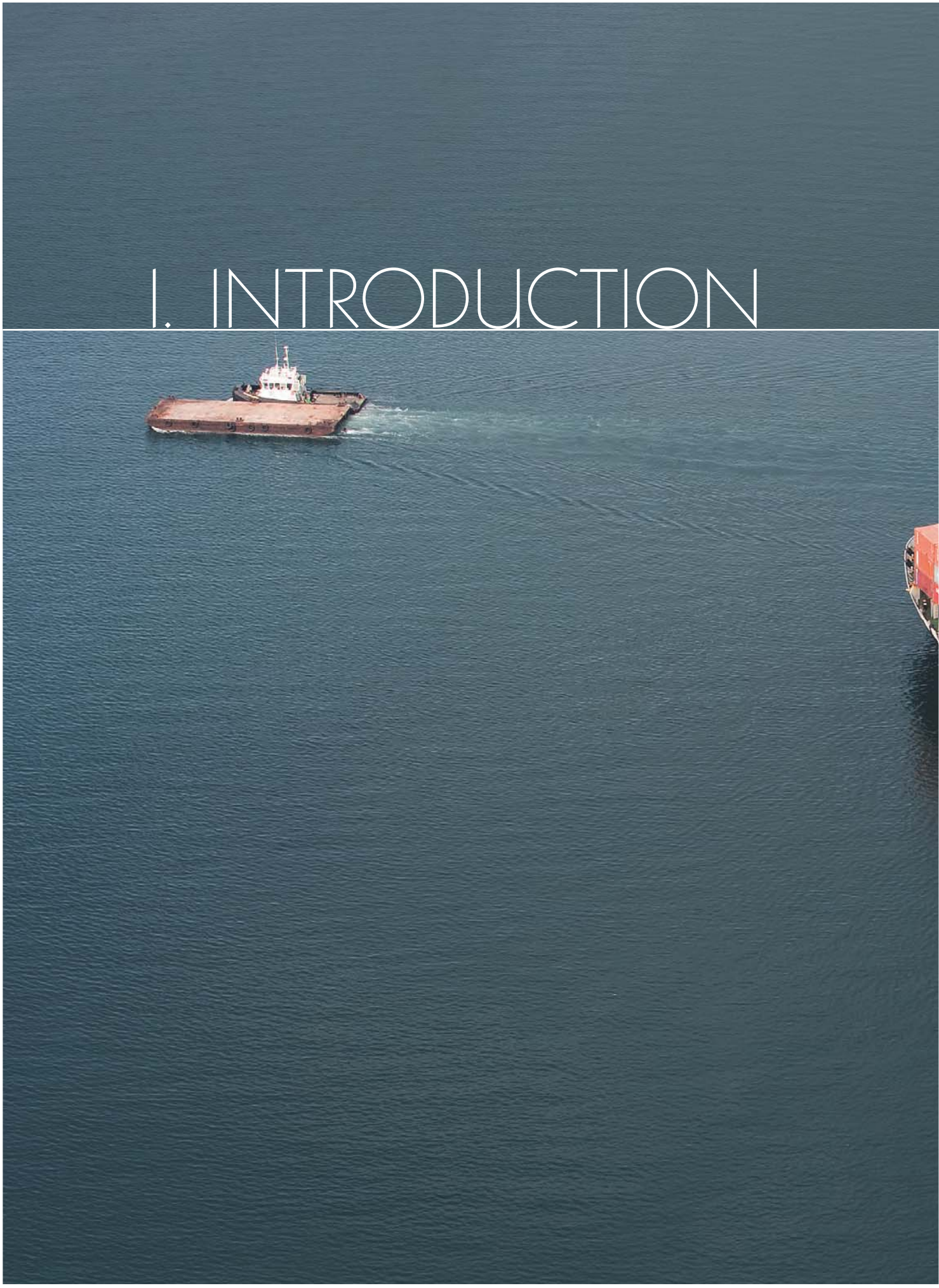
A second TA will prepare an integrated transport plan for the next 5-year plan period. It will also demonstrate to

MOT how to undertake integrated transport planning and improve upon the current planning model which is based upon individual transport modes and does not taken an integrated approach. A third TA is proposed to be piggy-backed to the sustainable urban transport project which will support capacity development for transport planning and traffic engineering at the regional cities which is currently a neglected area of development.

Summary of Potential Loan and Technical Assistance Projects

Sector	Amount ($ million)	Year of Approval	Executing Agency	Notes
A. Loans				
Rural Roads	50.0	2014	PMO-RALG	
Road Safety Support	2.0	2014	Tbd	Piggybacked to rural roads
Port Efficiency Enhancement	150.0 + 50.0 (private)	2014	TPA	Private sector involvement
Bagamoyo Port Development	10.0	2014	TPA	Using regional funds
Sustainable Urban Transport	150.0	2015	DART	
Trunk Road Improvement	200.0	2016	TANROADS	
Railway Development	100.0	2016	RAHCO/TRL	Cofinanced with other development partners
B. Technical Assistance				
Capacity Development for PPP	2.0	2013/2014	MOT	
Preparation of an Integrated Transport Plan	1.0 to 2.0	2015	MOT	
Regional Cities Urban Transport	2.0	2015	PMO-RALG	Piggybacked to sustainable urban transport

I. INTRODUCTION




CONCORD
ST. JOHN'S

I. INTRODUCTION

A | Background

Tanzania's national development strategy emphasises that extensive and efficient infrastructure is critical to ensure the effective functioning of the country's economy. It is in this context that the African Development Bank (AfDB) aims to strongly focus on infrastructure as an enabling sector of the economy.

As a result, a sizeable share of the Bank's new commitments will be directed to infrastructure investments with a focus on reducing travel times between regions, integrating the national market and connecting it to other markets in the East African Community. The initiative will create a positive impact on national competitiveness, growth and regional integration.

Tanzania is the international gateway for several of its landlocked neighbouring countries. Burundi, Rwanda, Uganda, DR Congo, Zambia and Malawi are dependent to some extent on the country's transport network for their access to global markets. For Tanzania, facilitating this access is not only good neighbourliness but is also good business as the provision of transport services is also a potential source of revenues and a catalyst for accelerating development.

B | The Transport Sector

The transport system in Tanzania consists of five modes comprising roads, rail, water, air and pipelines. The transport system has its roots in the colonial period over a century ago when the sea ports provided the international gateways and railways were built into the interior to provide access for both trade and administrative purposes. Inland ports were also constructed on the great lakes to facilitate trade with neighbouring countries. Roads have only gained importance in the past 50 years as road transport became more affordable and became an important feature of a market economy. A high proportion of the infrastructure was not modernised over time due to limited resources to invest and a large amount of infrastructure and equipment is now beyond its economic life. The lack of attention to maintenance resulted in rapid deterioration in the infrastructure and this imposed high costs on the economy, a trend that continues to the present day.

The existing transport infrastructure does not serve the modern day needs of the economy. The economic reforms that were initiated in the 1990s have delivered significant change to the structure of the economy through the introduction of market-based pricing and loosening controls on trade. However, for market forces to be successful, good transport services are essential.

This requires transport infrastructure to be upgraded and improved over large areas of the country. During the past decade, significant progress has been made, particularly in the roads subsector, but considerable investment is still required to deliver improved transport services to meet the growing needs of the economy and the region which it serves.

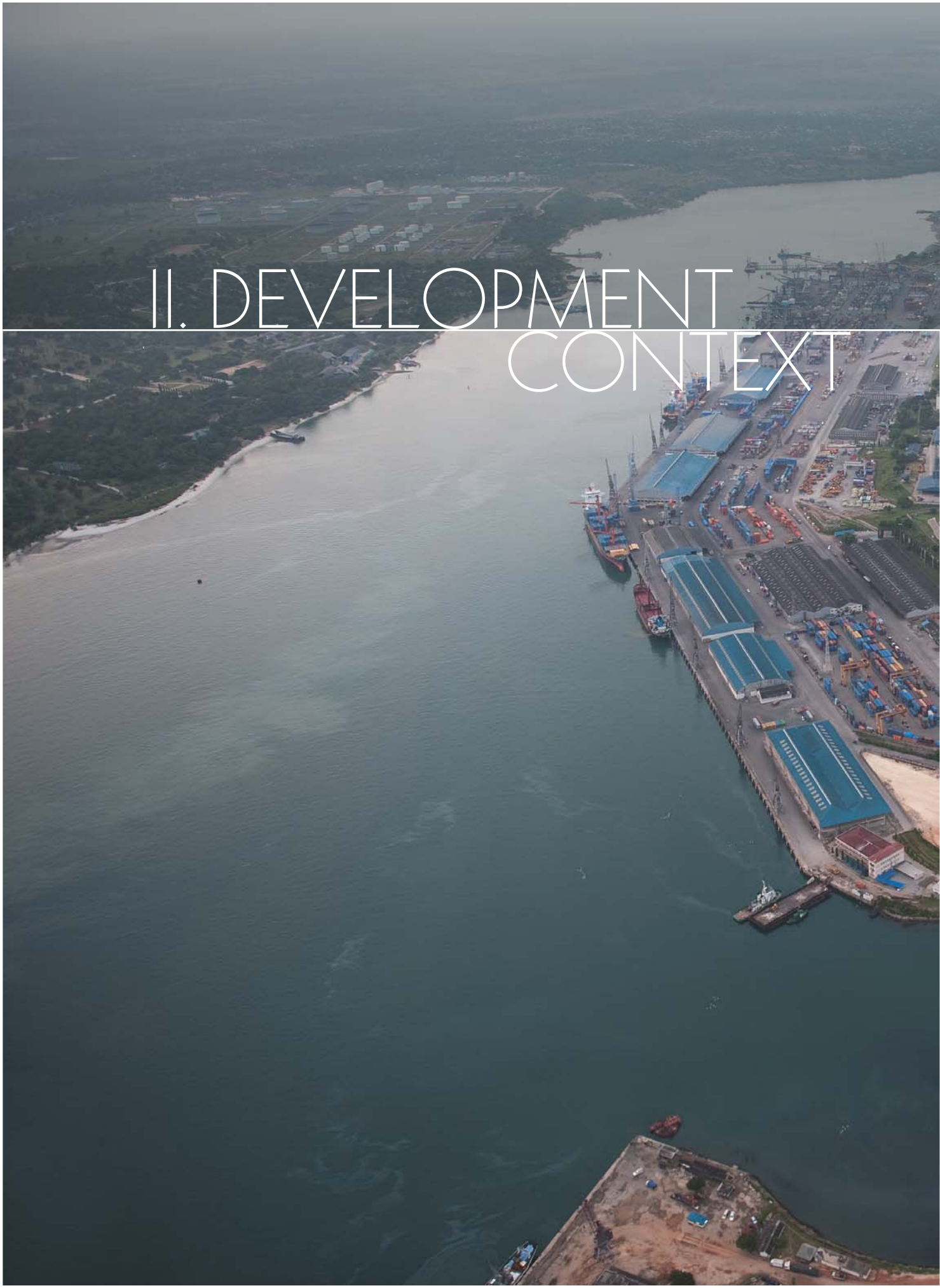
Improvement in infrastructure is only a part of the solution as it is improved services that actually benefit the economy. In this respect, it is necessary to look wider than just the infrastructure to make sure that complementary bottlenecks and non-tariff barriers are also removed.

Such bottlenecks are encountered when policies do not promote high quality services and bureaucratic administrative procedures limit efficiency. Removal of non-tariff barriers is also important for the efficient transport of long distance freight and harmonisation of rules and regulations between countries is needed to promote the flow of goods and services between neighbouring countries.

C | Objectives of the Review

This review has been undertaken by the AfDB to guide future interventions in the transport sector. The primary objective of the study is to prepare a comprehensive prioritized recommendations and strategies covering physical transport infrastructure, reform recommendations for transport services, institutional strengthening and capacity building.

This report is the result of a 3-month desk-based study which takes into account the findings and recommendations of a number of studies, reports and documents that are recorded in the list of references. Meetings and discussions were held with several government agencies, development partners, and private sector stakeholders involved with transport sector operations in the country. The scope of work is described in the terms of reference of consulting services (Appendix 1).



II. DEVELOPMENT CONTEXT

The development of Tanzania's transport infrastructure will be undertaken within the scope of existing plans for development. These plans involve those that are oriented towards the general development of the economy such as the Vision 2025, the National Strategy for Growth and Reduction of Poverty known, by its Swahili acronym, MKUKUTA[1], and the First Five-Year Development Plan while others have been formulated to specifically guide the development of the transport sector. The latter include the national transport policy, Implementation Strategy of the Transport Policy of 2011 to 2025, and the Local Government Transport Programme (LGTP). A comparative socioeconomic indicator (Appendix 2) is another useful reference in framing up transport sector strategy.

[1] Mkakati wa Kukuza Uchumi na Kupunguza Umaskini Tanzania.

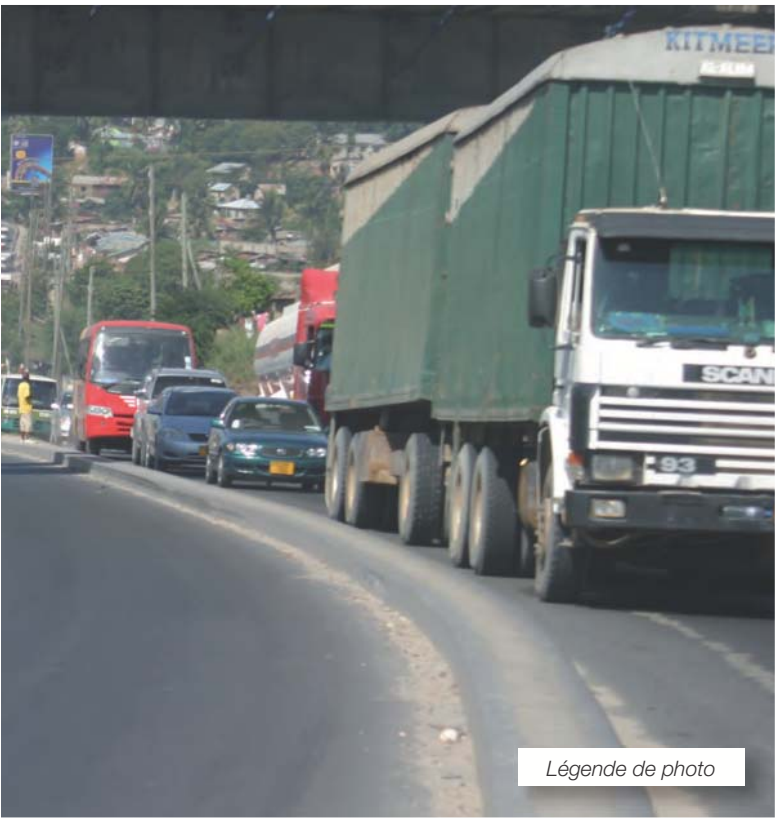
II. DEVELOPMENT CONTEXT

A | Vision 2025

Vision 2025 was launched in 1999 and its primary aim was that by 2025, the country should have attained middle-income status characterised by high levels of industrialisation, competitiveness, quality livelihood, rule of law and having an educated and pro-learning society. Specifically, it highlighted the country's social, economic and political aspirations for the first quarter of the 21st century to reach the middle-income country status with per capita income of US$3,000 in nominal terms.

Recently, a review of Vision 2025 was undertaken as part of the process in developing the first five-year development plan. Independent critical reviews were undertaken to (i) assess the progress in implementing Vision 2025, (ii) identify challenges to be considered in planning for the remaining 15 years, and (iii) recommend the best options to pursue in the remaining period. The results of the review identified that the country had achieved relatively high economic growth, low inflation and improved management of the economy, but the achievements were below the level needed to meet the Vision 2025 goals.

The review underscored that, first, the reduction in poverty had not met targets, especially for the poor who constitute the majority of the population. Second, the government had relied on tax revenues and foreign assistance for financing development programs. Other than these traditional sources, a range of financing instruments such as infrastructure bonds, remittances, credit lines and income from minerals, tourism and services should be seriously explored. Foreign direct investment and public-private partnerships (PPP) were not aggressively pursued and the emphasis placed on the infrastructure sectors did not promote policies for such sources of investment. Moreover, the continued increase in global fuel and food prices caused inflationary pressures and increased costs of production, particularly in the agriculture sector which is the backbone of the economy.



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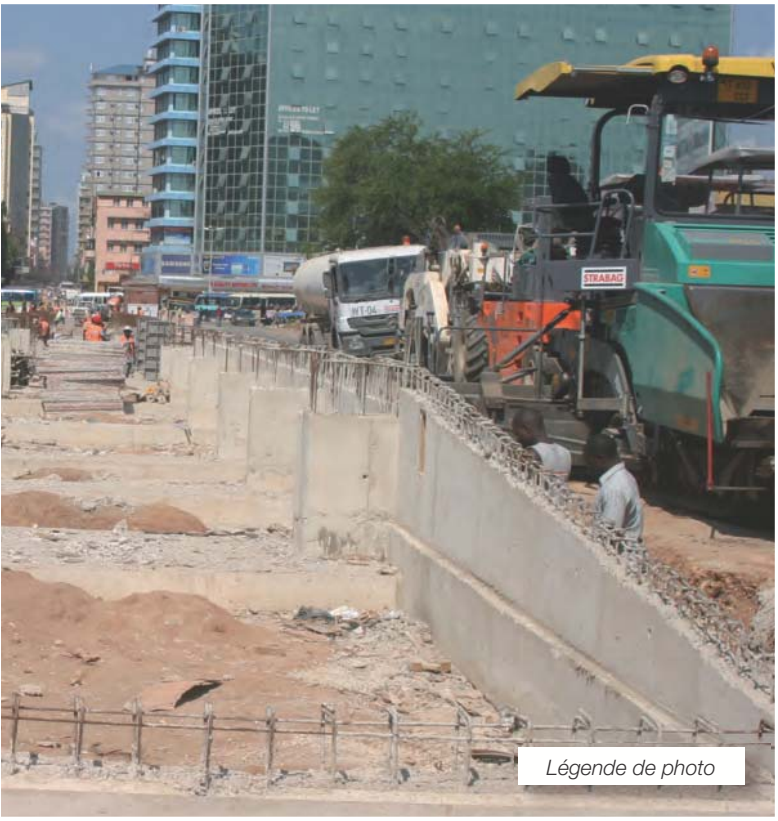

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In infrastructure, the findings were critical. First, the efforts to transform the country's supply structure to facilitate the benefits of globalisation were largely thwarted by the existence of weak infrastructure that reduced the ability and effectiveness for strategically engaging in international trade. Second, poor transport infrastructure and facilities also prevented the country from exploiting its geographical comparative advantage as a regional trade gateway and logistical hub.

The conclusions of the review suggested that deliberate actions should be taken to utilise resources strategically and target them in focal areas to remove the bottlenecks to progress. To reduce risks and achieve the targets, it was evident that improved planning is necessary if the socioeconomic elements of Vision 2025 are to be attained. In addition, a comprehensive road map was suggested to guide the policy and actions in tandem.

The overall road map is the implementation of three consecutive 5-year development plans covering 2011/12 to 2025/26 which are designed to map out the growth path to attain the vision. The primary thrust of the current development plan is to unleash the resource potential of the country and fast track the provision of the necessary conditions needed to attain broad-based and pro-poor growth. The plan sets an ambitious growth rate of 8% a year over the period to 2016 and thereafter increasing the pace of development to 10% a year for the two succeeding development plans. While maintaining a high growth rate over a long term is a significant challenge, it has been achieved in the middle income countries in East Asia. To attain these growth targets, five critical elements will be needed:

- large investments in energy and transport infrastructure;
- strategic investments in key industries including textiles, agriculture, fertilizer production, special economic zones to foster manufacturing, and development of natural resource industries such as cement, coal and iron and steel;
- enhancing skills development;
- significant improvement in the business environment; and
- institutional reforms for effective implementation and monitoring and evaluation of the plan.

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The plan places a strong emphasis on the development of transport infrastructure to facilitate the country's strategic position as an international trade hub as well as facilitating the movement of goods and services where they are needed in the economy. To achieve this aim, development will focus on improving the port of Dar es Salaam to facilitate trade, rehabilitate the railway, improve roads linking production centres with markets and reducing congestion in urban centres, and providing adequate airport infrastructure to facilitate domestic and international air transport services. A major thrust of the plan is to involve the private sector in infrastructure as well as the operation of services.

B | Mkukuta

In Vision 2025, the overarching goal of the development agenda is the reduction of poverty and the strategy to achieve this goal is described in the MKUKUTA. The strategy emphasizes the need to promote strong and equitable growth. For the transport sector, this will imply that the infrastructure network will not only improve connectivity between producers and markets, but will also improve access to social and administrative services. The strategy is closely aligned to attainment of the Millennium Development Goals (MDGs) and achievement of inclusive growth. A high proportion of transport infrastructure is in poor condition and there is a risk that some sections of the population will be left behind by economic progress. Communities that are located in areas with inadequate infrastructure or limited physical access are likely to be locked into a subsistence existence and disengaged from the economic mainstream over the long term. This situation does not only apply to rural areas but also to urban areas with poor access. Investments by small and medium enterprises in such areas will be discouraged by high transport costs, poor access and connectivity, and lack of complimentary infrastructure and services.

The basic principle of MKUKUTA is to achieve higher incomes thus reducing poverty through balanced growth by allowing higher household incomes to improve human capabilities through better education, health, nutrition and shelter.

The MKUKUTA program is in its second 5-year phase covering 2010/11 to 2015/16. The second phase continues the programs and policies of the first phase, with

enhanced emphasis on involving the private sector. In this respect, the MKUKUTA program reinforces Vision 2025 and the five-year development plan in seeking to harness the private sector as an engine of growth through the support of PPP operations and investments.

C I National Transport Policy

The National Transport Policy [2] describes how the transport sector will contribute to national goals and objectives and facilitate the optimal development of the national economy. The vision of the policy is "to have efficient and cost-effective domestic and international transport services to all segments of the population and sectors of the national economy with maximum safety and minimum environmental degradations." Despite the high growth in the national economy, averaging 7% annually from 2005 to 2010, the efficiency and quality of transport services has been inadequate. The demand for transport services has grown rapidly in line with the economic and social development activities of the country.

Transport provides the arteries for development providing the channels and linkages between areas of production and markets and facilitates the movement of inputs and outputs throughout the economy. Transport services are critical to all aspects of economic and social development and are a vital ingredient to the attainment of the MDGs.

The goals of the national transport policy are focused on four themes:

- each fundamental element of transport has been provided in the appropriate quality, quantity and form;
- all components of transport are combined in a technologically optimum way for each mode of transport;
- each mode is operated most efficiently; and
- appropriate mechanisms exist to ensure effective intermodal coordination and communication between the user, the operator, the regulator and the government on all transport questions and issues.

The government has set a number of specific goals designed to address high transport costs and access restrictions attributable to sector inefficiencies. These goals include

- paving all trunk roads linking regional capitals to bitumen standard by 2018,
- improving urban mobility and reducing congestion,
- increasing rail freight to 2.3 million tons a year by 2018;
- expanding cargo handled at sea ports by 50% by 2020 from 10 million tons in 2010;
- developing effective modal interfaces in the port subsector to reduce tariff, travel and delivery times;
- expanding Julius Nyerere International Airport (JNIA) passenger and cargo capacities into a hub by 2020;
- strengthening institutions to satisfactorily implement PPPs in transport infrastructure;
- ensuring that the regulatory framework produces fair and transparent competition in the market place;
- delivering safe and environmentally sustainable transport infrastructure and services;
- attain gender and cross-cutting benefits in accordance with national expectations; and
- providing efficient and effective transport corridors for international trade using national gateways.

A strategy has been formulated to provide the framework for implementing the directives of the national transport policy. The various components of the policy are vested in various government agencies as indicated in the policy document. These include the Cabinet which is responsible for approving national policy issues, the Ministry of Finance for issues relating to finance and development, the Planning Commission for long-term planning, and the President's Office-Public Sector Management Department for sector reform. For the transport sector, the Ministry of Transport (MOT) is responsible for setting the strategic goals for the sector as well as overseeing the performance of the institutions under its mandate including the regulatory and operator institutions. The Ministry of Works is responsible for the road infrastructure subsector while the Prime Minister's Office Regional Administration and Local Government (PMO-RALG) provides management of all urban and rural roads under the local government authorities (LGAs).

[2] Mkakati wa Kukuza Uchumi na Kupunguza Umaskini Tanzania. The existing national transport policy was approved in 2003. This policy is being revised and was discussed at a workshop in January 2012. The thrust of the new policy report will be the basis of this discussion.

D | Transport Sector Investment Programme

The Transport Sector Investment Programme (TSIP) is a 10-year sector programme which is to be implemented in two phases of 5 years each. A major drawback of the TSIP is that it lists priority projects drawn up by each of the subsector agencies without examining the possible integration of the different modes or determining the economic and financial aspects relating to individual components of the programme.

The overall plan is also not related to the level of resources available and this has limited its value in achieving the transport infrastructure agenda. For the initial 5 years, the estimated investment was $6.174 million although the plan indicated that only 40% of the funding had been committed or secured at the outset. The shortfall was too excessive and an expectation of raising most of the funding from sources other than the government budget is too high to be achievable. In addition, the capacity to disburse funds was severely underestimated as revealed during the review of TSIP implementation in 2009. The actual expenditure levels in the first two years of the plan were only 64% of the budgeted amount.

Furthermore, in the later stages, the roads subsector contracted a large volume of works which was well above the available budget. This resulted in numerous contracts that have limited implementation progress, while others have stretched the capacity of the budget to reimburse contractors for accomplished work.

MOT is currently preparing phase 2 of TSIP which covers the next 5 years (2012/13–2016/17). It is taking into account the important issues that emerged from a review of the first phase. However, some of the issues will remain because the project identification system is still anchored in individual subsectors and yet not integrated across the transport sector. As an example, one of the major issues to be addressed is the large investment required in the port and rail subsectors. This investment should not be considered as standalone in either the port sector or rail sector as Dar es Salaam port links to improvements and reforms in the railway system and also includes the road network in the vicinity of the port. Thus, to realise efficiency, the investments need to be viewed in unison rather than as separate investments in each of the subsectors.

One of the large unknowns in planning for TSIP phase 2 is the amount of investment that might result from PPP arrangements. Planning for participation by the private sector is significantly easier than realising actual investments. There are many countries in a similar situation as Tanzania who are seeking to augment government budgets and local revenue streams with foreign direct investment.

As a result, there is intense competition for each investment in an environment that is not always conducive to generating returns over the long term due to perceived high level of risks. Thus, planning for private sector investment is less certain than for government investment and can often be delayed as agreements often take lengthy periods to reach fruition.

E | Local Government Transport Programme

Support for local roads is important as 80% of the population live in rural areas. The LGTP is a comprehensive programme for the development and maintenance of transport infrastructure in the local government. The programme is linked to the MKUKUTA strategy and the MDGs as well as the national transport policy. The basis of the programme is to focus on establishing basic access to the rural road network ending in 2012. Priority was given to maintenance of infrastructure to increase basic access of all types of transport including nonmotorised and pedestrian movements, rather than improvement and upgrading of all access for motorised modes.

Its objectives cover six primary outputs:

- optimal transport infrastructure attained;
- transport infrastructure adequately maintained;
- quality works achieved;
- transport infrastructure rehabilitated and/or upgraded;
- reliable access achieved; and
- capacity of the PMO-RALG and LGAs enhanced.

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The programme included a number of indicators to monitor the success of the program. The intention was to establish by 2012 basic access on at least 90% of the network and increase from 86% to 92% of the proportion of rural people living within 2 km of an all season passable road. The key physical components of the program included 15,000 km of spot improvement, 18,000 culverts installed, and 12,000 other bottlenecks addressed. In addition, at least 2,000 km of economically important roads were to be rehabilitated or upgraded.

During the preparation of the programme, it was estimated that approximately 2 million people would benefit from new motorised access and a further 1.5 million from improved access by the end of 2012. Through the extensive use of labour-based construction and maintenance methods, approximately 250,000 person-years of employment would be created and 600,000 jobs generated ending in 2012.

The programme is being reviewed and a second LGTP is being prepared. A major problem encountered with the initial program is the lack of support given by the government despite approval of the programme and its likely strong support and synergies to achieving MKUKUTA. As government failed to provide substantial budgetary support and commitment, several development partners also withdrew their intended support for the program. This was despite the fact that several development partners had initially supported the program concept. As a result, the achievements of the LGTP have been well below targets and this is reflected not only in the continued poor quality of the rural road network but also the continued poverty in many rural communities.

III. ROADS SUBSECTOR

III. ROADS SUBSECTOR

A | Introduction

The road network in Tanzania currently comprises 86,472 km of roads in the formal inventory of which 12,786 km are categorised as trunk roads, 21,105 km as regional roads and the remaining 52,581 km as district, urban and feeder roads [3]. In addition, there are many kilometres of footpaths and tracks which are not part of the administrative network and the majority are unknown. The trunk and regional roads are under the responsibility of the Tanzania National Roads Agency (TANROADS) which is a semi-autonomous agency under the Ministry of Works. The district, urban and feeder roads are the responsibility of LGAs (132 in number) which are under the oversight of PMO-RALG. PMO-RALG has an oversight function of preparing policies and strategies in consultation with stakeholders as well as coordinating, monitoring, and providing support to LGAs in road works implementation activities.

B | Overview of the National Road Network

The national road network has been the focus of transport development in the 2000s and has received the largest share of resources in the development budget. During the previous development plan, the national road subsector has received approximately 69% of the budget for transport and this has had a major impact in delivering a substantially better quality trunk road network that has helped to promote economic growth and social development of the country. However, despite the large investment, there still remains a substantial length of trunk roads that requires upgrading. In addition, work on the trunk roads has been at the expense of the regional and local roads where few roads have been improved, long lengths remain unmaintained, and a high proportion requires improvement. The overall network provides good connectivity between the major towns and cities but still does not adequately provide connectivity between farmgates and markets. As such, considerable development of the network is required to bring the benefits of a market economy to rural communities throughout the country. The road network provides the greatest contribution to delivering services throughout the economy, when compared to other transport modes, as it provides the arteries for accessibility and mobility to the rural economy.

1. Road Network Description

As noted above, the national road network consists of trunk and regional roads. Trunk roads provide the primary network and link major towns and cities while regional roads provide the secondary network linking the major towns with district centres. Prior to mid-1990s, the bulk of the network consisted of gravel and earth roads, and a few roads with bitumen standard. The majority of the network was dilapidated and limited funds were allocated for maintenance and rehabilitation. As a result, the network did not provide significant contribution to the economy and long distance trips were significantly constrained due to poor road conditions often impassable in wet season.

Since the late 1990s, the government has placed high priority on improving the trunk road network (Map 1), noting that good transport infrastructure is vital to delivering other goods and services in the economy and serving the social requirements of the population. It also recognised the importance of maintenance to preserve the quality of the infrastructure and ensure that it continues to deliver benefits to the economy over the long term. To ensure that funds are available for national and local roads maintenance, the roads fund was created in 1998 to provide an off-budget ring-fenced source of funding. This has removed maintenance funding from the general budget and has made maintenance funds certain, dependable and predictable, even though still insufficient to meet the overall requirements. Nevertheless, the availability of maintenance funds has provided considerable stability to the network and underpinned additional investment from the government and development partners in the subsector.

The government's reforms in the roads subsector also included the creation of TANROADS, an executive agency under the Ministry of Works, responsible for the management of the national road network. This change accompanied the move towards greater use of the private sector for the planning and design of road works and the use of contractors selected through a competitive bidding process for civil works to replace the use of force account. To date, almost the entire

[3] It should be noted that the length of the network is not consistent among all agencies. While the Ministry of Transport statistics indicate that local roads total to 52,581 km, the local roads agency currently uses 58,037 km which includes 5,796 km that have yet to be formerly gazetted as local roads.

investment in roads has been supporting trunk road improvement and rehabilitation (Map 1). At present, about 5,000 km have been improved or rehabilitated and the bulk of the trunk road network is expected to be completed by end of 2017.

2. Vehicle Fleet

Although the available data on vehicle fleet is relatively limited, the information gathered suggests that the fleet is growing rapidly. Table 1 indicates the growth in the fleet from 2005 to 2010 and illustrates that the overall annual growth exceeds 28%. However, many of the vehicle categories that are rising rapidly are for types that might plateau given their use. The increase in the numbers of tricycles, which largely comprise public transport "bajajs", will probably be reduced as the market becomes saturated. For several vehicle types—motorcycles, light passenger and all goods vehicles— which comprise the bulk of the fleet, the growth is high and well above gross domestic product (GDP) growth. Many of the vehicles entering the market comprise used vehicles, mainly from Japan, and also from the United Kingdom and Middle East. These vehicles are significantly cheaper than new vehicles and are likely to dominate the market for several years unless new policies are adopted to influence the market.With the relatively low vehicle ownership currently existing in the country and the projected high growth in economic performance, the increase in the fleet is expected to continue rapidly over the next several years. It can be expected that the number of vehicles nationally will at least double by 2016. This will have a big impact in growth pole locations such as urban areas, as vehicle growth will manifest into vehicle kilometres and usage which will increase traffic flows and in some areas, congestion. However, for the bulk of the network outside urban and peri-urban areas, the traffic flows will increase more modestly.

3. Traffic Flows

Traffic flows on the national road network are not measured regularly and as a result, TANROADS is not able to provide up-to-date information on the use of the network. The rationale for the non-availability of this information is that funds are insufficient to mount a regular annual traffic count program. From a network management point of view, regular traffic counts and use of the network by different vehicle types is a core requirement for managing roads and maintaining road assets. To reduce costs, the network is divided into quarters and traffic is counted for each quarter each year with the result that the network is covered once every four years. While this is satisfactory for broad-based planning, it is not satisfactory for road asset management, where it is important to have up-to-date traffic information on road use by vehicle types, especially heavy goods vehicles, to determine road deterioration and ascertain appropriate maintenance programs.

Table 1 : Growth in the Vehicle Fleet

Vehicle Type	2005	2006	2007	2008	2009	2010	Annual Growth (%)
Motorcycles	31,006	47,888	76,282	121,710	207,460	323,192	59.8
Tricycles	369	639	1,089	2,406	4,531	6,556	77.8
Light passenger	113,138	148,872	171,821	200,810	238,785	279,120	19.8
Heavy passenger	18,943	24,443	27,200	30,630	34,592	38,809	15.4
LGV	30,018	38,022	43,712	48,877	54,852	59,690	14.7
HGV	27,649	37,064	43,811	51,477	59,066	64,790	18.6
Trailers	4,491	7,220	9,014	10,746	12,907	15,299	27.8
Agricultural tractors	4,271	5,836	7,074	8,095	9,236	10,717	20.2
Agricultural trailers	45	77	89	103	135	173	30.9
Construction equipment	1,030	1,378	1,741	2,199	2,832	3,609	28.5
Others	237	273	310	326	510	700	24.2
Total	**231,197**	**311,712**	**382,152**	**477,379**	**624,906**	**802,655**	**28.3**

Source : Ministry of Infrastructure Development, June 2010.

Map 1 : Tanzania Trunk Road Network

Source: Ministry of Infrastructure Development, June 2010.

To illustrate this importance, two project completion reports by AfDB were examined [4]. Both these reports commented on the large increase in traffic that materialised after the projects were completed compared to the traffic forecasts at appraisal. In one case, traffic had increased by 30% more than the original forecast; while in the second case, the traffic had more than doubled. In both cases, the amount of heavy traffic was a significant component of the growth. It is widely expected that this type of high impact and growth in traffic occurs following completion of many road upgrading projects. In such cases, it is important to have good knowledge of traffic and its composition as the growth will be significant for determining maintenance requirements as well as the life of the pavement. On a well-constructed road, growth in heavy vehicles will have a large impact on the pavement service life and will probably shorten actual service life by several years. In turn, this could adversely impact economic returns on investments since road investment is usually predicted on a 20-year life where maintenance is fully funded and implemented timely. Substantial increases in traffic will be generally good for the economy as they demonstrate high level of economic activity, but for road investment, it will likely decrease the service life requiring additional maintenance at an earlier date. With maintenance funding constraints, significant increases in heavy vehicle traffic could contribute towards premature failure of road pavements in a short time.

The basic implication of this overview assessment is that more emphasis needs to be placed on road planning at the national level. This requires strengthening the planning function and monitoring system to provide better quality data for the road maintenance management system. The benefits will be manifested in better value for money through improved maintenance of assets, less deterioration in the infrastructure and substantial savings in fuel and vehicle maintenance costs for road users.

At present, most of the network traffic volumes are relatively light; generally below 1,000 vehicles a day and often substantially less. The highest flows are registered in and adjacent to Dar es Salaam on the central corridor where traffic of almost 50,000 annual average daily traffic AADT is measured dropping to about 35,000 AADT close to Ubungo and 27,000 AADT at about 27 km where the dual carriageway terminates. Beyond this section, traffic rapidly falls to about 12,000 AADT which remains above the capacity of the road and is a well known congested location. On most of the 900 km of rural sections of the corridor, traffic is below 1,000 AADT.

A good example of traffic using the trunk road network is reflected in the traffic using the central corridor between Dar es Salaam and Kigali in Rwanda. The traffic characteristics over the 3,000 km corridor are that 90% of the road length carries less than 100 vehicles a day, 5% has traffic between 200 and 300 vehicles a day and the remaining 4% has in excess of 400 vehicles a day [5]. These figures reflect the motorised vehicles using the inter-urban road network and indicate that, at present, traffic flows are relatively light. However, traffic is probably growing rapidly reflecting economic growth in the hinterland of the corridor.

4. Road Condition

The condition of trunk and regional roads has markedly improved over the past decade as a result of the strong emphasis of the government to support the national roads subsector and implement the Ten-Year Road Sector Development Programme which was initiated in 2002. Over time, the program has successfully reduced the number of national roads in poor condition and increased those in good condition as indicated in Table 2.

However, the condition of national roads masks the significant difference between trunk and regional roads as well as the differences between paved and unpaved roads. The trunk road network has been the investment priority; and as a result, many stretches of road have recently been upgraded to bitumen standard and are in good condition. It is estimated that 77% of paved trunk roads are in good condition and only 8% are in poor condition. These figures demonstrate the significant improvement in road condition since 2000 when it was estimated that about 50% of the network was in poor condition. In contrast to the paved roads, the unpaved portions of the network are in poorer condition with more than half of the gravel roads in fair condition and 17% in poor condition (Table 3).

[4] Mutukula-Muhutwe Road Upgrading Project, completed in July 2006 and Shelui-Nzega Road Upgrading Project, completed in July 2005.
[5] Corridor Diagnostic Study of the Northern and Central Corridors of East Africa, Volume 2, Technical Papers, C Corridor Diagnostic Audit, Nathan Associates Inc February 2011.

Table 2 : Condition of the National Road Network

Year	Good		Fair		Poor		Total	
	km	%	km	%	km	%	km	%
2002	4,081	14	10,199	37	14,052	49	28,510	100
2003	10,012	35	10,813	37	8,108	28	28,892	100
2004	12,394	43	10,377	35	6,299	22	28,892	100
2005	14,764	51	9,614	33	4,488	16	28,892	100
2006	11,648	40	10,838	38	6,439	22	28,892	100
2007	13,749	48	10,634	37	4,541	15	28,916	100
2008	11,345	38	13,533	46	4,609	16	29,487	100
2009	17,310	53	11,128	34	4,331	13	32,770	100
2010	19,412	58	10,710	32	3,347	10	33,469	100

Source : TANROADS.

The regional road network contrasts markedly to that of trunk roads as it has been subject to relatively little investment in the past few years. This has resulted in only 4% of the network being paved to a bitumen standard and the remaining 96% of the network comprising unpaved surface standards. Of the paved roads, only 45% are considered to be in good condition with the remainder split between fair and poor condition. The unpaved network comprises about 30% of roads in good condition, 50% in fair condition and the remaining 17% in poor condition.

The focus on trunk roads is the correct policy given the strategic nature of the trunk road network for both regional development in the country and the international linkages to neighbouring countries. These roads carry higher volumes of traffic and rank in priority in terms of economic and social evaluation criteria. The regional road network linking regional centres will become a priority when resources become available. While these roads have relatively light traffic at present, they provide an important link in the logistics chain between rural centres of production and markets. With poor road condition, it is a major bottleneck to realising the economic potential of the hinterlands. Future planning needs to give more attention to addressing the regional road network and improve connectivity in the logistics chain between areas of production or development potential and markets.

Table 3 : Road Condition by Pavement Type

Road Type	Pavement	Good		Fair		Poor	
		km	%	km	%	km	%
Trunk	Paved	4,111	77	827	15	409	8
	Unpaved	1,333	27	2,746	56	839	17
	Subtotal	5,444	53	3,573	35	1,249	12
Regional	Paved	336	45	205	28	203	27
	Unpaved	5,537	31	9,450	52	3,086	17
	Subtotal	5,873	31	9,655	51	3,289	17

Source : TANROADS.

C I Overview of Local Roads

1. Description of the Network

In 2011, the local road network under the responsibility of LGA comprises 58,037 km, out of which 52,241 km are gazetted and the remaining 5,796 km are either roads which were erroneously omitted during the road inventory and condition survey or are community roads that meet criteria for upgrading. PMO-RALG is currently seeking formal classification and gazetting of these roads. The network—totalling 29,340 km-are classified as district roads (51% of the total), 22,703 km as feeder roads (39% of the total), and 5,994 km as urban roads (10% of the total). The bulk of local roads are poorly constructed with earth surfacing and 45,241 km or 78% of the total consist of this surface. Gravel construction comprises 12,040 km (21%), and the length of roads that have a sealed surface total 756 km, representing about 1% of the local road network. These sealed roads are primarily confined to major towns and cities.

While the condition of the local road network has improved annually over the past 5 years, it still remains in relatively poor condition and a large proportion of roads are impassable or require 4-wheeled drive vehicles (Table 4).

Table 4 : Condition of Local Roads

Road Condition	2007		2011	
	Length (km)	%	Length (km)	%
Good	7,907	14	12,978	22
Fair	23,334	41	19,629	34
Poor	25,384	45	25,430	44
Total	**56,625**	**100**	**58,037**	**100**

Source : PMO-RALG.

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Based on the local government transport program, the target established under MKUKUTA II was 75% of roads should be either in good and/or fair condition by 2012. Notwithstanding the actual increase in the size of the network, the proportion of roads in good and fair condition has remained at about 32,000 km although the length in good condition has increased by almost 5,000 km. The length of road in poor condition has remained virtually static since 2007.

2. Program Allocations

The basic reason for the condition of local roads is attributable to the budget allocations for local roads and how they are distributed. Road maintenance funds are only applied to roads in good and fair condition since those in poor condition have deteriorated to a level where they are beyond maintenance and require substantially more funds to bring them to a maintainable standard. Thus, roads in poor condition receive almost no funding. For those roads that are considered maintainable, the Roads Fund allocates less than half the required amount. Moreover, the allocated funds, although increasing annually, are unable to meet the full maintenance requirements. As a result, the funding gap is increasing and this indicates a serious sustainability issue that needs to be addressed.

A major issue associated with the local roads subsector concerns the amount of resources allocated by government to develop local roads. In recent years, the three sources of funding for local roads development are from the development portion of the roads fund, development assistance from Denmark and the national government budget. Table 5 indicates the resource allocations for the past 3 years. It should be noted that the program that was supported by the Government of Denmark closed at the end of FY2010/11 leaving the remaining two sources as the only sources of funding.

Table 5 : Budget for Local Roads Development (Tshs billion)

Funding Source	Fiscal Year		
	2009/10	2010/11	2011/12
Local government transport programme (Denmark)	7.00	3.46	0.00
Government budget	9.90	15.72	14.48
Roads Fund (development)	8.45	8.45	9.40
Total	**25.35**	**27.82**	**23.88**

Source : PMO-RALG

These levels of funding do not permit a substantive amount of the network to be developed each year. The available funding resources have been allocated for spot improvement which addresses significant blockages and/or constraints to access on priority roads. Release of funds is focussed on areas with drainage problems requiring drainage structures—such as minor bridges, culverts and box culverts—or construction of drifts to protect the road from washaways. This is a good use of the available resources but the small allocations resulted in few accomplishments compared to the overall condition of the network and its immense needs. The actual budget allocations were less than 18% of the planned LGTP requirements and as a result, the quantity of civil works undertaken were well below the originally planned amounts. Table 6 indicates the physical achievements of LGTP since 2008.

Table 6 : Annual LGTP Physical Performance

Fiscal Year	Carriageway Improvement (km)	Side Drainage Improvement (km)	Bridges (no.)	Drifts (no.)	Box Culverts (no.)	Culverts (no.)
2008/09	750	285	26	33	28	340
2009/10	658	252	19	38	38	315
2010/11	342	150	11	6	2	14
Total	**1,750**	**687**	**56**	**77**	**68**	**802**

Source : PMO-RALG.

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The available funding has only permitted a total of 1,750 km of roads to be improved and 1,000 drainage structures to be constructed. It is likely that the number of drainage failures and road washouts during this period has exceeded the accomplishment. To make headway in improving access in rural locations, a significant increase in allocations from government is required. While development partners might also participate in the rural road subsector in the future, the government must demonstrate its commitment by increasing budgetary allocations for improving rural accessibility together with additional complementary support to stimulate rural road development.

Greater allocation of resources is not the only issue but a major constraint has been the inability to use the funding resources in a timely manner. Recent experience under LGTP for the past 3 years has highlighted that disbursement of the funds has been slow and only reached about 60% of the annual allocation. Most of this delay is in the procurement and implementation of works. Emphasis, therefore, needs to be placed on accelerating the pace of project implementation while simultaneously improving the quality of works.

3. Future Program

PMO-RALG is currently preparing the second phase of LGTP covering 2012/13– 2016/17 where it is intended to accelerate the size of the program based on the lessons learned from past experiences. The primary objectives of the program are to:

- provide an adequate minimum level of access to social and economic services for all; and
- improve roads leading to areas of high agricultural potential or areas of economic importance.

It is envisaged that the program would focus on the 25,000 km of local roads in poor condition to bring them up to fair condition through a program of spot improvements of about 3,000 km a year. This is targeted to be achieved in the next 10 years. Further, the roads currently classified in fair condition are potential candidates for rehabilitation and upgrading to a fully engineered all-weather standard. The target should be set at achieving 600 km a year by the end of the 2017 which would represent a threefold increase over current productivity levels.

To attain these goals, the amount of funding allocated for developing rural roads has to be increased. Also, adequate capacity has to be boosted to adequately manage the network including the implementation of the rural roads program. While additional funding requires action by the government and development partners, strengthening of LGAs to increase the capacity in managing the program regionally is also required. PMO-RALG is currently exami-

ning the preferred options to augment program management and support to district engineers to strengthen implementation of programs at the local level to cover planning, procurement and supervision of works. The creation of a local transport authority within PMO-RALG to manage the local roads program is under consideration. It is possible that capacity building is also required for local contractors to improve their ability to tender for and implement works with improved quality and better timeliness.

D | Roads Subsector Funding

1. Capital Investments

At present, the priority need is to improve the quality of the existing road network to provide reasonable access at the lowest possible operating costs. As noted previously, most roads in Tanzania are not highly trafficked and are thus not particularly suited for private sector investment. The scope for high trafficked expressways is perhaps limited to Dar es Salaam and its environs in the future where private sector involvement might possibly be interested in supporting infrastructure investment. The only other possible situation where private sector might be interested in supporting road development are in remote locations where significant investment might be planned such as at a mining site, hydro energy location, large agro-industry plantation or a new tourist location. In general, the demand for road investment is likely to remain with the public sector. Over the next 5 years, the resources allocated for the development of national roads amounts to about US$5,141 million which is approximately 64% of the funds for the transport sector as a whole. This is equivalent to an expenditure of about $1 billion a year over the next plan period. Effectively, a high proportion of these funds (68%) will implement carry over projects from the existing plan, including a large number of projects that have been contracted but have yet to commence construction. It is expected that a portion of this funding requirement will be met by development partners and is estimated to amount to about US$1,050 million, which is equivalent to 20% of the overall investment budget.

For local roads, the investment budget is estimated at US$493 million equivalent or 6.2% of the total transport program, excluding possible support from development partners. The proposed budgeted amounts which increase from $61 million in 2012/13 to $124 million in 2016/17 is expected to increase the length of local roads in good condition from about 13,000 km at present to 15,000 km

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at the end of the plan period. The length of local roads in fair condition are projected to increase from 19,600 km at present to 26,600 km at the end of the plan while roads in poor condition are projected to decrease from 25,400 km at present to 16,400 km over the 5 year period. While the total expenditure for local roads is not high, the developmental impact is noteworthy at the local level as accessibility will significantly improve in those rural areas currently constrained by poor access. Despite the relatively small allocations in relation to the size of the network and its current condition, the proposed investment is a significant increase over allocations provided during the current plan.

2. Road Maintenance

During the 2000s, the strong emphasis on road maintenance has proved to be one of the successes supporting improvement in the quality of the road network. Prior to the creation of the Roads Fund in 1998, limited resources were allocated for maintenance, resulting in poor road network conditions. The Roads Fund has provided a stable base for funding road maintenance. As the resources have grown, the roads are now better maintained and continue to support economic growth and social development.

The Road Fund obtains its resources from a number of sources but primarily from a levy on fuel which historically contributes about 96% of the total funding. In addition, fees are raised from transit charges and overloading. These sources are easy to collect and difficult to avoid. Being a fixed rate, the fuel levy is not affected by fluctuations in world market prices. On the other hand, being a fixed charge, the levy does not have an automatic adjustment to cover the impact of inflation. Also it is susceptible to technological changes as new sources of automotive energy are developed and energy efficiency innovations are introduced to counter increasing market prices. Within Tanzania, several large users are exempt from the fuel levy such as foreign investments in mining and oil exploration as well as the railway companies [6]. This is sensible since they are not road users and therefore should not be subject to a road user charge. The current levy is Tshs 200 per litre which was introduced in July 2007.

Transit fees only comprise 1.69% of the fund's total revenue and its importance is declining. It is collected at border entry points by the Tanzania Revenue Authority but many of the vehicles are exempted from the charge under regulations of the East African Community.

The third revenue source is overloading. Penalty fees on overloading are an appropriate deterrent to reduce premature damage to road pavements if they are large enough to exceed operating profits from overloading. If the enforcement regime is strictly applied, the risks of being apprehended are high. Overloading penalties have contributed an average of about 2.53% to the total road fund over the past decade.

The regulations of the funds stipulate that 70% of the funds after deducting the operating costs of the Roads Fund Board must be allocated for the maintenance of trunk and regional roads, and 30% for district, feeder and urban roads. Regulations allow the Ministry of Works (MOW) to retain 7% of the funds for development projects, leaving 63% for maintenance of trunk and regional roads. For local roads, PMO-RALG retains 1% to cover operational costs at headquarters and the remaining 29% is allocated to the 132 local authorities for development and maintenance. The allocation system works well and is considered balanced by the various agencies.

The amount of funds collected in the last decade is indicated in Appendix 3. In the FY2000/01, the Road Fund collected Tshs 47,252 million and by FY2010/11 this increased to Tshs 325,771 million representing almost a sevenfold increase. This performance was attributed to increased fuel usage and an increased fuel levy, particularly in 2007 when the levy was doubled from Tshs 100 per litre to Tshs 200 per litre.

Despite the increase in funds overtime, the overall road maintenance situation has not shown substantial improvement since the total amount of funds collected remains below requirements, inflation has eroded the total value of the fund, and construction prices have increased over the period. Information from TANROADS suggests that the level of road maintenance funding for the past few years is only about 60% of requirements and the gap is widening. In 2009, the allocated funding was approximately 67% of requirements. For the current financial year, the Roads Fund Board has estimated that the maintenance allocation will meet 59% of the needs and therefore the funding gap remains at about 40% of requirements.

[6] The railway companies pay the tax initially and then claim it back from the government. However, the process is lengthy and can take several years.

Without adjustments to the fuel levy and the possible introduction of additional fees and charges—such as vehicle inspection fees, motor vehicle insurance levy, and reintroduction of heavy goods vehicle licences—, the gap will remain. Table 7 illustrates the projected magnitude of the financing gap in the next 5 years. To be noted is that the actual situation and projected scenario is significantly worse than the numbers indicate as there already exists a substantial backlog attributable to funding gaps from previous years.

A shortfall in allocation means that insufficient maintenance is conducted on the network with the result that various activities are deferred. Usually, this means the postponement of periodic maintenance. In the short term, the road user or policymaker might not perceive the difference but in the longer term, it will contribute towards higher expenditures as the type of needed repairs will escalate from minor into major maintenance activities. Currently, the Roads Fund board estimate that the maintenance backlog amounts to Tshs 1,555 billion for the trunk and regional road network and Tshs 181 billion for the local road network. Without additional funding for road maintenance, the backlog is set to increase rapidly.

The financing gap has widened in the last 5 years due to

- increasing maintenance needs as a result of the improved and rehabilitated road network;
- depreciating currency;
- increasing costs of fuel, labour wages and construction materials;
- deferred maintenance which results in higher construction costs in later years; and (v) expansion of the road network.

Table 7 : Road Maintenance Financing Gap (Tshs billion)

	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17
Revenues						
Fuel levy	316.50	370.31	433.26	506.91	593.09	693.91
Transit fees	5.45	6.32	7.34	8.51	9.87	11.45
Overloading fees	5.67	5.10	4.59	4.13	3.72	3.35
Total	**327.62**	**381.73**	**445.19**	**519.55**	**606.68**	**708.71**
Road Fund Board management	3.27	5.23	6.11	7.14	8.35	9.78
Total Revenue for Road Agencies	**324.35**	**376.50**	**439.08**	**512.41**	**598.33**	**698.93**
Expenditures						
Revenue for development (10%)	32.44	37.65	43.91	51.24	59.83	69.89
Revenue for maintenance (90%)	292.01	338.85	395.17	461.17	538.50	629.04
Trunk and regional roads	283.57	318.93	361.32	410.70	468.03	534.47
District, feeder and urban roads	214.60	218.41	239.28	263.56	291.73	324.38
Total maintenance needs	498.17	537.34	600.60	674.26	759.76	858.85
Financing Gap	**(206.16)**	**(198.49)**	**(205.43)**	**(213.09)**	**(221.26)**	**(229.81)**

Source : Roads Fund Board.

The general conclusion is that while significant gains have been achieved through the establishment and operation of a Roads Fund, the availability of funds for maintenance should continue to be increased annually in line with national road maintenance requirements. It is critical that the sustainability of the network continues to receive high priority not only to protect the heavy investments already made in roads but also to provide the springboard for economic and social development in rural areas. In this respect, the fees and charges need to be regularly reviewed and increased when required. In the short term, resources could be sourced from development partners and the government could add directly to the fund through the annual budgetary process.

E I Local Construction Industry

The local construction industry is an integral component of the transport sector because it provides the means for the various sector institutions to construct and maintain the infrastructure. It is, therefore, important that the construction industry grows in line with the country and sector needs and provides an adequate platform to support further development of the country's infrastructure. At present, there are about 6,850 contractors registered in Tanzania with almost 2,900 companies registered for civil engineering works (Table 8).

Of these, about 90 companies are classified as class I contractors implying that they are capable of undertaking the largest civil works contracts with an additional 35 companies registered as class II contractors. However, the bulk of the contractors numbering 2,026 companies representing 76% of the total, are small scale civil works contractors with limited skills and equipment. While there are a total of 90 class I contractors, almost 60% are foreign contracting firms which have established themselves in Tanzania to seek market opportunities.

Table 8 : Registered Contractors

Type	Class of Registration									Total
	I			II	III	IV	V	VI	VII	April
	Local	Foreign	Total							2012
Building	57	31	88	32	42	136	475	450	1,644	2,867
Civil	22	30	52	16	38	111	412	693	1,333	2,655
Electrical	17	21	38	7	6	34	109	56	278	528
Mechanical	6	10	16	1	4	9	19	18	44	111
Subtotal	102	92	138	56	90	290	1,015	1,217	3,299	6,161
Specialist Contractors	**I**			**II**			**III**			**Total**
	Local	**Foreign**	**Total**							
Building	10	7	17	5			6			28
Civil	17	22	39	19			179			237
Electrical	41	25	66	31			129			226
Mechanical	35	27	62	40			98			200
Subtotal	**103**	**81**	**184**	**95**			**412**			**691**
Total										**6,852**

Source : Contractors Registration Board.

The construction industry is still in an embryonic form as the thrust to build transport infrastructure and undertake maintenance using contractors is relatively new having only commenced in mid-1990s. The weak position of the domestic contracting industry has led to the importation of many of the required skills. Although several local firms have graduated to class I, the main areas which hamper the development of the local contracting industry are

- shortage of skills in managing and operating a construction business,
- low capital base and a banking industry that is generally not supportive of small scale contractors,
- shortage of technical skills in managing work sites and construction activities, and
- equipment owned by most contractors is very small with no equipment leasing firms at present and few investors in the construction industry.

Government is a major procurer of civil works and the administrative processes do not, in general, support the construction industry. Payment of invoices is rarely made

on time and this has a significant adverse impact on the industry both in terms of cash flow and the cost of bank loans and guarantees. In turn, the government are affected by this practice as such charges are ultimately passed on to them by contractors and suppliers charging higher unit rates to absorb delayed and poor payment conditions.

Since the inexperienced local contractors are less competitive than their foreign counterparts, the foreign contractors are awarded the majority share of the work. As the general conditions of contract do not permit the subcontracting of more than 15% of the total works, the local contractors do not obtain a large volume of subcontracted work and also do not gain experience of working with experienced foreign contractors. They are, therefore, constrained in building up their experience and adding to their ability to compete in the longer term. To help redress this situation, the Contractors Registration Board operates a scheme which provides technical training and skills development to the industry through a number of courses each year. While such schemes are vital and necessary to develop the local industry, their limited scale and outreach can only support a limited number of contractors at present. There is a need to scale up the assistance to the local construction industry through both technical and business skills development training as well as packaging works to attract more local contractors in the tendering process.

F | Regulation of the Road Transport Industry

The regulation of the road transport industry is the responsibility of the Surface and Marine Transport Regulatory Authority (SUMATRA) which was enacted by SUMATRA Act No 9 of 2001. It was created as an outcome of the restructuring and reform process in the utilities and transport sector. The reforms significantly changed the structure of the transport sector by placing emphasis on greater private sector participation, replacing government's role as owner, operator and regulator. The rationale supporting this shift in emphasis was based on the expectation that increased competition for the transport market would deliver efficient and quality services at competitive prices. SUMATRA was formed in 2004 but it was not until 2006 that the full management team was in place.

Within the roads subsector, the functions of SUMATRA are road transport and economic regulation. With respect to regulation of road transport, it performs several functions including

- licensing of commercial vehicles,
- determining and/or monitoring national and international benchmarks which can be used to determine the reasonableness of rates and tariffs charged by providers of transport services,
- formulating and reviewing codes of conduct for providers and users of transport services,
- overseeing investigations in road transport accidents in conjunction with other stakeholders,
- liaising with other agencies on issues affecting road transport,
- developing rules and regulations in road transport, and
- regulating tariffs and charges where the public interest warrants.

The main role of SUMATRA in the economic regulation of the sector is primarily to promote competition and ensure fair trade practices among service providers. Economic regulation is conducted by ensuring that rates charged for freight and passenger services are in line with costs of operations and taking into account reasonable financial returns on business investment. A major concern with passenger fares is to ensure that they are in line with costs and that operators do not charge economic rents when opportunities arise with changes in seasonal demand. To maintain transparency in its operations, a dialogue is regularly held with bus industry operators. A common topic of these meetings is consumer complaints regarding unofficial fare hikes.

One of the important activities in the regulation of road transport is the issuance of licenses and timetables. During 2010/11, the last available records, the authority issued a total of 78,238 licenses representing an increase of about 17% over the previous year. Of these about 33,900 (43%) were for passenger service vehicles and 44,300 (57%) for goods vehicles. In addition, the authority issued passenger timetables for 3,721 different public transport routes. Table 9 provides information on the number of licenses and timetables issued by SUMATRA in the last 3 years. Although SUMATRA monitors road freight rates it does not regulate freight charges.

Table 9 : Number of Licenses and Timetables Issued

Licenses and Timetables	2008/09	2009/10	2010/11
Timetables	3,201	3,214	3,721
Licenses for Passenger Vehicles	22,384	28,771	33,887
Licenses for Goods Vehicles	29,818	37,672	44,351
Total Number of Licenses Issued	**52,202**	**66,443**	**78,238**

Source : SUMATRA.

As part of the enforcement procedures, SUMATRA conducts roadside inspections to monitor compliance with licensing conditions. Road side inspections are carried out in all 21 mainland regions of the country and in 2011, a total of 3,099 commuter buses and 2,850 inter-urban buses were penalized for different offenses. The large number of fines suggests that there is widespread abuse of license conditions despite the level of fines, ranging from $60 to $150 per offense. SUMATRA need to review why the abuse of license conditions is so widespread and whether it is attributable to operators attempting to extract economic rents from users or whether the license conditions are unrealistic with fares set at levels below operating costs.

G I Key Subsector Operational Issues

1. Road Safety

Road safety is an emerging issue in Tanzania as the growth in the vehicle fleet is rapidly increasing. The number of fatalities is depicted in Table 10 and illustrated in Chart 1. It indicates that the number of fatalities increased by 150% from 1998 to 2011. During the same period, the number of recorded injuries increased from 11,380 to 20,800. Although this is below the rate of fatalities, it probably reflects under recording. The statistics indicate a ratio of fatality to injured as 1:5.8 but it is more common to observe 1:12 or more in most countries; thus it is likely that the number of injuries is under recorded by at least 50%. Currently, little effort is made to reduce the number of road crashes by the government or other entities. While in most other countries, significant effort is made to reduce the incidence of road crashes as they not only cause a substantial amount of pain and suffering to crash victims and their families but are also a large economic and social cost to countries. Analysis in several other countries has identified that a high proportion of road crash victims are commonly from the most economically active group of the population whose ages range from 20 to 45 years old. They frequently have better than average education and hold well paying jobs. Often, drivers and passengers are the breadwinners in the families and their loss and/or lifetime injury can be a source of poverty for the rest of the family members. Road crashes are also a major health cost to the economy as most injured often end up in hospitals and health clinics requiring expensive treatment. A recent study [7] in Tanzania has estimated that the annual cost of road traffic accidents to the economy is at least 3.4% of the GDP which is high when compared to the overall estimates of economic growth.

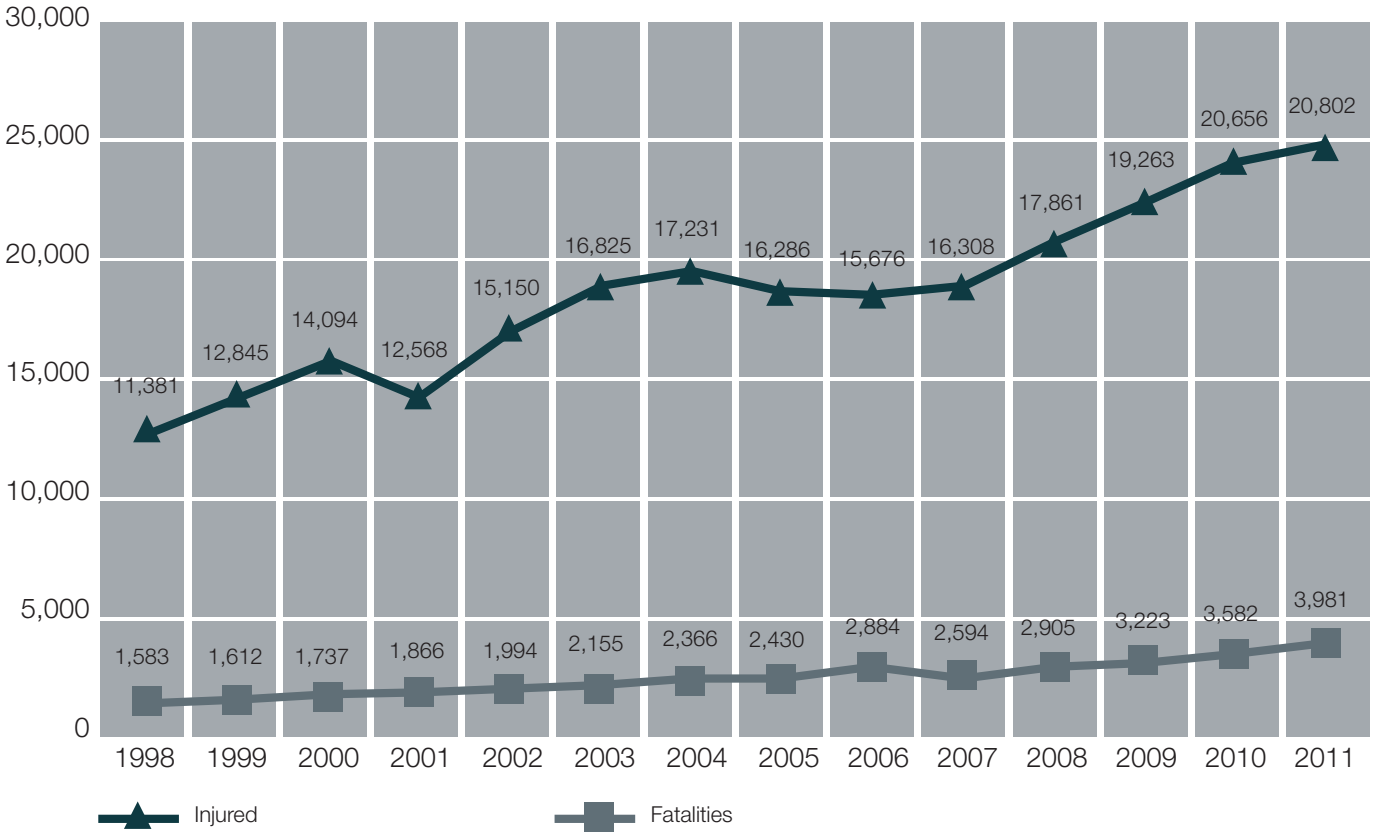
Table 10 : Road Accident Trends

Year	Fatalities (no.)	Injured (no.)
1998	1,583	11,381
1999	1,612	12,845
2000	1,737	14,094
2001	1,866	12,568
2002	1,994	15,150
2003	2,155	16,825
2004	2,366	17,231
2005	2,430	16,286
2006	2,884	15,676
2007	2,594	16,308
2008	2,905	17,861
2009	3,223	19,263
2010	3,582	20,656
2011	3,981	20,802

Source : Traffic police.

[7] SUMATRA. September 2007. Study on Road Accidents in Mainland Tanzania. Consultant's report.

Chart 1 : Trends in Road Accidents



Analysis of police accident data indicates that the greatest proportion of fatalities involves pedestrians and at present, approximately one-third of the deaths are pedestrians and another 30% are passengers. The high number of passengers is related to the common practice of carrying passengers in the rear of trucks and pick-ups as this mode of transport is particularly prone to fatalities. Other notable statistics are the large number of nonmotorised fatalities (pedestrians, bicyclists and handcart operators) who comprise more than 46% of the total fatalities and the rapidly rising trend in motorcycle deaths. The latter is primarily due to the rapid increase in the ownership of motorcycles in the country (Table 11).

Table 11 : Road User Fatalities

Type of Road User	1998		2006		2010	
	Fatalities	%	Fatalities	%	Fatalities	%
Drivers	97	6.1	160	5.5	229	6.4
Passengers	623	39.4	1,154	40.0	1,005	28.1
Motorcycles	46	2.9	89	3.1	657	18.3
Bicycles	192	12.1	398	13.8	456	12.7
Pedestrians	625	39.5	1,067	37.0	1,191	33.3
Push Carts	-	-	16	0.6	44	1.2
Total	**1,583**	**100.0**	**2,884**	**100.0**	**3,582**	**100.0**

Source : Traffic police.

Overall, the accident statistics present a deteriorating road safety situation in the country which needs to be addressed. Unfortunately, it appears that little effort is being placed by government to tackle the issue. There is no agency responsible for coordinating road safety, no action plan to address safety issues, and few resources allocated to improve road safety conditions. Though the agencies are considering remedial actions, each one is only dealing with the issues under their responsibility and acting in an uncoordinated way. There is a need for all agencies with a responsibility for road safety to prepare coordinated action plans to address the road safety problem.

TANROADS has a safety section which undertakes road safety audit. However, the general impression is that road safety audit is not a high priority in the road design process although efforts are occasionally made to involve road safety auditors. It is recommended that

- road safety audit is made a compulsory component of the road design process and ideally, should be made by a separate consultant from the design team. The audit should also be made a component of the supervision team. Contractors should pay attention to safety during the implementation of civil works programs.
- TANROADS should initiate blackspot programs to mitigate areas that are commonly prone to accidents.

The Ministry of Works also has a program that involves road safety issues. They issued a road safety policy in 2009 but the document does not appear to be taken seriously by other agencies or by road users. They are also proposing to create a driver licensing and vehicle testing agency. If approved, it would improve the driver licensing system and initiate a program to test vehicle road worthiness. However, the overall coordination mechanism is absent and little involvement takes place between the key agencies such as the traffic police, Ministry of Works, TANROADS and PMO-RALG, as well as agencies responsible for education, health, insurance and the legal system. Moreover, there is no involvement of the private sector who can be major motivators and supporters of road safety programs.

The United Nations declared 2011 as the start of the Decade of Road Safety which has the overall goal of halving the global number of annual road deaths by 2020. To achieve this target will require concerted actions by all countries especially those in the emerging economies as this is where the large majority of road accidents occur. The statistics indicate that Tanzania already has a grave road safety problem given its relatively small vehicle fleet. With the growing fleet, the number of deaths and injuries on its road network would likely increase. There is good reason for the country to place higher emphasis on addressing its road safety problems.

2. Overloading

Overloading of trucks has been a problem for road management agencies for many years. Tanzania is the international gateway for many of its neighbouring countries and it provides the vital access to ports that facilitate imports and exports. With the demise of the railway systems serving long distance trips to Tanzania ports, emphasis has moved to roads and the shift to road transport on the central corridor is almost complete. Thus Tanzania's road network now caters to high levels of long distance truck movements covering both international and national origins and destinations. Traffic counts show that a high proportion of motorised movements consist of truck traffic.

The shift to road haulage has also been facilitated by the significant investment in the road network over the past decade. The long distance traffic has particularly benefitted through emphasis on improving and upgrading the major traffic corridors. Improved road surfaces enable trucks to operate at lower operating costs. Trucks can easily be overloaded as better road conditions result in less vehicle maintenance while facilitating the carriage of a greater payload at virtually the same operating cost. This translates to greater profit margins and better business opportunities, particularly if enforcement is lax. As road conditions have improved, TANROADS has had to address the overloading issue because the incidence of overloading greatly reduces the life span of a new road pavement. Even a few overloaded trucks which travel regularly can reduce a 20-year design life to 10 years or less. Thus overloading has a significant impact on road maintenance budgets and control of overloaded vehicles can result in significant maintenance savings and better road conditions.

As part of its overloading control measures, TANROADS has initiated a program of investing in a series of fixed weighbridges, supported by teams operating mobile weigh scales. At present, 26 fixed weighbridges have been constructed at key locations and 20 sets of mobile weigh scales are now operational. Additions to this weighbridge infrastructure are planned in the future as additional stretches of road are improved and upgraded.

All trucks greater than 3,500 kg are required to stop at a weighbridge site whether they are loaded or empty and have to be weighed. The results for the past 3 years are indicated in Table 12.

Table 10 : Road Accident Trends

Overloading	2008/09	2009/10	2010/11
Trucks Weighed	2,171,872	2,672,304	2,890,978
Number Overloaded	484,049	665,533	673,451
Overloaded (%)	22%	25%	23%
Overload exceeding 5%	1.60%	1.63%	1.33%

Source : TANROADS.

The statistics indicate that a high proportion of trucks are overloaded with almost one quarter of the fleet affected. However, the figures also show that few vehicles exceed the 5% overload limit which is permitted under the law [8]. The regime for fines for an overloaded axle are suitably set at levels which reflect the road damage done by the heavier weight and increase by the fourth power as loads increase. Thus, a 1-ton overload incurs a $92 fine while a 5-ton overload has a $800 fine and a 10-ton overload incurs a $2,986 fine. It is noted that fines are established in US dollars but can be paid in Tanzanian currency at the equivalent prevailing conversion rate. The review of the statistics suggests that they should be examined in greater detail. It is somewhat unusual that such a high proportion of trucks to regularly carry almost an exact 5% overload suggesting that the truck haulage industry are optimising their profit margins to within tolerated limits. It is questionable whether the statistics reflect actual conditions given this level of consistent overloading and comparing it with other information sources.
A recent paper which reported on non-tariff barriers on the central corridor presented some interesting findings [9]. First,

it is suggested that there might be governance issues associated with the weighing program. Governance issues are a common occurrence in many other countries and weigh stations are well known for unofficial charges and levies. This is especially the case where exemptions are allowed and where the official level of fines significantly exceeds wage levels. It is recommended that weighbridge operations be investigated to ascertain whether actual overloading is significantly different from the statistics and if so, remedial actions should be planned and implemented. Second, the weigh scales are not accurate and measure inconsistent weights at different locations. TANROADS should initiate a policy to regularly check the accuracy of the weigh scales and test weights should be located at each weighbridge stations. Third, concerns the time delays required to weigh a truck. Oftentimes, there are long queues at weigh stations. For long distance freight, a truck is required to stop at several locations [10]. This can add several hours to a long trip and is particularly severe for international and long distance movements. Low cost technology is available to provide oversight of truck movements which could be used to control long distance movements and reduce the number of occasions that trucks need to be weighed.

H I Key Issues

Based on the review of the documents and studies gathered for the roads subsector together with discussions with

[8] Road Traffic Act, 1973, Regulations made under section 114 The Road Traffic (Maximum Weight of Vehicles) Regulations, 2001
[9] Issue Paper on Current Non Tariff Barriers Encountered by Rwanda along the Central Corridor, Ministry of Trade, Republic of Rwanda, January 2012.
[10] It is reported that a truck travelling between Dar es Salaam and Rwanda border is required to stop 58 times at traffic check points, weighbridges, police road checks, revenue check posts and contribute one-third of the time lost along the corridor.

officials of those agencies responsible for management and regulatory oversight of roads subsector institutions, a number of issues in the subsector have been identified.

1. National Roads

a. Maintenance Funding Gap

As noted, it is projected that there will be a sizeable funding gap for undertaking required road maintenance during the next 5-year plan (2012/13 to 2016/17) unless remedial actions are taken.The funding gap is expected to about Tshs 200 billion a year based on increasing fuel sales of about 17% annually. In the short term, the backlog in maintenance can be accommodated by short-term measures so that road distress does not result in serious pavement deterioration. However, short term measures are not sustainable over the medium to long term as eventually large sections of road will begin to fail and will require more expensive rehabilitation and reconstruction measures.

Sustainability of the road network requires adequate funds for maintenance which have to be used effectively. A shortage of funds is a common problem in countries where the road network is still being developed or expanded and where fiscal constraints for development needs are present. The Roads Fund is working well and continues to allocate its resources appropriately for managing the country's road assets. However, the amount of funds currently raised is only about 60% of requirements. To augment the road funds, the government has several options. It can pay additional funds directly into the fund each year or increase the road fund levies and charges or seek support from development partners for road maintenance activities. Whatever is the preferred method, road users need to be reminded of the high costs of providing road infrastructure and its maintenance. Thus, the option to increase fees and charges which represents user cost is usually considered as the preferred option.

Another option is to reduce costs and increase efficiency by using long-term performance-based maintenance contracts. A number of pilot contracts are currently under observation but it is likely to require increased performance and management from both contractors and TANROADS before the use of such contracts can be widely adopted. The Roads Fund Board have already sensitized the issue and conducted a study to alert authorities to this issue [11]. The prime component of the roads fund is the levy on fuel currently amounting to Tshs 200 per liter ($0.13) which has been in place since 2007. The study recommended increasing the charge by Tshs 50 per litre ($0.03). It also recommended introducing several additional charges such as vehicle inspection fees, a motor vehicle insurance levy and re-introduce heavy goods vehicle licence fees. Such a regime of charges is projected to reduce the deficit of the road fund by 2016/17.

[11] Proposal to Broaden Revenue Base for the Roads Fund. Roads Fund Board. Ministry of Works. December 2011.

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b. Absence of a Prioritised Plan

Investment in the road subsector is based on a road plan developed in 2002. This plan examined the national road network and recommended to upgrade it to a bitumen standard. However, it did not prioritise individual road links. Feasibility studies for all roads selected for improvement are required to determine whether proposed investments meet the minimum investment criteria of the government and development partners. This approach will ascertain whether road improvement is justified but does not look at priorities in the subsector or in the country as a whole. It does not ensure that projects are integrated with other investments in the economy to maximise economic and social returns as a whole. During the next 5-year plan, it is recommended that a study is prepared to integrate all transport investments in the economy as well as in the roads subsector. Within an overall transport plan, there should be a prioritised road plan that identifies a road map that sets out priorities for investment and maintenance in the roads subsector.

One focus of the new road plan will be to establish a strategy for regional roads. Up to now, there has been virtually no investment in regional roads as trunk road development has absorbed all the available funding. While the focus has rightly been on addressing the main trafficked corridors, this has left a gap in ascertaining how road investment can best benefit the national and local development needs. Roads are only an enabler of other benefits in the real economy and without roads, few other development benefits can materialise. In this regard, the concept of connectivity is important; indeed vital to providing adequate accessibility to areas with development potential. The regional roads which provide a secondary road function in the network hierarchy are important to provide the linkages to district centres and local hinterland areas. In planning a strategy for development of regional roads, it will be important to take connectivity into account and determine the overall likely impact on the economy in the hinterland. A focus on areas with greater economic potential should be an important parameter in this analysis.

c. Development of the Local Construction Industry

The local construction industry is an important component of the transport sector since it provides the resources to build and maintain the infrastructure. As the government has moved away from force account and adopted a model which depends upon using private sector contractors in a competitive environment, it is necessary to build the capacity and skills of local contracting firms. Close synergies between the government and the local contracting industry are needed to fulfil their respective roles. The local contractors are still inexperienced and thus, less competitive than their foreign counterparts. As such, they are not as aggressive in securing competitive tenders. Programs need to be devised to provide more support to local contractors to help them develop the necessary skills in contract management and business development. In addition, more support could be provided by encouraging foreign contractors to utilise local contractors for subcontracting various tasks. Further, the local banking industry should be encouraged to provide credit facilities for the industry as many local firms have limited access to credit to purchase equipment needed for them to expand their businesses. A high proportion of the capital works program focuses upon large projects that are beyond the size of local contractors. Greater focus on smaller infrastructure such as rural feeder roads and maintenance contracts would significantly benefit the local construction industry.

d. Capacity Building

Strong institutions and capable organisations are at the heart of development. Capacity building programs should be designed to improve the skill levels and ability of organisations to perform their functions and obligations. Across the transport sector, there are capacity building needs and as the sector demands increase, the requirement to increase efficiency and deliver services also increases. Particular areas where capacity needs strengthening include policy formulation and planning, private sector partnership development, enhancement of safety and environmental impacts including climate change, governance and procurement, urban transport planning and traffic engineering, logistics, and monitoring and evaluation (M&E). Outside the public sector, there is a high demand for technical skills (such as engineers, aircraft mechanics and pilots) as well as financial skills (such as accounting and bookkeeping).

e. Research

At present, research in the roads subsector has yet to be initiated. This situation is common in a country whose

priority is to use its available resources to encourage development and reduce poverty. However, the transport sector can operate more efficiently and cost effectively in the longer term if the government seriously explores ways on how to optimise the use of scarce resources. This practice will save resources and utilise more indigenous materials rather than import materials and ideas. For example, the shortage of one of the basic road construction materials, like gravel, is common. It is expected that the length of gravel roads will remain high for many years and the shortage of gravel reserves could become a serious constraint for future road construction and maintenance. Thus different possible construction methods and materials that could be applied need to be examined and tested. The construction and maintenance of roads should rely on local materials and resources for their long-term sustainability. Thus, the identification of options and different construction methods for using alternative local construction materials and methods needs to be examined.

Establishing a research centre linked to the Ministry of Works and existing centres such as the materials laboratory under TANROADS should also be geared towards capacity building in the sector. Consideration should be given to linking such development with local centres of learning and knowledge.

2. Local Roads

a. Priority

The key issue concerning local roads is the priority accorded by the government. The documents defining the development path such as the Vision 2025 and MKUKUTA II indicate that local road investment is a high priority to achieve inclusive growth and eradicate poverty. However, despite this underpinning philosophy, few resources have been allocated for this subsector and the achievements made in LGTP have been well below expectations.

b. Institutional Issues

Institutional issues are often the core problem concerning the development of local roads. They are compounded for projects supported by development partners as concerns such as governance, procurement, quality of construction, use of funds and monitoring of impacts are often highlighted as potential development issues. They also must be addressed at the local level by agencies spread around the country. While these issues also apply to government funded programs, the scale of the problems is often magnified under development assistance as the resources made available at the local level can increase significantly. There is a need, therefore, to build upon existing country systems to ensure that the added concerns are accommodated effectively and also simultaneously build the capacity of the system. The development of the LTGP 2 program envisages the need to strengthen the oversight role of PMO-RALG by

- strengthening the current coordinating focal point, the infrastructure development unit;
- creating a local transport authority; and
- by using local engineering consultants to support district engineers.

c. Sustainability

A common problem associated with local roads is their sustainability. The existence of the roads fund has reduced the risks associated with local roads as it provides resources for maintenance albeit covering only about 45% of the present needs. Therefore, the pursuit of additional resources for maintenance is high priority. Funds need to take into account the inflation and market price increases of construction materials. Another area of risk affecting sustainability concerns the quality of works which are often times below acceptable standards. In this regard, there is a need to strengthen project management and oversight as supervision staff need to be aware of proper design and construction standards. The quality of completed civil works projects should be carefully examined before their acceptance. Accountability and good governance needs to be an integral component of the training and supervision programs for staff. Overall, supervisory staff should be held responsible for ensuring proper construction.

d. Connectivity

The selection of roads for rehabilitation and even spot improvement should incorporate the concept of connectivity. This is particularly important where re-

sources are limited and priorities should be assessed on where to spend the available resources. Roads tend to produce higher levels of benefits when they form part of a network as they provide greater accessibility to economic activities and social needs. Where investment is widely spread without linkages to adjacent roads and to the network as a whole, the overall benefits are often limited and constrained to a small hinterland. The selection process for individual roads should also take connectivity and impact on the hinterland into account as road investment should not only support locations of high population but also provide improved access to areas with economic activity as well as those with development potential.

e. Monitoring

An important component of a successful local roads program is M&E to adequately provide

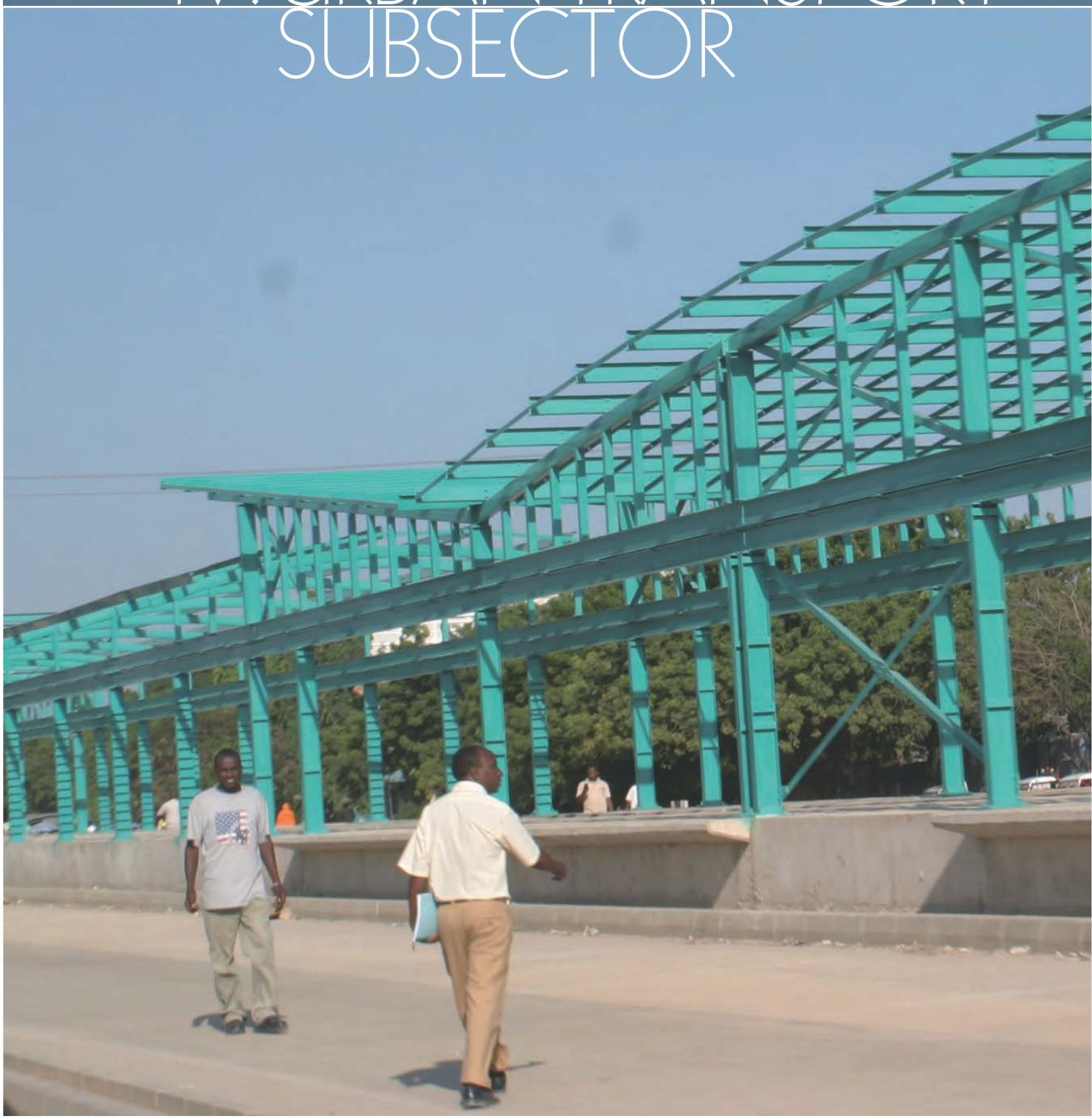
- information on its implementation,
- assessment of its successes and failures, and
- feedback to incorporate lessons learned in future programs. Under LGTP 1, an M&E framework was developed but the implementation was hindered by inadequate resources. As a result, little priority was given to collecting the information required for the M&E component.

During the preparation of LGTP 2, high priority should be given to the M&E component. The program itself should have a strong focus on this aspect by requiring districts to gather basic information and data on each contract, which would form the basis of monitoring the annual program and providing the information for its evaluation. An annual review will provide the necessary feedback to adjust program components based on the lessons learned from the previous year.

f. Knowledge Sharing

The implementation of a local roads program requires a strong knowledge learning and capacity development component. Institutions at this level tend to be relatively weak and require significant support for capacity building. In addition to supporting the capacity development of the public sector institutions, emphasis should also be placed on supporting the development of the local contracting industry which is an important element for the success of a local roads program. It is, therefore, important to consider how information and knowledge from the program's implementation can be accumulated, shared, and disseminated across the large number of LGAs.

IV. URBAN TRANSPORT SUBSECTOR



IV. URBAN TRANSPORT SUBSECTOR

A | Introduction

Well functioning and productive urban centres are essential for catalyzing and supporting the transformation of the Tanzanian economy. The towns and cities account for the majority of the country's physical, financial, knowledge and technological capital. It produces more than 50% of Tanzania's GDP. Cities contribute significantly to national income growth by increasing productivity at individual companies and industries through urban economies of scale, increasing household welfare through better opportunities for human development and social mobility, and promoting institutional change.

According to World Bank research, [12] Tanzania cities are not realising their full potential to contribute to economic growth and poverty reduction due to several important challenges facing the urban subsector. These include rapid urban population growth, urban infrastructure deficits and inadequate fiscal and management capacity to sustain urban development and management. Over the past decade, Tanzania's urban population has grown at over 5% a year which is more than twice the rate for the population as a whole. According to census data, the urban population in mainland Tanzania increased from 685,092 people (5.7%) in 1967 to 7.6 million (22.6%) in 2002. Urbanization is projected to continue at a rapid pace and to reach 38% of the population by 2030 when it is projected that 25 million will live in urban areas.

Rapid urbanization has strained the capacity of the cities to provide needed infrastructure and services to urban residents which has contributed to the creation of informal and illegal settlements. Investments in urban infrastructure have not kept pace with urban population growth which has resulted in limiting the productivity of business and adversely impacted on the quality of life of urban residents. In particular, the low density of urban roads in good condition has contributed to high levels of congestion and generated substantial economic losses through wasted time, higher travel costs, poor road safety, and high levels of vehicle emissions causing degraded air quality.

B | Transport Planning

While Tanzania has a growing number of urban towns and cities, the conduct of urban transport planning has been largely confined to the city of Dar es Salaam. A conventional urban transport study was undertaken in 2007/08 [13] which established the long- term transport needs of the city within an urban framework. One of the key factors of this study is that it suggested that an urban growth boundary be adopted to define the spatial limit of urban development and contain the urban sprawl. One of the key parameters in planning urban transport requirements is the relationship with land use. It is vital that the two concepts are closely linked together so that transport infrastructure will closely match the needs of the land use and more directly the needs of the residents. At present, this recommendation is not clear if it is accepted and/or being implemented. It is likely that the spatial urban development pattern continues to follow a laissez faire approach without significant development control. This is a major issue for the future development of the city including the development of an efficient transport system.

The basis of the proposed transport system is a proposed bus rapid transit (BRT) system that will provide the core transport capacity in several strategic corridors. The BRT system will promote mobility and facilitate the major movements of people in selected strategic corridors which will provide the primary axis for development. The BRT system will be supported by feeder bus services, linking the core routes to other areas. Private cars are an important transport component for the continued mobility of people but the widespread use and demand for personal transport needs to be limited to mitigate widespread congestion. The key principles of the transport plan include

- intensive urban development within the urban boundary which has been established at a location that can accommodate the projected 6 million people by 2030.
- a premium is placed on transport-oriented development through the concentration on developing high

[12] The Urban Transition in Tanzania, World Bank, 2008.
[13] Dar es Salaam Transport Policy and System Development Master Plan. Consultants Report. June 2008, supported by the Japan International Cooperation Agency.

quality public transport as the primary means for moving people throughout the city.
- a high proportion of movements are made by pedestrians and nonmotorised vehicles. It is important that high priority is accorded to these movements.
- accessibility for all will be promoted to ensure that all residents and especially, the vulnerable group, are able to move freely around the city.
- mobility for all is promoted by high quality public transport with needed infrastructure to accommodate a portion of car users as well as freight movements.

The physical components of the transport plan can be summarised as those measures that need to be implemented in the initial phase up to 2015, and those that would be implemented beyond 2015 and before 2030. The important recommendations are:

Recommendations by 2015
- provide a public transport system such as BRT and buses to achieve high personal travel mobility
- develop a robust business model for BRT and associated services
- keep heavy trucks out of the central business district (CBD) and BRT corridors inside Nelson Mandela and Sam Nujoma roads
- improve and construct roads totalling 149km
- improve major intersections with grade separation structures
- implement a traffic management and parking system in CBD

Recommendations by 2030
- construct an expressway system to provide high mobility through the entire urban area, and
- continue intensive road improvement and construction within the urban area.

An effective transport plan has to be supported by various transport policies to promote and enhance the impact of the physical components. A number of short-term policies were suggested to provide a platform for the establishment of the high priority institutional and administrative needs of the subsector. The first of these short-term measures was creating an urban transport authority. During that time, there was no institution responsible for urban transport. Without a leader, there will be inadequate oversight to manage urban transport and provide the strategic planning or the policy directions. The second recommendation focused on the need to build the capacity as the skill level of national transport planners and traffic engineers required strengthening. It was suggested that the national institute of transport studies (NITS), a concept that was supported during the course of the study, should be supported to provide training in transport planning and other related subjects. The financial capacity of local authorities is weak and few resources are available to support transport sector development. The enhancement of the capacity to generate additional resources was considered an important policy that has to be introduced. Last, the development of the first BRT corridor was considered suitable to properly plan urban renewal schemes that would be linked to the BRT stations. The new developments were envisaged to include commercial office buildings, entertainment facilities, hotels, restaurants, schools, hospitals and government service facilities.

In the medium to long term, the main thrust of the policies would be to build upon the short-term measures to consolidate their success. This would include the full operation of the Dar es Salaam urban transport authority into an effective organisation that planned and managed the overall transport needs of the city. During this phase, the NITS concept would be fully developed as an institution with trained national staff in transport planning and provide technical support to the urban transport authority. Further measures would strengthen the land use planning agencies to ensure that the linkages between transport and land use were sufficiently interrelated to provide efficient and effective transport services. It would also provide oversight to the BRT corridor developments. Further policy measures would ensure that sufficient attention was provided to ensuring the participation of the private sector in the transport sector and establishing an appropriate system to monitor and revise the transport master plan at timely intervals.

The physical components of the transport plan comprise a number of interrelated plans covering the road network and the bus network. The urgent projects cover some flyovers and a traffic management plan for CBD.

1. Road Plan

In the 2015 plan, a total of 648 km of roads were identified for widening, of which 149 km and 5 flyovers were considered to be priority projects. Specifically, these included Kigamboni bridge and its associated access roads as well as the key routes for the proposed BRT system. The latter included the widening of New Bagamoyo road, Nyerere road, the Gerezani area transport enhancement, and the Tabata route alignment. The 2015 plan also included a CBD traffic management plan to improve traffic flow and pedestrian movements in the city centre. The 2030 plan recommends a total of 433 km additional length of roads to accommodate the projected increase in traffic which includes a central expressway traversing the length of Dar es Salaam as a spine corridor through the city linking northern areas with the airport and through to Kigamboni where considerable new development is expected to be located.

a. Truck Routes

Within the framework of the master plan, a truck route is specifically designed to restrict heavy trucks from entering the city. The large volume of trucks servicing the port and its immediate area are a major cause of congestion and needs to be addressed as port- related congestion permeates throughout the city and affects the smooth flow of traffic over a wide area. With the Morogoro road being the main conduit for truck traffic—between the port and destinations along both the central and Uhuru corridors—it carries heavy truck flows and therefore it would be preferable to restrict truck traffic to an inland container depot located along the route. The proposed Kisarawe ICD would meet this requirement as it is adjacent to Morogoro road and is designed to facilitate the movement of containers to and from the port by a dedicated rail shuttle link. The facility would therefore remove a considerable proportion of truck traffic from accessing the port. The proposed truck route would restrict the bulk of truck movements to the Nelson Mandela ring road and the major radial long distance routes joining it.

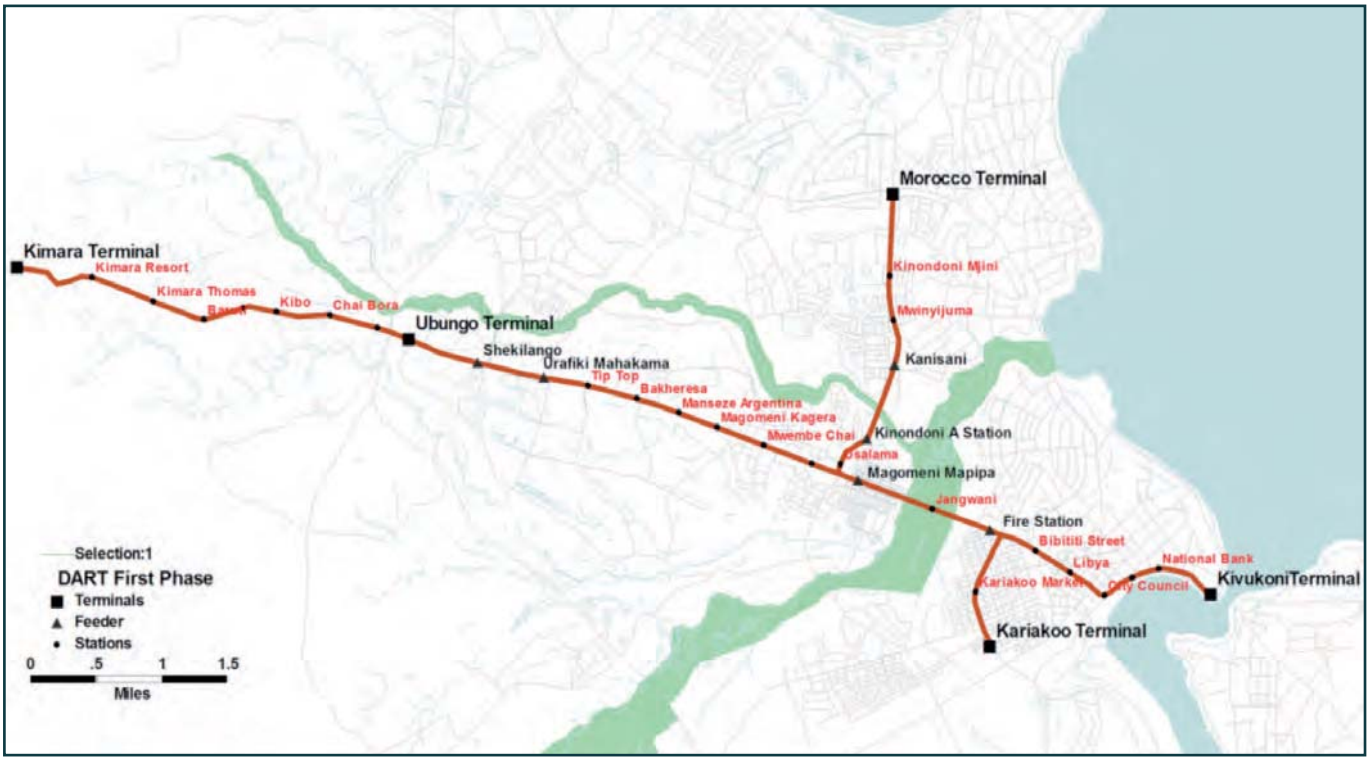
b. Public Transport

The core of the transport plan is the public transport system which is centred upon implementing a BRT system. The plan will meet the important mobility needs of the city and have sufficient capacity to accommodate long-term demand. While the private vehicle fleet is projected to grow more than four-fold from 2010 to 2030 (from 120,000 to 515,000 cars), majority of the trips or 87% of the total trips are by public transport and by walking. Trips by passenger cars comprise only 10% of the total number of trips.

The BRT network is planned in 6 phases originally expected to be implemented over the period to 2017. This timeframe could still be met even though there has been a 3-year delay in introducing the first phase. However, the prime risks associated with the BRT concern funding availability and acquisition of the rights-of-way where additional land take might be required. The first phase is a 20.9 km corridor utilising Morogoro road and linking Kimara to Kivukoni with spurs to Kaiakoo and Morocco. The route which is currently under construction is in Figure 1. Phase I is designed to have 29 stations with 5 terminals, 2 depots and is designed to carry 406,000 passengers a day.

The Dar es Salaam rapid transit agency (DART) is responsible for implementing the BRT program and it will also manage the system in its operation phase. The BRT is designed to be a partnership between the public and private sectors. The government is responsible for developing the infrastructure while the private sector will supply and operate the buses. The government will regulate standards and the quality of services to be provided which will be contracted out to private sector operating companies. These contracts will clearly indicate the incentives and penalties related to service provision. Fares will be collected electronically using smart card technology and will be managed by a contracted private company. A funds manager will collect the fares and pay all contractors in accordance with their contracts as well as payments to government as stipulated in each of the contracts. Phase I will have two bus operators providing competition on the route. The bus fleet will comprise two types of buses; high capacity buses with a capacity of 140 passengers will operate on the bus lane corridors while feeder buses of 50 passenger capacity will cover feeder routes that link the hinterland to the various BRT stations and the use of smart cards will facilitate through ticketing. It is planned that 148 articulated buses will provide the high capacity system supported by 220 buses providing the feeder system.

Figure 1 : Bus Rapid Transit Phase I



Source : DART.

Five additional BRT phases are planned and the detailed engineering designs have been completed for Phases II and III. The next phases will cover the following routes:

- Phase II : Kilwa Road
- Phase III : Nyerere Road
- Phase IV : Bagamoyo Road
- Phase V : Sam Nujoma Road
- Phase VI : Ubungo Tabata rail corridor

The total length of the completed BRT system is expected to about 130 km.

c. Central Business District Traffic Management

The fourth component of the transport plan focuses upon managing the traffic in CBD. The primary objective of the traffic management plan is to focus on the short term implementation of its high priority projects in the CBD that will complement the implementation of BRT through the CBD to the Kivukoni ferry terminal. The second aspect of the plan is to maintain maximum accessibility to CBD destinations, avoiding circuitous travel that adds to traffic conditions. The overall CBD plan is designed to maximise the capacity of the CBD network with low-cost, high-impact solutions such as removal of on-street parking, signalisation of intersections, implementation of a number of one-way streets and strategic widening of streets in a limited number of cases.

The Dar es Salaam City Council has been developing the CBD scheme which is based on seven principles:

- Introduce road hierarchy and traffic control and management measures which will identify the primary distributor roads that link to the arterial roads for inter-zonal traffic movements and the collector roads used for intra-zonal movements. Parking will be prohibited on the distributor roads to decongest traffic in the CBD area, and to access and egress the area.
- Intersection and road improvements will introduce signalised intersections at major junctions, improve junction layouts, and on some routes, will introduce one-way streets. It will also widen a few roads where traffic flow is heavy and where additional lane width is

required to accommodate turning movements. Figure 2 illustrates some of these key features identifying the distributor and collector roads and the various junctions where improvements are envisaged.

> Parking improvement and management will consist of
  - regulating on-street parking,
  - imposing "no parking" streets,
  - enforcing illegal parking; and
  - introducing fringe parking at suitable locations and encouraging off-street parking. Parking management will impact parking demand by a number of different measures such as variable parking charges. The overall parking program will be underpinned by a revised parking permit law supported by strict enforcement.

> The CBD plan will also incorporate a daladala [14] rerouting and improvement program that will introduce adjustments to some routes serving the CBD, improve daladala terminals at YMCA, Stationi and Old Posta and introduce a shuttle bus circular route in the central area.

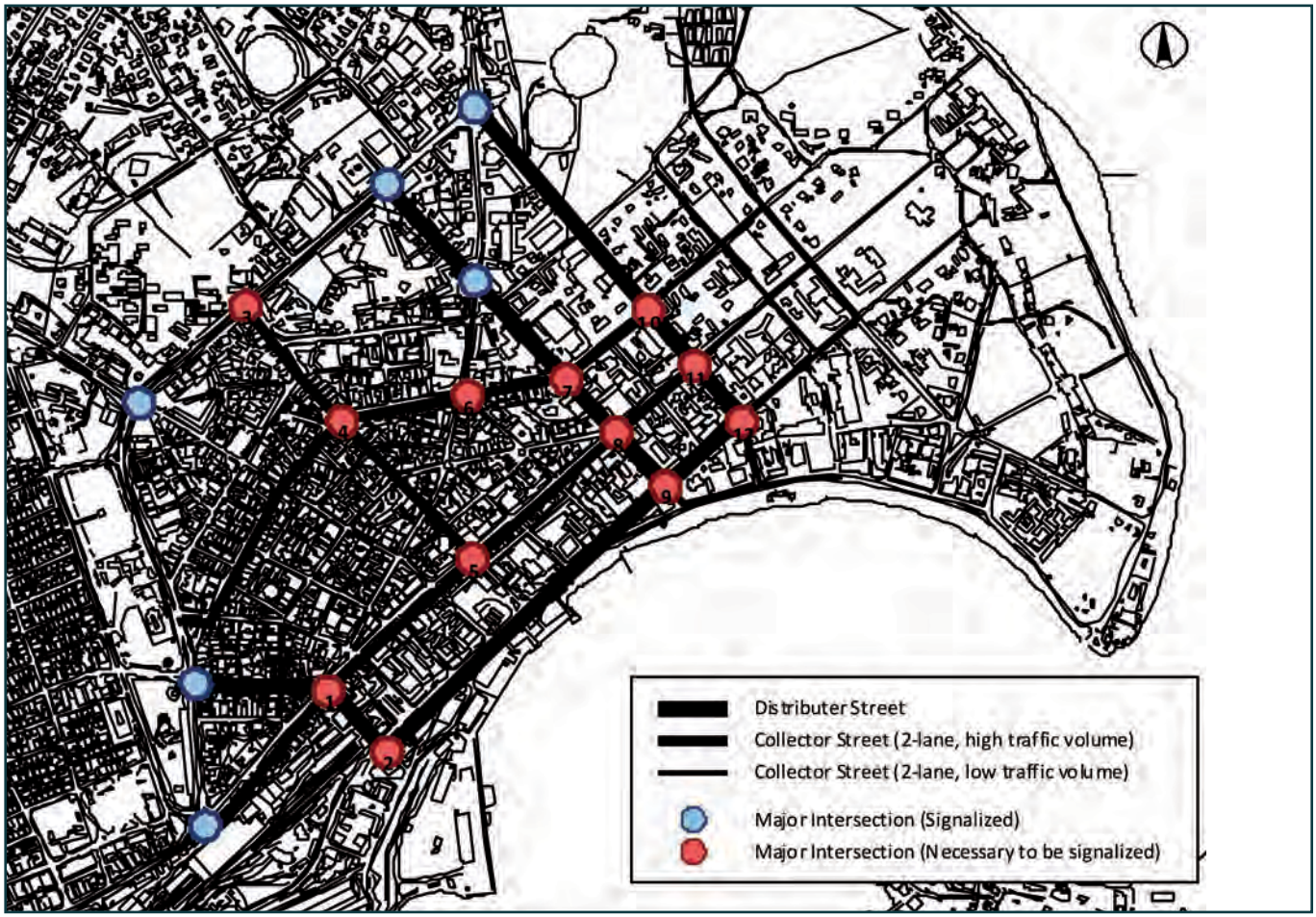
> The BRT corridor will pass through the CBD which will require traffic management measures along Morogoro road and BRT-prioritised signals in the corridor.

> Improved road markings and road signs will be implemented throughout the CBD area, and

> Improved design principles will be introduced for better passenger and pedestrian access, introduce pedestrian streets and properly constructed sidewalks, better segregation between traffic and people, creation of cycle lanes and special features to assist impaired persons.

One of the significant impacts will be the change in parking supply in the CBD area. Currently, parking spaces in CBD at peak periods are about 3,400 but the traffic manage-

Figure 1 : CBD Traffic Management Plan



Source : Dar es Salaam city council.

[14] In Tanzania, the local minibuses are called daladala.

ment scheme will reduce the number of spaces to about 1,300. This will be offset by the introduction of about 2,000 off-street spaces at various locations, probably at a lower parking charge. It is expected that a parking charge regime will be introduced that will encourage the turnover of spaces during the day. The reduction in on-street spaces will improve the CBD traffic plan and reduce congestion. The long-term plan will be to limit CBD parking and encourage greater use of public transport. However, this cannot be pursued until a quality service BRT and perhaps other "executive" services are introduced to provide adequate substitutes for personal transport modes.
The tentative cost of the CBD scheme is about $12 million depending upon the cost estimates for the daladala terminal improvements. The scheme will change the disorganised traffic conditions currently prevailing in the CBD area and will provide the foundation for a city based on a sustainable transport future.

2. Other Cities

While the primary focus in the urban transport sector is to address issues in Dar es Salaam, other towns and cities in the country should also be given due attention. Even though the problems in the smaller cities are not as urgent as in Dar es Salaam, the problem could become unwieldy and more difficult to resolve if it is not addressed at an early stage. Addressing them now is likely to contain the problems to a manageable size.

Unfortunately, long-term urban transport plans for other cities in Tanzania have not yet been considered. Indeed there are few cities where land use planning is used to guide the direction and growth of the urban area and thus there is no history of linking land use with transport requirements. The other towns and cities in Tanzania are expanding rapidly and urban development is largely uncontrolled. There is, therefore, an urgent requirement to introduce better development practices by linking transport plans into the long-term plans of urban development.

At present, urban transport is a local responsibility but no city authorities have a capacity to undertake transport planning or traffic management. PMO-RALG only gives advice but this has been limited to providing assistance to upgrade some city roads to a paved standard largely under externally-assisted projects. While this set up is suitable for ad hoc project advice it is not designed to build the capacity needed for cities to undertake this activity in the long term.

Support is currently being given to seven urban centres: Arusha, Dodoma, Kigoma, Mbeya, Mtwara, Mwanza, and Tanga. Approximately 69% of the assistance amounting to about $91 million is allocated to upgrade roads to a bitumen standard, almost 140 km of roads. In addition, resources are also provided to construct bus and truck terminals in Dodoma, Kigoma, Mbeya and Tanga. These projects will significantly add to the transport assets of each of the urban centres and contribute towards their economic growth and quality of life.

C I Key Issues

A number of important constraints facing the urban transport subsector require action by the government. These issues are:

1. Institutional

A key issue identified in the 2008 Dar es Salaam study concerned the need for leadership in managing urban transport. The lack of an authority to coordinate, control, and manage the transport system of the city was considered to be a major institutional issue. The issue has been revisited on several occasions such as the 2nd Joint Infrastructure Sector Review in October 2008 and subsequently, a prefeasibility study was carried out in October 2011. Despite this interest, the issue has not yet been taken up by the government and no decisions have been made on how to move forward.
Dar es Salaam is now under the responsibility of three municipal councils, each of which has the mandate to take decisions in their respective area. Since urban transport is a city-wide problem, it requires an overarching authority to assess and implement policy decisions that will span the metropolis.
While Dar es Salaam requires a special institutional set up because of its size and importance, the other urban centres should also have improved institutional arrange-

ments. Several of the cities are reaching a size where they require specialised transport staff to plan and manage their infrastructure. Programs need to be put in place to develop the required capacity. Initially this might involve centrally-located experts and specialists working through PMO-RALG providing training and assistance from a central point to a number of urban centres. Subsequently as the need becomes greater for local planning teams this assistance should be extended directly to the local level.

2. Financial

A significant constraint concerns the lack of finance to support urban transport proposals. The master plan study indicated that an investment of $4 billion would be required over the period to 2030 which is equivalent to $200 million a year which is well beyond the currently available resources. Since the completion of the master plan, only the World Bank-supported phase I of the BRT system in the Dar es Salaam and the detailed engineering design of phases II and III has been committed. The short-term measures such as the CBD traffic management scheme and the urgently needed flyovers are still awaiting financing. Currently, the Tazara junction flyover is being considered by JICA for assistance.

The magnitude of financial assistance needed for urban transport in Dar es Salaam, as well as the rest of the country, cannot just rely on development partners as the requirements significantly exceed their country allocations. Government needs to examine alternative sources of financing from local sources such as rates and taxes on property and land values. At present, such taxes are very low and various commentators have suggested that this avenue needs to be explored to ascertain whether levies on land could be used to support development of urban infrastructure.

At the PMO-RALG, local roads are dealt with by the Infrastructure Development Unit with no separation between rural and urban roads. These two categories of road should be split into two separate units because they are different from each. While rural roads will focus on spot maintenance, urban roads will concentrate on upgrading to paved roads with a bitumen surface. Also, the technical problems are significantly different between the two programs as are the costs. While the urban road program component covers a small proportion of all local roads it

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consumes a large share of the available funding. Dealing with the issues separately is likely to introduce efficiencies into the management of the program.

3. Land Use Planning

At present, there is no effective development planning taking place in the city. The current dynamics with rapid urbanisation and population growth imply that there is an urgent need to expand the urban area to accommodate future developments. If planning does not take place, urban sprawl will extend the city linearly along the major road corridors as access to other areas will not be possible. This will result in inefficient urban development that will be expensive to provide services such as water and power at a later date. For long-term efficiency and effectiveness, land use plans need to accommodate transport requirements, otherwise, accessibility and mobility will not be possible. It is considered essential that long-term development plans are established for all urban centres and that development control is enforced to ensure that urban services can be provided in the future and the quality of life of residents can be improved.

4. Commitment

Development of efficient urban transport systems requires leadership. Most of the cities that are known for their urban transport systems have leaders with strong focused vision to deliver quality transport services that provide widespread mobility benefits and accessibility in all parts of the city. Dar es Salaam has already taken the vital decision to focus on BRT to deliver high quality services as phase I is under construction. However, the effort is not enough to improve the quality of transport services in the city. The deteriorating levels of congestion, inadequate state of many of the city's roads and poor quality public transport services are a common talking point. The government must provide leadership to several issues concerning urban transport as the continued deteriorating quality of service, especially in Dar es Salaam, will spill over into the economy as a whole, as 80% of the country's domestic revenue is generated from within the city. The continued poor performance of the city's transport system will adversely impact on the economy unless sufficient attention is provided to addressing the problem.

V. PORT SUBSECTOR


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V. PORT SUBSECTOR

A | Introduction

The development of ports in Tanzania has a long history extending well over a century commencing with the initial coastal settlements at Dar es Salaam and Tanga in the 19th century. Both ports served hinterlands stretching to Moshi and Arusha in the north and from Dar es Salaam across the country to Kigoma on Lake Tanganyika and Mwanza on Lake Victoria. Lake ports were also developed at these locations to serve the lakeside communities and provide trading nodes to surrounding settlements. Initially railways were constructed providing access to the hinterlands and linking the lake ports to the coast. The coastal ports became important ports of call for both freight and passenger shipping movements and were the main gateways for international travel between the country and foreign destinations, particularly in the Middle East and Europe which by the 20th century were the primary trading partners.

B | Tanzania Ports Authority

The Tanzania Ports Authority (TPA) was established under the Ports Act No 17 of 2004 to take over the functions of the Tanzania Harbours Authority and the Marine Services Company. The major responsibilities of TPA are to develop, manage and promote the port subsector in Tanzania mainland. The primary objective in establishing TPA was to enhance the advantages of the geographical position of Tanzania's maritime resources by:

- promoting effective management and operations of sea and inland waterways ports;
- securing the provision of, or to provide services in relation to loading and unloading of cargo and passenger services;
- developing, promoting and managing port infrastructure and superstructure;
- maintaining port safety and security; and
- entering into contractual obligations with other person or body of persons in order to secure the provision of port services, whether by means of concession; joint venture, public private partnership or other means, and to this end to delegate its own function of providing port services to one or more port operators.

The main objective of the Ports Act was to change the function of the port subsector from one that provided a public service to one which functioned as a landlord to manage private sector operators under conditions that fostered efficiency and service to its customers. Under the Act, TPA was provided the mandate and powers to undertake the following functions:

- administer the land and waters within the limits of the ports boundaries;
- promote the use, improvement and development of the ports and their hinterlands;
- regulate and control navigation and the protection of the environment;
- ensure that services and facilities are provided and may enter into agreements or licence other parties to provide these services;
- ensure that adequate, affordable, equitable and efficient port services and facilities are provided for port users;
- ensure nondiscriminatory, fair, transparent access to port services and facilities; advancement of previously disadvantaged people; promotion of gender representation and participation in terminal operations; enhanced transparency in port management; and (vii) advise on all matters relating to the port subsector and liaise with all stakeholders.

At present, TPA is in a period of transition as it performs the role of both a landlord and operator; and the number of assets and functions concessioned to the private sector are relatively limited since the enactment of the Act in 2004.

TRA administers a diverse system of ports along the Indian Ocean and the inland lakes of Victoria, Tanganyika and Nyasa. The major sea ports are located in Dar es Salaam, Tanga and Mtwara while smaller sea ports are at Kilwa, Lindi, Mafia, Pangani, Bagamoyo and Mikindani. The lake ports are located at Mwanza North and South, Nansio, Kemondo Bay, Bukoba and Musoma on Lake Victoria, Kigoma and Kasanga on Lake Tanganyika, and Itungi Port, Manda Liuli and Mbamba Bay on Lake Nyasa.

[12] The Urban Transition in Tanzania, World Bank, 2008.
[13] Dar es Salaam Transport Policy and System Development Master Plan. Consultants Report. June 2008, supported by the Japan International Cooperation Agency.

TPA's network of ports serve a large market which includes the whole of the country's hinterland and the neighbouring landlocked countries of Burundi, Rwanda, DR Congo, Uganda, Zambia and Malawi. Recent economic indicators for this region indicate that it has about 168 million people, a combined GDP of $83 billion and an annual volume of trade exceeding $27 billion. The main seaports, especially Dar es Salaam, provide vital access to world markets for this region and thus the role of the country's ports are not only important to the national interest but are also crucial for neighbouring states which depend on Tanzanian ports for their international trade.

C I Port Operations and Traffic

Dar es Salaam is the country's largest port which currently handles over 9 million tons of cargo a year, equivalent to about 96% of the total country's import and export volumes by sea. Tanga port handles about 0.6 million tons comprising mostly of agricultural and local industry materials. Being a lighterage port, Tanga is disadvantaged by its double handling operation and it is also sandwiched between the major ports of Mombasa in the north and Dar es Salaam to its south. Mtwara port handles about 0.2 million tons a year and although it is emerging as an anchor port for the offshore oil and gas industry linkages to its inland hinterland are currently poor and still in their development phase.

The primary lake ports comprising Mwanza on Lake Victoria and Kigoma on Lake Tanganyika are the most important for transit traffic and handle approximately 250,000 tons and 150,000 tons a year, respectively. The use of these two ports is entirely dependent upon the efficient functioning of Tanzania Railway Ltd. (TRL) and the steep decline in services provided by the railway has resulted in similar steep declines in throughputs at both lake ports.

1. General Cargo Traffic

The overall cargo handled by the major sea ports increased from 5.2 million tons in 2005/06 to 7.2 million tons in 2009/10 representing an annual growth of 8.6% This achievement is significantly higher than the original planned estimates of 4.7% a year. Table 13 indicates the actual cargo traffic handled at all ports but excluding the containerised cargo handled at the Tanzania International Container Terminal Services (TICTS).

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Significant increases a year were recorded in imports: dry bulk cargoes by an average of 8.4%, liquid bulk by 12.3%, and break bulk cargoes by 5.0%. Much of this increase was attributable to growth in economic activities in the hinterland countries served by Dar es Salaam port. It is also notable that about 90% of the throughputs are imports and only 10% of the trade is in exports.

The cargo traffic at the small coastal ports: Kilwa, Lindi and Mafia increased rapidly but from a low base level. The overall amount of trade from the small ports was less than 5% of the throughputs of the major ports. The position of the major lake ports comprising Mwanza, Kigoma and Kyela was a decreasing trend with throughputs decreasing by about 6.3% a year. This trend was largely attributable to the poor performance of TRL although there may well be other transport constraints as well. It is likely that trade was affected by alternative competing routes particularly through Mombasa port and for Zambia and Malawi routes via Southern African ports. Overall, the total throughputs at TPA ports increased by 7.4% a year from 2005–2010.

Table 13 : Cargo Traffic at TPA Ports (harbour tons)

Ports	2005/06	2006/07	2007/08	2008/09	2009/10	Average % Growth
A. Major Coastal						
1. Imports						
Dry bulk	1,054,449	1,060,760	1,172,564	1,587,099	1,457,286	8.4
Liquid bulk	1,856,784	2,266,857	2,261,402	2,588,076	2,951,635	12.3
Break bulk	1,605,199	1,425,474	1,724,603	1,705,257	1,951,613	5.0
Subtotal (1)	4,516,432	4,753,091	5,158,569	5,880,432	6,360,534	8.9
2. Exports						
Liquid bulk	86,100	21,900	61,061	98,234	58,150	0.0
Break bulk	552,373	672,715	725,421	762,462	757,239	8.2
Subtotal (2)	638,473	694,615	786,482	860,696	815,389	6.3
Total (1+2)	5,154,905	5,447,706	5,945,051	6,741,128	7,175,923	8.6
B. Small Coastal	**25,528**	**26,285**	**36,565**	**21,339**	**37,268**	**9.9**
C. Lake	**562,424**	**531,556**	**500,240**	**468,436**	**433,201**	**-6.3**
Grand Total	**5,742,857**	**6,005,547**	**6,481,856**	**7,230,903**	**7,646,392**	**7.4**

Note: Exclusive of containerised cargo handled at TICTS.
Source: Tanzania Ports Authority.

2. Container Traffic Trade

The amount of containers (TEUs) handled at TICTS expanded rapidly with an annual average growth rate of 17.5%. Imports expanded by 18.6% and exports increased by 22.1% a year, compared to the annual growth estimates of imports at 6.5% and exports at 7.9%.

Growth in transshipment grew at 17.8% a year compared with the forecast rate of 7.5%. The projected and actual volume of TEUs attained over the five year period is indicated in Table 14.

3. Transit Traffic Trade

The amount of transit cargo traffic has also increased markedly from 1.6 million tons in 2005/06 to 2.7 million tons in 2009/10 which is equivalent to an annual increase of 13.6%. TPA attributes this good performance to the efforts made to attract transit cargo traffic to the ports, particularly in Dar es Salaam.

This rapid increase was achieved at a time when containerisation was also rapidly changing the freight scenario as an increased number of freight forwarders and companies moved to containerise their cargoes to improve transit times and increase safety and security.

On the other hand, this performance was also achieved at a time when the rail services began to deteriorate significantly.

Table 15 below indicates the volume of transit cargo traffic.

Table 14 : Container Traffic Projected Against Actual (harbour tons)

Year	Imports		Exports		Transhipment		Total	
	Projected	Actual	Projected	Actual	Projected	Actual	Projected	Actual
2005/06	116	96	101	89	24	25	241	210
2006/07	125	150	109	140	26	37	260	327
2007/08	135	193	117	176	28	19	280	388
2008/09	146	178	127	186	30	21	303	385
2009/10	149	190	137	198	32	12	318	400
% Growth	**6.46**	**18.6**	**7.92**	**22.1**	**7.46**	**(17.8)**	**7.18**	**17.5**

Source : Tanzania Ports Authority, Planning and Investment Department.

Table 15 : Cargo Traffic at TPA Ports (harbour tons)

Country	2005/06	2006/07	2007/08	2008/09	2009/10	Proportion in 2009/10
Zambia	629,850	887,816	996,822	1,089,045	1,254,362	46.3
DR Congo	474,618	469,959	646,549	544,391	575,381	21.2
Burundi	130,943	129,103	178,004	256,089	246,889	9.1
Rwanda	71,044	82,576	134,250	136,560	229,262	8.5
Malawi	128,270	109,686	137,034	111,372	112,287	4.1
Uganda	61,910	43,156	72,902	28,133	27,647	1.0
Others	169,365	128,641	191,034	166,093	264,344	9.8
Total	**1,666,000**	**1,850,937**	**2,356,595**	**2,331,683**	**2,710,172**	**100.0**

Source: Tanzania Ports Authority, Planning and Investment Department.

The bulk of the transit traffic is associated with Zambia trade which provides almost half of the total transit traffic. The external trade with Rwanda and Burundi have both grown rapidly in recent years reflecting the growth in their economies as well as the shorter distance to the sea using the port of Dar es Salaam compared to the Mombasa alternative. The transit traffic trade with Uganda has decreased rapidly reflecting the problems with TRL operations as well as the decline in ferry-based rail-wagon services on Lake Victoria. It probably also reflects the improved rail services between Uganda and Mombasa port following the private sector concession agreement with Kenya and Uganda railways by the Rift Valley Railway (RVR) company. The transit trade with Malawi has not grown over the period reflecting the alternative options of port access through Mozambique and South Africa rather than using road and rail routes via Tanzania.

4. Motor Vehicle Imports

The import of motor vehicles is another type of cargo that is increasing rapidly. At present, imports have reached over 50,000 vehicles a year equivalent to more than 1,000 vehicles a month. This reflects the rapidly growing economy and increased motorisation and vehicle ownership. In 2005/06, vehicle imports were below 35,000 vehicles a year but by 2009/10, they have expanded to more than 56,000 vehicles representing an annual growth of over 13%. Many of these imports are used vehicles and this is expected to be the dominant trend in the future. Continued growth in the economy will be reflected in increased demand for vehicles. Vehicle ownership and the trend in imports are expected to expand rapidly over the next decade.

5. Shipping Traffic

From 2005 to 2010, the number of ship calls decreased by about 6.8% while the gross registered tonnage (GRT) of vessels increased by about 3.6%. This reflects the changing trend in ship types by using smaller ships to reduce costs and can be accommodated by the current physical constraints of the port infrastructure and channel depths. Table 16 indicates the amount of shipping traffic using TPA ports over the five-year period.

Table 16 : Overall Shipping Traffic Performance

Item	2005/06	2006/07	2007/08	2008/09	2009/10
Deep Sea	1,116	1,221	1,048	990	906
GRT ('000)	17,349	18,104	16,390	19,708	18,115
Coasters	939	865	874	367	569
GRT ('000)	464	418	473	160	312
Total Calls	**2,055**	**2,086**	**1,922**	**1,357**	**1,475**
Total GRT	**17,813**	**18,522**	**16,863**	**19,868**	**18,427**

Source: Tanzania Ports Authority, Planning and Investment Department.

6. Passenger Traffic

Passenger traffic has not changed significantly over the period. At the sea ports, passenger traffic has been affected by a reduction in the number of passenger ships and ferries which is largely attributable to the improvement of roads in the coastal regions as well as improvements in connectivity linkages using the trunk road network. Lake traffic has been affected by the reduced number of passenger vessels providing lake services due a combination of old age of the vessels and increased competition from bus services following improvements to the road network. The introduction of fast ferries between Dar es Salaam and Zanzibar and roll-on roll-off (RoRo) ferries in Lake Victoria have raised the service levels and reduced travel times because these services have attracted additional traffic by being competitive with alternative road and air modes. Table 17 indicates the annual passenger traffic at TPA ports from 2005/06 to 2009/10.

Table 17 : Passenger Traffic

Port	2005/06	2006/07	2007/08	2008/09	2009/10
DSM	706,060	683,767	732,567	629,417	874,349
Tanga	8,748	14,506	9,929	18,656	18,304
Mtwara	26,044	-	-	-	-
Mwanza	982,300	891,634	902,757	869,534	821,833
Kigoma	27,300	38,156	21,434	22,675	19,991
Kyela	9,670	13,244	12,817	14,484	11,026
Total	**1,760,122**	**1,641,307**	**1,679,504**	**1,554,766**	**1,745,503**

Source : Tanzania Ports Authority, Planning and Investment Department.

D I Financial Situation

From 2005–2010, TPA operations have resulted in a surplus which was higher than originally estimated as trade volumes were higher than forecast.

Despite greater throughputs at several ports, the surplus of revenue over expenditure was only positive at Dar es Salaam and thus these major ports subsidised the operations of all other ports.
Indeed, the bulk of the revenue was derived from the concession agreement with TICTS which generally indicates that greater efforts need to be undertaken to outsource operations to more private sector companies.

While this report has not attempted to assess the operational performance of TPA, the summary financial statements suggest that revenues are considerably less than optimum and that there is probable scope for TPA to increase revenues across all ports and across all of its operations (Table 18).

Table 18 : Financial Surplus (Tshs million)

Financial Source	2005/06	2006/07	2007/08	2008/09	2009/10
DSM Port	22,024.9	12,863.1	23,216.5	48,197	54,349
Tanga Port	(772.4)	(1,537.1)	(5,318.9)	(2,692)	(4,163)
Mtwara Port	(2,446.9)	(2,126.9)	(1,900.8)	(3,384)	(5,081)
Mwanza Port	0	(372.5)	(1,190.2)	(2,961)	(3,574)
Kigoma Port	0	(44.8)	172.2	(695)	(1,174)
Kyeta Port	0	(115)	(252.1)	(456)	(579)
Subtotal	**18,805.6**	**8,666.8**	**14,726.7**	**38,009**	**39,768**
TICTS	41,928.9	45,270.2	48,951.4	50,531	43,663
Headquarters	(21,889.5)	(19,622.0)	(25,789.4)	(27,783)	(24,101)
Subtotal	20,039.4	25,648.2	23,153.0	22,748	19,562
Total	**38,845.0**	**34,315.0**	**37,879.7**	**60,757**	**59,330**

Source: Tanzania Ports Authority, Financial Department.

E | Future Traffic Growth

In preparing the forward business plan for the next 5 years, TPA has prepared traffic forecasts for each port. These are reproduced in Appendix 4. The main features of the projections are:

- At Dar es Salaam general cargo is expected to grow at 5.2% a year, containerised cargo at 12% a year, motor vehicle imports at 9% a year and ferry passengers at 3% a year. This corresponds to imports growing at an average rate of 5.8%, excluding containers, and exports at 2.2%.
- At Tanga port imports are anticipated to grow at 9% a year and exports at 7.9% a year with container traffic forecast to maintain an 11% growth rate.
- Mtwara port is forecast to have lower growth at 4.5% for imports and 3.4% for exports. Traffic growth could change markedly, however, depending on the expansion and demands of the oil and gas industry in the next several years.
- Small ports are expected to remain at about 5% growth a year from a small base level.
- Traffic growth at the lake ports is expected to be affected by the service level provided by the railway. Given that it will be several years before the railway could substantially improve its service levels the traffic forecasts for the lake ports is expected to remain at 5.6% a year for the main Lake Victoria ports and slower growth for the minor ports.
- Kigoma and Kasanga are expected to show higher growth due to greater access to the DR Congo economy but from low base levels and similarly growth at Lake Nyasa ports is projected to reach 15% a year but from a low base level.

F | Financial Projections

The financial projections for TPA based on the expected traffic noted above suggest that the Authority will maintain its level of profitability. However, as noted earlier, it is probable that net revenues could be increased significantly if greater involvement of the private sector could be attained, and tariff levels and other charges reviewed at renewed levels. The financial projections of

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TPA in Table 19 suggest that the net surplus after tax is predicted to increase from Tshs 58 billion in 2012 to Tshs 122 billion in 2016. TPA anticipate using the surplus as a contribution towards the investment needs of the subsector and estimate it will be able to mobilise about 15% of the total investment needs over the period.

G | Description of the Ports

1. Dar Es Salaam Port

Dar es Salaam port is the country's largest port with an annual throughput of about 10 million tons a year in 2010/11. The port is strategically located serving the interior hinterland and the neighbouring landlocked countries in the west, the Middle East, Asia and Australia to the east as well as linkages to Europe via Suez and America via Southern Africa.

The location of the port is well protected from the open ocean as shown in Figure 3.

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Table 19 : Financial Projections of TPA (Tshs million)

Item	2011/12	2012/13	2013/14	2014/15	2015/16
A. Operating Revenue					
Fixed rental	9,964	10,725	11,261	11,824	12,415
Royalty	7,866	8,259	8,672	9,106	9,561
Shipping	29,271	31,968	35,821	40,010	44,573
Handling overside	34,394	35,553	39,837	44,496	49,570
Other shore handling		-			
Wharfage	158,790	210,709	236,100	284,809	317,289
Storage	14,256	15,007	16,816	18,782	20,294
Complementary services	7,051	7,678	8,603	9,609	10,705
Subtotal	**296,009**	**354,771**	**396,184**	**464,025**	**515,604**
Non-operating revenue	8,833	7,500	8,404	9,387	10,458
Total	**304,843**	**362,272**	**404,588**	**473,413**	**526,062**

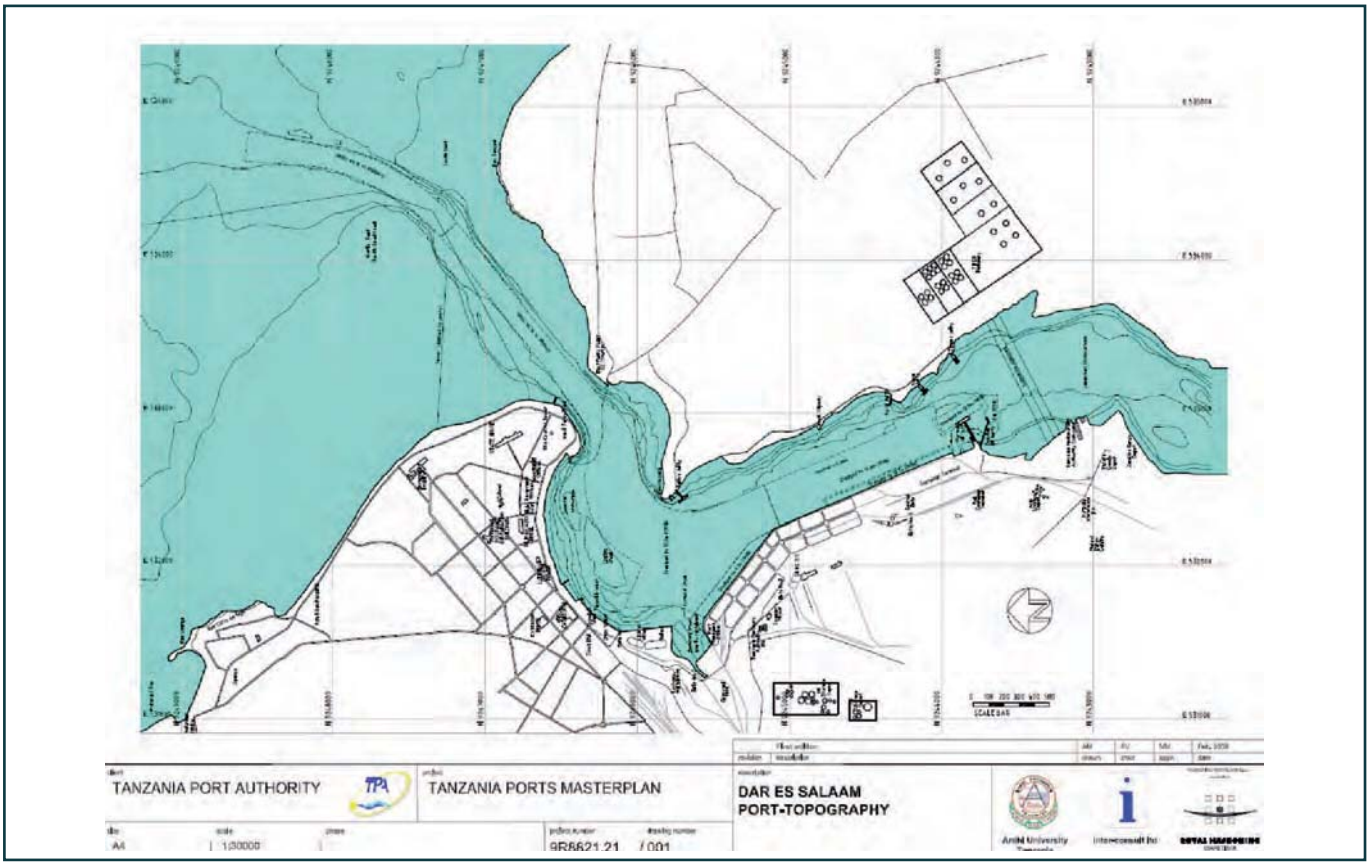
Source : Tanzania Ports Authority.

Table 19 : Financial Projections of TPA (Tshs million) suite

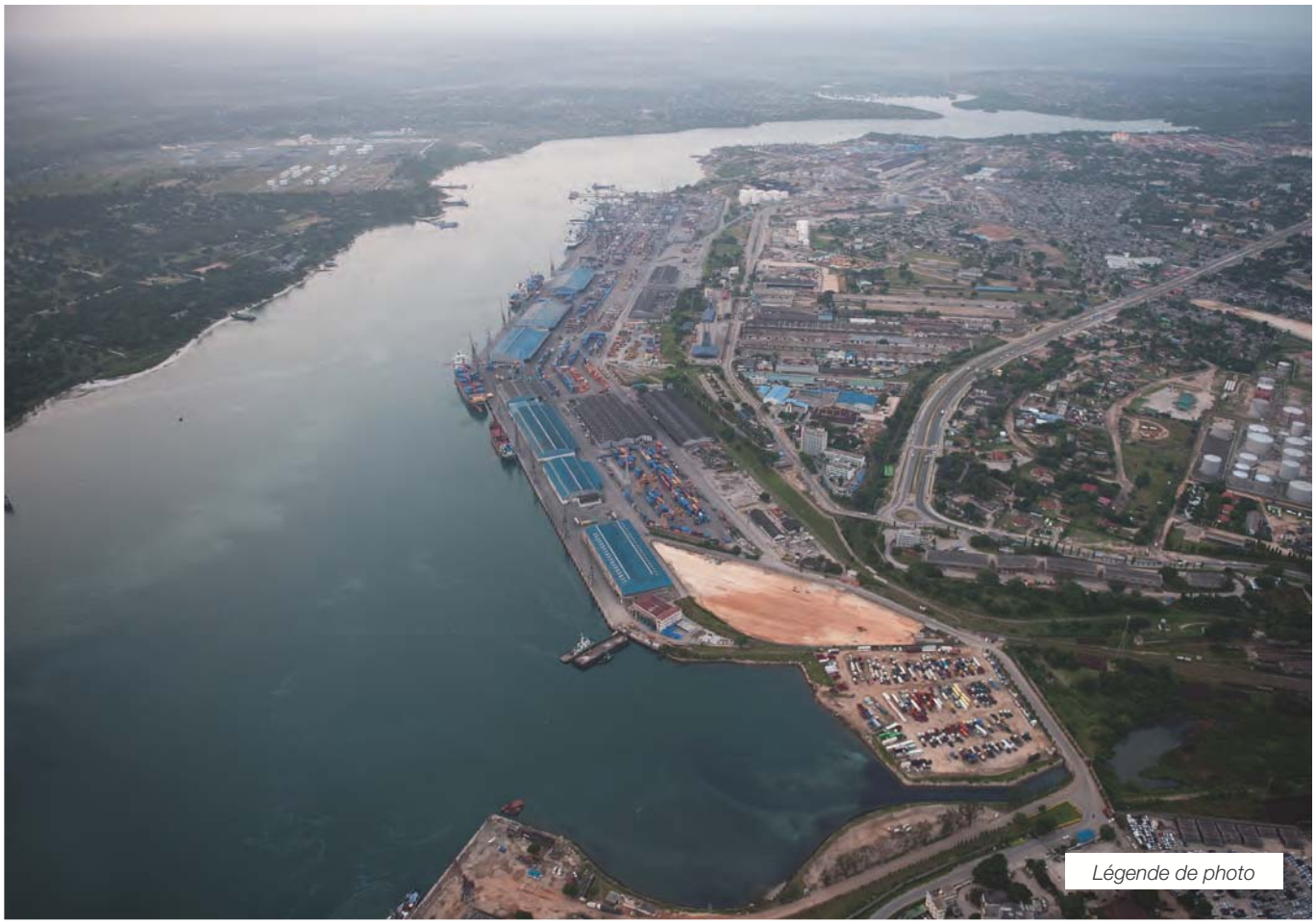
Item	2011/12	2012/13	2013/14	2014/15	2015/16
B. Expenditure					
Salaries and staff benefits	115,259	97,561	109,318	134,313	149,631
Maintenance expenses	13,534	28,783	32,251	39,625	44,144
Operating expenses	28,638	34,036	38,138	46,858	52,202
General and administrative expenses	41,560	42,058	47,126	57,902	64,505
Depreciation	16,336	17,582	19,700	31,795	35,421
Provision for audit fees	-				
Financial expenses	4,555	1,078	1,208	1,349	1,503
Non-operating expenses	2,106	2,687	3,011	3,363	3,747
Total	**221,991**	**223,788**	**250,755**	**315,208**	**351,155**
Surplus/Deficit	**82,851**	**138,484**	**153,833**	**158,205**	**174,907**
Less : corporate tax	24,855	41,545	46,150	47,461	52,472
Net Surplus After Tax	57,996	96,938	107,683	110,743	122,435

Source : Tanzania Ports Authority.

Figure 3 : Dar es Salaam Port



Source : Tanzania Port Authority.



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The entrance to the port can be accessed through a 2.8 km channel which is approximately 140 meters in width. The channel was last dredged in 1998 when it was deepened, widened, and straightened to cater to vessels of up to 9.4 m depth and 200 m length at all states of the tide but passage of larger vessels is possible during high tide. The port has 11 berths totalling to about 2,000 m in length, 2 berths at an adjacent oil jetty and a single point mooring located outside the port approximately 3 km offshore. Currently, TPA operates berths 1 to 7 which are used for handling break bulk, containers, RoRo and dry bulk cargo while berths 8 to 11 comprise the container terminal and are used by TICTS under a concession agreement.

The overall cargo traffic increased from 6.7 million tons in 2006 to 9.1 million tons in 2010 representing 8.0% annual growth (Table 20). The main factors contributing to this performance were increases in dry bulk cargoes particularly wheat, fertilizers and cement and a trend towards moving from bagged to bulk cargo. There was also a large increase in liquid bulk cargo by over 60% from 1.8 million tons to 2.9 million tons over the same period. The increase in oil products is directly related to the increased economic activity in the economy. The volumes of break bulk cargoes has decreased because greater use of containers for dry bulk cargoes such as wheat, rice, flour, sugar, maize and fertilizers was the trend.

The largest growth has been in container traffic where the number of TEUs increased at over 16% a year reaching almost 410,000 TEUs in 2010. Approximately 94,000 TEUs are now handled at the general cargo terminal with the remainder handled at TICTS. The large increases in TEUs handled at the general cargo terminal are due to the removal of the exclusivity clause in the TICTS/TPA concession agreement which limited the trade at the port due to capacity constraints in the TICTS. In addition, congestion in the container terminal area adversely affected productivity because its design

Table 20 : Cargo Traffic at Dar es Salaam Port (Tons)

Type of Cargo	2006	2007	2008	2009	2010
Cargo Traffic (in metric tons)					
1. Dry Cargo					
1.1 Imports : Dry Bulk	978,071	1,129,423	904,341	1,270,115	1,120,327
Break bulk	2,186,701	2,472,681	2,760,503	2,713,908	3,222,717
Total imports	3,164,772	3,602,104	3,664,844	3,984,023	4,343,044
1.2 Exports	962,587	1,269,790	1,190,129	1,215,604	1,387,935
Total imports and exports	4,127,359	4,871,894	4,854,973	5,199,627	5,730,979
1.3 Transhipments: Deep Sea	380,679	366,048	354,543	213,016	103,422
Total dry cargo	4,508,038	5,237,942	5,209,516	5,412,643	5,834,401
2. Liquid Cargo					
2.1 Crude and refined petroleum products					
2.1.1 Imports : TIPPER - Tanzania					
TAZAMA - Zambia	399,836	536,707	452,973	546,542	635,893
Kurasini Oil Jetty	1,441,897	1,354,361	1,539,424	1,911,353	2,271,538
Subtotal	1,841,733	1,891,068	1,992,397	2,457,895	2,907,430
2.1.2 Exports (transit/ocal)	31,679	16,864	23,210	12,514	34,426
Total	1,873,412	1,907,932	2,015,606	2,470,409	2,941,856
2.2 Other Bulk Liquids					
2.3.1 Imports	218,943	183,316	149,912	187,704	276,067
2.3.2 Exports (local/overseas)	41,387	30,338	29,360	31,265	32,117
Total	260,330	213,654	179,272	218,969	308,184
Total liquid imports	2,060,676	2,074,385	2,142,309	2,645,599	3,183,497
Total liquid exports	73,066	47,202	52,570	43,779	66,543
Total liquid imports and exports	2,133,742	2,121,587	2,194,879	2,689,378	3,250,040
2.3 Transhipment (IN)	47,395	67,746			
2.4 Bunkers loaded					414
Grand total liquid cargo	2,181,137	2,189,332	2,211,688	2,690,313	3,250,455
Cargo Traffic Summary					
Overall imports	5,225,448	5,676,489	5,807,153	6,629,622	7,526,541
Overall exports	1,035,653	1,316,992	1,242,699	1,259,383	1,454,478
Transhipment (deep sea)	428,074	433,794	354,543	213,016	103,422
Bunkers loaded			16,809	935	414
Grand Total	**6,689,175**	**7,427,274**	**7,421,204**	**8,102,956**	**9,084,856**

Source : Tanzania Ports Authority.

capacity was inadequate. Furthermore, there were limitations of using other areas in and adjacent to the port. Movements of containers ship-to-shore have been well below the target of 25 moves per hour stipulated in the TICTS contract. From 2005 to 2010, the number of container moves has been below 20 per hour at most time. The contributing factors to this constraint have been a combination of high container dwell times in the terminal, inadequate handling equipment due to low investment by the terminal operator, and terminal congestion that has had a backward impact on quayside and ship operations. While additional investment in cargo handling equipment would improve cargo throughput, operations are adversely impacted by congestion at the port, a portion of which is caused by the administrative requirements of customs and the poor intermodal interface between the shipping, road and railway modes. Over the period, efforts to reduce the excessive import container dwell time at the port were considered. A target of 10 days was established at the beginning of the plan when the average dwell time was over 23 days and often well exceeded this level. High dwell times are caused by a number of interrelated factors including the low capacity of the railways to transport cargo from the port, substantial traffic congestion in and around the port (making it difficult for road hauliers to access the port to collect container cargoes), inadequate capacity of handling equipment by TICTS, and lengthy and cumbersome clearance procedures.

Another factor leading to delay at the port concerns the average berth occupancy which is well above levels that can sustain efficient operations. It is generally recommended that berth occupancy remain between 50% and 60% for efficient container operations but at Dar es Salaam, the experience has been significantly higher than these levels. Since 2005 berth occupancy has been well above 60% reaching 67% in 2006, 77% in 2007 and 90% in 2008. In 2009, it reduced marginally to 80%. These figures were a result of poor quay productivity combined with inadequate berthing space which suggests that additional berth capacity is required.

From 2006 to 2008, the terminal suffered from chronic congestion caused by rapid increases in containerised cargo, high container dwell time and inadequate capacity to handle container traffic. During this period, the number of containers surged to over 10,000 TEUs when the capacity was only 7,500 TEUs. This reduced the container stacking space which in turn reduced the efficiency of ship-to-shore moves causing an increase in ship turnaround time. The escalating impact caused ship queuing time to increase as ships had to wait for berths to become free. On the quay side, delivery operations were affected by the increased need to shuffle containers and this in turn increased the queuing time of trucks and further increased congestion.

TPA took a series of actions to ameliorate the conditions which included

- forming a port operations committee comprising key stakeholders,
- procuring additional cargo handling equipment and paving additional areas for stacking and handling containers,
- establishing inland container depots (ICD) to mitigate and facilitate container overflow
- adjusting working hours and compelling all operators to work 24/7
- conducting awareness campaigns with freight forwarders and the general public on the importance of timely clearance of cargo from the port,
- improving cargo clearance procedures by enhancing timely submission of documents,
- removing TICTS exclusivity to allow the general cargo terminal to handle some container vessels; and
- increasing tariff charges for overstaying containers after a 7-day grace period for local cargo and 21 days for transit container cargo. As a result of these actions, port congestion was reduced by the end of 2009 and the container capacity was increased from 250,000 TEUs to 310,000 TEUs. The holding capacity was increased by 3,500 TEUs to 11,000 TEUs and container dwell time was reduced from 23 days to 10 days by July 2011. In addition, ship turnaround time was reduced from 16 days in 2007 to 8 days in June 2010.

The number of ship calls at Dar es Salaam port is indicated in Table 21. The trend has been towards fewer visits by larger vessels as ship technologies have changed over time. In this respect, the number of container vessels has decreased from about 580 ship calls a year in 2006 to 410 in 2010; while, as noted above, the volume of TEUs handled at the port has doubled over the period.

The total number of ocean-going vessels reduced from 1,060 ship calls in 2006 to 836 in 2010 reflecting the increase in the size of vessels using the port. However, although the trend is towards using larger ships,

vessels entering Dar es Salaam port are limited to a maximum draft of between 10 m and 11 m and this has an impact on the size of vessels used in servicing Tanzania trade.

Table 21 : Shipping Traffic at Dar es Salaam Port (no. of vessels)

Type of Ship	2006	2007	2008	2009	2010
A. Deep Sea Vessels					
1. Dry Cargo Vessels					
(i) Break bulk vessels	147	160	99	98	77
(ii) Dry bulk vessels	53	55	50	59	50
(iii) RoRo Vessels	-	-	-	-	-
- Container carrier	27	41	40	36	38
- Car carrier	96	93	136	157	136
- Subtotal	123	134	176	193	174
(iv) Container vessels	-	-	-	-	
- TICTS	582	530	313	275	339
- TPA	-	-	65	49	71
- Subtotal	582	530	378	324	410
Subtotal	905	879	703	674	711
2. Liquid Cargo Vessels:	-	-	-	-	-
(i) Crude oil (TAZAMA)	7	8	5	5	8
(ii) LPP (KOJ)	100	115	111	79	80
(iii) Edible oil (KOJ)	21	10	13	19	20
Subtotal	128	133	129	103	108
3. Other Vessels	27	1	127	31	17
Total (1 + 2 + 3)	**1,060**	**1,013**	**959**	**808**	**836**
B. Coastal Vessels	**-**	**-**	**-**	**-**	
1. Dry Cargo Vessels	-	-	-	-	
(i) Break bulk	213	104	201	249	215
(ii) Passenger/Cargo	447	476	367	182	171
Subtotal	660	580	568	431	386
2. Liquid Vessels (LPPC)	49	28	25	40	59
3. Passenger ferry boats	1,630	2,087	2,041	2,114	2,322
4. Other vessels	-	-	-	-	-
(i) Schooners and Dhows	536	547	653	491	681
(ii) Fishing boats, yachts, tugs etc.	276	125	79	102	140
Subtotal	812	672	732	593	821
Total (1 + 2 + 3 + 4)	**3,151**	**3,367**	**3,366**	**3,178**	**3,588**
Grand total (A+B)	**4,211**	**4,380**	**4,325**	**3,986**	**4,424**

Source : Tanzania Ports Authority.

The performance of the port is regularly monitored by both TPA and development partners. The inefficiencies in port operations are a major cause of total delays to cargoes in the logistics chain, resulting in high cost to the Tanzanian economy as well as the economies associated with the transit trade. The key performance indicators for the port's operation are given in Table 22 and indicate that while there has been improvement in some indicators, others have deteriorated but there is considerable room for overall improvement. Ship turnaround time has improved significantly over the years which is primarily due to the removal of the exclusivity clause in the TICTS concession as a larger number of berths are now available to handle the container trade. However, at present, the turnaround time remains at 5.5 days and ships have to queue outside the port until available berths come available. The use of the general cargo berths for some container traffic has had a major impact on reducing the container dwell time measured as the time between the release of the container from the ship to delivery. In 2009, the interval exceeded 21 days but by 2010 had been reduced to 13 days and further reduced to 10 days in 2011. Much of the remaining delay is attributable to the processing of documents by customs and this is expected to be addressed by the introduction of the port community system which is targeted to accelerate the process.

Table 22 : Port Performance Indicators

Indicator	June 2009	June 2010	June 2011
Ship Turnaround Time (days)			
i) Container	5.2	4.4	5.5
ii) Tankers	7.0	16.0	35.8
iii) Bulk	3.7	2.4	**3.5**
Dwell Time Import container (days)	**21.8**	**13.0**	**10.0**
Container Traffic			
i) DSM port	35	66	94
ii) TICTS	341	294	353
Berth Occupancy (%)			
i) General cargo terminal	40.2	45.0	26.3
ii) Container terminal	67.5	84.0	62.1
iii) Oil jetty	92.0	99.0	90.0
Transport Modal Split (%)			
i) Road	92.7	94.5	99.1
ii) Rail	7.3	5.5	0.9

Source : Tanzania Ports Authority.

Inland Container Depots. A major constraint hampering port productivity has been the lack of space to store and process containers. The port was designed at a time prior to the introduction of containerisation and was also designed for the direct transfer of small volumes of cargo direct from ship to rail and road modes. As a consequence of changing technologies, the available space in the port footprint is now too small to cater to the volume of trade. This has been one of the primary reasons for increasing congestion and added inefficiency and delay. To mitigate these problems a number of inland container depots (ICD) have been established by private operators where containers can be relocated away from the port and processed in accordance with government rules and regulations.

The Kurasini ICD is located 1.6 km from the port and has an area of 6.5 ha while the Ubungo ICD is 16 km from the

port but on the primary long distance road leading to the central and Uhuru trade corridors. Both these ICDs provide the full range of services required to process containers as well as stripping and stuffing containers for import and export cargoes. However, the continued growth in the container trade has increased the demand for additional off-port space and in 2010, a pre-feasibility study was completed for an additional site located at Kisarawe approximately 35 km from the port. Figure 4 illustrates the location and indicative linkages with the port. The basic concept of the scheme is to transfer the majority of the containers by rail from the port to Kisarawe where they would be processed. The ICD would be connected with the port by both rail gauges and would use shuttle trains to and from the port. Long distance cargoes would be taken directly from the ICD to their onward destination while those for the local Dar es Salaam market would use road transport. While the concept of the Kisarawe ICD scheme has been approved, no decision has yet been taken for its implementation. Given the continuing constraints imposed by the rapidly increasing container trade, a decision on its implementation is now a priority requirement.

Figure 4 : Dar es Salaam Port

Source : Kisarawe ICD Feasibility Study.

2. Mbegani-Bagamoyo Port

The port masterplan identified that despite continuing implementation in increased efficiency measures and additional investment at Dar es Salaam port, the location has a finite capacity which is currently expected to be reached around 2020. At this time, additional capacity will need to be built at a separate location and the decision has been taken to provide new port capacity together with a new export processing zone with excellent road and rail transport links at Mbegani located near Bagamoyo approximately 60 km to the north of Dar es Salaam. In the initial stage of its development, the focus of the new port will be to handle containers and the import of vehicles. Both these trades are forecast to increase rapidly in line with economic growth.

The plan for the first phase is to build a quay length of 1 km that will provide 2 container berths of approximately 300 m each, a RoRo berth of 220 m and an ancilliary berth of 200 m. The alongside depth of the major berths would be 14 m to 15 m. However, the site will require significant dredging and initial cost estimates indicates that approximately 30% of the development cost will be required for this purpose. A feasibility study [17] was recently completed and suggests that the initial port investment will require $460 million based on price levels in 2010.

3. Tanga Port

Tanga port is located in northern Tanzania approximately 350 km north of Dar es Salaam. It was the first port to be developed in the country serving as the port of access for the Arusha and Moshi areas where early farming settlements and towns had developed. It was subsequently linked to these settlements by the first railway line to be developed in the country which was constructed in the 1890s. Due to limited depth Tanga port has remained as a lighterage port and therefore suffers from double handling and the associated additional costs from such operations.
There are two anchorage areas: one is located inside the bay and the other outside. Each has the capacity to accommodate six vessels but the inner area has a draft limitation of 3.5 m while the outside anchorage has 11.5 m depth. Liquid bulk is handled at four buoys for mooring and is facilitated by using flexible hoses connected to a submarine pipeline. The port also has two berths and a total length of 440 m but suffers from a limited depth of 1.5 m at low tide due to sedimentation and siltation over the years. It was originally constructed with a 2.5 m depth at low tide.

Over the years, it has remained an important port for its agricultural hinterland where the primary crops are coffee, tea and sisal. Cargo traffic has doubled over the past 10 years as indicated in Table 23.

Table 21 : Shipping Traffic at Dar es Salaam Port (no. of vessels)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
A. Imports										
Containerised cargo	58,332	67,647	74,661	79,078	88,253	49,651	83,308	17,126	87,978	102035
Conventional cargo	18,945	10,151	22,982	21,419	38,120	107,324	96,767	224,017	105,659	255,131
Liquid bulk cargo	23,479	22,394	33,335	28,427	57,040	103,921	97,004	46,692	6,654	1,435
Subtotal	100,756	100,192	130,978	128,924	183,413	260,896	277,079	287,835	200,291	358,601
B. Exports										
Containerised cargo	63,905	77,560	89,396	92,979	88,797	55,791	57,997	10,122	59,774	41,622
Conventional cargo	66,860	90,704	116,244	117,410	127,306	161,999	110,408	168,094	88,672	108,798
Liquid bulk cargo	-	-	0	110.00	-	-	-	-	-	-
Subtotal	**130,765**	**168,264**	**205,640**	**210,499**	**216,103**	**217,790**	**168,405**	**178,216**	**148,446**	**150,420**
Grand Total	**231,521**	**268,456**	**336,618**	**339,423**	**399,516**	**478,686**	**445,484**	**466,051**	**348,737**	**509,021**

Source : Tanzania Ports Authority.

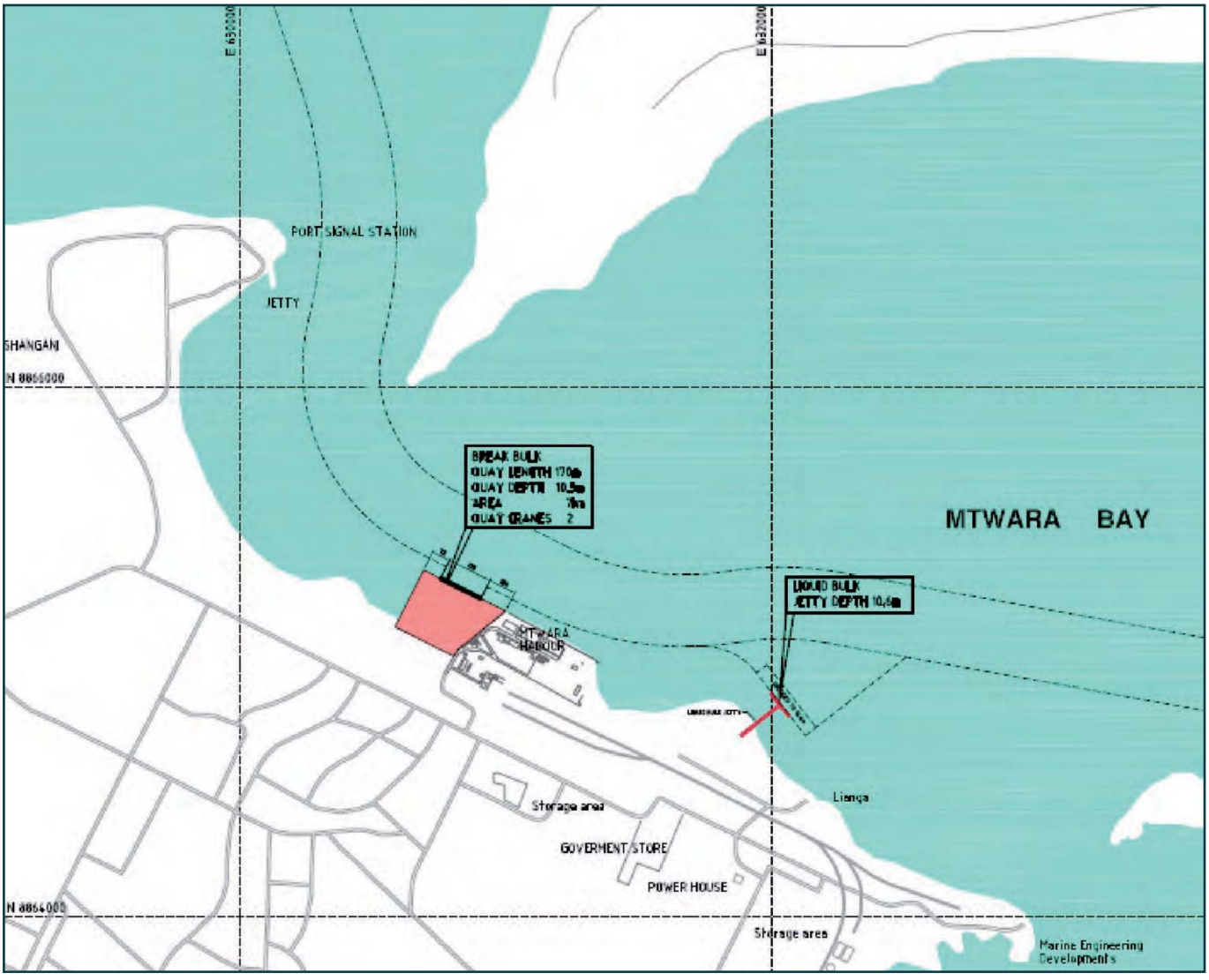
A key issue at Tanga is whether short-term investment is warranted or required prior to the development of a new port at Mwambani Bay. With the limited draft and high cost geotechnical conditions at the current port location, the port masterplan study recommended that a new port be developed at Mwambani Bay which is located about 6 km to the south of the existing port. The future use of Tanga port will always be constrained by its location with Mombasa port less than 200 km to the north and Dar es Salaam 350 km to the south. In addition, the potential development of a new port at Bagamoyo–Mbegani less than 300 km to the south of Tanga to augment Dar es Salaam capacity is likely to attract traffic from the Mwambani location especially if the coastal road link continues to be improved and the rail links are restored.

[17] Feasibility Study for the Proposed Port at Mbegani-Bagamoyo. HPC Hamburg Port Consulting GmbH. April 2010.

4. Mtwara Port

Mtwara port is located in southern Tanzania close to the border with Mozambique approximately 580 km south of Dar es Salaam. It is the third largest coastal port in the country and was initially constructed between 1948 and 1954. Similar to the two other major sea ports, Mtwara had originally a railway linking the port with its hinterland. The railway was built in 1949 stretched between Mtwara and Nachingwea, with a distance of 211 km with a branch line from Chilungula to Masasi of 42 km. The line was constructed to support the groundnut industry but when this scheme failed, the line fell into disuse and was uprooted in 1962.The location of Mtwara port is indicated in Map 2.

Map 2 : Location of Mtwara Port



Source : Port Masterplan Study.

The channel access to the port is natural with depths exceeding 20 m and a width between 250 m and 270 m which is adequate for one-way operation. The dimensions of the channel limit access to vessels of 175 m in length and if larger vessels are to be accommodated in the future, then the channel will require widening.

The existing quay is 385 m of continuous length and the present port area is about 70 ha. The depth at quayside is 9.8 m.

Légende de photo

Cargo traffic using Mtwara port is indicated in Table 24. Since the port does not have major traffic throughputs, it mainly attracts coastal traffic linking with Dar es Salaam and Zanzibar trades. Until recently, the major trade is unprocessed cashew nuts as the hinterland of the port is well known for this agricultural crop.

5. Small Coastal Ports

TPA has five small coastal ports comprising Pangani, which is located south of Tanga, Kilindoni, Kilwa, Lindi and Mikindini south of Dar es Salaam. The ports are indicated in Figure 5. The port masterplan study indicated that they are all basically serving local trades. Many of the ports have limited hinterlands due to limitations of the road network. However, since the masterplan report, the coastal road has been improved to bitumen standard and the coastal corridor has now good access. In some respect, this has limited the opportunities for increased coastal trade to provide transport service as it now competes with the road haulage industry. For these ports, the main role of TPA will be to maintain existing l infrastructure to ensure that it continues to provide service to its users and replace structures, where necessary. A replacement jetty is required at Kilindoni where the tourism industry is gaining a foothold especially among the diving fraternity.

Table 24 : Cargo Traffic at Mtwara Port (tons)

Item	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
A. Imports											
Containerised cargo	6,651	12,591	10,519	5,821	9,340	9,771	9,266	6,642	7,249	11,334	14,522
Conventional cargo	49,050	37,339	48,030	53,391	44,186	33,915	45,178	33,931	39,940	41,716	50,208
Liquid bulk cargo	23,138	21,388	20,185	10,745	12,235	11,604	8,154	5,600	6,513	0	8,020
Subtotal	78,839	71,318	78,734	69,957	65,761	55,290	62,598	46,173	53,702	53,050	72,750
B. Exports											
Containerised cargo	43,217	79,713	86,647	24,649	67,780	35,086	55,090	14,758	1,292	64,019	119,567
Conventional cargo	51,298	30,803	14,080	46,728	21,362	19,821	37,236	28,798	57,945	36,166	42,261
Liquid Bulk cargo	-	-	0	0	0	0	0	0	0	0	
Subtotal	94,515	110,516	100,727	71,377	89,142	54,907	92,326	43,556	59,237	100,185	161,828
Grand Total	**173,354**	**181,834**	**179,461**	**141,334**	**154,903**	**110,197**	**154,924**	**89,729**	**112,939**	**153,235**	**234,578**
Container traffic TEU's	**5,242**	**10,077**	**9,693**	**3,703**	**7,615**	**6,900**	**7,140**	**4,835**	**6,445**	**6,782**	**10,648**
Total Vessel Calls	**216**	**195**	**209**	**153**	**168**	**160**	**138**	**97**	**54**	**63**	**113**

Source : Tanzania Ports Authority.

Figure 5 : Location of Small Coastal Ports

Source: JICA.

Légende de photo

6. Lake Ports

Tanzania has three major lakes bordering its north west, west and south west. Lake Victoria borders Kenya and Uganda in the north west, Lake Tanganyika borders Burundi, DR Congo and Zambia in the west and Lake Nyasa with Malawi and Mozambique in the south west. These lakes have facilitated trade with neighbouring countries providing outlets and alternative outlets to the sea for all neighbours. Prior to the 1960s when the railways and harbours were operated by one entity, the East African Railways and Harbours Co., Lake Victoria was a significant transport route with railway wagon services providing services between the ports of Mwanza in Tanzania, Kisumu in Kenya and Port Bell in Uganda. Today these services are barely a shadow of the past and relatively little traffic uses water transport to cross the lake. The demise of the rail systems have severely eroded the viability of lake services and the improvement of the trunk roads systems in all three countries have made road transport highly competitive with lake services. This is particularly the case with the Uganda trade the bulk of which currently passes through Kenya using Mombasa port as its international access.

In Lake Tanganyika, the services between Kigoma and Bujumbura in Burundi are important for Burundi's international trade but the poor level of rail services between Kigoma and Dar es Salaam have witnessed a large diversion of trade to road transport. This has affected the volumes of cargo now using Kigoma port. At Kasanga port located at the southern end of the lake, trade is primarily with DR Congo and although small, the volumes of cargo have remained constant.

Kasanga has poor quality road links with the rest of the trunk road network although they are currently being improved under various construction programs. Following completion of the road upgrading, the use of Kasanga port will be considerably more attractive for trade with DR Congo as the route to Dar Es Salaam is considerably shorter than alternatives.

Mwanza is Tanzania's second city and generates a considerable demand for trade and transport passenger demand. The volume of cargo through the port has increased significantly over the past 10 years and by 2010, almost 300,000 tons a year was reached. Trade through the port is indicated in Table 25.

Table 25 : Cargo Handled at Mwanza Port (tons)

Cargo	2000	2001	2002	2003	2004	2005	2006/07	2007/08	2008/09	2009/10
Outward	27,679	24,584	28,614	28,201	46,918	48,767	108,143	122,268	143,069	164,246
Inward	31,635	28,414	31,600	31,000	51,899	52,425	150,710	143,543	136,992	129,060
Total	**59,314**	**52,998**	**60,214**	**59,201**	**98,817**	**101,192**	**258,853**	**265,811**	**280,061**	**293,306**

Source : Tanzania Ports Authority

If rail services can be restored, it is unlikely that the rail wagon ferries will be of significant use in the future. Today, trade technologies have changed and the use of RoRo ships are commonly used elsewhere. Further study is required to determine the most appropriate way of transporting freight across the lake in that while RoRo ships might be the preferred use of shipping technology, analysis needs to be undertaken to assess whether such services can be competitive with road transport that could drive Mwanza to Kampala on the improved trunk road network. Other important ports on Lake Victoria include Bukoba, Kemondo Bay, and Nansio. Bukoba on the western shore of the lake is the main town of Kagera province and statistics indicate that it handles about 80,000 tons of cargo a year with outbound cargo comprising 55% of the trade. Historically, the port catered to a high volume of passengers but in recent years shipping has been subject to competition from bus transport. The port at Kemondo Bay is located about 20 km south of Bukoba and its utilisation has suffered from improvements to the road network. In the past, it was a major coffee exporter as the hinterland is known for its good quality coffee. Today most of the coffee is sent in containers

using road transport. Nansio port is located on Ukerewe Island, approximately 50 km north of Mwanza. While trade is limited to about 12,000 tons a year, this reflects the economy of the island and the demand for building materials and consumer goods. Nansio port has historically handled a large number of passengers annually which are carried on RoRo ships owned by the private sector.

H I Key Issues

A number of key constraints facing the port subsector in the next 5 years (2010–2015) have to be addressed as they have important cost implications on the economy as well as the logistics chain.

1. Increase Efficiency of Dar es Salaam port

The original design of the port was done prior to the type of technologies being used in the shipping and logistics industry today. At the time the port was constructed, cargo volumes were small and containerised cargoes had yet to be introduced. The layout of the port and its facilities reflected the conditions of the time. Being a port city, Dar es Salaam is the centre of economic activity in the country and the city has grown rapidly especially in the past 15 years. This has led to significant urban development in the areas adjacent to the port leaving little room for port expansion or port services industry to develop. The advent of globalisation which has increased the pace of international trade together with containerisation which has rapidly replaced break bulk cargoes has had a major impact on the port's efficiency. Ship size has increased, queuing times have lengthened, dwell times increased, quayside operational space is limited and levels of congestion increased, all of which combine to adversely impact the efficiency of the port. Each of these factors leads to increased costs for port users and add to the cost of both imports and exports. This affects the economic costs of goods in Tanzania as well as those neighbouring countries that use Dar es Salaam as their gateway to the world. These factors also contribute towards the cost of using Dar es Salaam compared to alternative ports and this places Dar es Salaam at a greater disadvantage because of its congestion and delay that lead to higher costs. The need to increase efficiency at Dar es Salaam port is a high priority that is sought by all port users and transport policymakers.

2. Large Investment is Required

A number of studies have identified several investments that need to be made in the port subsector, especially at Dar es Salaam. The capacity constraints urgently need to be addressed and include direct investment, such as additional container berth capacity, improvement of general cargo berths 1 to 7, dredging needs, and relocation of Kurasini Oil Jetty. To mitigate the congestion, investments should also be made in (i) off-port inland container depots, (ii) improved intermodal interface between the port, rail, and roads subsectors, (iii) better handling capacity for bulk cargoes and container logistics; and (iv) improved connectivity between the port and its service hinterland by better road and rail networks in the vicinity of the port. Furthermore, improvements to the administrative processes and elimination of bureaucracy need to be identified and implemented. Overall, this long list of requirements will require a large investment. Investment in the direct port requirements within the existing port footprint will require more than $1 billion which is beyond the current capacity of TPA to provide. It is therefore necessary to explore outside-the-box solutions as the "usual" channels of investment from government, TPA and development partners will not be sufficient to meet the large requirements.

3. Role of the Private Sector

It is clear that based on the total investment required, it will be necessary to partner with the private sector to gain access to capital investment. Under the Ports Act of 2004, TPA is authorized to get involved with the private sector and thus, there are no legal impediments to follow this philosophy. In addition, given that ports operations generate revenues, there are minor constraints to using private enterprise in port operations as revenues can be used to cover private sector costs. However, partnering with the private sectors pose constraints as categorised in two broad types. The first is to identify which areas are suitable for private sector involvement by assessing the financial requirements and components suitable for private sector participation and preparation of business plans. The

second type of constraint concerns the lack of appropriate skills in the public sector to prepare suitable contracting arrangements, negotiating skills and long-term management of concession contracts. Both these constraints can be resolved by employing firms with appropriate skills to undertake these tasks over the short and long term.

To achieve the objectives of the Ports Act, there needs to be greater emphasis on moving towards the role of landlord from the current position of port operator. There appears to be a reluctance to initiate further reforms in the short term. To achieve improved port operations and improved efficiency, the investment needed and the reform process should be converged. Government needs to emphasise its role as policymaker and make it clear that major investments in the port can only be approved together with an accelerated shift towards TPA becoming a landlord authority as required under the Port Act of 2004. This would facilitate a greater role for private sector operations in the port environment which if well structured and made competitive would drive greater efficiency in port operations.

4. Mbegani-Bagamoyo Investment

Current traffic projections indicate that investment in additional capacity will be required at another location by 2020 to augment the capacity of Dar es Salaam which will reach full capacity at that time. This capacity constraint was identified under the port master plan and steps have been taken to identify a suitable location and prepare initial feasibility studies. A site at Mbegani near Bagamoyo has been chosen and it is expected that it will be initially developed as a container port and for vehicle imports. While the investment will be over $500 million, the bulk of the resources are not required for another 4 to 5 years but early steps needs to be taken for engineering design of all components including road and rail links to the new facility. It is also possible that a new facility at Mbegani will impact upon the investment requirements at Tanga and the implications of this investment need to be assessed prior to proceeding with the new port facilities at Tanga.

5. Development of Mtwara

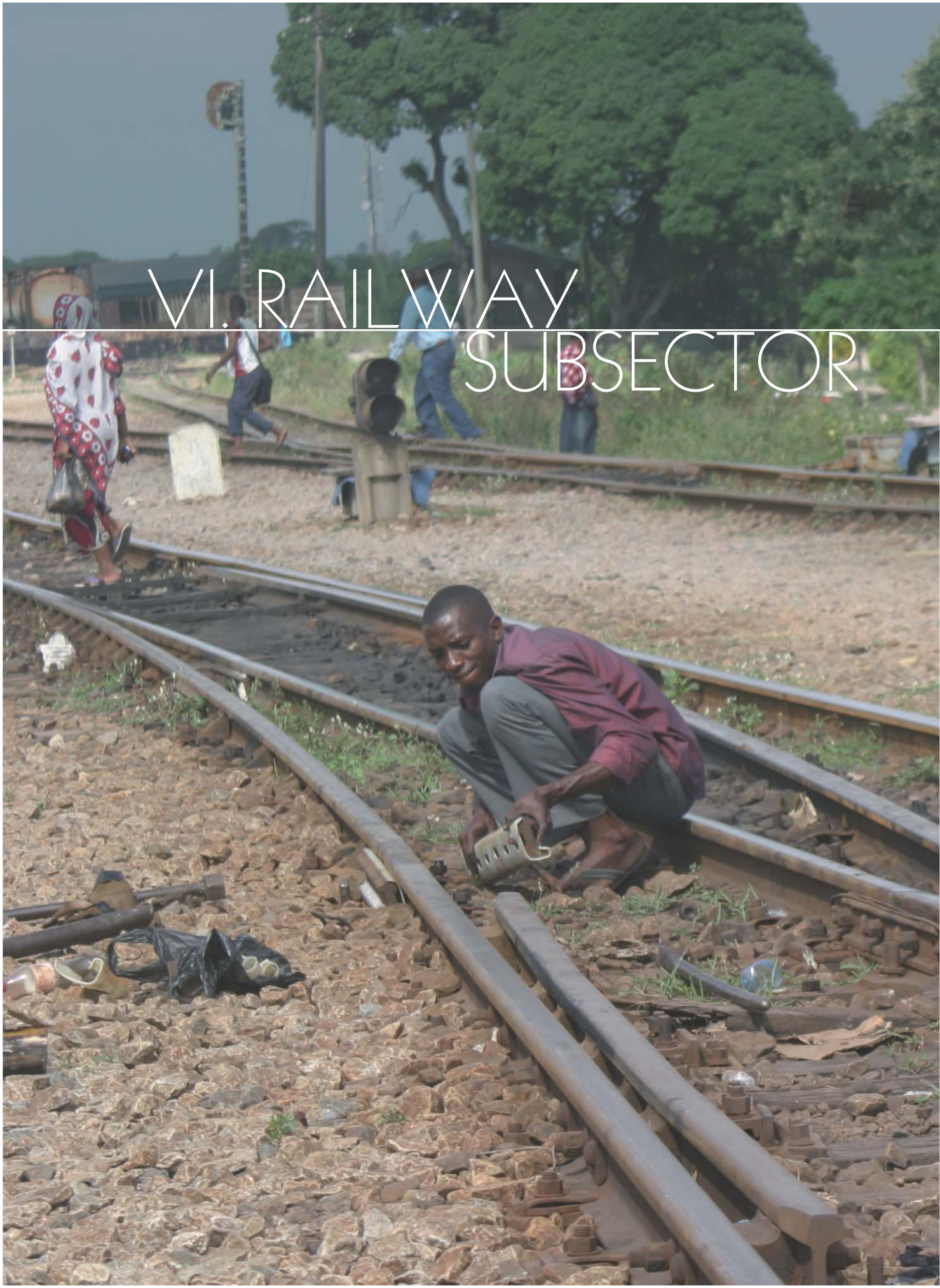
The development of Mtwara port is also expected to take place during the current development plan period. This will place an added burden on the investment needs of the port subsector. The timing of the investment at Mtwara is independent of the needs of Dar es Salaam and Mbegani since Mtwara is dependent on the expansion of the offshore oil and gas industry and exploitation of the iron ore in Lingaga and coal fields in Mchuchuma. A decision on the latter is expected in about 12 to 18 months when a private concessionaire will have determined the reserves potential and developed an operational plan. Development of these natural resources to their potential is likely to require significant investment in Mtwara port. It is recommended that partnership with the private sector is the preferred investment strategy since the primary initial users of the port will be large industrial groups potentially moving large quantities of mineral resources or materials associated with their operations.

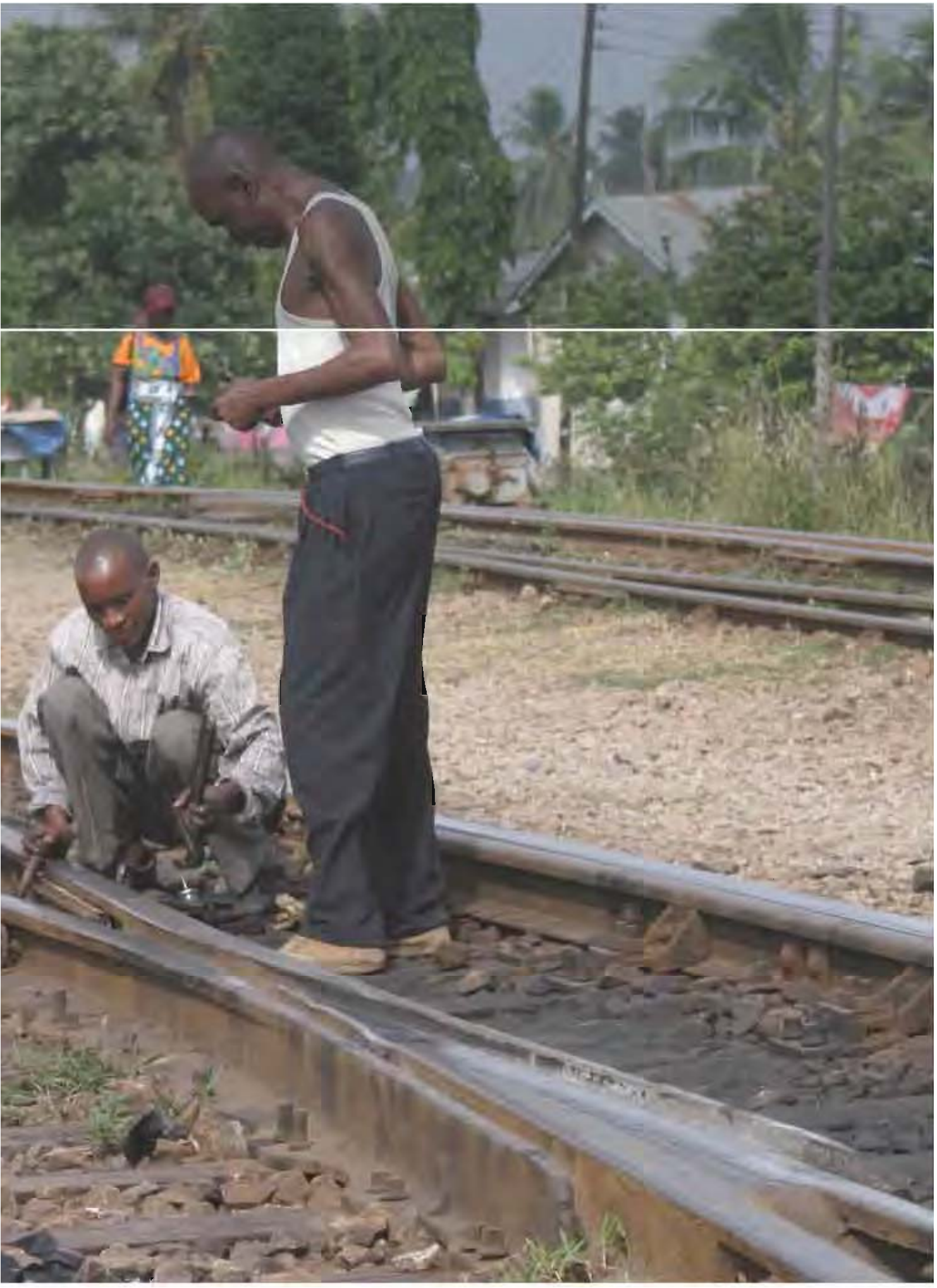
6. Development of Lake Ports

While the investment needs of the lake ports is small in comparison with the coastal port requirements, they, nevertheless, are important to the communities they serve. In terms of cargo and freight, the expected traffic volumes will largely depend upon the role of the railway in the future. While it is expected that the railways will undergo a revival program, it may be several years before they stimulate increased trade using lake services. Thus, investment in the lake ports needs to take an incremental approach to meet expected demands and also to repair and/or replace obsolete infrastructure, where necessary.

Perhaps more important are the services that are likely to develop on each of the lakes. Lake Victoria has a considerable number of services provided by the private sector which is not the case with Lakes Tanganyika and Nyasa. In all three lakes, it is important to promote services by the private sector. It is also important to encourage investment in new vessels as many of the existing fleet are aged, inefficient, and the “wrong” type of vessel for the type of trade in the current market. Use of RoRo vessels will facilitate better services and require different quay requirements and cargo handling equipment. The regulator, SUMATRA, should examine ways in which competitive services provided by the private sector can be promoted particularly in Lakes Tanganyika and Nyasa where increased trade with DR Congo, Zambia and Malawi are possible.

VI. RAILWAY SUBSECTOR





VI. RAILWAY SUBSECTOR

A | Overview

Tanzania has two railway systems of different gauges that were constructed at different times and for different purposes. The map of the railway systems is illustrated below (Map 3).

1. Reli Asset Holding Company/ Tanzania Railway Ltd.

The first and oldest system is the Reli Asset Holding Company (RAHCO)/TRL system which was constructed in colonial times. The rail system was constructed to a 1 metre gauge (1,000 mm) standard. The mainline comprises the central corridor between the port of Dar es Salaam in the east, linking central and western areas of the country and terminating at Kigoma on Lake Tanganyika in the west. This line which was constructed between 1907 and 1914 was also important for the neighbouring countries of Rwanda, Burundi and DR Congo as it provided a direct trade link to the region's main port at Dar es Salaam. In 1928, a spur line was constructed northwards from Tabora to Mwanza on Lake Victoria which also served Uganda via a rail-lake service. A second east-west line from the port of Tanga to Moshi was built between 1899 and 1911, and was subsequently extended to Arusha and linked to the Kenya and Uganda rail system at Voi in 1925. Branch lines were constructed to Mpanda in 1949 and to Kidatu in 1965. Another line was constructed in 1965 linking the central corridor line with the Tanga line. The total system length is 2,707 km.

Prior to the collapse of the East African Community in 1977, the rail system was developed and operated as an integrated East African system managed by the East Africa Railways Corporation, and formerly its predecessor, the East Africa Railway and Harbours Corporation. From 1977–2007, it was operated by the Tanzania Railways Corporation (TRC) and following the concession agreement in 2007, it was operated as TRL. The latter was jointly owned by RITES of India (51%) and the Government of Tanzania (49%) with the former having management responsibility. Simultaneously, with the award of the joint operating partnership, the Government created RAHCO, a government company that owned the assets of the railway. However, this concession experienced major difficulties, did not improve the services, and the system suffered further depletion of its services. It is reported that the concession was operated in an atmosphere of conflict with little trust between the partners. Because of the conflict, the urgently needed investment and working capital was then withheld. The two parties mutually agreed to terminate the concession which was eventually dissolved in July 2011. At present, the Government has appointed an interim management team to revive TRL operations.

2. Tanzania–Zambia Railway Authority

The Tanzania–Zambia Railway (TAZARA) is the second railway system constructed from 1970 to 1975, financed by the Peoples' Republic of China. It was constructed to the cape gauge standard, 1,067 mm, similar to the rail systems of Southern Africa to which it links with in Zambia at the town of Kapiri Mposhi. The line is 1,860 km in length, of which 975 km is in Tanzania and 885 km in Zambia. An interface was constructed between this railway and the TRL system at Kidatu to facilitate freight traffic interchange between the two rail systems.

Commercial operation commenced in July 1976. The railway is jointly owned by the Governments of Tanzania and Zambia and is managed by TAZARA. The line primarily serves as a trade link between Zambia and the port of Dar es Salaam but also serves as a transport link for DR Congo and Malawi. The line was originally designed with a carrying capacity of 5 million tons of freight annually.
The performance of TAZARA over the past 30 years has been below expectations primarily because it was undercapitalized from the start. The railway owes its survival to the continued technical support provided by the Government of China. Since 1976, a total of 14 protocols have been signed between the three governments. These protocols have provided needed locomotives, rolling stock, rail infrastructure and technical assistance to maintain its operations. TAZARA management indicate that there is a need to restructure the institution to

- improve efficiency,
- inject capital for investment; and
- identify sources of funding to rehabilitate portions of track and carry out regular maintenance of infrastructure, locomotives, rolling stock, and signalling systems.

Map 3 : Location of the Railway Systems

Source : RAHCO.

B. Railway Operations and Traffic

1. Reli Asset Holding Company/ Tanzania Railway Ltd.

Prior to the concession in 2007, the performance of the TRC [18] was generally poor. This performance was largely attributable to old and outdated permanent way, weak bridges, and shortages of locomotive power and rail wagons which was also due to old age, insufficient maintenance and non-replacement of depreciated rolling stock. The weak infrastructure problems were amplified when the railway was specified for privatization in 1997 as this prevented resources for maintenance or investment in the railway to be provided through the budget. Since it took 10 years to agree to a concession contract, the infrastructure and rolling stock deteriorated more which resulted in further reduction in the services offered.

During this period, freight traffic experienced a steep decline from a peak of 1,446,000 tons in 2002 to 256,000 tons in 2010 which is in Table 26 and illustrated in Chart 2. This decline took place simultaneously with the increased investment in the trunk road network and the central corridor road network which parallels the railway. As a result, there was a major shift of traffic from railway to road, a situation that remains up to now.

The rail network was particularly hit hard in 2010 due to the closure of the Morogoro-Dodoma line caused by major washouts in the track between Kilosa and Gulwe which was unserviceable for several months. During the past decade, the average haul distance has reduced from its peak of about 1,200 km which reflects the loss of transit traffic although the average haul distance remains over 800 km reflecting the advantage of rail for long distance travel.

The reductions in freight traffic have led to significant increases in the cost of operating the railways, resulting in increased railway tariffs—imposed in 2009 and 2010—in a bid to increase revenues. At these tariff levels, the railway considerably lost competitiveness against road truck traffic.

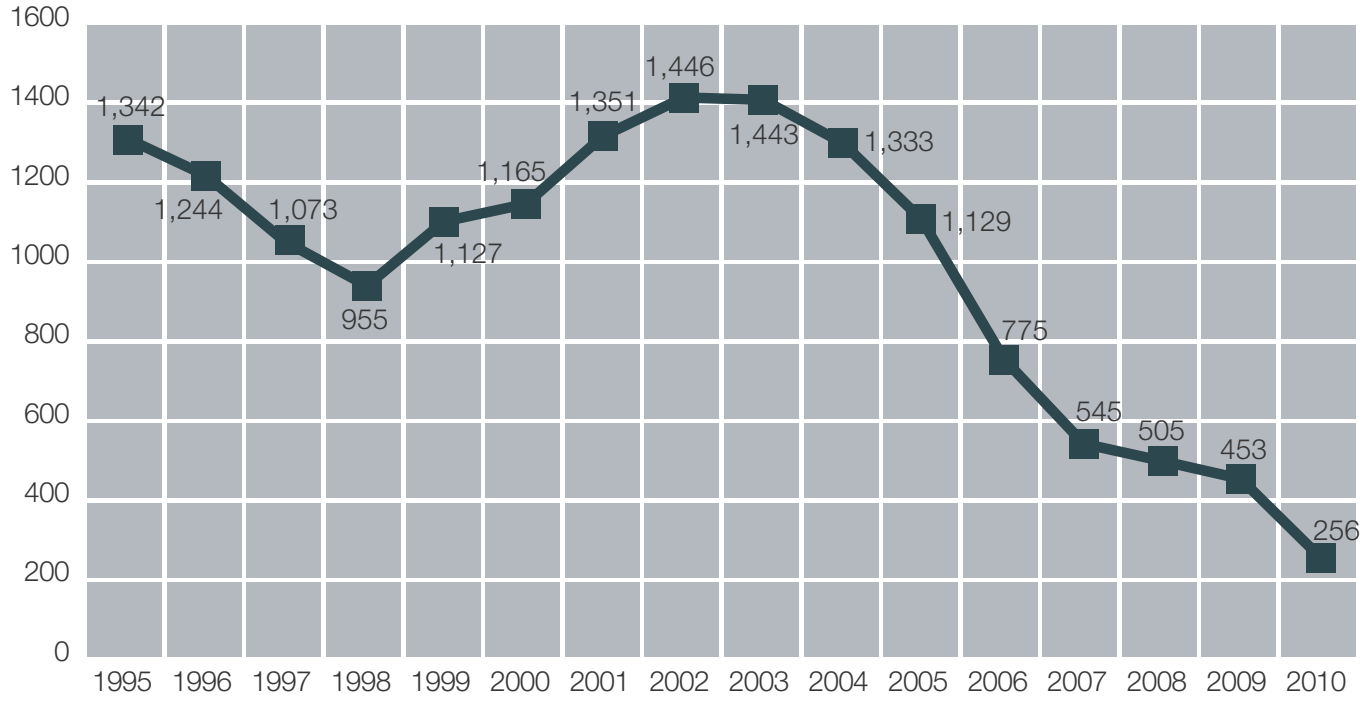
Table 26 : TRL Freight

Year	Freight ('000 tons)	Freight (ton km)	Average Haul Distance (km)	Average Freight Tariff (USc/tkm)
1995	1,342			
1996	1,244			
1997	1,073			
1998	955	825	864	
1999	1,127	1,350	1,197	
2000	1,165	1,400	1,201	3.0
2001	1,351	1,600	1,184	
2002	1,446	1,700	1,175	
2003	1,443	1,480	1,025	
2004	1,333	1,200	900	
2005	1,123	1,000	890	
2006	775	650	839	
2007	545	477	875	
2008	476	506	1,063	
2009	453	506	1,117	4.7
2010	256	251	980	6.3

Source : RAHCO/TRL.

[18] Following the concession agreement in 2007, the Tanzanian Railway Corporation (TRC) was known as the Tanzanian Railway Limited (TRL)

Chart 2: Trend in TRL Freight (tons)



Indicators showing the general trends of key indicators in the railway's performance are provided in Table 27. In general, the performance of TRL from 2008 to 2011 is well below the targets set for almost all indicators.

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Table 27 : TRL Performance Indicators

Indicator	Units	2008		2009		2010		2011
		Target	Actual	Target	Actual	Target	Actual	Actual
Freight	tons ('000)	608	505	568	453	500	256	267
Freight	ton-km (million)	620	506	580	506	600	252	274
Passengers	number ('000)	648	459	628	543	620	290	519
Passengers	p-km (million)	434	321	691	374	563	150	328
Locomotive availability	%	55	70	60	69	45	55	47
Locomotive utilisation	km/loco/day			460	234	460	243	229
Locomotive reliability	km/failure	14,000	4,207	14,000	5,625	14,000	2,927	2,333
Wagon turn-around	days	13.2	24.4	13.2	17.8	14.5	27.9	40.8
Wagon availability	%	90	60	80	49	80	48	48
Coach availability	%	80	82	85	63	85	55	61

Source : Tanzania Ports Authority

The only indicator that was above the target concerns locomotive availability which used imported locomotives due to the low availability of the existing fleet. However, the statistics are anomalous given that although the availability was high, the utilisation was low indicating that the units were often idle most of the time and not being used to generate revenue. A major problem has been the reliability of the locomotive power and the target of 14,000 km between breakdowns has reduced considerably and in 2011, the performance was barely attaining 10% of the target value.

Overall, the performance indicators present a gloomy picture that a railway system has experienced severe decline and a business concern that is not able to operate profitably. It is clear that if TRL is to play a vital role in the transport sector, it will require a major overhaul in its operations. Significant investment is needed to improve the quality of its infrastructure and rolling stock; and more importantly, requires a paradigm shift in doing its business to increase its competitiveness with the road transport industry.

a. Case for Revival

Despite the decline in TRL operations since the early 2000s, the revival of the railway system should be supported. In the past, it has supported the development of the central and western regions of the country and es-

pecially, the neighbouring countries of Burundi, Rwanda, Uganda and DR Congo. The railway provides a lifeline to these regions and countries as it provides direct access to Dar es Salaam port. The alternative corridor to the north via Mombasa, Nairobi, Kampala and westwards to Kigali, Bujumbura and beyond is less direct, is of greater length, requires more border crossings and in general, is considerably more expensive. Studies of the corridors [19] indicate the comparative advantages with each one. The TRL rail alternative ranks high with considerable cost advantages over road freight although it currently requires additional travel time and is less reliable.

The rail option has also several other advantages over road which are not readily shown by competitive studies. A major benefit accrues to the economy though savings in energy use and reduction in vehicle emissions and greenhouse gases. The improvement in the trunk road network has had a major impact on vehicle operating costs both through savings in fuel and vehicle maintenance as well as transit time. However, rail transport has considerable advantages in lower fuel use per unit of freight carried. The heavy use of the roads by heavy goods vehicles has also a significant damaging impact on the road pavement and it is likely that the large diversion of freight from rail to road has raised truck flows well above projected levels. This is likely to have reduced the pavement design life of new road pavements thus necessitating higher road maintenance costs. A second benefit of rail systems is that they are safer than the road alternative. Road deaths and injuries are rising steeply and while the statistical base is weak, it is likely that many more accidents are caused by road transport vehicles compared to the railway.

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[19] Corridor Diagnostic Study of the Northern and Central Corridors of East Africa, Nathan Associates Inc, February 6, 2011.

The general conclusion is that the revival of the railway is critical to the long-term development of national and international transport. An improved railway is expected to significantly reduce the transport costs of long distance freight. In a competitive market, the price of goods and services in the economies it serves will be reduced. Efficient operation of TRL will facilitate development in its hinterland and provide an opportunity to achieve greater economic growth and social development in remote regions.

b. Forward Plan

Following the termination of the concession agreement in July 2011, the government is preparing its action plan to revive TRL operations. Its initial step was to appoint an interim management team to lead. This team has prepared a business plan which focuses upon immediate infrastructure repairs and a marketing strategy that aims to attract more freight to TRL system. Interim targets were set for passenger and freight traffic and it was expected to increase traffic to 884,000 passengers by 2012 and 900,000 tons of freight.

Part of the short-term plan is intended to engage a consultant to carry out a study to identify the priority requirements for the rehabilitation and performance improvement of TRL operations. The intended outcome of these services is to prepare a bankable business plan that will be used to solicit funds from global financing institutions to restore the central line infrastructure and transform the railway service into an efficient operation and, most importantly, a commercially viable business.

To support TRL's revival, it will be necessary to invest in substantial improvements in the infrastructure, particularly track and signalling systems, as well as locomotive power and rolling stock. This investment is the responsibility of RAHCO. To this end, RAHCO has developed a plan that will focus on strengthening the track by replacing worn and light weight rails by 80 lb/yard rails and implement remedial measures on the stretch of track between Kilosa and Gulwe which is prone to regular flooding.

The program will also replace a number of collapsed and aged bridges, rehabilitate a quarry to provide needed ballast materials and construct an inland container depot at Mwanza. The total cost of this program which is included in the draft Transport Sector Investment Plan (TSIP) 2 program is US$342 million. The government is discussing possible external assistance to support TRL's emergency funding as well as RAHCO's strategic investment targets over the medium term.

RAHCO has also longer term plans to rehabilitate the track to eliminate speed restrictions caused by weak bridges, improve safety, extend the fibre optic cable telecommunications system to Kigoma and Mwanza, and purchase new rolling stock. The plans also include upgrading the present railway line to standard gauge. Beyond 2016, RAHCO's ambitious plans include upgrading the Arusha line and extending it to Musoma, construct a link line to the proposed new port at Mbegani and a new line traversing the Mtwara corridor between Mtwara port and Mbamba Bay with spurs to the iron ore fields at Liganga and coal field at Mchuchuma.

At present, there is no confirmed funding available to initiate the "turn around" plans. It is likely that any potential contributors to the revival will require a solid bankable business plan that provides a comprehensive strategy for putting the railway on a solid footing. This is understandable given the history of the past decade which saw decline and no priority for rail operations. For the new strategy to be taken seriously by financial institutions and development agencies, the government will need to demonstrate high priority and commitment to revive the railway.

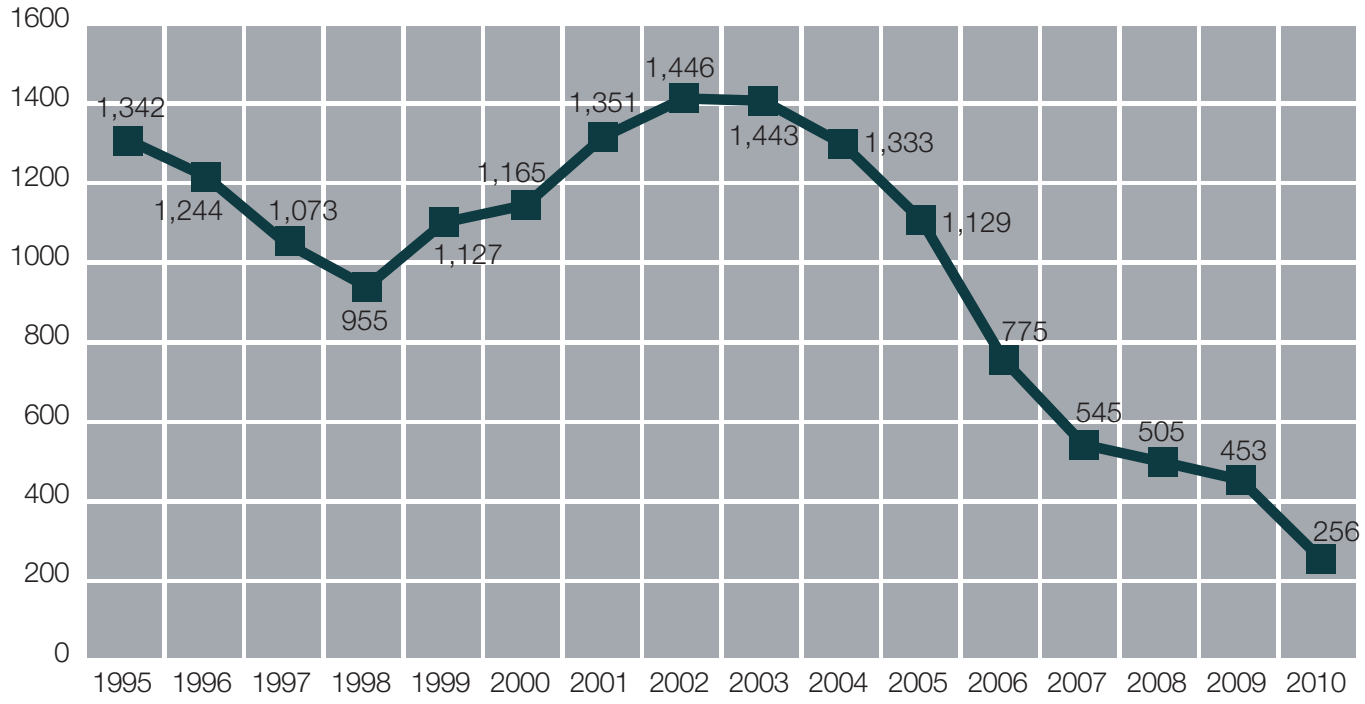
The experience of RVR in Kenya and Uganda demonstrates that a comprehensive strategy and well defined plan could attract significant financing from the private sector and financial groups. Such funding would be a major complement to augment the resources of traditional development partners which are stretched to cover the competing priorities in the country.

2. Tanzania–Zambia Railway Authority

The performance of the TAZARA railway over the past 15 years has been consistent and the amount of freight transported has remained largely in the range of 550,000 tons and 660,000 tons over the long term as indicated in Chart 3. The lower figures registered in the past few years is largely related to the low availability of motive power, increased competition from road transport, and increased competition from other routes from Zambia to a port. The

bulk of the freight comprises imports and exports of Zambia and in most years, there is not a wide variation between the two with exports marginally higher than imports. The primary exports from Zambia consist of metals with copper providing the bulk of the trade. In recent years, the transport of manganese has increased sharply but general cargoes remain small. The railway also serves a nascent market in DR Congo and Malawi which are both showing signs of rapid growth. Greater reliability and consistency in the provision of services is likely to increase the amount of traffic using TAZARA as these three countries increasingly use the railway for exports and imports via Dar es Salaam port.

Chart 3 : Trend in TAZARA Freight

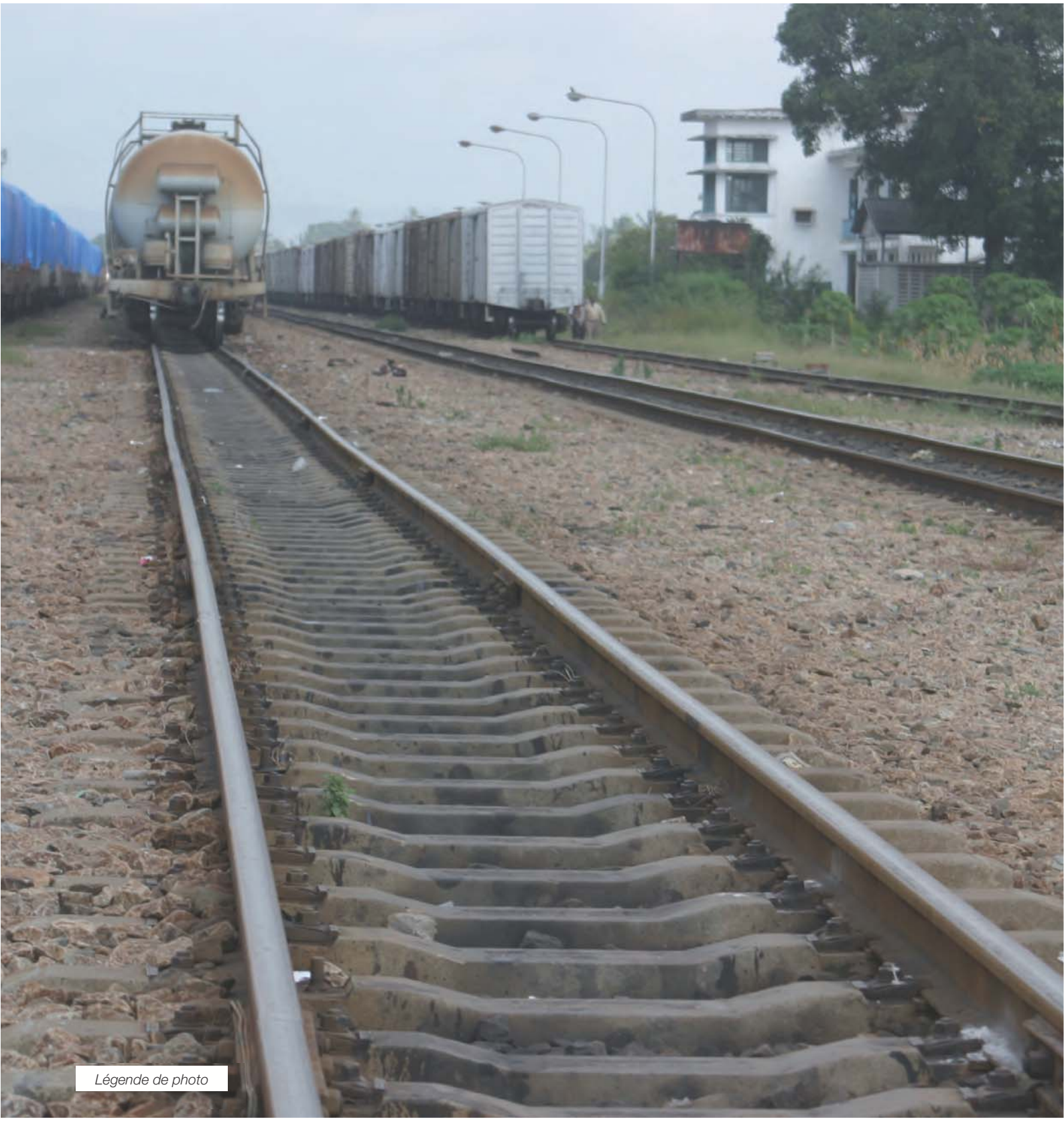


The line also provides a local transport function in both Tanzania and Zambia although the latter is relatively low. The larger trade volumes in Tanzania are primarily attributable to the establishment and expansion of the Mbeya cement plant which comprises about 50% of local traffic and uses the line to distribute cement in the railway corridor. Other local commodities transported are maize, timber, rice and fuels which in total comprise about 32% of the local traffic.

Passenger traffic on the TAZARA over the past decade has averaged almost 1 million passengers a year. This downward trend is primarily due to shortages in locomotive power, poor quality of passenger coaches, and greater competition from road transport. In the 1990s, passenger traffic was often above 1 million a year and in 2001, reached 1.5 million. With better reliability of services and improved marketing, TAZARA could achieve a substantial increase in passenger traffic. The bulk of the passenger traffic is from Tanzania which generally provides about 75% of the annual traffic.

a. Infrastructure

Since the railway was constructed in the early 1970s, the condition of the track is considerably better than that of TRL system. There are a number of sections of track between Mlimba and Uchindile which are prone to landslides and formation failures which pose significant risks for the safety and security of passengers and freight. In 1979, heavy rains caused the line to be closed for 30 days due to major washouts to the track. Although interim remedial measures have been implemented over the years, the resources are insufficient to rectify the problem comprehensively. TAZARA estimate that $30 million is required to implement a permanent solution. While the governments



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of both countries have provided resources to support TAZARA's operation and maintenance, the funding is insufficient to carry out full maintenance of the infrastructure or the motive power and rolling stock and deferred maintenance has been the norm rather than the exception. This has led to deteriorating condition of the assets and poorer quality services which becomes unattractive to customers.

Following the widespread theft of copper wires, the signalling and communication system has relied on high frequency radio supported by limited use of microwave and a 300 km stretch of optic fibre systems. The current system is interim in nature and does not ensure full safety in terms of train operations. Indeed if services were to be improved, the safety risks situation must be increased. TAZARA estimate that $48 million is required to complete the optic fibre system which is currently beyond the financial capacity of the railway company.

b. Rolling Stock

TAZARA's locomotive power and rolling stock are now exhibiting extensive depreciation after many years of delayed maintenance which has decreased the reliability and increased the number of breakdowns. Locomotive availability is a key issue and of an operational fleet of 23 locomotives, on average only 12 a day are available. The remaining 11 locomotives are out of service awaiting the supply of spare parts necessary for repairs and overhauls. TAZARA estimates that 28 mainline locomotives are required to fully satisfy the daily demand. The shortfall in locomotive power is, therefore, having a significant impact on train cancellations and loss of traffic resulting in deteriorating service quality. During 2011, TAZARA was able to complete the overhaul of 13 mainline locomotives at its Mbeya workshop which provided some relief to the locomotive availability problems. However, despite the overhauls in October 2011, several locomotives remain unserviceable due to mechanical breakdowns.

The availability of wagons also imposes a severe capacity constraint. Of a total of 2,260 wagons in the inventory, only 1,390 are useable with the remaining 870 being defective. Of the latter only about 500 are repairable. Of the useable wagon fleet, many are unreliable and prone to in-service failure. This is attributable to continuous deferred maintenance and the excessive wear of bearings and other components over the years that have not been attended to due to shortage of funds. The position of passenger coaches is similar to that of the freight wagons. The fleet of 119 coaches is in poor technical condition and is subject to frequent in-service breakdowns and failures. This impedes service delivery and is one of the primary causes for the loss of passenger traffic.

The overall performance of TAZARA is indicated in Table 28. The general outcome indicates that the railway has underperformed based on the corporate plan.

Table 28 : TAZARA Performance Indicators

Indicator	Units	2008/2009		2009/2010		2010/2011	
		Plan	Actual	Plan	Actual	Plan	Actual
Freight	ton-km (million)	850	487	925	782	1,113	818
Passengers	pax-km (million)	350	286	375	306	282	300
Locomotive utilization	km/loco/day	500	323	500	352	500	344
Wagon turn round	days	21	18.5	18	16.1	18	17.1
Track speed restrictions	km	0	62.5	0	68.6	0	83.3
Freight revenue	US$ million	46.9	30.8	46.3	35.0	51.2	37.7
Passenger revenue	US$ million	2.1	5.5	7.7	4.3	7.2	5.6
Total revenue	US$ million	49.0	36.3	54.0	39.3	58.4	43.3
Operating Cost	US$ million	41.5	34.6	48.5	33.9	49.3	30.9
Capital Expenditure	US$ million	5.3	3.6	4.4	1.1	4.4	0.0

Source : TAZARA.

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The performance of TAZARA will only improve if resources are provided for infrastructure development, locomotive power and wagons/passenger coaches. In the past, railway operations have been hampered by little investment to replace depreciated equipment and limited resources for maintenance and repairs. Support from the Tanzania and Zambia governments has been at a level to keep services running but at a deteriorating level. The railway has probably also suffered from unsatisfactory management from time to time. Capital investment has largely been through agreements with the Government of the Peoples' Republic of China through periodic Protocol Agreements.

The current 14th Protocol which was signed in December 2009 provided US$39.9 million which is earmarked for procurement of 6 new mainline locomotives and rehabilitation of 6 others, rehabilitation of 3 shunting locomotives, procurement of 90 new freight wagons, repair of 4 gantry and rescue cranes, purchase of raw materials to manufacture concrete sleepers, spare parts for 1,200 freight wagons and training for various staff positions. At present, the procurement of these goods and materials is underway and several of the components have been completed.

c. Key Issues

Since the 2000s and beyond the railway systems in Tanzania have significantly underperformed. The level and quality of services and operations has declined significantly. This is particularly the case for TRL system which has experienced a steep decline and currently barely provides a functional operation. In addition to the poor experience of the concession contract that did not improve service delivery or sustainable operation, the government has not supported the rail subsector to a significant degree during the past decade. This lack of support and commitment to the railways has contributed significantly to and accelerated their decline.

1. Tanzania Railway Ltd.

The key issue in the subsector concerns the revival of TRL. The demise of rail services has resulted in a significant loss of traffic to road transport and the latter has benefitted from substantial investment in the trunk road network. The collapse of services has had a dramatic impact on trade in the central corridor. For businesses that use the railway, it has resulted in a steep increase in transportation costs. This has had considerable adverse impact on the international trade routes with the neighbouring countries of Rwanda, Burundi, DR Congo and Uganda.

Under the new five-year transport sector investment plan commencing in July 2012, the government has placed considerable emphasis on addressing railways and, in particular, the revival of the central rail corridor linking Dar es Salaam with the lake ports of Kigoma and Mwanza. The proposed allocations under the plan amount to $1,300 million for railways which is equivalent to 10.6% of the total allocation for the transport sector. The bulk of these funds are allocated to support the infrastructure improvements associated with the TRL revival plan.

The poor performance of TRL is a significant constraint and the injection of capital to upgrade and rehabilitate the deteriorated infrastructure is unlikely to resolve the problem. Improved infrastructure is a necessary requirement but will not solve the problem by itself. The ability to operate a rail service that is both reliable and caters to customer requirements is a necessity for the revival plan to succeed.

Exploratory work suggests that several long term customers are willing to return to the railway provided it can guarantee a minimum service level at reasonable cost. Given the substantial decline in railway service, it is important that as much emphasis is placed on developing customers as investing in the physical infrastructure, locomotive power and rolling stock.

A comprehensive road map that details the strategy for delivering improved services over a time-bound program will be of key importance for the success of a revival program. This program will need to be agreed between all participants supporting the revival plan including the government together with RAHCO and TRL, development partners and private sector entities which includes both potential investors in rail services as well as service users.

It is possible that the agreement between the parties involved will need to be implemented in stages with the initial stage focusing upon the actual revival of the system and the second stage on the major investment requirement. The initial stage would focus upon operationalising the business plan with investments limited to essential needs for track, locomotive power and rolling stock to operate a regular service. Following the successful introduction of such a service with success measured as attaining various agreed operating parameters, the second investment phase would build upon the first phase by providing considerable investment in the permanent way, signalling and communications system as well as additional motive power and rolling stock as required to operate expanded services. It would also be essential for the operations to be monitored by an independent monitor who would regularly provide feedback to the “investor” group.

2. TAZARA Railway

The key requirements for the TAZARA railway are for additional capital and a strengthened business plan to underpin improvements in service delivery and operational effectiveness. Given the close involvement of the Government of the Peoples’ Republic of China with the railway since its inception, the future plan for its development will require common agreement of the three governments. It is preferable that the three governments agree to proceed with a review of the current operations which should determine the preferred options for increasing efficiency and effectiveness of its operations and developing a comprehensive business plan to provide the forward road map. This review should include the possibility of bringing in the private sector to strengthen the business and management of the railway as well as examine if it is possible to introduce open access to offer competitive services on the line.

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VII. AIRPORT SUBSECTOR

VII. AIRPORT SUBSECTOR

A | Introduction

Airports in Tanzania play an important part in the country's transport infrastructure. In addition to providing international gateways, airports have historically been used in domestic traffic and have been indispensible for pioneering development opportunities in remote rural areas. Overall, the country has 368 airports with the Tanzania Airports Authority (TAA) responsible for 58 airports on the mainland. [20] The majority of the airports are private airfields owned by mining companies and tour operators.

Despite the long history of air transport sector in the development of the country, operations of few international airlines and the national airline, Air Tanzania, do not play a dominating role in the development of the air transport industry. While many routes are long distance and require long trip times by road, the demand for air travel has remained relatively small and has not developed as fast as in many other countries. This is attributable to the level and pace of development and the fact that the majority of the population cannot afford to travel, especially by air, due to low per capita incomes. Low demand coupled with high operating costs and limited competition has resulted in high fare structures when compared to other parts of the world and this has also had an adverse impact on the growth of the industry.

Figure 6 illustrates the locations of the major airports in Tanzania. The airports are widely scattered around the periphery of the country in the larger urban areas which are the primary centres of population and commerce.

B | Description of Air Traffic

1. Air Passengers

At present, there are over 3 million air passengers a year of which approximately 48% are international and 52% domestic. The international passengers are concentrated at 4 airports: Dar es Salaam, Kilimanjaro, Zanzibar and Arusha while the bulk of domestic passengers also use these airports plus Mwanza. The majority of other airports cater to small volume of passengers. Of the 56 airports listed in TAA statistics, only 15 had an annual throughput of around 2,500 passengers in 2011. This corresponds to about 50 passengers a week, broadly equivalent to 1 to 2 flights a week and assuming the number of arrivals and departures are approximately the same. Thus, the overall picture is a large number of airports with little traffic and a few airports accommodating the bulk of the demand. Table 29 provides the passenger throughputs at 12 major airports in the country.

Appendix 5 indicates the traffic projections made by TAA based on historic data and taking into account the future growth in the economy and expected growth in international traffic. For the sector as a whole, the forecasts indicate that the number of air passengers is expected to increase at about 10.9% a year up to 2016 using 2011 as the base year. This growth rate is in the same range as those predicted by the master plan pre-feasibility study. [21] While the bulk of the passenger traffic uses JNIA in Dar es Salaam, the global growth takes into account the small traffic volumes of most airports. The key influence is the projected growth of JNIA which is anticipated to increase at 12% a year with passenger throughput increasing from 1.8 million in 2011 to 3.2 million by 2016. This forecast is broadly in line with historic growth from 2001 to 2010, which has realised an average growth of 13% a year in actual performance.

Passenger forecasts at the majority of smaller airports which largely cater to domestic demand are expected to grow substantially less than the international projections with growth estimated to be in the 4% to 8% range depending upon the airport and its role in the domestic economy. Mwanza, the busiest airport outside the three international airports, is expected to experience an annual growth of 8.6%, with passenger throughput increasing from about 320,000 a year to 480,000 by 2016. The only other TAA airport with a passenger throughput exceeding 100,000 is Arusha where the current annual demand of 112,000 is projected to reach 158,000 passengers by 2016. At other busier airports such as Kigoma, Bukoba, and Mtwara, the annual passenger throughputs are expected to remain below 30,000 to 40,000 passengers a year (Table 29). Appendix 6 provides the air passenger forecasts for the TAA-managed airports which clearly indicate that the majority of airports will continue to have low traffic volumes over the next five-year period.

[20] The airports on Zanzibar are the responsibility of the Revolutionary Government of Zanzibar However, the Tanzania Civil Aviation Authority is responsible for regulating the services for the whole of Tanzania.
[21] Civil Aviation Master Plan Pre-feasibility Study, Final Report, Ministry of Infrastructure Development, United Republic of Tanzania, 2010.

Figure 6 : Location of Major Airports in Tanzania

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Table 29: Passenger Throughput at Airports ('000)

S/N	Airport	International					Domestic				
		2006	2007	2008	2009	2010	2006	2007	2008	2009	2010
1.	Dar es Salaam	659	754	823	788	870	486	581	604	578	697
2.	Kilimanjaro	208	243	251	243	283	161	200	185	133	141
3.	Zanzibar	197	221	207	222	216	289	300	292	281	325
4.	Arusha	-	-	128	84	86	76	61	125	107	139
5.	Bukoba	-	-	-	-	-	22	24	24	22	18
6.	Dodoma	-	-	146	84	1	7	6	5	5	6
7.	Kigoma	2	-	1	1	-	18	22	25	22	24
8.	Moshi	-	-	-	-	-	1	1	1	1	1
9.	Mtwara	3	-	1	31	1	24	28	22	22	25
10	Mwanza	10	6	1	8	13	184	217	410	203	200
11.	Shinyanga	-	-	-	-	-	14	12	10	8	6
12.	Tabora	-	-	-	-	-	11	12	13	13	11
13.	Others	64	9	1	9	12	98	177	51	9	21
Total		**1,143**	**1,233**	**1,559**	**1,470**	**1,482**	**1,391**	**1,641**	**1,767**	**1,404**	**1,614**

Source : TCAA.

2. Air Cargo

Air cargo has been limited to few airports in Tanzania with the majority of cargo throughput at JNIA. In 2011, JNIA handled about 89% of the total air freight handled at all TAA airports. From 2005 to 2011, air freight at JNIA increased by an average of 8.7% a year from about 14,000 tons to 23,000 tons a year. The bulk of the freight comprises imports which total about 90% of the volume by weight. Approximately a third of the volume consists of machinery and electrical goods, a fifth consists of glass and stoneware and the remainder comprising miscellaneous freight. Exports largely comprise animal and animal products, machinery and metals.

The volume of air freight at other airports remains small with the larger airports handling 100 to 200 tons a year and the remainder very small volumes. Mwanza used to cater to large volumes of freight as it was used for exporting fish and fish products to Europe using direct flights. This, however, changed due to the constraints imposed by the poor infrastructure facilities at Mwanza airport coupled with the fact that the suppliers decided to consolidate loads. Now, the bulk of the trade is trucked to Nairobi where it is flown to Europe. As a result, freight at Mwanza has reduced significantly from the high tonnages recorded in the years prior to 2005.

The cargo volumes projected are expected to remain small with the exception of JNIA where growth is anticipated to reach 9.6% a year and the volume to reach 36,000 tons in 2016. At other airports, significant increases are expected to be made where specific industries are likely to expand. Thus, Mtwara with its growth in the oil and gas industry is expected to increase in cargo volumes of over 50% during the next five years. Similarly, Mafia airport which supports the tourism industry is forecast to grow in its freight market. However, although growth is expected to expand rapidly at these locations, the total trade will remain small at about 1 ton per day. Other locations where freight is expected to grow from low base levels include Bukoba, Shinyanga and Musoma. The TAA projections of air freight at various airports over the period to 2016 are indicated in Appendix 5.

Although KIA handles the second highest volumes of air cargo, the total volume is relatively small at about 4,000 tons a year. Of the total, approximately 60% is export products, almost half consist of vegetables. Other major commodities include metals, machineries and electrical goods, and animal products. Imports consist of chemicals and related industrial products, machinery, transport and vegetable products. Growth might see tonnages increase to 5,000 tons by 2016.

3. Airport Infrastructure

a. Julius Nyerere International Airport

The JNIA is the primary gateway to Tanzania and the major hub for domestic traffic in the country. It serves the major city of Dar es Salaam and is approximately 10 km from the city centre. In 2011, the airport recorded a throughput of about 1.8 million passengers representing over 72% of the total volume of passengers at TAA airports and about 60% of total air passengers. The airport underwent extensive rehabilitation 5 years ago, including:

- improvements to the main runway,
- rehabilitation of the apron for the international terminal,
- resurfacing of secondary runway for general aviation traffic, and
- construction of a full length paved taxiway, parallel to the main runway. Thus, the airside infrastructure is in good condition and there is adequate capacity to accommodate the forecast traffic for the next several years. JNIA has 2 runways: one with 3,000 m suitable for all types of aircraft and the other 1,000 m for general aviation.

The airport has two passenger terminals: the old terminal 1 is used for nonscheduled and small scheduled domestic flights, while terminal 2 is the primary terminal that caters to both international and major domestic flights. Information suggests that almost all of the traffic passes through terminal 2.

The design capacity of terminal 2 is 1.2 million passengers a year and this is exceeded by current passenger volumes. The congestion in the terminal is expected to become significantly worse as traffic forecasts indicate that passenger volumes will increase to 3.2 million passengers by 2016. Given the lead time required to design and construct a terminal building, it is unlikely that a new terminal could be ope-

rational before 2016. The existing terminal does not provide a high quality of service and is not a suitable advertisement to welcome visitors to the country. Thus, it requires upgrading and rehabilitating as soon as possible. Likewise, a new modern third terminal is required to be built.

TAA has prepared a master plan for the development of the third terminal. A study to prepare a master plan for the airport subsector is to be financed under the World Bank's Transport Sector Project. [22] Within this proposed study, resources have also been committed to review TAA's master plan for the proposed new passenger terminal. Major new airport terminals are often suitable for development with private sector lending. It is recommended that this form of financing should be pursued for the new terminal. The aforementioned project also provides resources for a transaction adviser to assess the preferred financing options.

b. Kilimanjaro International Airport

The Kilimanjaro International Airport (KIA) is located at the foot of Mount Kilimanjaro and is approximately 450 km from Dar es Salaam. The airport, located midway between Arusha and Moshi, is approximately 50 km from each town. It is the mainland's second international gateway. It is strategically located near the main tourist attractions of Mount Kilimanjaro and several wildlife parks of Tanzania including the Serengeti National Park, Ngorongoro Crater and Lake Manyara National Park. Many tourists enter the country through KIA which is a short flight from Nairobi, the regional airport hub.

The airport has a 3,607 m runway which can accommodate the largest aircraft and it is equipped to operate 24 hours day, 7 days a week. The terminal building is relatively small and is frequently congested.

The airport was the first public-private partnership project in the aviation sector in Africa when it was concessioned in 1998 to a group of investors for 25 years. The concession agreement operated until 2009 when the government purchased the stock of the largest shareholder, Mott McDonald, and currently the operating company known as KADCO (Kilimanjaro Airport Development Company) continues to operate it. The facilities are in good condition having been rehabilitated and repaired in 2000 but will require periodic maintenance in the medium term. An indicative estimate for the required works is $15.6 million. TAA estimates that the terminal facility reached its capacity in 2006 and a new larger terminal is well overdue. It is possible that a second terminal could be attractive to the private sector and this option should be examined as a possible source of financing.

c. Other Domestic Airports

Of the remaining airports, Mwanza is the largest and has a large domestic passenger flow as noted above. Located in the lake region, Mwanza airport serves a region that is rich in natural resources particularly fish from Lake Victoria and minerals from the surrounding towns and villages.

The airport has received funding from the Arab Bank for Economic Development in Africa and the OPEC Fund for International Development to extend and rehabilitate the runway. The other airside facilities including a new cargo apron with taxiway, new passenger terminal and expansion of the existing apron are all features of the TAA plan for its development.

Arusha airport, which is close to the town, has a large passenger throughput. However, it is only served by small

[22] World Bank. 2010. Proposed Credit to the United Republic of Tanzania for a Transport Sector Support Project. Project Appraisal Document. Washington, DC: The World Bank (Report No. 53152-TZ).

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aircraft providing general aviation services and charter operations. Larger airlines such as Precision Air stopped using the airport due to the poor quality of the runway and moved its services to KIA. The rehabilitation of the runway and apron has been deferred due to the airports closeness to KIA which has all required facilities and services. As a result, the airport has not been a priority for improvement even though it has the third highest volume of domestic passengers in TAA-operated airports and in 2011 with over 112,000 passengers used the facility.

Kigoma airport serves the Kigoma hinterland, an important town on the edge of Lake Tanganyika and the main port on the lake. The airport currently serves about 20,000 passengers a year which is projected to increase to about 29,000 passengers by 2016. The airport also served as an important gateway for large cargo aircraft of the United Nations into DR Congo. The airport has a large installation with 2 unpaved runways, the longest of which is 1,767 m in length with 2 stretches of bitumen surfacing in poor condition in the landing zones at each end of the runway. This transition between the gravel and poor bitumen also raises safety concerns for aircraft operation. The gravel portions of the runways are subject to poor conditions in wet weather with water pooling in deformations and potholes. Recently, an Air Tanzania aircraft crashed while taking off attributable to the poor quality of the runway. The main runway is due to be resurfaced to a bitumen standard under World Bank funding.

Tabora airport is lightly used with an annual passenger throughput of almost 9,000 passengers which is projected to increase to about 14,000 passengers by 2016. The airport also has 2 unsurfaced runways that intersect with one another: one, with length of 1,786 m and width of 45 m and the other, with length of 1,555 m and width of 30 m. In the past, only a short stretch of the main runway was paved with concrete and this transition is hard on aircraft using the airport. The gravel runways are both in poor condition and are a safety hazard during wet weather. With World Bank assistance, funds have been provided to upgrade the main runway to a bitumen standard.

Bukoba airport on the western shore of Lake Victoria is the major town in the Kagera region. Use of its airport has grown rapidly in the past several years and in 2011, passenger throughput was about 29,000 passengers. Traffic forecasts estimate that this will increase to about 37,000 passengers in the next 5 years. However, the airport was considered to be unsafe by Tanzania's main domestic operator who discontinued its LET 410 aircraft to land. It has a single runway of gravel construction 1,280 m in length and is of variable width between 18 m and 30 m. The airport is poorly designed with a small apron that is too close to the runway so that parked aircraft make the runway unusable, a small terminal building with a capacity for small propeller aircraft, no control tower and lacks a security fence. With World Bank assistance, the runway is to be upgraded to bitumen standard, a new taxiway and apron provided, terminal building and control tower and security fence provided.

4. Institutions

a. Tanzania Airports Authority

TAA was established under the Executive Agency Act No 30 of 1997 which became operational in November 1999. It is a semi-autonomous agency under MOT and reports to the minister. It also has a management Advisory Board comprising 10 directors whose responsibility is to provide


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corporate advice to the Ministry and Permanent Secretary. The Board does not have the full authority of an autonomous agency and the chief executive of TAA reports to the Permanent Secretary. The overall responsibility remains with the Minister of Transport.

TAA is working with MOT to become an autonomous authority as this will permit it to become a business enterprise with full responsibility of all aspects of airport management and operations. This will facilitate the management of the airports based on business principles and would reduce the political influences that currently hamper the decision making process. It would also facilitate the operation of the many small airports that do not cover their costs to be operated on a public services obligation basis. At present, revenue surplus are used to cover the deficit operations which drain resources from the subsector and does not permit the major airports to maximise their business potential.

The primary roles of the TAA are:

- To operate, manage, maintain and develop the airports in Tanzania mainland professionally and cost effectively
- To provide comfortable, efficient and secure services and facilities for the movement of passengers and cargo in its airports thereby giving a positive image of the country to the outside world.
- To give technical advice to the government on the development of airports.
- To ensure that the government's airport policies, regulations, procedures, and international standards are implemented accordingly.
- To advise the government on national and international aspects of airport management.
- To support national economic development by providing the necessary airport infrastructure, facilities and services.

The TAA is a revenue-generating authority. Although it generates sufficient revenues to cover its routine day-to-day maintenance requirements, it does not generate enough to cover the periodic maintenance or capital costs required to develop the subsector. As a consequence, the condition of basic airport infrastructure for the majority of airports remains poor. Although many airports have low usage, there is a need to upgrade runway pavements and ensure that navigational aids are sufficient to ensure that maximum standards of safety are attained. With the exception of the two international airports and eight major regional airports which have asphalt runway pavements, some are in poor condition

with gravel and grass runways. As a result, safe and comfortable serviceability at these airports is only attainable during the dry season. Furthermore, only 4 airports have airfield ground lighting systems that allow for 24 hour airport operation. These airports are located at JNIA, KIA, Mwanza and Dodoma.

In fiscal year 2011, the total revenue generated amounted to Tshs 32.9 billion which was marginally less than the budget estimate and 2% below the previous year's total. The income derives from aeronautical and commercial sources. The majority of the revenue from aeronautical are sourced primarily from the passenger service charge, and landing and parking charges which together account for approximately 73% of all revenues. Revenue from commercial sources such as rental and concession fees, advertising and airport car parking amounts to 27% of total revenue. Moreover, the bulk of the revenue (86%) derives from operations at JNIA while the remaining airports contribute only 8% of the revenue and the head office, the remaining 6%. Overall, only JNIA and Mwanza airports generate revenues. All other airports operate at a net loss.

The operating cost for TAA amounts to Tshs 30.1 billion, of which the head office amounts to 38%, JNIA 36% and other airports 26% of the costs. However, these recurrent expenditures represent only 20% of the total expenditure for the year with the remaining 80% of capital expenditure reliant on government support, including support by development partners. It is anticipated that government support will continue to be necessary until such time that the subsector has grown to a size that can support itself and when larger domestic airports will be at a stage where they can generate revenues. It is expected that JNIA will continue to be the major revenue generator in the airport subsector and more effort should be allocated for the new terminal by utilising a public-private partnership strategy for its development.

Overall, the subsector is highly dependent upon capital investment from the government for undertaking airport improvements. Such contributions are not part of the balance sheet of TAA and the debt incurred for airport improvements is handled by the government.

b. Tanzania Civil Aviation Authority

The Tanzania Civil Aviation Authority (TCAA) was established in November 2003 as a corporate body in accordance with the Civil Aviation Act. The Act mandates the authority to provide safety, security and economic oversight of the civil aviation subsector. There are three types

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of regulated services: air transport, aeronautical services, and air navigation. Currently, TCAA continues to provide air navigation services but International Civil Aviation Organisation (ICAO) recommended that such services should be provided by a separate organisation from the regulatory authority. The master plan pre-feasibility study has also suggested that this delegation should be considered.

Tanzania generally supports the Yamoussoukro Decision of November 1999 to liberalise air transport in Africa. This is being implemented regionally under the auspices of the East African Community. Until the agreements are finalised, Tanzania continues to liberalise the air transport sector on a bilateral basis. In terms of the granting of rights, the government has already agreed to liberalise markets and is currently discussing the possibility of granting fifth freedom rights to all African carriers without conditions. The government has relaxed restrictions on frequencies including types of aircraft to be deployed and volumes of traffic. Given the relatively small size of the market at present, liberalisation policies are designed to increase trade and increase passenger volumes to catalyse growth.

C | Key Issues

Based on the review of the air transport sector, there are a number of important issues that need to be addressed to improve subsector performance particularly in relation to the infrastructure needs.

1. Need for a Subsector Plan

A major hindrance in the knowledge gap to move forward is the absence of a plan to identify the important needs of the subsector. While a wide range of requirements has been identified by TAA, these need to be set within the overall plan that will provide the framework for the subsector's future development. At present, policy makers or potential investors are not confident that subsector development is being undertaken or planned coherently. Thus, there is an urgent requirement to prepare the proposed civil aviation master plan for which resources have already been allocated. It is recommended that the master plan team should be recruited as soon as possible.

2. Investment

Although a number of different development partners have provided support to the subsector, the airport subsector is short of investment. The distances between towns and cities and tourist destinations are large, and for certain markets they can only be reached by air transport. Although traffic volumes are low on many routes, there is a strategic requirement to keep many airports functional based on economic, social and other development requirements. For these airports, there needs to be a minimum level of safety and consideration also needs to be given to making them operational in all seasons which emphasises bitumen runways and/or strips. The master plan should identify these airports and justify the proposed investments required.

The airport subsector has considerable opportunity to engage the private sector investors in assisting the subsector, particularly for landside requirements. The master plan should highlight and identify those areas where involvement of the private sector has the greatest promise. In addition, a specialist transaction adviser should be recruited to give advice on those items of infrastructure and strategise how such investment could be mobilised that has the greatest promise for attracting such investment.

3. Safety

Safety is paramount in the air transport subsector and attention needs to be placed on enhancing safety across all airports. Tourism is an important element of the economy and one of the avenues for enhancing growth. This subsector is particularly vulnerable to safety issues and even if problems are only perceived, business could deteriorate quickly. It is thus important that the plans for airport development provide adequate attention to maintaining a high level of safety.

4. Reforms

For several years, TAA has been discussing the possibility of moving towards a fully autonomous organisation from its current status as a semi-autonomous agency. The


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proposed change is expected to improve the operations of TAA, making it fully accountable for airport operations and development. It could promote good governance and improved management as a business, which would be attractive for private sector investors in the long term. Indeed, the private sector would prefer to deal with an autonomous agency with its own management authority. In the longer term, an autonomous authority could consider full corporate identity similar to airport authorities in other parts of the world.

5. Julius Nyerere International Airport

The most important development in the subsector concerns the new terminal for JNIA, the major gateway to Tanzania. This terminal is urgently required as the existing terminal is already operating beyond its capacity and its outdated features do not provide appropriate comfort for visitors to the country. The new terminal will be the largest investment needed in the subsector and should be attractive to private sector investors. Resources have already been allocated to undertake a review of the JNIA master plan and update it, where necessary. In addition, resources have also been allocated for a transaction adviser to prepare a suitable financing structure for the terminal that would be used to market the proposed facility to private sector investors. Given the time required to undertake the preparation and construction a new terminal, it is recommended that activities for completing the JNIA master plan and seeking investment opportunities are completed urgently as the overall process could take 3 to 4 years to complete.

VIII. ZANZIBAR TRANSPORT

VIII. ZANZIBAR TRANSPORT

A | Introduction

Zanzibar is an archipelago in the Indian Ocean approximately 30 km off the coast of the mainland and consists of numerous small islands and two large ones known as Unguja, the main island often referred to as Zanzibar, and Pemba to its north (Map 4). The islands have a long history and culture and were part of the early trading routes linking East Africa with Europe, the Middle East and Asia. In 1964, the islands joined Tanganyika to form the United Republic of Tanzania and today the islands have their own government known as the Revolutionary Government of Zanzibar (RGZ).

Map 4: Location of Zanzibar

Source : Google images.

Zanzibar is semi-autonomous and has its own government. Within this structure the transport sector is under the RGZ's Ministry of Infrastructure and Communications (MOIC). The exception is regulation of civil aviation which remains a national activity and is the responsibility of TCAA.

B | Transport Sector Operations

1. Port Subsector

The port subsector has an important role in providing vital links between the islands and the mainland, links between the islands as well as international links. The main port is located in Malindi with smaller ports at Mkoani, Wesha, and Wete in Pemba.

Assessment of the existing transport situation and forecasts was undertaken as part of the Zanzibar Transport Master Plan which reported in 2007. [23] This assessment reported that Malindi port handled around 400,000 tons of cargo each year including 12,000 TEU of container traffic and 100,000 tons of dhow cargo. Recent information since the master plan indicates that there has been a substantial increase in container traffic and the 12,000 TEU of 2005 has increased to about 40,000 TEU in 2010. This trend is due to both an increase in trade and increase in containerisation. The Zanzibar Ports Corporation (ZPC) indicates that approximately 40% of the imports are destined for the Tanzania mainland market while 60% is for local consumption. A major operating constraint is the poor quality of existing ship-to-, shore equipment, and the shortage of quay side handling equipment.

Mkoni oil terminal handled about 50,000 tons of oil products each year.

Malindi port can accommodate 1.1 million passengers from ferry services as well as cruise liners that moor offshore and bring tourists into town by tender. Today, it is the busiest passenger terminal in East Africa with a throughput of over 1.5 million passengers a year. It has available water depth of 11 m that is too shallow for modern vessels and the maximum size of ship that can use the port is 13,000 tons. The forecasts for the port of Malindi suggested that by 2015, cargo throughput would reach 635,000 tons and passenger throughput of 1.8 million. By 2025, these totals were projected to reach 1,035,000 tons and 3.0 million passengers, respectively. Overall, the forecasts represent an overall growth of 5% a year on average for both freight and passengers.

[23] Ministry of Communications and Transport. 2007. Zanzibar Transport Master Plan. Consultant's report. Tanzania.

Generally, the assessment indicated that there is sufficient space to accommodate the predicted passenger flow particularly since it was recommended that cargo demand is moved to a separate new location to provide required capacity. This would leave space in the existing cargo port to accommodate additional facilities for passenger traffic. In addition, the dhow port and traditional fishing activities could be redeveloped as a tourist attraction and facilities for private yachts could be provided for the tourist market. The cargo port facilities presented a challenge as the existing port has no room for expansion to handle between 800,000 tons and l.2 million tons over the long term. The strategy recommended that the port be relocated from Malindi to Maruhubi which is 2 km to the north and is considered to be a good location for a new port.

The proposed new port would

- be a 420 m quay length with 12 m to 14 m depth to cater to vessels of a size between 30,000 tons and 60,000 tons;
- handle 50,000 TEU of container traffic a year plus 150,000 tons of general cargo a year;
- have adequate space for storage and movement of containers; and
- have good access to the road network. The proposed location was considered suitable for further expansion as capacity will be reached in 2025. The estimated overall cost will range from $80 million to $90 million based on 2007 prices.

The three main ports in Pemba at Mkoni, Wete and Wesha had benefited from recent upgrading. Each port had a jetty mooring plus related landside facilities. While there is adequate space to expand these ports, it does not warrant large investment because of limited export cargo from Pemba ports and the unforeseen changes of the economy of the island. However, Mkoni port has a substantial shift to containerised cargo and the volume has increased from 23,300 TEU in 2008 to 51,400 TEU in 2011. A major constraint is that the port is not geared for container handling and does not have the equipment to handle the "new" trade. There is, therefore, a requirement to provide cranes and forklifts to enable the containers to be moved quickly and efficiently.

2. Airport Subsector

Being an archipelago, the civil aviation subsector is important to the economy providing vital linkages by air to destinations on the mainland such as Dar es Salaam, Arusha, and Nairobi. The island is connected directly with international destinations in its main tourism markets in Europe and the Middle East.

Growth of international passengers is increasing at an average of over 9% a year and domestic passengers at 18% a year. Table 30 illustrates the traffic composition at the Zanzibar International Airport (ZAA) during 2001–2008.

Table 30: Passenger Throughput at Zanzibar International Airport

Passenger Type	2001	2002	2003	2004	2005	2006	2007	2008
International scheduled	68,342	76,346	65,873	78,980	89,043	95,688	90,071	88,629
International nonscheduled	42,633	58,403	44,743	73,492	94,244	101,876	131,296	117,705
Domestic scheduled	13,686	22,070	65,873	100,566	111,914	136,795	136,540	140,543
Domestic nonscheduled	77,244	102,367	62,718	107,246	122,314	152,909	163,929	149,053
Total	**201,885**	**259,186**	**239,207**	**360,284**	**417,515**	**487,268**	**521,836**	**495,930**

Source: TCAA.

While the long-term forecast expects the growth to continue, it is estimated that it will grow at a moderately lower pace over the period to 2025 taking into account the different parameters affecting international and domestic travellers. The traffic projections suggest that a total of 1 million passengers will be surpassed in late 2014 and will register 2 million passengers by 2025. A master plan has been developed for ZIA taking into account the predicted number of passengers and aircraft movements. [24] A phased development plan was likewise developed for

[24] Ministry of Communications and Transport. 2008. The Revolutionary Government of Zanzibar. Zanzibar International Airport Master Plan. Consultant's draft report. Tanzania.

the period to 2025. Subsequent to approval of the plan, financing was arranged to rehabilitate the runway and taxiways, parking apron, and construction of a new terminal building. The latter is expected to be completed in 2013 and has been designed to meet a capacity of 1.4 million passengers a year.

ZIA currently handles little air cargo. As such, construction of specialised cargo facility is not planned and will continue to use the existing facility. Space has been provided in the master plan for a cargo terminal if future demand should warrant such a facility.

Zanzibar has a second airport at Karume on Pemba which in 2006 handled 32,000 passengers and had 4,400 aircraft movements. The master plan estimated that the number of passengers will increase to 55,000 by 2015 and will expand to 95,000 by 2025. Based on these throughputs, the master plan concluded that the existing airport infrastructure at Karume could accommodate the increase based on existing facilities and no further major investment was required.

3. Road Subsector

According to the Department of Roads official list, the road network comprises a total of 1,140 km of which 400 km are primary roads, 180 km are secondary roads, and 150 km are access roads to the larger settlements. The remaining 410 km of roads comprise non-engineered rural roads that provide access to small villages and have low traffic levels. While many of the roads are in good condition there are a growing number that do not meet engineering standards as they are the result of informal urbanisation where rapid development of urban growth has taken place without formal planning. In these locations a high proportion of urban residents have poor access based on earth road access, footpaths and narrow tracks. These access roads are frequently not passable to motorised vehicles or service delivery vehicles and contribute to a poor residential environment.

The core networks on the two islands differ in form and layout. On Unguja, the road system is essentially radial from Zanzibar with principal roads leading north to Mkokotoni and Nungwi, east to Chwaka and south the Kizimkasi and Makunduchi. Recently, coastal roads have been constructed to support the tourism industry in the eastern part of the island. On Pemba, a single spinal road connects Mkaoni to Chake Chaka, Wete and Konde with multiple feeder roads linking the coastal and other villages with a loop connecting Micheweni to Konde and Chake Chaka.

The primary roads and particularly those that radiate from Zanzibar city have high traffic flows with a large mix of traf-

fic including motorised and nonmotorised traffic. Traffic counts undertaken for preparation of the master plan indicated that close to Zanzibar, traffic flow was from 6,000 to 8,000 vehicles per day but at some locations like in Kinazini, traffic reached higher levels where 17,000 vehicles a day was recorded. Outside the city, flows were considerably less and in the smaller mid-sized towns, traffic was generally below 5,000 vehicles a day. On rural roads, traffic was rarely above 1,000 vehicles a day. Areas within Zanzibar and adjacent to the city have also high pedestrian flows and in the absence of sidewalks, pedestrians generally use the road carriageway which adds to the safety problems. While up-to-date statistics on safety are not available, the transport master plan indicated a deteriorating road safety situation. In 2005, the data indicated that there are 46 deaths per 10,000 vehicles which compares to about 1 death in the best performing countries. Thus, there is ample room for improvement.

Over the years, emphasis on maintenance was given low priority as the focus was on extending the network to reach populated areas. Inadequate maintenance did not have the same rapid deterioration impact as in many locations on the mainland because Zanzibar has few heavy vehicles to damage road pavements, has few bridges and culverts, uses good quality coral-based materials for road construction which are excellent road building materials, and has minimal need for drainage systems on mainly flat terrain.

The overall quality of the network has improved since the mid-1990s as it has received attention from the RGZ as well as support from development partners. A roads fund was also established in 2003 which has provided stability of funding for regular road maintenance. The current fuel levy is Tshs 100 per litre. However, the funds raised by the fuel levy are insufficient to cover the road maintenance needs. In 2006/07, it only covered 30% of the requirement. Since then, the fuel levy has been increased from Tshs 40 per liter to Tshs 100 per litre and although this has reduced the deficit amount, indications are that further funding is still required to close the funding gap.

Discussions with road maintenance officials indicated that while maintenance efforts have been increased, the aging of the bituminous materials is now required for replacement or overlays. For this purpose a road management maintenance system has been implemented to help identify and plan maintenance requirements but staff capacity in its operation needs to be increased.

C I Key Issues

Based on discussions with MOIC officials and review of documents, several issues have emerged.

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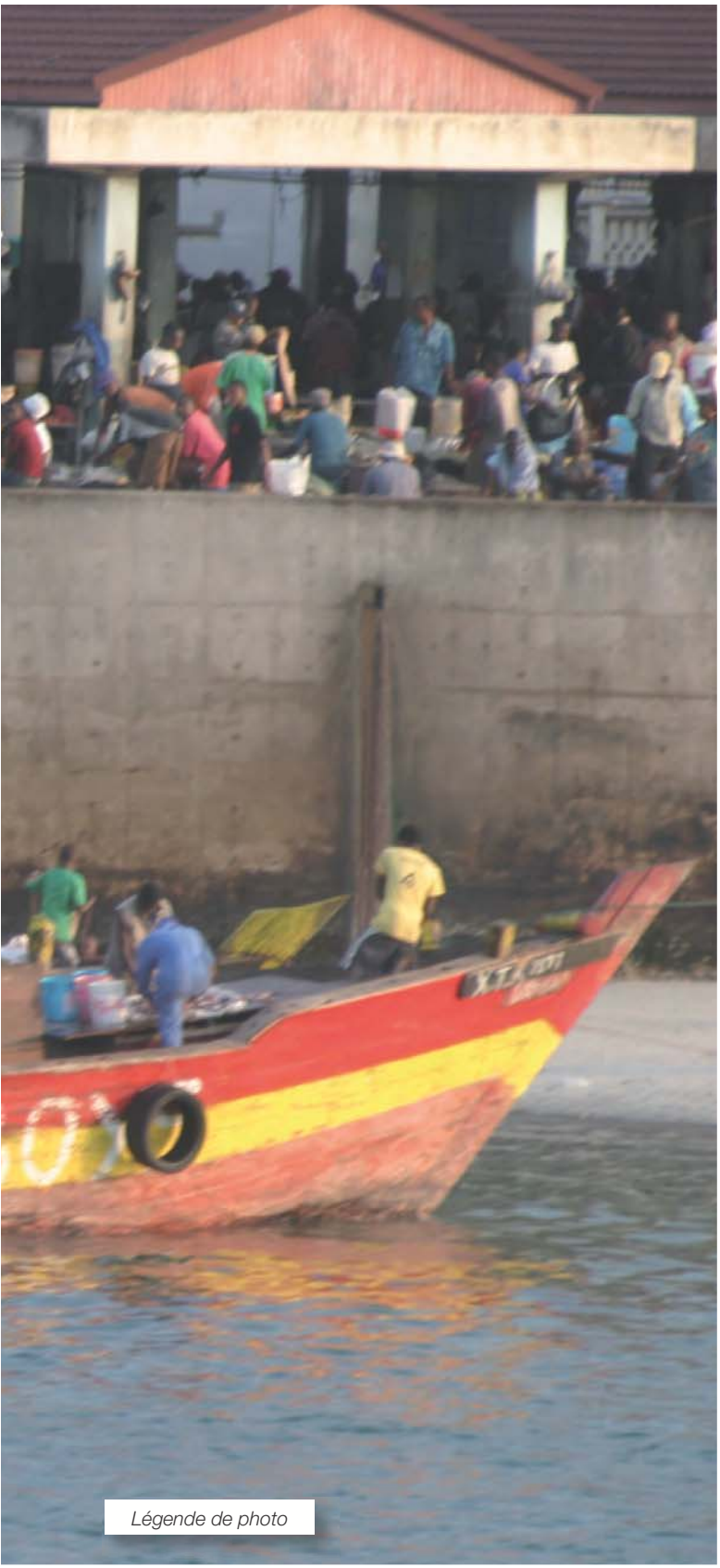

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1. Port Subsector

The immediate need in the subsector is to procure additional handling equipment at both Zanzibar and Pemba ports as trends in containerisation as well as in cargo volumes are increasing. There are different possible options to accommodate this need.

ZPC could either purchase the equipment and operate it themselves, or engage a private sector contractor to operate the port. Consideration needs to be given to reforming the operation of the port subsector in Zanzibar in a similar manner to that being implemented on the mainland. This would imply that the focus should be given to converting ZPC to a landlord responsible for the port and its infrastructure rather than an operator.

Operations would then be outsourced to a commercial company to operate the ports on commercial terms with an emphasis on providing efficient service at efficient costs.

2. Airport Subsector

The key infrastructure problems in the subsector have been resolved since the authorities have obtained financial assistance to improve the facilities at ZIA. The runway and apron have been improved and strengthened and a new passenger terminal is under construction.

One area which the government is examining is whether to engage private sector experts to manage and maintain the infrastructure, particularly the new terminal building which will commence operations in 2013. Given the shortage of skills in the subsector and the general shortage of funding, in general, the engagement of a skilled airport operator is likely to provide substantial benefits in terms of providing high quality services to users as well as needed revenue to the airport subsector that could be used to improve other aspects of subsector infrastructure and services.

There are many successful contractors providing such services in other countries from which a model contract agreement could be prepared.

3. Road Subsector

The road subsector needs to focus on maintenance by providing good quality roads for users. Reform in the subsector is underway with funding from the Bank, but has not yet been implemented. However, with AfDB funding, consultants will assist in the development of the regulations needed to implement reform measures which will create Zan-Roads who will be the autonomous roads agency responsible for building and maintaining roads. MOIC will retain its policy function while the Zan-Roads board will manage the road fund for maintenance. The regulatory function will be undertaken by Zan-Transport and will cover road and maritime services as well as those air services that are not covered by TCAA.

The regulatory and operational functions will be undertaken by fully autonomous organisations headed by independent boards. The reform process will require the actual operations such as construction and maintenance activities to be undertaken by private companies under performance-based contracts. In the initial stages, assistance might be required to support the local contracting industry as many of the small companies do not have sufficient equipment or access to capital to purchase such equipment.

In addition, the newly created public sector organisations may require assistance in contract management and good governance skills.

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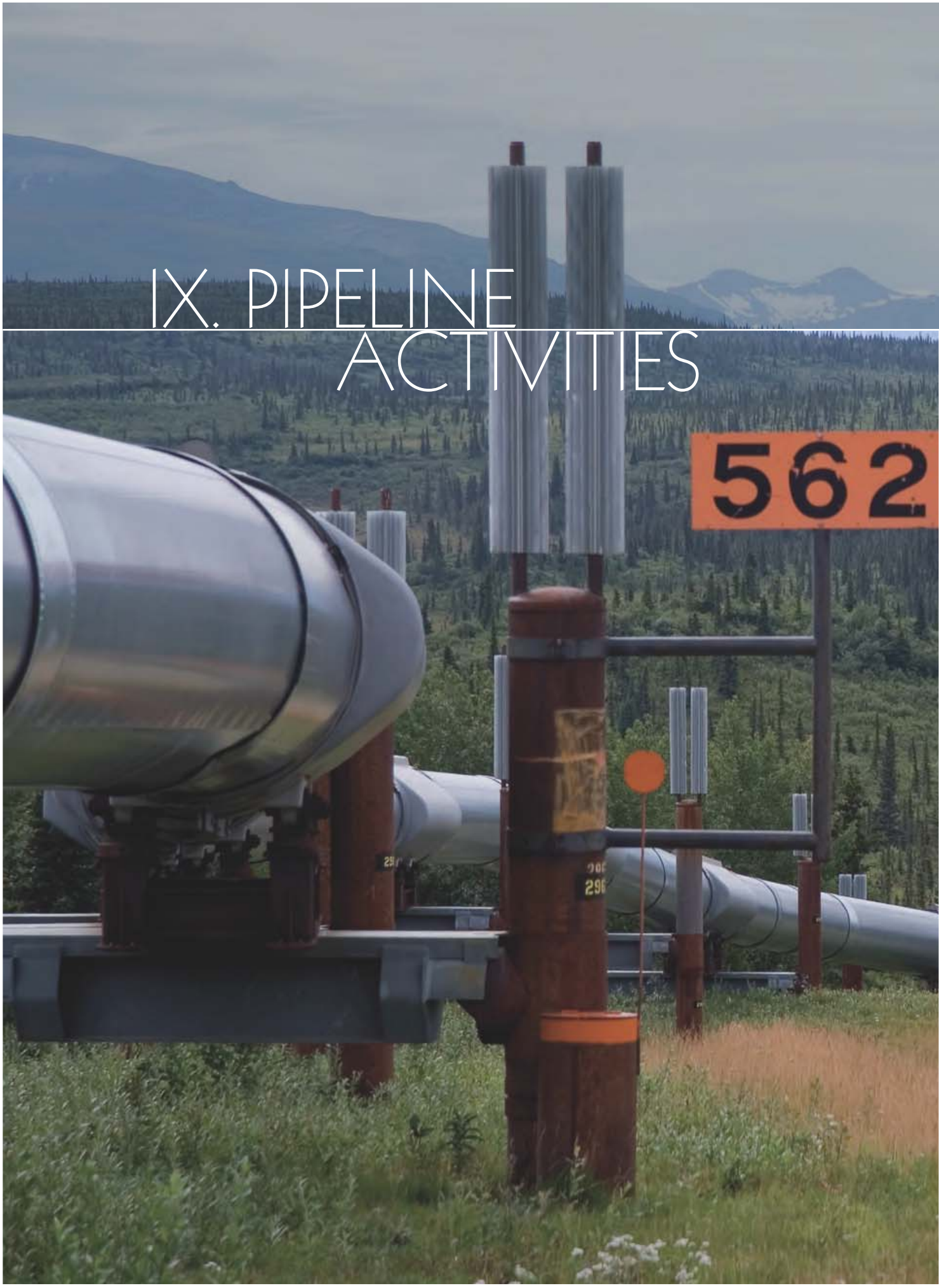
IX. PIPELINE ACTIVITIES



IX. PIPELINE ACTIVITIES

A | Introduction

Currently, there are three pipelines in Tanzania. The first is the Tanzania–Zambia Oil pipeline (TAZAMA) with a length of 1,710 km which transports crude oil from Dar es Salaam to the Ndola refinery in Zambia. The second is the Songo-Songo pipeline which pipes natural gas from Song-Songo island to Dar es Salaam over a distance of 232 km including a submarine portion from the island to the mainland.
The third pipeline with a length of 28 km also transfers gas from the off-shore Mnasi Bay field to a power plant in Mtwara. Within Dar es Salaam, there is a pipe distribution network that distributes oil products from the Kurasini oil jetty located in the port to various nearby oil depots. The pipeline is owned and managed by a commercial operator.

B | TAZAMA Pipeline

The TAZAMA pipeline was conceived in the late 1960s when the border between Zambia and Zimbabwe (then known as Southern Rhodesia) was closed.

As Zambia was reliant on this southern corridor for all of its oil products, the TAZAMA pipeline was constructed by Zambia from 1965 to 1968 as an alternative corridor to the sea. It is owned jointly by the governments of Zambia (66.67%) and Tanzania (33.33%). Up to now, it is only used to supply crude oil to the refinery at Ndola in Zambia. The oil is delivered via an off-shore pipeline approximately 3.6 km off the Dar es Salaam coast and delivered to the former TIPER refinery in the port area. From there, it is transferred by the 1,710 km pipeline where 7 pumping stations along its route provide the energy to move the oil. Five of the pumping stations are located in Tanzania and two in Zambia.

C | Songo-Songo Pipeline

The Songo-Songo pipeline was supported by the World Bank loan of $183 million approved in October 2001 [25]
The support covered the

- development of the Songo- Songo islands natural gas field,
- construction of a 70 mmcfd gas processing plant,
- construction of a 25 km marine gas pipeline and a 207 km on-shore gas pipeline,
- conversion of the 112 MW Ubungo power plant to natural gas and its privatization to Songas from TANESCO its previous owner, and
- supply of gas to the Twiga cement plant, 16 km north of Dar es Salaam. The power generation assets were successfully commissioned in 2004.

D | Mnazi Bay

The Mnasi Bay pipeline is 28 km in length and connects wells of the Mnasi Bay gas field to 18MW power plant in Mtwara. While recent exploration has identified a large natural gas deposit, the power plant has limited demand for power in the region at the time the pipeline was constructed.
The amount of gas available it still being analysed but it is already enough to consider the construction of a processing plant in Mtwara port area that would produce 1 million tons of methanol and 800,000 tons of urea annually

[25] The primary project components were funded by World Bank (IDA) for $161.5 million, European Investment Bank for $44 million, AES Corporation for $50 million and CDC for $18 million. The World Bank also provided $13.54 million to cover environmental and social mitigation measures and $8.17 million for a capacity building component.

as well as provide additional gas to feed into the Tanzania gas network.
It is planned to construct a pipeline linking Mnazi to Somanga Fungu where it would join the Songo-Songo pipeline to Dar es Salaam. Financing for this pipeline is advanced and is expected to be financed through a $1 billion loan through the China Exim bank.
A 600 km northern extension from Dar es Salaam is under consideration to provide gas to the coastal region including Tanga and onwards to Mombasa.

E I Oil Distribution

In the port area, oil is discharged by two separate pipelines. The first is the single point mooring located off-shore in Mjimwema Bay adjacent to Dar es Salaam. It is designed for tankers up to 120,000 deadweight tons and discharges crude oil direct to the TIPER facility and TAZAMA storage facilities which have 230,000 m^3 capacity; from the storage tanks it is pumped via the TAZAMA pipeline to Ndola. The single point mooring is currently under reconstruction and is expected to be completed by mid-2012.

Oil products destined for the Tanzania market are discharged at Kurasini oil jetty, located within the harbour, which is designed for offloading tankers up to 45,000 deadweight tons capacity. The oil products are transferred from the jetty via pipelines through to oil storage facilities owned by 17 oil marketing companies. These companies have storage capacity of approximately 430,000 tons of oil products which are distributed by road tankers.

F I Future Development

The development of pipelines is part of the energy sector and is overseen by the Ministry of Energy. Future development will depend upon developments in the energy sector which are currently moving at a fast pace especially with the recent identification of large gas deposits. In addition to the coastal pipeline from Mnazi Bay, other pipelines have been discussed linking Dar es Salaam to Mwanza, Dar es Salaam to Mbeya, and Tanga to Zanzibar. All pipeline development will be undertaken by the private sector and will not require direct investment by the public sector. Figure 7 indicates the possible development plans for natural gas pipelines.

Légende de photo

X. STRATEGIES FOR FUTURE SUPPORT

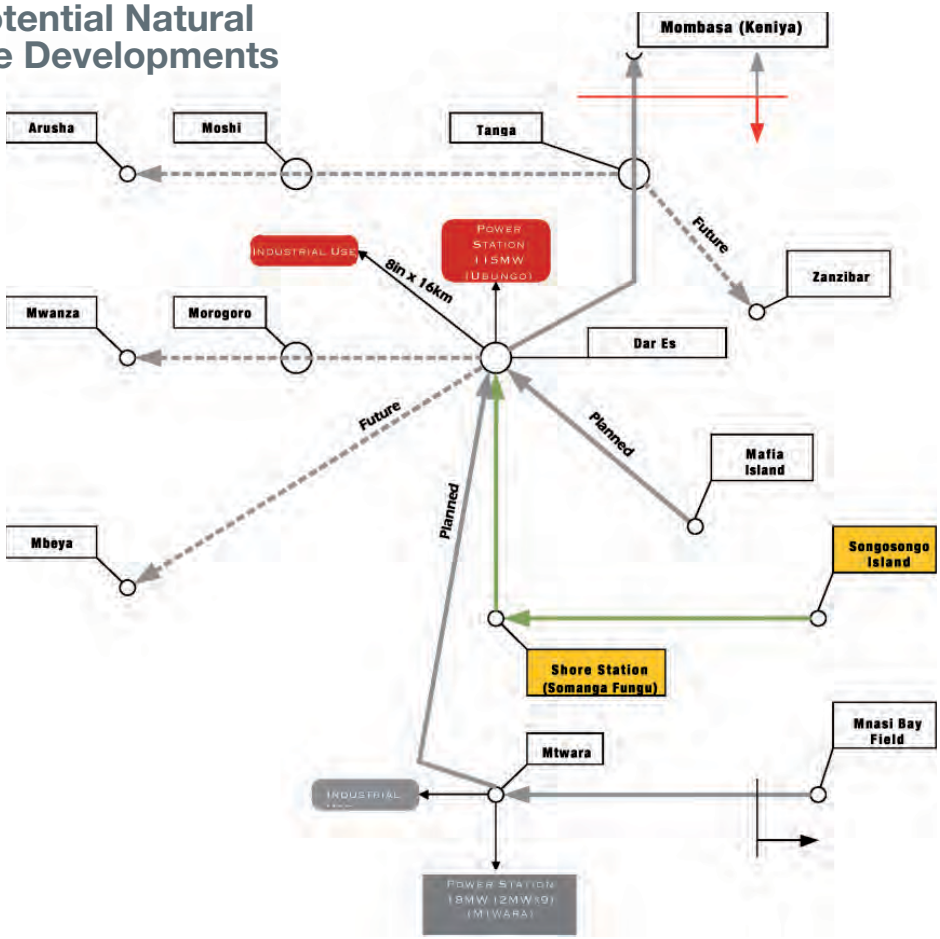
X. STRATEGIES FOR FUTURE SUPPORT

A I Development Plan Priorities

As noted in Chapter 2, the five-year development plan places high priority to provide core infrastructure in rural feeder roads, railways and sea ports which is considered to be an essential driver of sustainable economic growth and development. The lack of sufficient infrastructure and the poor quality of transport services has been identified as a major constraint to development.

The transport sector investment plan phase 2 is being prepared. A draft summary of the proposed expenditure is provided in Table 31. The key feature of the plan is that the proposed expenditures give priority to those investments which impose significant constraints to the growth of the economy. The indicative expenditure allocates 65% to the roads subsector, the bulk of which will be used to improve and upgrade trunk roads. Substantial allocations are also provided to address the key constraints in port and railway subsectors. In several items, investments in these subsectors need to be seen as complementary as the overall constraint in trade concerns both port congestion as well as poor railway services. Removing the constraints in only one subsector will not resolve the overall issue. Resources have also been allocated for local government roads but it is not clear how this amount will be divided between rural or urban roads. Given the scale of the urban transport issues in Dar es Salaam, the proposed allocations are unlikely to be sufficient to cover all the issues. It is noted that allocations have been made for completing the first phase of the BRT which is currently being constructed but there are no allocations for the implementation of phases 2 and 3 for which designs have been completed or for the development of subsequent phases.

Figure 7: Potential Natural Gas Pipeline Developments



Source: JICA

Table 31 : Indicative Expenditures for TSIP Phase 2 (US$ million)

Sector	2012/13	2013/14	2014/15	2015/16	2016/17	Total	Roads %	Sector %
TANROADS Development	1,119	1,058	964	952	1,048	5,141	64.2	
TANROADS Maintenance	199	226	257	293	334	1,308	16.3	
Local Govt Development	62	86	107	115	124	493	6.2	
Local Govt Maintenance	137	150	165	182	203	836	10.4	
Road Safety	5.8	9.9	8.8	7.7	12.1	44.3	0.6	
Environmental Management	1.2	1.3	1.3	1.1	1.0	5.9	0.1	
DART	95	51	17	-	-	163	2.0	
DSM City Council	1	3	4	1	3	10.8	0.1	
Gender	0.5	0.5	0.5	0.5	0.5	2.5	0.03	
HIV/AIDS	0.2	0.2	0.2	0.2	0.2	1	0.01	
Total Roads	1,620	1,585	1,524	1,553	1,725	8,006		65.0
Railway	215	222	245	220	398	1,300		10.6
Ports	535	473	444	195	379	2,026		16.4
Inland Water	2	11	13	17	13	55		0.5
Aviation	130	234	221	199	145	930		7.5
Regulation	0.2	0.38	0.32	0.20	0.17	1.26		0.01
Capacity Building	18.4	9.4	7.1	7.2	5.4	47.5		0.4
Total	**2,502**	**2,525.2**	**2,446.5**	**2,183.2**	**2,660.9**	**12,317.9**	**100.0**	**100.0**

Source : MOT and consultants' estimates.

B I Investment Opportunities

Based on the assessment of each of the transport modes as discussed in Chapters 3-7, together with the draft programs prepared for the second Transport Sector Investment Programme (TSIP 2) covering the next 5-year period (2012/13 to 2016/17), the strategic areas for possible external assistance are :

1. Transport Program Needs

While the core investment is required in infrastructure, support to planning and management of the sector are also essential components if the sector is to successfully underpin the economic and social development. At present, the majority of the planning is undertaken at the subsector level without significant interaction with other modes. This planning has produced adequate plans for each subsectors but does not necessarily produce the optimal transport plans for the whole country. At the central level, MOT has to decide between various projects in preparing the national transport plan to reduce the risks in resource misallocation. It is recommended that prior to the next five-year plan, the MOT should prepare an integrated multimodal transport plan covering all modes to define the shape and form of the overall TSIP for the period beyond 2016. It is essential that the plan incorporates economic and financial analysis and demonstrates the viability of individual projects. It is recommended that an integrated transport plan is prepared in the 2014/15 period and this planning study will require about $1.5 to $2 million to implement.

MOT requires capacity building programs in several areas to support policy assessment and implementation. A key area for support is to incorporate greater private sector investment

in transport sector projects. Technical support for a PPP unit in MOT would help to establish the unit and build the capacity required to promote and investigate projects for private sector participation. It is recommended that a 3-year support program be developed to provide the capacity support for such a unit which is likely to require $2 million financial support.

2. Roads Subsector

The bulk of the financial resources allocated for the roads subsector are for the improvement of trunk roads. This continues the policy thrust of the existing plan period where the primary goal is to upgrade the trunk road network to a paved bitumen standard. A high proportion of the investment is for "carry over" projects from the existing plan where a considerable number of road improvement contracts were signed without sufficient allocation of resources to cover the implementation costs of civil works. During the first 3 years of the plan, a number of road improvements have already received funding assistance from development partners but during the last 2 years, all projects are currently expected to be funded using government resources. There is considerable scope for external assistance to provide financial assistance to support trunk road improvement in the latter period of the plan.

The area with shortfall in funding is the local roads subsector. At present, very few resources have been allocated for local roads despite the priority indicated in MKUKUTA II for tackling rural poverty. Currently, the government is preparing a program to assist with local roads which will focus on removing the key bottlenecks on the local road network. The study is designed to provide the core investment component of the LGTP 2 program for the 5-year plan and is expected to commence physical implementation in 2013/14. The technical assistance study is preparing an investment program of approximately $150 million and it is expected that the World Bank will take up an initial investment tranche of about $50 million. There is, therefore, considerable scope for other development partners to provide assistance to support local road development. In this respect it is recommended that priority be given to supporting local road development by rehabilitating priority roads in areas with significant economic potential focusing

upon improving connectivity. Such a program should also be supported by a program of spot improvements that will increase access to villages impacted by drainage and water course problems. This support program would also require complementary components to support capacity building and institutional strengthening at the local level including development of the local construction industry.

In addition to investment in infrastructure, the road subsector also requires technical assistance support. The first of these areas is road safety. At present, Tanzania does not provide significant support for road safety programs despite rapid motorization. Statistics show steeply rising numbers of accidents and road deaths. The public sector is currently not well organised to deliver road safety programs and there is little coordination between different agencies responsible for different components of road safety. Furthermore, few resources are allocated in the government budget for this purpose. Future assistance should examine the possibility of bringing in the private sector to work with public sector agencies to initiate road safety plans and programs similar to programs adopted by the Global Road Safety Partnership.

Despite the emphasis placed on development of the road network, there is little emphasis within the program to address safety issues. While TANROADS has a road safety unit, it is not clear whether this unit has significant input

in project preparation and implementation. It is recommended that all projects should be subject to road safety audit throughout the preparation process beginning with the feasibility study, progressing through the design phase up to the supervision of construction stage. Road safety audit is a well know process that is used worldwide and it has been proven to improve the safety of roads during their operation. All development partners should require that projects they support incorporate road safety audit. It is also recommended that the Ministry of Works also commit to promoting safety by ensuring that the road safety audit process is mainstreamed in the government's support to the roads subsector.

One aspect that is not well developed in the TANROADS implementation process concerns M&E process. Little feedback is given by the current system to ensure that lessons learned from implementation are used to enhance future programs. The system needs to be enhanced by providing capacity building and technical support to strengthen the existing M&E processes.

3. Urban Transport Subsector

The focus on urban transport needs to be considered separately for Dar es Salaam and other towns and cities since their problems are significantly different.

The key issue for Dar es Salaam concerns the institutional arrangements. Currently, there is no leadership to address the overall urban transport situation. This problem was discussed extensively in the urban transport master plan that was completed in 2007 and more recently by MOT under a policy support program. Thus, the key requirement at present is for the relevant authorities to take the necessary actions to address the problem. Without a suitable institutional set up, it will be difficult for development partners to support capacity building programs.

Resolving urban transport problems will require substantial investment together with capacity building programs to build the skills necessary to plan and manage transport systems and operations. The master plan concluded that an investment of $200 million would be needed annually for 20 years. Such a high level of investment is beyond the likely capacity of the economy to provide at the existing level of development. However, the approach must be to promote mobility by public transport rather than private transport, especially private cars, which utilise the bulk of the road capacity. Further development of the BRT is warranted and must proceed if optimum use is to be gained from the first phase. The engineering designs for phases 2 and 3 have been completed and thus are available to form the basis of a project to support urban transport development in the city. DART have indicated that the estimated implementation costs of phases 2 and 3 amounts to $520 million. The BRT system is planned to have six phases providing an integrated network covering a large proportion of the city. To achieve a mobility strategy based on public transport, it is necessary to have all phases of the BRT implemented, otherwise, there will be locations where the public transport system fails to deliver adequate service, and transport integration and connectivity will not be achieved.

In addition to public transport, a second pillar of the urban transport plan is to support traffic demand management measures. The first of these measures will be the CBD traffic management and parking scheme expected to be implemented by Dar es Salaam City Council in 2012/13. There will be a requirement to extend this scheme to adjacent areas and to those areas served by the next phases of the BRT. Priority should be given to preparing a traffic management package to complement phases 2 and 3 of the BRT scheme.

In other towns and cities, the urban transport needs are significantly different from those of Dar es Salaam. In these towns, the traffic has not reached a level where high levels of congestion occur and problems are simpler to resolve. A significant part of the problem concerns the need to pave urban roads to a bitumen standard as well as resolve drainage issues. Traffic management measures are needed in most urban centres where vehicle- pedestrian conflicts are a problem and parking controls are required to maintain network capacity. At present, little attention is directed towards nonmotorised vehicles despite the fact that more trips involve these modes than motorised trips. As traffic level increases, the introduction of signalised intersections will be required. In all towns, the enforcement of traffic rules and regulations needs to be taken more seriously. The investment in the regional towns urban transport will be a growing problem but is expected to be relatively small in the next 5 years. Of more importance from a development perspective is the need to build capacity in local institutions so that the emerging problems can be assessed and handled. It would be prudent to initially support a capacity building component for urban transport at the regional cities level focusing on traffic management and transport planning. Such assistance should initially be centrally focused at PMO-RALG with support to several cities and towns and then decentralised to the local level once the institutional strengths are known in the regional towns.

4. Port Subsector

The port subsector has several major constraints which not only hamper the efficiency of port operations but have a direct cost impact upon all international trade. The ports master plan provides the basis for the subsector's development and is an appropriate guide although care should be taken to ensure that it remains relevant.

The key issue is that the main port at Dar es Salaam is operating at and over capacity and this gives rise to numerous inefficiencies which accumulate to significant delays to imports and exports. The problems are closely tied to those of the railway and roads subsectors since even if the port operations could be improved substantially, the landside issues within and outside the port boundaries are significant and have far reaching consequences. Thus, the

actions required at Dar es Salaam port are closely integrated with one another and the various needed investments should not be viewed as stand-alone.

The capacity of the port at Dar es Salaam to handle the existing container traffic is limited as existing facilities have limited capacity. The plan is to construct berths 13 and 14. This facility will add an additional 650,000 TEUs to the port's capacity which would accommodate demand until about 2020. It is currently assumed that this facility will be constructed by the Chinese government commencing in 2013 at an estimated cost of $524 million.

TPA is also planning to improve berths 1 to 7 to increase the capacity of bulk cargoes as well as some container traffic that also uses these berths due to TICTS operating constraints. There is also the need to deepen the alongside depth to handle larger vessels. This project, being prepared with assistance from TradeMark, will not only identify the required capital cost but will also examine how private sector can be involved with the quayside equipment and other operational needs. The assistance will also investigate how to improve the movement of containers between the port and nearby ICDs as well as possible changes to the road network and circulation of truck traffic. In addition, the studies will identify the reforms and changes needed to improve administrative processes to reduce the time required for cargo processing. It is anticipated that this assistance will result in a package of measures that will require financial support from the public and private sectors as well as adjustments to administrative regulations. The result is expected to be a package of port investment that will increase the capacity for trade throughput as well as reduced time required for cargo clearance. TPA has estimated that the public sector investment requirement would amount to about $150 million.

In addition to the two investment projects, further measures are required to enhance the movements of containers and cargo entering and accessing the port. For the railway, the rail links to and within the port area need to be rearranged to improve rail access and achieve a better port-rail interface. Second, the construction of an ICD at Kisarawe connected by new rail links to the port would quickly move containers from the port and reduce the need for a large truck fleet to access the port. TPA estimates that the cost for developing the Kisarawe ICD is $150 million. It is noted that the pre-feasibility study for the project indicated a cost of about $220 million. It is possible that this project, if financially viable, could attract private sector investment and this needs to be explored in a detailed feasibility study

While various improvements are required at Dar es Salaam port, continued growth in trade will result in capacity constraints possibly as early as 2020. At this time, additional capacity at a new location will be required. The government has decided that the new port should be located close to Bagamoyo, approximately 75 km north of Dar es Salaam. A feasibility study indicates that the initial phase of the ports development will require an investment estimated at $1,200 million which covers the necessary road and rail links with its hinterland. It is planned that the new port would be developed as a partnership between the public and private sectors. It is necessary that this concept is examined during the project preparation stage. The timing of the investment of the first phase has yet to be firmed up but is currently expected to commence in 2016/17.

Port investment is also expected at two additional locations at Tanga and Mtwara. The timing of the investment at Tanga is expected in 2016/17 and will centre on the construction of a new port at Mwambani. At Mtwara, the existing port will be expanded to accommodate the increased trade associated with the development of the oil and gas industry as well as the developments associated with the Mtwara corridor. For both these port developments, the investment is expected to be delivered through a PPP framework although for the initial investment in Mtwara, it is planned to use TPA investment sources.

5. Railway Subsector

In many ways, the railway subsector requires the greatest support because it is the subsector with the greatest problems in terms of service delivery. The failure of the TRL railway to deliver improved services has some of its roots in the privatisation process that took almost 10 years to negotiate and failed after less than 4 years of operation. But it is also due to poor management performance stemming from its history as a public service entity reliant on

public sector funding for its survival. There is no doubt that the lengthy period taken to reach agreement with a private sector operator was damaging to the services as infrastructure, locomotive power and rolling stock all deteriorated badly during the negotiation period. By the time the private sector operator was on board, the operating conditions were beyond repair and a large capital injection was required to salvage the remaining infrastructure. Reviews commonly indicate that the expectations of the government and the private operator were significantly different with respect to responsibilities for investment in the infrastructure and this is often quoted as the main reason for cessation of the concession agreement.

Today, TRL provides poor quality service that makes it difficult to realise that a rescue is possible. Policy makers are concerned about the likely high cost that will be required to mount a rescue and the associated high risks. The key issue is defining the preferred strategy to revive the TRL railway. Given the large volumes of freight that need to travel long distances, there is adequate technical support to revive the TRL operation as economic analysis has shown that it provides the most economical means of moving the freight. The key to the issue, however, is the type of business model that needs to be developed to revive the railway and whether this model is suitable for long term operations. It is likely that the immediate needs model will be different from the long term requirement as the objective of the initial phase is to revive the business while the subsequent phase needs to focus on operating efficient and effective services at a competitive cost.

Currently, the immediate focus must be to prepare a revival plan which needs to demonstrate that rail services can be provided on a reliable and predictable basis. This phase will focus on restoring services and capturing sufficient market share to indicate that a financially viable operation can be attained and maintained over a time scale of about 2 years. The revival model will require substantial financial support to provide adequate locomotive power units and useable rolling stock as well as resources to cover short-term track maintenance needs, and working capital. Further investment would only follow when it is demonstrated that the railway operation is viable. Thus, an accompanying monitoring program is essential.

For TRL revival model to make progress, it is necessary for a revival plan to be prepared and agreed among all stakeholders. Given the current poor status of the TRL operations and the likely magnitude of the costs of revival and rehabilitation, it will be necessary for the government to demonstrate its full commitment to any railway improvement plans. The plans need to be led by the MOT and include other government agencies as required and also include development partners and private sector organisations that represent potential financiers as well as users. A second follow on plan will set out the rehabilitation requirements following the successful implementation of the revival phase. Both these plans will need to demonstrate a strong approach to operating the railway as a business and the longer term operating plan should also demonstrate how competitive services might be introduced.

The revival and rehabilitation of the TRL system should focus on the central corridor, the route with the highest potential demand. The investment for the revival phase is estimated to be about $150 million. If successful, the rehabilitation phase will likely require substantial additional funding commitments to rehabilitate track and provide sufficient capacity in locomotive units, rolling stock and upgrade of the signalling system.

The TAZARA railway system has suffered from under capitalisation for many years. It also requires a business plan to achieve better levels of service and compete with the adjacent road transport services in the southern corridor. Since TAZARA is owned by the governments of Tanzania and Zambia and has received considerable assistance from the Peoples' Republic of China that constructed the system in the early 1970s, measures to improve the effectiveness of the railway's operation need to be discussed and agreed on a trilateral basis between the owners and stakeholders. If these parties agree, there might be opportunities for other development partners to prepare management and operational plans to improve the railway's operation.

6. Airport Subsector

While there is a need to improve airports at key locations a significant amount of assistance by various development partners has already been mobilised. The key investment that is required concerns the third passenger terminal at JNIA. It is proposed that this investment should be undertaken through a partnership with the private sector as infras-

tructure of this type is suitable for this type of investment. Resources have already been made available to both prepare a master plan for JNIA and engage a transaction adviser to assess private sector interest, review the type and form of contract required and prepare the necessary documents. It is recommended that this assistance be mobilised as soon as possible so that a time-bound plan can be prepared for the implementation of the new terminal at JNIA.

While the emphasis for JNIA development should be on seeking private sector resources, it is possible that AfDB could support the project via its private sector window. The type of support that might be needed is difficult to ascertain at this stage and will largely depend upon the attractiveness of the investment to private sector interests. This will need to await the outcome of the abovementioned technical assistance after which possible support could be firmed up.
Other investments that might be required to support development of airports should await the completion of the civil aviation master plan for which resources have already been allocated.

7. Zanzibar Transport

Zanzibar has been successful in meeting a number of its transport challenges in recent years. In the airport subsector the major challenges have been to rehabilitate and improve airport infrastructure to meet travellers' needs especially of the tourism industry. This has seen the major runway rehabilitated and a new passenger terminal under construction. Within the subsector, the remaining challenge is to outsource airport management and operations to the private sector with the primary purpose of improving the quality of services to users and ensuring that maintenance of the assets are kept at a high standard in the long term.

In the port subsector, the immediate need is for additional port handling equipment to cater to the container trade. ZPC has indicated that the ports of Malindi on Unguja and Mkoni on Pemba require equipment to facilitate container movements. Procurement of the necessary equipment could be facilitated by the government but consideration should also be given to moving the ZPC towards the landlord model which is the worldwide trend in efficient port management. If such a policy decision is taken then the additional equipment needs would preferably be given to the new port operator.

The priorities in the roads subsector include the need to upgrade roads in the outer areas of Zanzibar city as well as some smaller towns where urban populations have increased. Improvement in the management of the road network is also a priority and capacity building is required for operating the road maintenance management system to ensure that the resources of the roads fund are used optimally to maintain the road network. Implementation of the public sector reform program in the roads subsector has not yet been implemented and the ongoing assistance provided by the AfDB needs to be expedited.

C I The Way Forward

The selection of individual projects will follow discussions with government on the priorities for the transport sector. These discussions should also take into account AfDB's country assistance strategy and place a premium on those projects and subsectors that will have a significant development impact. In addition to the standard project selection criteria, project selection should also take into account assistance provided by other development partners in order that the synergies from development impact might be maximised. In some subsectors such as rural roads and the railway, there is likely to be a larger impact if development partners work closely together in that their total investments can create a larger impact and reduce risks than if they were made separately. Besides generating greater development impact the synergies of working together might also reduce the costs of oversight and management of the projects than if they were implemented on an individual basis.
Based on the analysis of each of the subsectors described earlier and the strategic areas identified for possible support, a number of priority projects and technical assistance activities have been defined that could form the core of the operational program in the ADF XIII cycle covering 2014–2016. It is envisaged that ADF resources would be augmented from other sources including the private sector, regional operations and non-Bank sources. Table 32 provides a summary of these priority projects and technical assistance activities.

Table 32 : Summary of Priority Projects

				Financing			
Project	**Description**	**Indicative Cost** ($ million)	**Timing**	**Public**	**Private**	**Remarks**	**Assumptions/ Risks**
I. Subsector-Related **A. Road** **1. Rural road improvement**	Improvement and maintenance in selected districts Implementation support Capacity building and institutional strengthening	50.0	2014	yes	no	Consultants currently preparing project requiring $150 million investment. WB likely to provide $50 million in support	**Assumptions** • Commitment of development partners to allocate resources • Strong government support to improve technical capacities and to strengthen the institutions • Monitoring and evaluation process adopted
2. Trunk road improvement	Improvement of roads to include Ifakara up to Songea and about 48 km of roads in Zanzibar. The project should incorporate technical assistance studies to prepare a regional roads strategic plan.	200.0 1.0	2016	yes	no	AfDB is funding the feasibility study for Ifakara – Songea road under Roads Subsector Support II, and project preparation studies in Zanzibar	
3. Road safety component	Primary focus will be to develop a safer roads program which will include an investment component A second component will address education safety in schools. (component to be piggy-backed to a road project)	2.0	2014	yes		Need to mobilise interest in addressing road safety issues from government, private and NGO	**Assumption** • Road safety audit incorporated in all projects • Commitment of Ministry of Works to mainstream road safety audit in roads subsector • Commitment from Ministry of Education to support road safety education program **Risks** • Inadequate knowledge on merits of road safety audit • Safety audit not strictly monitored

Table 32 : Summary of Priority Projects (suit)

				Financing			
Project	**Description**	**Indicative Cost** ($ million)	**Timing**	**Public**	**Private**	**Remarks**	**Assumptions/ Risks**
B. Sustainable Urban Transport	Extension of BRT system in Dar es Salaam to include traffic demand management as well as nonmotorised modes and pedestrian movements	150.0	2015	yes	no	BRT phases 2 and 3 design completed.	**Assumptions** • Authority to lead identified • Capacity building programs in place • Adequate resources assured
	A technical assistance to support regional cities urban transport will be included.	2.0		yes	no	Piggyback to above loan to provide capacity building to selected cities through a core program provided by PMO-RALG.	**Risks** • Inadequate financial capacity to support BRT operations • Inadequate capacity development
C. Port Port Efficiency Enhancement Project	Development of berths 1 to 7 including dredging, quay strengthening, dry bulk and break bulk facilities, port subsector reforms, intermodal interface	150.0 (public) 50.0 (private)	2014	yes	yes	Completion of studies and design under Trade Mark assistance	**Assumptions** • Public sector partnered with private sector • Additional ports constructed to decongest existing ports • Movements of cargos and containers improved
	Planning and design of new port facilities at Mbegani-Bagamoyo (piggybacked to project above)	10.0		yes	no	Planning and engineering design for new port facilities	**Risks** • Lack of financial support • Reluctant to initiate reforms
D. Railway	Rehabilitation of Tanzania Railway Ltd. (TRL)	100.0	2016	yes	yes	Prerequisite that TRL revival project is a success	**Assumptions** • TRL revival plan prepared and successfully implemented • Service delivery and management performance improved • Partial support co-funded with other donors and private sector **Risks** • Lack of effective government support • Insufficient donor funding

Table 32 : Summary of Priority Projects (suit)

				Financing			
Project	**Description**	**Indicative Cost** ($ million)	**Timing**	**Public**	**Private**	**Remarks**	**Assumptions/ Risks**
II. Other Initiative **Capacity building at Ministry of Transport**	Preparation of an integrated transport development plan	1.0–2.0	2015	yes	no		**Assumptions** • Strong government commitment • Specific guidelines designed for integrated multimodal transport plan **Risk** Lack of support and coordination among agencies
	Capacity development for public-private partnership	2.0	2013 or 2014	yes	no		**Assumption** A technical support unit for PPP projects established

XI. REFERENCES

1. African Development Bank. 2011. Country Strategy Paper: United Republic of Tanzania, 2011–2015. Tunis.
2. ———. 2010. Completion Report: Mutukula-Muhutwe Road Upgrading Project. Draft final and annexes. Tunis.
3. ———. 2010. Completion Report: Shelui-Nzega Road Upgrading Project. Draft final and annexes. Tunis.
4. ———. 2009. Project Appraisal Report And Technical Annexes for the Road Sector Support Project I In Tanzania. Tunis.
5. African Development Bank Group. Tanzania: Sector Rehabilitation Programme. Project Performance Evaluation Report (PPER). Operations Evaluation Department. Tanzania.
6. T. Assum. 1998. Road Safety in Africa Appraisal of Road Safety Initiatives in Five African Countries. World Bank African Region. SSATP Working Paper No 33. Washington, DC.
7. Central Development Corridor (CDC). 2009. Regional Spatial Development Initiative Program (RSDIP) Integrated Transport Strategy - Lakes Tanganyika and Victoria. Volumes I and II. Recommended Transport Strategy. Consultant's report. Tanzania.
8. Corridor Diagnostic Study of the Northern and Central Corridors of East Africa. 2011. Second Regional Stakeholders Workshop. Consultant's draft report
9. Corridor Diagnostic Study of the Northern and Central Corridors of East Africa. 2011. Action Plan Volume 2: Technical Papers B. Trade and Traffic Forecast. Consultant's report. Tanzania.
10. Corridor Diagnostic Study (CDS). Northern and Central Corridors of East Africa. 2010. Papers presented at the Validation Workshop. Dar es Salaam. September 30.
11. Corridor Diagnostic Study (CDS). Northern and Central Corridors of East Africa. 2010. Papers presented at the First Stakeholders Workshop. Arusha, February 24–25.
12. DB Mobility Networks Logistics. 2008. Multinational Tanzania-Rwanda-Burundi. Economic Feasibility Study for the Isaka-Kigali/Keza-Gitega-Musongati Railway Project. Consultant's report.
13. Department for International Development. 2011. Part One of the Container Origin and Destination Tracking Study. Consultant's final report. Tanzania.
14. East African Community. 2011. The East African Trade and Transport Facilitation Project. East African Transport Strategy and Regional Road Sector Development Program. Consultant's final report.
15. East Africa Community. 2009. East African Railways Master Plan Study. Consultant's final report. Tanzania.
16. Ecorys Research and Consulting. 2009. Identifying Economic Conditions for a Regional Logistics Hub in Northern Tanzania. Consultant's final report.
17. Japan International Cooperation Agency. June 2008. Dar es Salaam Transport Policy and System Development. Master Plan. Final report. Tanzania.
18. ———. 2011. The Project for the Comprehensive Transport and Trade System Development Master Plan in the United Republic of Tanzania. Consultant's inception report. Tanzania.
19. ———. 2011. Comprehensive Transport and Trade System Development Master Plan in the United Republic of Tanzania. Progress report. Tanzania.
20. ———. 2008. Dar es Salaam Transport Policy and System Development Master Plan. Pre-Feasibility study report. Vol. II Tazara Intersection Improvement Project. Tanzania.
21. ———. 2008. Dar es Salaam Transport Policy and System Development. Master Plan. Technical Report 1. Urban and Regional Planning. Tanzania.
22. ———. 2008. Dar es Salaam Transport Policy and System Development. Master Plan. Technical Report 2. Transport Planning and Development. Tanzania.
23. Fred Lerise et al. 2004. Managing urbanisation & risk accumulation processes. Cases from Dar es Salaam Tanzania. Research Proposal. Dar es Salaam, Tanzania: University College of Lands and Architectural Studies.

24. Ministry of Communications and Transport. 2008. The Revolutionary Government of Zanzibar. Zanzibar International Airport Master Plan. Consultant's draft report. Tanzania.

25. Ministry of Communications and Transport. 2007. Zanzibar Transport Master Plan. Consultant's report. Tanzania.

26. Ministry of Economy, Trade and Industry. 2006. Feasibility Study on Infrastructure Development for the Liganga Iron Ore and the Mchuchuma Coal Mine Development Project in Mtwara Corridor, United Republic of Tanzania. Consultant's final report. Tanzania.

27. Ministry of Infrastructure Development. 2011. The United Republic of Tanzania. Short Transport Sector Investment Plan. TSIP 3-Year Rolling Plan 2011/12–2013/14. Draft final consultants' report. Tanzania.

28. ———. 2011. The United Republic of Tanzania. SITP Intermodal Study. Draft final report of consultants. Tanzania.

29. ———. 2010. The United Republic of Tanzania. A Review of Capacity Building in Transport Policy Development. Consultant's final report. Tanzania.

30. ———. 2010. The United Republic of Tanzania. Pre-Feasibility Study upon Dar es Salaam Urban Transport Authority. Consultants' report. Tanzania.

31. ———. 2010. The United Republic of Tanzania. Transport, Construction and Meteorology. Sector Statistics and Information. Consultant's report. Tanzania.

32. ———. 2009. The United Republic of Tanzania. Short Transport Sector Investment Plan (TSIP 3-Year Rolling Plan 2009/10 – 2011/12). Version 1. Tanzania.

33. ———. 2009. The United Republic of Tanzania. Development of a System for Strategic Performance Assessment of the Transport Sector. Consultants' report. Tanzania.

34. ———. 2009. Feasibility Study: Upgrade of the Dar es Salaam to e Railway. Final consultant's report. Tanzania.

35. ———. 2009. Feasibility Study: Upgrade of the Dar es Salaam to Isaka Railway. Railway Competitiveness Analysis. Consultant's report. Tanzania.

36. ———. 2009. Feasibility Study: Upgrade of the Dar es Salaam to Isaka Railway. Development of Freight Traffic Scenarios. Consultant's report. Tanzania.

37. ———. 2009. Feasibility Study: Upgrade of the Dar es Salaam to Isaka Railway. Technical and Financial Assessment of Railway Upgrade. Consultant's report. Tanzania.

38. ———. 2009. The United Republic of Tanzania. National Road Safety Policy. Tanzania.

39. ———. ¬Republic of Tanzania. Civil Aviation Master Plan Pre-feasibility Study. Consultant's final report. Tanzania.

40. Ministry of Trade and Industry. Republic of Rwanda. 2012. Issue Paper on Current Non Tariff Barriers (NTBs) encountered by Rwanda along the central corridor. Kigali.

41. Ministry of Transport. 2012. Management Consultancy for Transport Policy Support Programme. TSIP Phase 2 (FY 2012/13 to FY 2016/17). Draft. Tanzania.

42. ———. 2011. National Transport Policy. Revised draft. Tanzania.

43. ———. Tanzania Airports Authority. Actual Traffic Records from 2005 to 2011 Projection for Next Five Years. Tanzania.

44. Ministry of Transport. 2011. Tanzania Airports Authority. Paper for the 5th Joint Infrastructure Sector Review. Tanzania.

45. Ministry of Works. 2011. Roads Fund Board. Proposal to Broaden Revenue Base for the Roads Fund. Unedited version. Tanzania.

46. Ministry of Works. Roads Fund Board. 2011. The 5th Joint Infrastructure Sector Review in Transport (JISR 2011). Paper on Road Financing Performance. Final draft. Tanzania.

47. President's Office of the United Republic of Tanzania. Planning Commission. 2011. The Tanzania Five Year Development Plan 2011/2012-2015/2016 Unleashing Tanzania's Latent Growth Potentials. Tanzania.

48. Prime Minister's Office. 2011. Regional Administration and Local Government. 5th Joint Infrastructure Sector Review Meeting. Roads Under Local Government Authorities. Tanzania.

49. Prime Minister's Office. Regional Administration and Local Government. 2008. Local Government Transport Programme (LGTP) Phase 1 (2007-2012). Final report. Tanzania.

50. Reli Assets Holding Company Limited. 2011. Rail Sub Sector Performance Review for the 5th JISR 2011. Second draft. Tanzania.

51. SAID. IDDI. Ndumbogani. Ministry of Infrastructure and Communications (Z). Zanzibar Airports Authority. ZAA Strategies 2012. Tanzania.

52. SUMATRA. 2011. Study on Identifying Transport Potential Development Areas. Consultant's final report. Tanzania.

53. SUMATRA. 2011. Paper on Regulatory Role of SUMATRA for the 5th Joint Infrastructure Sector Review (JISR). Tanzania.

54. SUMATRA. 2007(?). Corporate Strategic Plan 2007/08/-2011/12. Consultant's final draft report. Tanzania.

55. Tanzania National Roads Agency. 2011. TANROADS Paper for Fifth Infrastructure Review Meeting (Road Sub-Sector). Tanzania.

56. ———. 2011. TANROADS Paper for Fourth Infrastructure Review Meeting (Road Sub-Sector). Tanzania.

57. ———. 2011. Periodic Maintenance and Rehabilitation Programme for Paved Trunk and Regional Roads. Year 2012 –2016. Draft report. Tanzania

58. ———. 2008. Strategic Plan (2008/2009 – 2012/2013). Tanzania.

59. Tanzania Ports Authority. 2012. Preliminary Design and Preparation of Tender Document for Development of Port and Economic Zone at Mtwara Port. Consultant's interim report. Tanzania.

60. ———. 2011. Maritime Sub-Sector Review Paper for the 5th Infrastructure Sector Review (ISR). Dar es Salaam. Tanzania.

61. ———. Corporate Strategic Plan (2011/12 to 2015/16). Tanzania.

62. ———. 2010. Feasibility Study for the Proposed Port at Mbegani-Bagamoyo. Consultant's draft final report. Tanzania.

63. ———. 2010. Pre-feasibility study, review of PPP options and recommendation concerning the optimum option for establishment of a container freight station in Dar es Salaam. Consultant's report. Tanzania

64. ———. 2009. Tanzania Ports Master Plan. Consultant's final report. Tanzania.

65. Tanzania Zambia Railway Authority. 2011. 5th Joint Infrastructure Sector Review Meeting (JISR 2011). TAZARA Performance Review. Tanzania.

66. TradeMark East Africa. Tanzania Country Programme. Output 2. Improved transport and trade facilitation processes in Tanzania. Design of Port Component [Version 4]. Consultant's report. Tanzania.

67. Supee Teravaninthorn and Gaël Raballand. 2008. Transport Prices and Costs in Africa. A Review of the Main International Corridors. Washington, DC: The World Bank 2011. Corridor Diagnostic Study of the Northern and Central Corridors of East Africa

68. World Bank. 2010. Proposed Credit to the United Republic of Tanzania for a Transport Sector Support Project. Project Appraisal Document. Washington, DC: The World Bank (Report No. 53152-TZ).

69. ———. 2010. Proposed Credit to the United Republic of Tanzania for a Tanzania Strategic Cities Project. Project Appraisal Document. Washington, DC: The World Bank (Report No. 51881-TZ).

70. ———. 2010. African Infrastructure Country Diagnostic. Tanzania's Infrastructure: A Continental Perspective. Country Report. Washington, DC: The World Bank.

APPENDIX 1

TERMS OF REFERENCE FOR CONSULTING SERVICES

1. Background

1.1 Transport contributes about 6-7% of Tanzania's GDP. The draft White Paper on Transport Policy (NTP) of Tanzania [26] emphasizes that investment in the transport sector has a multiplier effect to the economy and plays a major role in facilitating access to administrative and socio-economic infrastructure and promote the well-being of society. The Government of Tanzania aims to develop «efficient and cost-effective domestic and international transport services to all segments of the population and sectors of the national economy with maximum safety and minimum environmental degradation». The NTP mirrors Government's long-term aspirations stipulated in Vision 2025, the Millennium Development Goals (MDGs) and the National Strategy for Growth and Reduction of Poverty (NSGRP I (2005/06-2009/2010) and NSGRP II (2010/11-2014/15)) also known in Swahili as Mpango wa Pili wa Kukuza Uchumi na Kuondoa Umaskini Tanzania or MKUKUTA I and II. The core objective is to improve the levels of services, at low costs in a manner, which supports government strategies for socio¬economic development whilst being economically and environmentally sustainable.

1.2 The Government of Tanzania has a 10 Year Transport Sector Investment Program (TSIP) for the period 2007/08 to 2016/17, which includes all modes except pipeline. The Road Sector Development Program (RSDP), which was launched in 2001/02, has been integrated into TSIP. The strategy for the transport sector is to reduce costs and increase service standards by investing in infrastructure, especially in the road sub-sector, promoting modal efficiency, enhancing competition and recovering some of the costs from users.

1.3 The transport system in Tanzania consists of five modes, namely road, rail, water, air and pipeline. The TSIP has medium and long-term goals for the specific transport subsectors giving more emphasis on the road subsector which serves 70% of freight and 90% of passenger movement [27] in Tanzania. The transport system, in addition to supporting national economic development, acts as a vital transit network for the neighbouring landlocked countries of Malawi, Zambia, Uganda, Rwanda, Burundi and the Democratic Republic of Congo (DRC).

1.4 GOT has reformed the transport sector including the formation of regulatory authorities, semi-autonomous agencies and the privatization of some operations. The reform is geared towards ensuring that the transport sector effectively contributes to economic growth and poverty eradication in the country. Various parastatals, namely, Tanzania Railways Corporation (TRC), Tanzania–Zambia Railways Authority (TAZARA), Tanzania Ports Authority (TPA), Tanzania Airport Authority (TAA) and Tanzania National Roads Agency (TANROADS), The Roads Fund Board are in charge of the coordination of their respective operations. The responsibility for trunk and regional road has been transferred to TANROADS while the Ministry of Regional Administration and Local Government through the local authorities is responsible for district, feeder and urban roads.

1.5 The transport sector has been identified as one of the priority areas for AfDB intervention in Tanzania in the Country Strategy Paper (CSP 2011-2015) under Cluster I on Infrastructure Development, the Regional Integration Strategy Paper (RISP 2009-2012) under Pillar I on Regional Infrastructure both consistent with the Medium-Term Strategy of the Bank (2008-201 and within the context of the Millennium Development Goals (MDGs) and MKUKUTA II. In order to guide future interventions in the sector, AfDB plans to recruit a consultant to conduct a review and undertake a diagnosis of the transport sector. The consultant will be supported by AfDB staff as per the details in Section 4.

2. Objectives of the Study

2.1. The primary objective of the study is to prepare comprehensive prioritized recommendations (actions) and

[26] United Republic of Tanzania, Ministry of Communication and Transport, 2003, p.I
[27] Cordula Thum, Findings from a World bank Transport Sector Mission to Tanzania, May 3-14, 2004.

necessary strategies for AfDB interventions in the transport sector, encompassing both physical transport infrastructure gaps and reform recommendations for transport services in the following subsectors:

- roads (both rural and urban);
- railways;
- aviation;
- pipeline; and
- water transport. In so doing, the consultant should take into account AfDB's and other donors' past interventions and experiences.

2.2. The secondary objective shall be achieved in the process of attaining the primary objective, is to undertake a detailed review and assessment of the current and projected passengers and goods transport demand, the size and condition of the existing transport infrastructure and transport services (rural and urban) in each subsector including ongoing and planned intervention by GOT and other funding agencies based on available information. This will encompass analyses of strengths and weakness of subsectors in responding to economic and social demand coherent with the country's macro-economic environment.

2.3. In addition, in view of the results of this consultancy and to ensure consistency, the consultant should also review and asses the transport sector policy and strategy, the role, structure and capacity of the institutions/organizations responsible for the transport subsectors, the operations and regulatory framework and the current road sector financing arrangements, including the scale and structure of current user charges, public sector sources at national and sub-national levels, cost recovery, oversight and performance of the dedicated Funds, and capacity for cost-sharing at local levels. This also includes the assessment of regional transport sector policy, strategy and commitments as well as domestic construction industry.

3. The Scope of Work

3.1. The scope of works consists of, but not limited to, the following main tasks, each of which includes a number of sub-tasks:

a. Overview of the Transport Sector

3.2. This task focuses on the transport sector in general and by sub-sector. The consultant shall review reforms and existing legal frameworks, institutional and managerial arrangements, (sub-) sector policies, financing and cost recovery, regulatory framework and organisation of co-ordination and monitoring and identify weaknesses if any and make proposals for remedying the identified weaknesses. The consultant shall outline legal requirements, actions and required support to effect essential further reforms including the enhancement of private sector participation.

3.3. Review of Transport Sector Policy Issues: The focus of this sub-task is to identify the key transport policy issues facing Tanzania. It consists of a review of the Government's policy papers and statements and of consultations with the concerned regional, national and local authorities. The objective is to analyse national sector goals, objectives and constraints, determine the adequacy of the policy environment and advise on appropriate policy changes. In this exercise, the consultant shall cover areas which include but not limited to the following:

- Macro-economic policies;
- National transport sector objectives;
- Taxation and budgetary criteria applied to the transport sector;
- Restructuring of public-owned transport enterprises;
- Sub-sector reforms;
- Role of the private sector and role of the public sector;
- Private-public partnerships;
- Commitments to regional and international transport agreements;
- Inter-modal operations and coordination;
- Operation and maintenance policies;
- Rural accessibility; and
- Domestic construction industry.

3.4.Review of the Current Legal Framework: This sub-task will consists of a brief analysis of the laws and regulations of relevance to the transport sector, from the point of view of policy, institutional and operational implications. The review will also cover compliance of the domestic laws with regional, continental and mul-

tilateral and bilateral agreements of relevance to the transport sector, and identify any shortcomings in this regard.

3.5. Overview of the Transport Sector Institutions: This sub-task will furnish an overview of transport sector entities, and an analysis of their roles, functions and responsibilities. The purpose is to provide a concise framework for improving the functioning of the sector. Attention shall be given to institutional capacity to undertake transport sector planning, needs assessments, prioritisation, budgeting, implementation and formulation of improvement projects. It shall also include reviewing issues such as staff policies, user involvement, commercialization and use of the private sector.

3.6. Financing of Sector Investments: This sub-task will identify all current and planned commitments and the availability of resources within the transport sector, for all modes, at all levels including financing of rural roads. The income/funding, and their forecasts, should include all sources: the domestic, public financing, external financing, and private sector investment if any. The review shall include the demand and deficit of transport sector financing for the sustainability of the sector to provide the adequate quality of transport infrastructure and services. The need for subsidy requirements, and the issue of tariff regulations, should be identified and analysed. Attention shall be paid to the performance and effectiveness of sub-sector budget support.

3.7. AfDB and Other Donors Interventions: This particular sub-task provides information on the effectiveness of transport sector support in Tanzania. The consultant shall review and analyse AfDB's and other Donors' past interventions and learnt lessons in the transport sector. The lessons learnt will be a useful base for the formulation of a strategy for future interventions.

b. Transport Infrastructure

3.8. This task refers to the review and assessment of transport infrastructure by sub sector. This will include the review of standards, types, size, capacity and conditions of transport infrastructure, maintenance demand and capacity, financing resources and constraints. It also assesses interconnectivity and identifies critical transport infrastructure gaps to meet the existing and future transport demand in the country and at regional level.

3.9. Road Infrastructure: This sub-task will review the size and current state and condition of the road network categorised in hierarchy of trunk and regional roads, rural roads and urban roads, traffic flows, status of interconnectivity, and bus and lorry stations/terminals. The Dar-es-Salaam traffic challenges shall be reviewed in particular identify short, medium to long-term interventions recommended in the just completed Dar-es-Salaam Transport Policy and System Development Master Plan financed by JICA. The consultant is expected to assess network connectivity gaps, maintenance requirements, maintenance capacity and maintenance financing including the sufficiency of financing from the Road Fund. Special attention shall be paid to missing links on regional corridors meant to link Tanzania with the EAC, SADC and COMESA countries in view of the tripartite agreement between the three RECs.

3.10. Railway Infrastructure: This sub-task focuses on the review of rail gauges and current state and condition of the railway network, capacity, passenger and freight traffic, railway stations, connectivity with ports and interconnection with neighbouring countries' railways networks. It will also assess connectivity gaps, maintenance requirements, maintenance capacity and maintenance financing constraints. A review of the recommendations of the recently finalized study on the East Africa Rail Network highlighting relevant actions for the Tanzania network.

3.11. Maritime Transport Infrastructure: This sub-task focuses on the review of sizes, number, capacities and conditions of Sea and Lake Ports including handling facilities, general storage, waste disposal facilities, safety infrastructure and navigation aids, and connectivity with railway and road networks. It will also asses maintenance requirements and financing constraints, and identify the demand for port rehabilitation, upgrading or new construction.

3.12. Airport Infrastructure: Under this sub-task, the consultant is expected to make the review of airport infrastructure (terminal, runways, aprons and related facilities) under different categories including conditions and capacities to handle passenger and freight traffic. The consultant should also assess maintenance requirements and constraints, and identify needs for upgrading, rehabilitation, expansion or new airport.

3.13. Pipeline: This sub-task refers to the review and assessment of pipeline network type, conditions and capacity including the demand for expansion.

c. Transport Services

3.14. Road Transport: The consultant is expected to make a review of issues related to transport services, overload controls, licensing and registration, and border crossing and clearance issues for domestic and international transit traffic. This task will involve operational aspects of the transport services management and delivery systems. The consultant should identify major issues and propose strategies to improve the efficiency and regulation of road traffic, and improvements in road safety. This sub-task covers the review of the function and efficiency of road transport operations and administrative procedures, governing participation of private sector operators in the delivery of transport services. Financial and fiscal issues, subsidies, loans, taxes, duties, tariff setting, road safety issues etc. will be reviewed. The consultant is also anticipated to look into the following particular transport issues:

1. National Transport: vehicle fleet, size and distribution of freight and passenger vehicles, historical trends of passengers and freight transport services and expected future transport demand, vehicle operating costs, employment in transport, tariffs for public and private operation, access to vehicles, spare parts and fuel.
2. Rural Transport: transport patterns and needs of the population including access to facilities and services such as schools, health centres, water and markets, vehicle operating costs, frequency of transport services, and tariffs for rural transport services.
3. Urban Transport (main cities mainly Dar es Salaam and Arusha): transport patterns and needs of the urban population, problems of urban mobility including traffic congestion, safety and environmental issues, public transport services, public transport vehicle fleet, public transport vehicle operating costs, frequency of public transport services, tariffs for urban transport services and access to residential areas, work places, facilities and services. The recommendations of the Dar-es-Salaam Transport Policy and System Development Master Plan shall be reviewed and short to medium-term interventions identified. The study shall also review the organizational structure of public transport in the major urban areas, explaining the role and responsibilities of entities /companies, and discuss the legal relationship between each public sector entity involved in public transport provision.
4. Road Safety: Current road safety trends shall be reviewed and compared to regional trends and safety levels. Identify weaknesses in the existing institutional set up for road safety activities and propose further reforms, where required to improve road safety.

3.15. Railway Transport: This sub-task refers to the review of railway transport services which include but not limited to the type and conditions of permanent ways, rolling stock, historical trends of passengers and freight transport services and expected future transport demand, tariffs for passenger and freight operations, private sector operations, non-railway activities, customs and immigration services arrangements for inter-modal interfacing.

3.16. Ports and Water Transport: Under this sub-task, the consultant is expected to review ports and water transport services which include but not limited to vessels categories (size, tonnage, goods carried), ownership, historical trends of passengers and goods carried and expected future transport demand, maintenance facilities and tariffs.

3.17. Air Transport: The sub-task focuses on the review the services provided by each airport related to but not limited to the type and condition of aircraft fleet, historical trends of passengers and goods carried and expected future transport demand, operating aircrafts, passenger and freight forwarding and handling capacity and tariffs.

3.18. Pipeline : The consultant is expected to review the types and volume of products carried and tariffs.

d. Sector Strategy for AfDB

3.19. In light of the gaps identified to meet the current and projected transport demand and the experiences and learnt lessons obtained from AfDB and Donors past transport interventions, the consultant shall prepare comprehensive prioritized recommendations of actions and define strategies for AfDB interventions in the sector. Particular attention would be given to formulating a strategy for the transport sector encompassing both physical transport infrastructure and service gaps in each sub-sector that contributes to poverty alleviation in line with AfDB's vision and the NSGRP.

4. Work Plan, Expertise and Evaluation

4.1. The sector review is expected to be conducted over a period of three months (66 working days) commencing on 1st January 2012. The assignment will be initiated through an inception mission in which the consultant will be assisted by AfDB's resident transport engineer in Tanzania who will act as project coordinator.

4.2. The overall work plan of the assignment comprises the following:

- an initial input of about six weeks for inception and data collection in Tanzania;
- a second input covering the remainder of the services; three weeks for report writing in Tanzania, one-week mission to Tunis to present the Draft Final Report, and two weeks for conducting the validation workshop and finalizing the report in Tanzania. The consultant with the assistance from the Project Coordinator in Dar-es-Salaam will organize a Tripartite Meeting [validation workshop] with relevant Government Agencies to present and discuss the draft report. The consultant will incorporate comments from the Bank and the Tripartite Meeting [validation workshop] and submit the Final Report.

4.3. At the completion of the assignment the consultants' outputs will be evaluated based on the following criteria:

- Professional competence;
- Analytical, reasoning and communication skills;
- Reliability; and
- Quality of work produced.

5. Reporting

5.1. The consultant will present an Inception Report within four weeks of starting the assignment. The Inception Report shall include initial findings based on the data collected and review undertaken in the field, and shall outline the methodology and work plan and any other pertinent issues for the execution of the assignment. The Inception Report shall provide the proposed outline of the final report for discussion with the Bank. The consultant shall submit ten (10) copies of the draft transport sector review report within two and half months for comments by the Bank and stakeholders.

5.2. After taking into account the comments of the Bank and the validation workshop the consultant will prepare ten (10) copies of the Final Transport Sector Review Report and five (5) CD-ROM of the source files of the report, maps pictures, etc. for submission to the Bank. Typical annexes in the report include but are not limited to the following:

1. Map of the country showing principal features of the transport sector.
2. Basic country data including selected social and economic indicators.
3. Performance indicators for the sector and main subsectors.
4. Other technical information such as vehicle operating costs, tariffs, user charges and supporting analytical tables, as required.
5. Public expenditure in the transport sector
6. Action plan for implementation of the sector strategy
7. Terms of reference of the review.
8. List of documents consulted.

6. Facilities

6.1. The consultant can use the Bank's facilities for the assignment at the Field Office in Tanzania and Head Office in Tunis including office if available.

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