

*Intermediate Technology Consultants (ITC)
WSP International*

Networking with members of the

International Forum for Rural Transport and Development

***Methodology for the rapid
assessment of rural transport
services***

**The rapid assessment of rural
transport services in
Iringa Region, Tanzania**

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1. EXECUTIVE SUMMARY

The World Bank's Sub-Saharan African Transport Policy Program (SSATP), is developing a methodology for rapid assessment of rural transport situation in a country to analyze the affordability of the rural transport services and the institutional and legal environment for the provision of such services, the target being passenger and freight transport for distances of 5-200 km, encompassing much rural transport, but excluding within-village transport and long-distance national transport and international corridors.

A British-based consultancy firm ITC, working in association with WSP and members of the International Forum for Rural Transport and Development (IFRTD) was assigned to develop the methodology and test it in four countries (Burkina Faso, Cameroon, Tanzania and Zambia). The methodologies developed by the consultants include interviews with stakeholders (transport users, providers, suppliers and national authorities), and traffic and movement surveys in selected parts of the countries.

This report contains the findings of a study undertaken in Iringa region of Tanzania to test the methodology.

The country's policy on Rural Transport includes improvement of rural transport infrastructure, promoting the use of non-motorised transport, organizing the rural households to contribute (through participatory approach) to improvement of the infrastructure and encouraging the private sector to participate in the provision of competitive and affordable rural transport services to rural communities.

The legal and regulatory framework exists for rural transport services and includes annual inspection and licensing of all types of vehicles mandatory insurance and timetable for passenger service vehicles. Speed limits have been set at 50km/hr and 80km/hr for buses in the urban and rural areas respectively. The enforcement of the regulations is weak. Barriers are found on certain places for checking adherence to regulations but on many instances they are ineffective, as the culprits will be left loose after giving a bribe to the enforcing persons. However, the amounts involved are not significant and the operators do not complain much about them.

Iringa region is located in the Southern Highlands of Tanzania with varying topographical conditions ranging from flat low lands (altitude 500 m) to mountainous highlands (altitude above 2,500 m). Average annual rainfall ranges between 500mm (in the lowlands) to 2000mm (in the highlands). A detailed survey on rural transport services was done in Kilolo district but the study covered the whole region in terms of obtaining (in estimates) basic information of rural transport services.

Rural transport infrastructure includes regional, district, feeder and unclassified roads with a total of 6,730 km. About 50% of the network is in poor condition. Motorized transport in rural areas of Iringa is limited and provided by old vehicles (buses, 4x4s pick-ups and station wagons, and lorries). The fares charged differ depending on condition of roads and distance (USD 1.5 for 35 km on rough road Vs USD 2.0 for 65 km on good road).

Farmers transport their produce in small quantities using animal drawn carts, bicycles and head loading to village centers. Traders in villages use bicycles to transport commodities from the district centers to their shops. Sick people are transported on bicycles and stretchers to health centers and if referred to higher-level hospital then they have to use public transport from the nearest village where there are public transport services. The teachers working in remote areas walk for many hours to reach the schools and so do the other staff such as agriculture extension officers and health workers. Most of them gave a

reason of low income for failing to own a means of transport such as a bicycle or a motorcycle selling for between USD 65 and 85 for bicycles and USD 1,400 to 2,000 for cheapest motorcycles (Chinese make- 125cc).

Bicycles are used for long travel of up to 50 km by men mostly. Very few women use bicycles and the reasons given include cultural and the 'inbuilt feeling' that the bicycles are properties of men. Interview with some women revealed that they could use them if they own them.

Walking is very common to both women and men. The distances they walk range between 5 km to 20 km but in rare cases the distance can be up to 40 km. Reasons for walking even on roads that have motorized transport was given as low income.

Animal drawn carts are common in the low lands where the terrain is flat and rolling. These are programmes funded by donors to promote animal drawn carts and the progress in the last four years of the programme is encouraging. However, there are incidences of mis-communication that have led to abandonment of the carts in some villages (near Ilula market center).

Pack animals (donkeys) are used in certain areas of Iringa region (Makete district). They were introduced some 20 years back through a donor funded project and have increased from about 120 in mid 90's to 600 at the moment. Their demand is increasing.

A railway line passes in some parts of Iringa region (Zambia – Tanzania Railways - TAZARA). There are a few stations in the rural areas but the rural community does not use it for their daily travel needs. They use its service when they wish to travel long distances.

People living along the shores of lake Nyasa in the southern part of Iringa region use boats to travel along the coastline of the lake. Due to limited time, the study team did not get detailed information on this transport mode.

The findings of the study may be summarized as follows:

- There are clear policy directions on rural transport and they are being implemented in Iringa region to a certain scale.
- There is a legal, regulatory and institutional framework controlling rural transport services. However, the enforcement of the regulations is weak.
- The low income of the rural community impacts on affordability of the transport services in the rural areas.
- Bad road conditions discourage the private sector to provide rural transport services. The high operation cost of the vehicles due to the bad condition of roads makes the business unprofitable.
- The high costs of bicycles and motorcycles compared to the income of the workers has resulted in low ownership levels of bicycles and motorcycles amongst the workers in the rural areas. Prices could go down considerably if the import duties and VAT charged on them (25% and 20% respectively) will be abolished or lowered.

2. SURVEY BACKGROUND AND METHODOLOGY

The methodology used in this survey was developed in 2005 by an international team that included the author of this country report. The World Bank's Sub-Saharan African Transport Policy Program (SSATP) contracted the British-based consultancy firm ITC, working in association with WSP and members of the International Forum for Rural Transport and Development (IFRTD) to develop a methodology for the rapid assessment of rural transport systems. The guidelines specified passenger and freight transport for distances of 5-200 km, encompassing much rural transport, but excluding within-village transport, long-distance national transport and international corridors. Under the contract, a multidisciplinary team met in Ethiopia in April 2005 to devise the survey methodology. Four National Experts and the Team Leader implemented the methodology in Burkina Faso, Cameroon, Tanzania and Zambia. The team reconvened in Kenya to review the methodological lessons and national findings.

Rural transport systems operate on hub and spoke systems at several levels. Key hubs are provincial towns, market towns and villages. The various spokes and hubs have characteristic combinations of transport, including trucks, buses, minibuses, pickups and intermediate means of transport (IMTs). The methodology includes a survey of transport types, operators, users and regulators at sampled hubs and spokes, stratified by hub hierarchy and remoteness. The methodology requires one month to implement and provides a rapid overview of rural transport systems, highlighting key constraints, stakeholder views and proposals for improvements.

A region, representing about 5% of the country, is chosen where the transport catchment area corresponds approximately to administrative boundaries. Within this area, interviews are held with the regulatory authorities (local government, police) at provincial, district and village levels. Operators, suppliers and repairers of transport devices (motorised and motorised) are interviewed and operating costs and fares recorded. Interviews are conducted with users (and potential users) of transport including farmers, traders, employees, household managers, school authorities, pupils, health service providers, patients and marginalised people. Five interviews (at least two with women) are needed per stakeholder category and are stratified for isolation. Traffic counts (including pedestrians and IMTs) are carried out on selected provincial, market and village spokes on market and non-market days.

The report author (not enumerators) undertook all the semi-structured ('rapid rural appraisal') interviews. As the survey progressed, information from different sources was triangulated and anomalies investigated. The survey guidelines stress the importance of poverty focus and crosscutting gender, safety and HIV/Aids issues. Complementary national level document reviews and interviews were undertaken to ascertain the positions of key institutional stakeholders, the policy and regulatory frameworks and the availability of relevant data. Full details of the methodology and the data sheets used are available in the project inception report (Starkey, 2005). This is available as an additional annex to this report, but for reasons of space has not automatically been included as part of this country report.

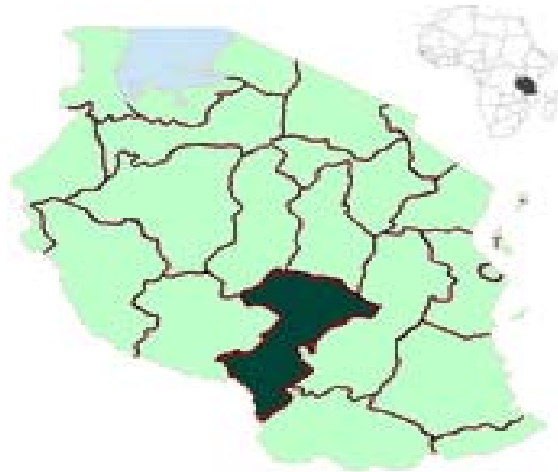
In undertaking the methodology, in Iringa Region the author travelled approximately 500kilometres and undertook approximately 50 interviews with a wide range of stakeholders. Traffic counts were arranged on three types of roads, with counts on both market and non-market days, in locations where there was a significant market-day effect.

- One provincial spoke: Iringa to Kilolo]
- Two market spokes: Kilolo to Lulanzi and Kilolo to Lukani
- Four village spokes: (outside the villages of Lulanzi and Lukani)

Because of the limited time and resources due to having to do the study in two areas of Tanzania, the area chosen was nearer to and on one side of Iringa. It was agreed to reduce the methodology to fewer interviews, less stratification of remoteness and replication. The results are therefore for a part of Iringa rural district (Kilolo area)

3. INTRODUCTION TO THE SURVEYED AREA

Iringa region is situated in the southern highlands of Tanzania and it lies between latitudes 6°54' and 10°30' south and longitudes 33°30' and 37°00' east. It borders with Singida and Dodoma regions in the north, Mbeya region in the west, Morogoro region in the east, Ruvuma and lake Nyasa in the south.



Map of Tanzania showing where Iringa region is located

3.1 Area, Terrain and Topography

The region covers an area of 58,936 sq. km of which 56,864 sq. km is land area and 2,072 sq. km is water body. About 73% of the total area is an arable land, and the rest is grazing land, game reserves, forest reserves and wetland. The topography varies significantly within the region with the highland zone characterized by mountainous and undulating terrain with attitudes between 1600 – 2700 m above sea level, the midland zone characterized by scattered mountain hills and flat areas with swamps and ponds, altitudes of between 1200 to 1600 and the lowland zone lying mainly in the rift valley characterized by flat and undulating topography with altitudes of 600 to 1200.m.

3.2 Administrative Arrangements

Iringa region is administratively divided into six districts, namely Iringa, Kilolo, Mufindi, Njombe, Makete and Ludewa which are further sub-divide into 33 divisions, 138 wards, 703 villages as shown in the Table 1 below:

Table 1. Iringa Region administrative arrangement

DISTRICT	DIVISIONS	WARDS	VILLAGES	ADMINISTRATIVE TOWN
Iringa Municipal	1	14	3	Iringa
Iringa Rural	6	32	109	Iringa
Mufindi	5	28	133	Mafinga

Njombe	7	25	210	Njombe
Ludewa	5	22	73	Ludewa
Makete	6	17	98	Makete
Kilolo	3	12	77	Kilolo
Total	33	138	703	

3.3 Population and Settlement Pattern

According to the 2002 census, the region's population for Iringa is 1,495,333 people with the growth rate of 1.5%. The distribution of the population varies within the economic activities with the highest concentrations in urban areas in the districts.

Table 2. Area, population and number of households in the districts of Iringa Region

DISTRICT	AREA SQ.KM	AREA (%)	POPULATION (2002)	POPULATION (%)	HOUSEHOLDS
Iringa Rural	20,576	35	246,000	16	56,680
Mufindi	7,123	12	283,000	19	66,060
Njombe	10,668	18	420,000	28	98,830
Ludewa	8,397	14	129,000	9	27,730
Makete	4,128	7	106,000	7	27,670
Kilolo	7,881	13	206,000	14	45,340
Iringa Urban	4,287	7	107,000	7	24,510
Total	58,936	100	1,497,000	100	346,820

3.4 Climate and Seasonality

The climate of Iringa region varies from semi-and warm tropical type of climate to cool high tropical type of climate depending on the topography. The rainfall regime in the region is semi-arid / uni-modal with rains falling between November and May. Over two thirds of the region enjoy evenly distributed rains during the rain season. In the drier area of the Region, the pattern is broken by a period of lesser rainfall in January and February. The severity of the mid- season drought varies from year and present a major risk factor for agricultural production.

The driest areas are Isimani and Pawaga divisions in the north of the region at the altitudes around 500m. In these areas the average annual rainfall is 500mm with pattern of high annual variance. Conversely, at an altitude of 2,000m to 2,500m in the southern highland (Kitulo in Makete) rainfall is as high as 2,000mm. Rainfall in intermediate zones falls between these extremes.

Temperature varies with altitudes; the hottest temperature of 28°C in November is recorded at Mtera in the lowland north of the region. The lowest mean values of below 0 degree (Kitulo) occur in the mountainous areas between July and August.

These climatic variations within the region cause considerable variations in the life pattern and activities of the Iringa population.

3.5 Ethnic Diversity and Religious Makeup

The major tribes in Iringa region are the Wahehe and Wabena, Wakinga, Wasagara, Wamasai, Wabarbaig and Wasukuma. The last three being immigrants to the region. Christianity and Islam are the two religions dominating in the region.

3.6 Agriculture

The region is predominantly rural with more than 80% of its population depending on agriculture. The main food crops cultivated in the region are maize, beans, paddy, peas, potatoes, and sorghum while the major cash crops are coffee, tobacco, sunflower, pyrethrum, tomato and onions. Horticultural farming is common in the wetlands. Flowers are cultivated in some parts but not to large scale. In some years, the agriculture sector has been affected by drought and more irrigation schemes are being initiated throughout the region.

3.7 Major Economic Activities

The other main economic activity in the region is livestock keeping which provides employment to about 9% of the population. The main livestock owned is cattle, pig, goats, sheep, donkeys and poultry.

Other economic activities are fishing, forestry, mining and trading. Trading is done in the villages and during market days at specific locations, on specific dates all round the region. These markets attract large number of the communities living near the locations and the traders travel from regional/district center to the markets.

3.8 Brief Information on Service Provision

The social services in the region are provided by the local governments with support from the central government, the private sector and donor agencies. The status as of the education and health facilities in the region is as follows:

3.8.1 Education

There are 812 Primary schools, 66 Secondary schools ('O' Level), 16 High Secondary schools ('A' Level) and one University College. While the Primary schools are at village and ward levels, the Secondary schools are mostly in towns and large villages and the High Secondary schools in towns. The University College is in Iringa town.

The mean distances to primary and secondary schools as obtained from the population census of 2002 is 1.5km and 12.7 km respectively.

3.8.2 Health

The table 3 below shows the number of health facilities in the region and ownership of the different types of the facilities:

Table 3: Health facilities in Iringa Region

Type of health facility	Government owned	Voluntary organization owned	Privately owned
Hospitals	5	6	2
Health centers	18	9	1
Dispensary	163	56	37
Total	186	71	40

Only 63% of the population lives within a distance of six (6) km from a dispensary/health center and the mean distance to a hospital is 18.9 km.

3.9 Mobile Phone Coverage

There are three mobile phone service providers offering the service in Iringa region (the same is so for the whole country). The mobile phone services (by all three companies) is very good in main towns of Iringa, Mafinga, Makambako and Njombe and their surrounding areas (about 15km from their centers) and also in the villages that lie along

some sections of the trunk roads. Some remote areas such as Makete have a mobile phone service from one service provider. Most of the other rural areas have no such service.

3.10 Electricity Coverage

Electricity supply in the main towns is steady and the source is the national electricity power grid (hydroelectric). Generators are used in smaller towns to provide electricity for individual uses (few cases). Records show that only 6% of the households in Iringa region are connected to the electricity grid.

3.11 Seasonality

The weather and climate for the most part of the region is such that there would be some agricultural and other economic activities all year round. Although the harvest season for major agricultural produce is during the months of May June and July, the horticulture and livestock businesses are continuous throughout the year. The transport demand for the agricultural produce increases during the harvest time but for passenger travel is almost same throughout the year with variations on the dates of the month, more people traveling during end of months (collection of salaries from district centers, etc). Demand for travel to 'monthly markets' is also the same throughout the year

4. SURVEY RESULTS

4.1 Policy and Regulatory Environment in Rural Transport Field

The following chapters discuss the various policies, strategies and regulatory framework in the country that relate to rural transport:

The National Transport Policy- 2003

The Rural Transport Policy Directions in the National Transport Policy are to:

- Improve rural transport infrastructure
- give development of rural infrastructure a deserving emphasis during planning and allocation of transport resources at the national level;
- involve the communities in infrastructure planning, financing and maintenance;
- development of capacity in terms of skills and other resources to enhance quality of infrastructure;
- to increase public and private sector investment in village and district access roads;
- organizing the households through participatory approach to contribute to the improvement of their infrastructure;
- encourage use of non-motorised means of transport (NMT);
- sensitise the use of NMTs among women in rural areas
- encourage private sector participation in the provision of competitive and affordable rural transport services to rural communities.

National Development Vision – 2025

The National Development Vision – 2025 sets the long term development goal of the country as to raise the standard of living and the quality of life of the people through the enhancement of both the productive and non-productive sectors of the economy from the present level per capita Gross Domestic Product of about USD 210 to the level of typical medium developed country, with an estimated per capita Gross Domestic Product of USD 2,500.

National Strategy for Growth and Reduction of Poverty (NSGRP)

The National Strategy for Growth and Reduction of Poverty (NSGRP) adopted by the government in 2005 provides overall guidance and a framework for coordination and supervision of the implementation of policies and strategies for poverty reduction. However, the low level of individual incomes, particularly in the rural area a greatly

undermine quick achievements. This coupled with absence of a conducive environment for the private sector investment has affected investment in physical infrastructure, particularly transport infrastructure.

The NSGRP focus is therefore to put emphasis on poverty reduction by way of increased investment in the development of human resources, enhancement of productive sectors especially agricultural productivity, improvement of infrastructure, promotion of private sector development, enhancement of competition, environmental sustainability, good governance and ensure the sustainability of the overall improvement in macro economic stability. The development and/or improvement of transport infrastructure and services are therefore crucial to the attainment of these objectives.

In view of these problems, transport sector development is indisputably a critical factor and an impetus to poverty reduction.

Rural Development Policy (RDP)

The main objectives of the rural development policy are the achievement of a broad based, widely shared and dynamic rural economic growth and eradication of poverty, consequently raising the living standards of the rural population.

The Road Act (Draft)

The Roads Act 2003 (now in draft form) aims at reviewing and repealing the Highways Ordinance Cap 167 last amended in 1969 to bring it up to date. The original Act as amended by Amendment Act No 40 of 1969 did not allow for the financing and management of road works and thus making it difficult to identify adequate resources to develop the road network in the country. The draft new Act recognizes the Roads Tolls (Amendment) No. 2 Act of 1998 establishing the Roads Fund, and which specifically caters for the source of funds for the maintenance of the whole classified road network. The Act further recognizes the Executive Agencies Act, 1997 that established the Management Advisory Boards for TANROADS at National Level. In repealing the Highways Ordinance the Act seeks to establish the National Roads Board at National and Regional level to cater specifically for the network development and management with the service purchaser on one hand while the service provider becomes the Road Fund Board on the other. It furthermore establishes clear relationships with other stakeholders within the domain of the sector thus setting responsibilities to each of the users of the roads network. The Act clearly specifies that the Central Government (MoW and PORALG) is handling the administration of the roads network in the country while other institutions (TANROADS, LGAs and others that may be established) as managing the roads network. The role of administering the road network is different from the role of managing the same. The first has control over the network while the later makes the decisions as what to do on daily basis.

The draft Roads Act has also provided for 'community roads' earlier known as 'unclassified roads' which will link villages to villages and will be of short distances. This will ensure that these 'community roads', which are crucial for rural movement, are recognized and cared for.

Regulatory Environment

The surface and maritime transport sub-sector is regulated by the Surface and Maritime Transport Regulatory Authority (SUMATRA) which has been recently established to take over from many regulatory bodies that existed before. The authority has many roles including licensing of operators, setting of standards and ensuring that there is a level playing field for operators to provide transport services.

Rural transport service is regulated to some extent by licensing the vehicles that provide the transport services. The types of vehicles that are licensed are the buses that are designed to carry passengers. The bush taxis (pickup/4x4 trucks) are officially not for passengers and therefore are not licensed although they are known to be providing the transport service to people in the rural areas. Similarly, the trucks that are providing services similar to bush taxis are not licensed for carrying passenger. There are no any regulations controlling the use of Intermediate Means of Transport and Non- Motorised Transport.

Safety of rural transport services users is not a big concern to the authorities as there is little motorized traffic in the areas and the roads conditions are such that the speeds of the vehicles are low. However, there are cases of road accidents in the rural areas including those involving cyclists and animal drawn carts. The following table provides a summary of the Policy and Regulatory Framework in the country and the survey area:

There are very few barriers on the rural roads to check on regulatory matters and are not effective due to bribery, However the amount involved in bribery is insignificant and is not affecting the transporters.

Table 4. Summary of policy and regulatory framework relevant to rural transport

Policy and Regulatory Framework Checklist				
Study Location: Iringa Region				
Date: June/July 2005				
	Exists	Implemented		Remarks
		National	Survey area	
Policy				
Is there a National Transport Policy? If so does it address rural transport issues?	Yes	*****	***	The policy was launched in 2003 and its implementation is encouraging.
Is there a Poverty Reduction Strategy Policy (PRSP)? If so, does it address rural transport issues?	Yes	*****	*****	The recent NSGRP emphasizes on rural transport improvement
Does a Rural Travel and Transport Policy (RTTP) exist?	Yes	*****	In small scale	The rural transport policy is contained in the National Transport Policy
Does a road fund exist?	Yes	*****	*****	Allocates funds to all classified roads but not to the community roads
Does decentralised road funding exist?	No			
Agriculture policies relevant to rural transport	Yes	*****	*****	Agriculture Development policy provide directions on improving rural roads for evacuation of crops
Gender policies relevant to rural transport	No			
HIV/Aids policies relevant to rural transport:	No			
Environment policies relevant to rural transport	No			
Regulatory frameworks				

Freight regulation				
Freight fare regulation	No			
Route regulation	Yes	*****	***	The regional transport licencing authority allocates routes to buses
Tax incentives	No			
Freight Safety				
Speed limits	Yes	*****	**	With few vehicles in the rural areas the police are ignoring such issues as speed limits
Prohibition of passengers	Yes	*****	**	Lorries and pickups are not allowed to carry passengers
Loading	Yes	*****	**	Axle load limits are not enforced in the rural areas
Axel load control	Yes	*****		There are no vehicles weighbridges in rural areas
Vehicle licensing	No			Annual licences have recently been abolished
Driver regulation	Yes	*****	*****	Drivers are allowed to drive freight vehicles when holding classes 'C' and 'D' driving licences.
Public transport regulation				
Price fare regulation	No			The country has adopted a free market policy
Route regulation	Yes	*****	*****	Number of passengers and timetable
Tax incentives	No			
Licensing	Yes	*****	*****	The buses have to be licenced annually after undergoing a roadworthiness test.
Public Transport Safety				
Passenger numbers	Yes	*****	***	Most of the buses operating in rural areas carry more passengers than allowed.
Speed limits	Yes	*****	**	
Safety belts	Yes	*****	*	Only the driver and passengers on the front seat of a vehicle are supposed to put on safety belts. Passengers in a bus are not compelled.
Loading	Yes	*****	***	The number of passengers is limited to number of seats
Driver regulation	Yes	*****	*****	Drivers are allowed to drive passenger

				vehicles when holding a class 'C' driving licence. .
IMT regulation				
Safety	No			
Prices	No			
Vehicle licensing	Yes	* * * * *		Only passenger services vehicles are licensed.
Incentives	Non			
Animal Welfare	Yes	* * *	*	
Other Issues				
Vehicle regulation				
Import regulation	Yes	* * * * *		
Specifications	Yes	* *		
Vehicle Testing	Yes	* * * * *	*	
Other operator costs (road tolls and other levies)	Yes	* * * * *	* * * * *	Fuel levy of approx. USD 0.8 per litre is collected for funding road maintenance
Road safety (infrastructure)	Yes	* * * * *	*	Axle load control is effective.
Driver licensing regulation	Yes	* * * * *	* * * * *	
Local government bye laws	Yes		* *	To control overloading
Local fines	No			
Terminal fees	Yes		* * *	
Local road groups				
Formal Driver / Owner Transport Association	Yes			
Informal Frameworks e.g. Cartels				
Informal Driver / Owner Transport Association	Yes			
Public / private competition - does this exist?	No			The government has pulled out of doing business
Informal road checks	No			
Local road groups	No			

Note: Since implementation is seldom an all-or-nothing case, a star rating has been used, with five stars indicating major implementation, one star minimal implementation, and blank meaning no implementation.

4.2 Views of Key Informants (Stakeholders)

The views of the key informants on policy and regulatory framework are as follows:

National Authorities:

- The policies recognise the problems of rural transport and do provide an environment for the private sector to be involved in solving the problem.
- The enforcement of the regulations is weak. Regulations are under many authorities.
- Lack of policy leads to lack of direction. There is a need for a comprehensive Rural Transport Policy

National Authority responsible for PRSP:

- Poor rural transport service is regarded as among the main contributing factors to poverty. The failure to address rural transport problems in a systematic manner is due to lack of clear policy on rural transport.

- The Poverty Reduction Strategies include improvement of rural transport infrastructure and services

Regional Authority:

- There are regulations pertaining to transport services covering the routes allocations, types of vehicles for different services and the regional licensing authority is mandated to ensure compliance by the services providers.
- As a move to encourage the private sector to venture in the transport sector, road licenses on cargo trucks have been abolished recently but passenger buses are still charged. It is important to regulate the transport industry but not to control tariffs.

District Authority:

- There are local bye-laws for preserving rural transport infrastructure (limitation of weights) but their enforcement is weak. Reasons for weak enforcement includes fear of services providers pulling out since the businesses are not very profitable.

Police:

- There is a shortage of police officers to enforce the traffic laws and regulations effectively.
- Despite the fact that the condition of most of rural roads is bad, there are accidents that happen in the rural roads and involve both motorized and non-motorised traffic. The weak enforcement is encouraging reckless driving.

Transport Associations:

- Transport Users/Providers associations have not been fully involved in the process of formulation of the policies and some of their concerns have not been taken aboard;
- There is need to recognize and licence other vehicles (pickups/4x4/lorries) to provide public transport services in certain parts of the country where the roads are in bad condition and buses can not provide services.

Financial Organisations:

- There is a need to reconsider the conditions of credits for rural transport related businesses as the current conditions are not conducive and make it impossible for repayment of loans

Donors/World Bank:

- The existing policies and strategies on road management are somehow unclear especially on roles of various institutions as well as the community.

4.3 Road Network and Condition

The Iringa region classified road network and its condition is as shown in Table 5 below: The trunk and regional roads are managed by the Ministry of Works through the Tanzania National Roads Agency (TANROADS) and the urban, district and feeder roads are under the jurisdiction of local governments.

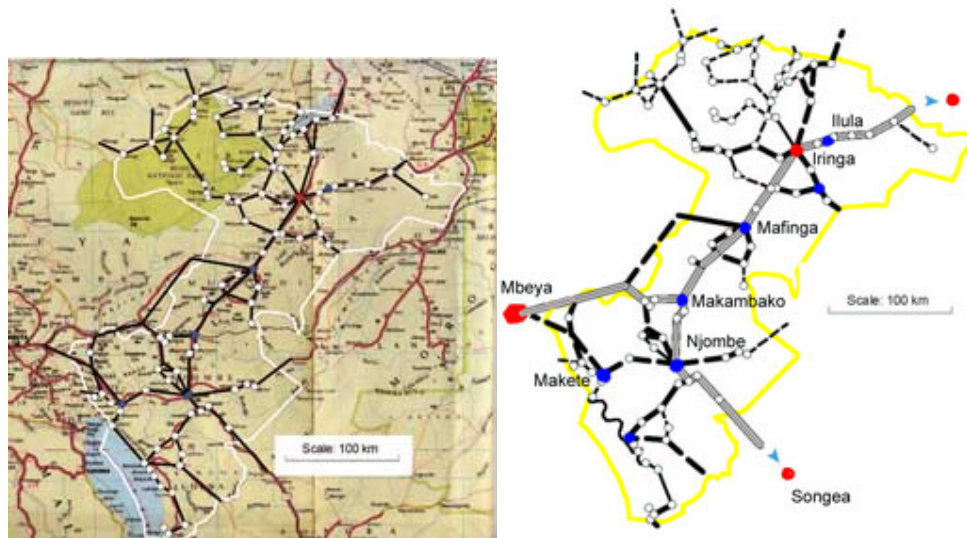
Table 5: Road network in Iringa region (classes and conditions)

Road Classification	Surface type	Length	Condition
Trunk	Paved	479	Good
	Unpaved	396	50% good, 30% fair and 20% poor
Regional	Paved	2.4	Good
	Unpaved	1,024	30% good, 40% fair and 30% poor
Urban	Paved	20	Good
	Unpaved	275	40% good, 40% fair and 20% poor
District	Unpaved	2,190	26% good, 28% fair and 46% poor
Feeder	Unpaved	2,340	
Total		6,726	

The main trunk road from Dar es Salaam to Lusaka Zambia (TANZAM Highway) crosses the region connecting it to the neighbouring regions of Morogoro to the west and Mbeya in the south west and is an important road serving as a transit route for cargo destined for Zambia, Malawi and Southern part of the Democratic Republic of Congo (DRC). The other trunk roads connect the region with the neighbouring regions of Dodoma to the north and Ruvuma, and Rukwa to the south and west respectively.

Most of the regional roads are all weather (passable throughout the year) and are linking the district headquarters of the region and some important places with the trunk roads. The condition of district and feeder/community roads varies from good (recently rehabilitated) to very poor. Some of these roads are impassable during the rain season and difficult to travel on during dry season.

The main transport hubs in the region are towns of Iringa, Mafinga, Makambako and Njombe where traffic is distributed to other areas of the region. These towns have controlled (regulated) bus terminals managed by the relevant district authorities.



A map of Iringa region showing the main towns of Iringa, Mafinga, Makambako and Njombe and the direction of the roads out of each town

4.4 Other Transport Services

Other transport services available in the region are:

Railway services serving selected few towns on the Tanzania Zambia Railway (TAZARA) route. This rail service is not really serving the rural as it stops at defined stations that are not necessarily where people live; Boat services in Lake Malawi serving the town of Manda and a few villages around it. The water transport in this area is considered by some of the villages as the only means of accessing other areas, as there are no roads connecting some of the villages along the shores of the lake to other villages.

A quick estimate of main transport facilities offering services in rural areas in the region (after visiting some main hubs and enquiring from various sources in each district) with estimates of their values and capacity is given in Table 6 below.

Table 6: Estimates of the transport fleet operating in the Iringa Region.¹

<i>Transport type</i>	<i>Estimated numbers</i>	<i>Unit value (USD)</i>	<i>Overall value (USD)</i>	<i>Unit capacity No/ kg</i>	<i>Overall capacity No/ kg</i>
Trucks	75	12,000	900,000	5,000 Kg	375,000Kg
Buses (+20 seats)	26	8,000	208,000	50 persons	1,300 persons
Minibuses	45	4,500	202,500	18 persons	810 persons
Rural taxis	32	2,000	64,000	15 persons	480persons
Motorcycles	260	900	234,000	2 persons or 70 kg	520persons or 18,400 kg
Carts	8,200	200	1,640,000	500 kg	4,100,000kg
Bicycles	65,000	50	3,250,000	1 to2 persons or 50 kg	65,000 to 100,000 persons or 3,000,000kg

From the statistics overleaf, it will be seen that the value of NMTs in the region is around USD 4.89mill, well above the value of the motorized vehicles which is around USD 1.6mill. and the amounts of loads they carry is significantly higher than their counterparts

4.5 The actual rural transport setting

The study on rural transport in Iringa region was concentrated in Kilolo District. The study covered the area that had all the features of a rural area including a market town, villages and homesteads. The villages covered under the study are Lulanzi (10,300 people) and Lukani (7,540 people) being 6 km and 10 km respectively from the market town of Kilolo. The village spokes from the two villages to homesteads (Kihesa, Isele, Lugalo and Pomelini) are feeder/community roads (tracks) of widths ranging from 2.0 m to 3.0 m all being in bad to poor conditions. This area is not a representative of the whole region. As noted earlier, Iringa region has diverse features of different terrain conditions and topography.

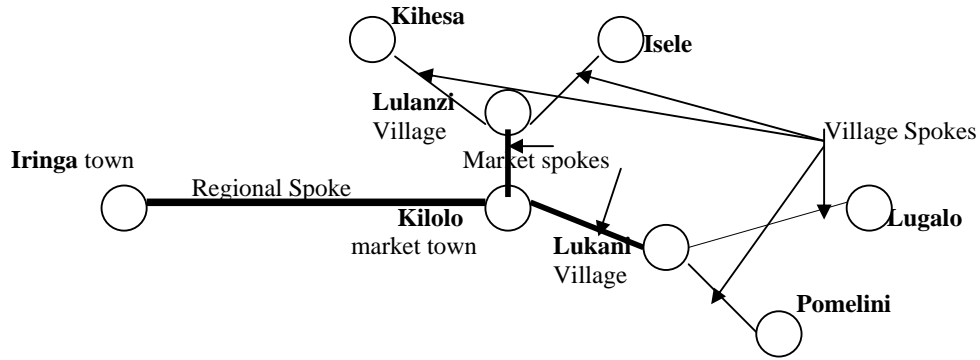
The traffic surveys on these village spokes on both the normal and market days showed that there were very few motorized vehicles and people travel on these spokes mostly by walking (men and women in almost equal numbers) and on bicycles (mostly men and very few women). Reasons for women not using bicycles for transportations were provided as the culture of considering that bicycles are for men who are considered to be the owners of home properties. The hilly terrain could also be considered as an obstacle to women using bicycles, as it requires a bit of stamina to be able to ride them on such terrains. The NMTs are very few and may be considered as non-existent. Head loading by women is used in transporting small loads and heavier ones transported by men on bicycles.

The market town of Kilolo is the district headquarters with a population of about 17,000 people. The market spokes from Lulanzi and Lukani villages are district earth roads of 3.5 m to 4 m wide on fair to bad conditions. The movement on these spokes on normal and market days is also mostly by walking (both men and women in almost equal number) and bicycling (mostly men and very few women.). There is a bus service to the village of Lulanzi (market spoke) but there is no public service vehicles on the other market spoke to village of Lukani. The few trucks seen on the spokes were mainly for collecting produce from the villages and transporting them to far distances (more than 200 km). Only one animal drawn cart was seen on a market day.

¹ . Notes: estimated based on field observations and figures obtained from the District Engineers and population census report.

These figures are for vehicles mainly used for transport of people and goods within the area on a year-round basis. They exclude national and international level long-distance services, within-village transport, fleets of vehicles of any large companies that do not provide transport services (e.g., cotton export or forestry industries) and vehicles that only enter for seasonal markets.

The provincial spoke was the road from Kilolo market town to Iringa town, the regional headquarters of Iringa region. This all weather gravel road is a regional road in fair to bad condition. Walking was again observed as the way people use to travel on this spoke although there were a bit less men walking compared to women and many of these without a load. The traffic on the road is mainly lorries of more than 3 tons and buses of different sizes. Pickup trucks, 4x4 vehicles for transporting passengers and goods were observed as well as government vehicles.



Sketch showing layout of different spokes in the study area

4.6 Existing transport services in the area

The transport services in the area are provided by the private operators who own buses (large, midi and mini) and bush taxis (pickups, 4x4s). Trucks are used to move people and their goods for trade purposes during the market days. Bicycles are mostly used for private journeys but on few occasions they are rented for transporting people and goods.

The provincial spoke from Iringa to Kilolo continues to other towns along the regional road beyond Kilolo. The buses and bush taxis (totaling four and five in number respectively) go beyond Kilolo. Only one bus plies on the market spoke from Kilolo to Lulanzi on a once per day trip basis. People from other areas away from the regional road have no access to public transport services and have to walk or use bicycles to reach them.

The summary of the traffic levels of different types of vehicles and NMTs as recorded during the two surveys carried out (one on a normal day and another on a market day) is shown in the Table 7 below. The tables with more details of the traffic counts are appended as annexes to this report.

Table 7: Summary of Traffic levels on the different spokes

Vehicle /NMT	Regional Spoke		Market Spoke (Average of 2 spokes)		Village Spoke (Average of 2 spokes)	
	Non market day	Market day	Non market day	Market day	Non market day	Market day
Trucks - less than 3 tonnes	6	4	2.5	3	0	1
Trucks - more than 3 tonnes	18	26	2	3	1	2
Buses (more than 20 seats)	10	14	1	1	0	0
Rural taxis - Mini bus (less than 20 seats)	6	6	0	0	0	0
Rural taxi – pick ups	12	14	2	0	0	0
Rural taxi - cars, 4x4s	4	4	1	2	1	2
Government / NGO -car / pick ups/	10	16	1	2	1	2
Government / NGO - trucks	3	0	1	1	0	1
Private - car, pick ups, 4x4s	9	12	0	0	0	0
Pack / riders animals (donkeys, camels etc)	0	0	0	0	0	0
Animal drawn carts	0	0	2	2	2	2
Wooden wheel Barrows	0	0	0	0	2	6
Bicycles	140	390	65	175	42	65
Motorcycles	5	20	6	12	4	2
Pedestrians	288	176	150	369	72	153

Figure 1 below is a histogram showing the numbers of different types of vehicles plying on the different spokes on a non-market day.

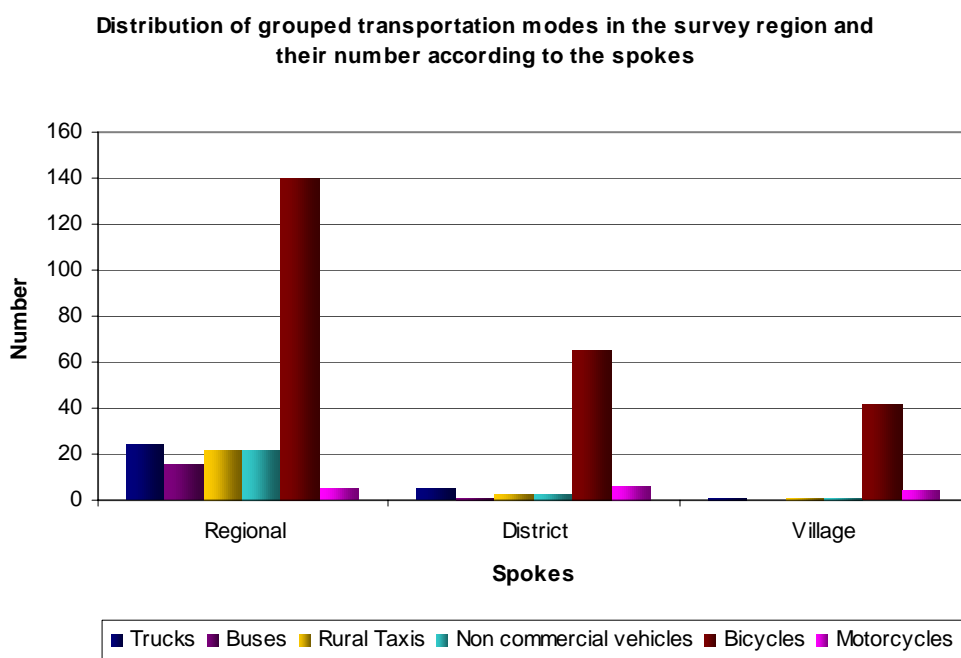
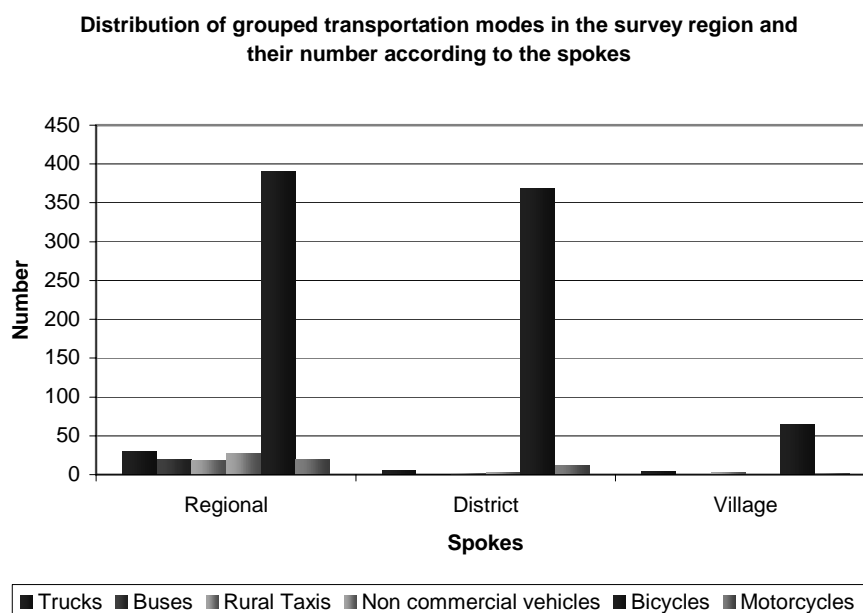


Figure 2 below is a histogram showing the numbers of different types of vehicles plying on the different spokes on a market day.



From the above figures, it is clear that the most used means of transport in the area surveyed is bicycles in all the spokes. Motorised transport is almost non-existence in the market and village spokes.

During the surveys, it was observed that many people walk for distances between 5km and 20km. There are cases of people walking very long distances of up to 70 km but these are rare. The histogram in Figure 3 below compare the total number of people travelling (average of market and non-market days) by using NMT (walking and cycling) and using motorised transport.

It will be seen that while more people travel using motorised transport in the regional spoke, more people walk and cycle in the other spokes.

Comparison of travel means (walking, cycling and motorised transport) in the survey area on different spokes

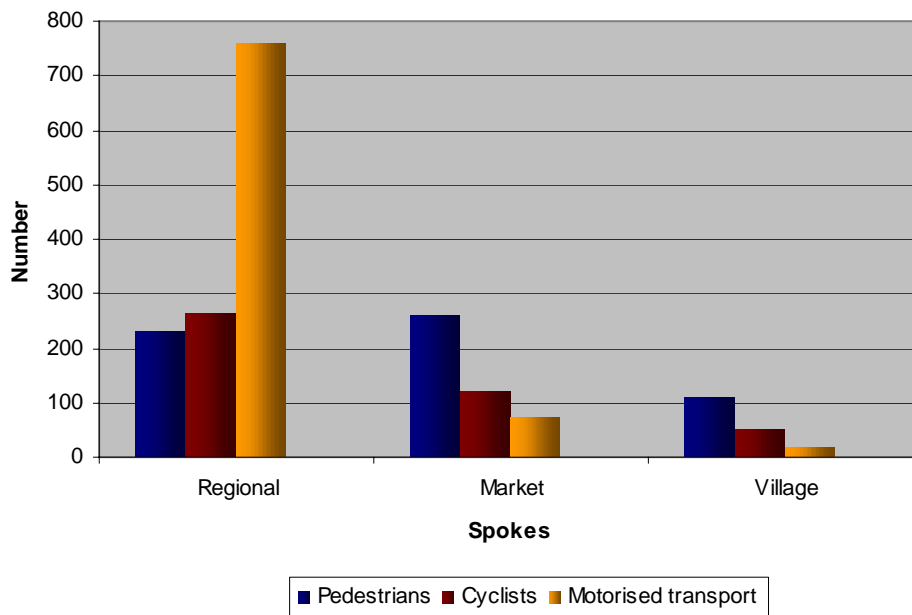


Figure 3: Movement of people by NMTs and Motorised transport in the different spokes

4.7 Demand for Rural Transport Services and User Perspectives

The various user groups were interviewed to ascertain their demand for rural transport and it was vivid that almost all the users were dissatisfied with the transport services in the rural area and called for intervention by the authorities to improve the situation. The following were comments given by the different users:

4.7.1 Farmers

Farmers in the survey area have dependants ranging from 3 to 6 and travel for various reasons including going to their farms, going to markets to sell their produce as well as buying commodities, going to health centers and visiting relatives. Due to lack of motorized transport and their low level of income many of them walk and a few cycle every day for distances of up to 15 km. Very rarely, once in two months or so, some walk or cycle between 3 km to 10 km to villages on the regional road where there is public transport (buses or bush taxis) to go to Iringa town. The regional road is a gravel road in bad condition and the vehicles hardly drive at 30kph. The distance from Kilolo to Iringa is 35 km and the fare is TShs 1,200 (US\$ 1.1). Many cannot afford the fare and therefore they only go to Iringa if it is very necessary. The farmers feel that if transport services in the area were more reliable their incomes would increase as they could transport their produce to areas, which would offer better

prices. A number of them spend from 25% to 50% of their income for transport related costs. There was a general comment that the transport services are getting better.

An old woman who is a farmer (about 65 years) found at a bus stand in Iringa said she had to walk to Iringa from a village 12 km away to visit her daughter, a teacher in Iringa town because she had no money, TShs 500 (US\$ 0.4), for the bus fare. She was waiting for a bus because the daughter gave her some money for the fare back home.

The telephone services are not available to the farmers living in the rural areas. They were not sure if they could benefit from the services if made available, as they were small-scale farmers and not producing large quantities of agriculture produce. They do not consider them as necessary.

4.7.2 Traders

Traders in the survey area have between 1 and 4 dependants and they do travel in most cases going to the town of Iringa to buy goods for trading. Other reasons for traveling include visiting relatives and going to health centers/hospitals. Only one out of 4 traders interviewed owned a bicycle which he uses to travel short distances for visiting relatives. They use different means of transport. For those residing in villages not along the regional roads they travel by bicycles (5km to 15 km) to the regional road and take buses and bush taxis once per week to go to Iringa to buy goods for their trade. They afford the fare but consider the transport services available as not reliable since they sometimes fail to travel due to unavailability of buses and bush taxis (broken down or too full) In their opinion, the cost of transporting goods from towns to villages is high thereby making them realize very minimal profit. They spend about 25%-50% of their incomes on transport. Although the phone services are not available in the area the traders live, they believe that they are important and could save them time and money since they could be contacting the wholesalers in Iringa to know availability of goods and prices.

4.7.3 Employees

The employees interviewed included an extension officer, a teachers and a nurse. These walk daily within the villages for various reasons including going to work places and visiting friends, and at least once a month from their stations to Iringa town for official business (including collecting salaries and sending reports) Speaking on behalf of other employees, the extension officer said they walk for up to 5 km to a place they can access public transport and go to Iringa town (35 km). They find the fare (TShs. 1,500 or USD 1.3) to be on high side and travel costs consume about 25% of their incomes. In their opinion the roads have improved and transport services have increased but they experience problem during rainy season as the roads get very bad and vehicles get stuck

A female teacher said that every time the school closes for vacations she walks for more than six hours to a road that has public transport to go to her home village. She said she knew how to ride a bicycle but cannot afford to buy one (low salary) She said that if there were credit facilities for buying a bicycle she would own one.

In the opinion of the nurse, phone services will help them in their work by getting timely assistance from the higher-level hospitals when required (emergencies and attending patients in critical situations).

4.7.4 Financial services users:

The people in the survey area are not 'financial services users' as such as their income is not high and have had no credit schemes from the banks. For those who use them (mostly employees who receive their salaries through the banks) have to plan their travel in a manner that they would be able to find

the banks and other financial institutions open and if possible go back to their stations on the same day. It is almost impossible for such an arrangement due to the timing of the public transport services and it is very often necessary to sleep in towns for two days. There are instances that the salaries are delayed and the employees in the rural areas are not made aware. They travel to towns only to be told that they cannot get their salaries until after a week or so. They believe that telephone services, if made available, would help them in getting such information and save them time and money.

4.7.5 Students:

The primary school pupils walk to schools. The distances are not long as there are primary schools in every village (or in few occasions in every other village). There is no any organized transport for the school children and sometime they fail to attend classes during rain season. The students attending secondary schools and colleges outside their villages stay in campus and travel about four times a year (during vacations) going to schools and to their homes. The traveling is mostly by walking a few kilometers (3 to 7 km) to a place where public transport is available.

4.7.6 Health users:

Traveling to health centers is mostly by walking and using bicycles. In some places, the long distances to the health centers make it difficult for the sick people to walk and are transported by bicycles (more often being taken by relatives/friends at no cost and on rare cases paying for the ride). There are no specific bicycles serving as taxis or for hire in the villages but are being introduced in small and large towns. The very sick persons have to be transported on locally made stretchers carried by four people. No ambulances were seen in the survey area and when patients have to be referred to bigger hospitals then they have to be transported by the bush taxis and buses. Many patients find it difficult to meet the costs of public transport.

A nurse in a dispensary at Kilolo confirmed that she has to use her own money sometimes to pay for the fare of both the sick person and herself when she has to refer cases to Iringa regional hospital. Some posters on a health center at Kilolo showed patients (a pregnant woman) being transported on a bicycle to access clinic services. This is to discourage long distance walking by the sick.

4.7.7 Household managers (housewives):

The transport needs of housewives in the rural areas are to take sick children and old people staying with them to health centres and visiting relatives. As already explained above, the means of travel to health facilities is by walking and use of bicycles. When a need to travel long distances to visit relatives arises, then they have to walk for distances ranging from 5 km to 15 km to access public transport. Such visits are done very rarely due to their low income and have difficulties meeting the transport costs. Otherwise, their daily needs are obtained within their neighbourhoods and the poor transport services in rural areas have less effect to them.

4.7.8 Transport for socio-cultural reasons:

Due to the difficulties in accessing of transport services, the villagers limit their movement to only necessary journeys, This make them fail to participate in the socio-cultural events that take place far from their homes. When they have to, then they walk up to distances of 20 km and are forced to spend nights away from their homes as many socio-cultural events take place in the evenings and at night.

There are large markets (called 'gulio') that are organized at different places in the rural areas and these take place once per month at specific locations. While they provide business opportunities for the locals, these markets are also considered as social gatherings and many villagers travel from long

distance of up to 20 km to visit the markets. Most of them walk and a few (mostly men) use bicycles. The traders at the markets travel using lorries with their commodities.

4.7.9 Excluded people – old, handicapped, socially marginalized:

The longest travels the handicapped do is to access hospitals and very rarely (with support from their families) attend family affairs (weddings, funerals, etc.) Accessing hospitals is very hard to those living far from health centers and they have to be assisted by relatives who have bicycles. No tricycle was seen in the survey area and the reason given was affordability. They are too expensive for the handicapped in the rural areas. Old people travel mostly for medical purposes and rarely to visit relatives. They are respected by the young people and are offered seats when the buses are over full. There socially marginalized such as HIV patients are not discriminated by when traveling in the rural areas. They are considered as sick people and are offered seats.

4.7.10 Passengers on a bus:

While the buses have a timetable to follow, the operators mostly delay the start of the journeys waiting for the buses to be full. An interview with passengers on a bus at Iringa bus terminal revealed that the passengers did not seem to mind on the waiting time as they felt that they are not in a hurry to reach their homes. Out of the four passengers interviewed, only one (a trader) was unhappy with waiting for passengers to fill the bus. When asked whether he could be willing to pay more if a bus was to be on time, he hesitated and replied, “Yes when I have the money.” He said he uses about 25% of his income on transport related expenditures. On phone services, he wished they could be introduced in the rural areas but was not sure if he could afford the costs.

4.7.11 Passengers in a rural taxi:

A lady passenger in a rural taxi (a 4x4 land rover station wagon) that travels from Iringa to Kilolo complained on the way they are crowded in the car (a total of 16 people) but was kind of happy that she will reach her home before dark. The fare charged is the same as the bus but the taxi is offering the service in the afternoon while the bus does that in the morning hours.

4.7.12 Pedestrians:

A lot of people in the survey area (both men and women almost in equal number) walk long distances for various reasons including going to work places, to buy commodities from the shops, visiting relatives, accessing health facilities, etc. While there are no public transport services in the villages away from the regional road and reasons given in such areas were lack of the services, there were also a good number of people walking on the regional road where there are transport services (buses and rural taxis). The reasons given in these cases were affordability problems.

A pedestrian interviewed along Iringa – Kilolo regional road said he walks 14 kilometers daily (7 km each way to and from work place) because there was no affordable transport for him. The bush taxi charges Tshs 500 (US 45 cents) one-way, a rate he could not afford. His income as a casual worker was TShs 1,300 per day (US 1.1 \$). He said he wished there was a credit scheme for him to get a bicycle.

4.8 Rural Transport Services, Operator Perspective, Technologies and Costs

As mentioned before, the rural transport services in the region is provided mainly by private operators owning buses (different sizes), bush taxis, trucks (mostly of capacity below 5tons) and in certain areas (on flat terrains) animal drawn carts. Bicycles are mostly used for private purposes but in limited cases are hired to villagers. Donkeys are used as pack animals in a specific area (Makete)

where they were introduced through a rural transport project some 20 years ago. Motorcycles are mostly used by government workers (extension services staff, ward executives, etc.).

On barriers and demand for bribes, the operators interviewed said that while there were many barriers before and various authorities including the police, natural resources and cooperatives were checking the vehicles and demanding bribes, this is not the situation now and such barriers are very rare. Although there are a few cases of police checks for various reasons, the demand for bribes has decreased considerably and even when such demand arises, then the amounts offered are minimal.

The vehicles (buses and bush taxis) providing services in the rural areas are old (some being more than 25 years old) and many in poor state. They struggle through the bad roads and some have frequent breakdowns. The same is true for trucks which are used to transport traders to markets. The only trucks in good conditions are those which collect farm produce from villages for transporting them to far distances (300 – 500 km). Most of the bicycles that are used in rural areas are old and missing some important components as front brakes, mudguards, pedals, etc.

An analysis of the operation costs of the different types of the vehicles and other transport means mostly used in the survey area is shown in the following table 7. It will be seen from the analysis that the profit realized for transportation business in the rural area is very low and in some cases (the buses and rural taxis) it is seen that the operators make losses. This raises questions as to why they still do the business but can also be giving the answer to why there are no investors attracted in the business.

The pie chart in Figure 4 below shows the breakdown of the annual expenditures by a bus operator. Fuel ranks first followed by maintenance.

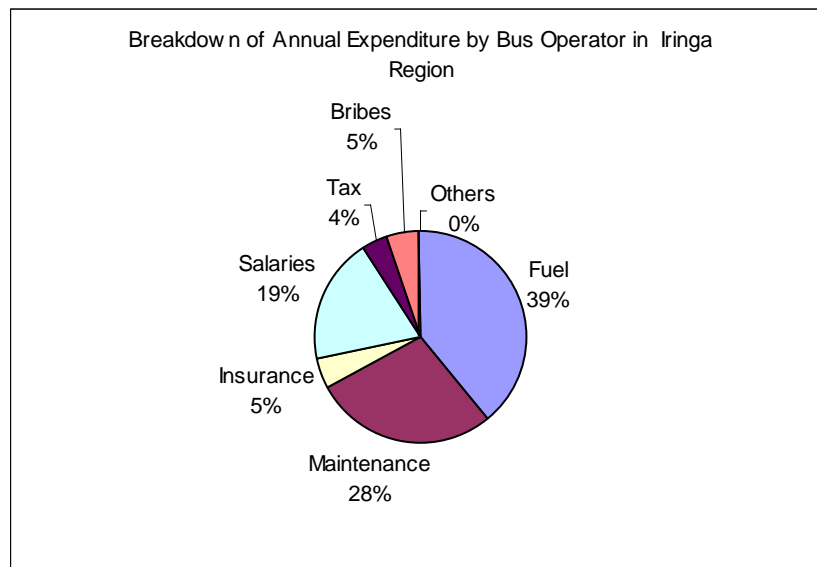


Table 8: Operator costs summary for commonly used means of transport in the survey area

<i>Mode</i>	<i>Distance / yr (km)</i>	<i>Passengers or freight carried / yr</i>	<i>Initial costs (USD)</i>	<i>Vehicle Life Expectancy (yrs)</i>	<i>Depreciation Cost (USD)</i>	<i>Fixed Annual Costs (USD)</i>	<i>Variable Costs / yr (USD)</i>	<i>Total Costs /yr (USD)</i>	<i>Cost per km (USD)</i>	<i>Tariff / passenger or freight / km (USD)</i>	<i>Typical load (pax or tonnes)</i>	<i>Income / km (USD)</i>	<i>Estimated profit per km (USD)</i>	<i>Estimate annual profit (USD)</i>
Trucks - less than 3 tonnes	20000	900	7900	5	1,580	585	5,620	7,785	0.39	0.22	2.5	0.55	0.16	3215
Trucks - more than 3 tonnes	25000	3328	16500	7	2,357	1015	8,400	11,772	0.47	0.16	7	1.12	0.65	16228
Buses (+20 seats)	27000	16800	18000	5	3,600	780	15,210	19,590	0.73	0.03	45	1.35	0.62	16860
Rural taxis (pick up trucks, minibuses, cars)	18000	4800	3000	5	600	197	3,060	3,857	0.21	0.03	12	0.34	0.13	2314
Bicycles	3750	1	80	8	10	0	65	75	0.02	0.05	1	0.05	0.03	113

Fixed costs	<i>Trucks less than 3 tons</i>	<i>Trucks more than 3 tons</i>	<i>Buses more than 20 seats</i>	<i>Rural taxis (pick up/estate/4x4)</i>	<i>Bicycles</i>
Insurance	220	300	330	72	0
Income tax	300	550	290	60	0
Other costs	65	165	160	65	0
Total	585	1015	780	197	0
Variable costs					
Fuel & oils	1,400	2,600	9,360	980	10
Tyres	740	1600	1600	350	25
Spare parts	880	1100	1500	650	25
Salaries	2400	2800	2600	960	0
Other costs	200	300	150	120	5
Total	5,620	8,400	15,210	3,060	65

4.9 Support Services For Rural Transport Services

The support services for the providers of the rural transport services that were studied included the supply of the facilities (vehicles, bicycles, spare parts) and the repair services of the facilities.

4.9.1 Supply

The source of vehicles that provide rural transport services (always second hand vehicles) was found to be the Government departments and parastatals, missionaries (through auctioning of aged vehicles) and private large transporters who changed their fleet after so many years of use. There was no any operator who had a new vehicle which was providing rural transport service. The low return from investments in the sector could be the main reason for the private sector not venturing in it. The few operators who provided information on the costs vs. income for their transportation businesses had different views on the profitability of the business. Some were very negative saying they are incurring loses in provision of services or are making enough profit for them to survive and not getting surplus for new investment while others were positive saying that they could make enough money to be able to buy another vehicle (second hand) after periods of between 18 and 24 months.

Motorcycles are not very popular in the rural areas. The extension officers and health workers use them to move to their work places. Very few ordinary persons own them. The reasons given by some transport users for not having motorcycles was affordability and the high costs of operating them. The current prices of cheapest motorcycles in Dar es Salaam (Chinese type ZONGSHENs) of capacity 125cc are TShs. 1.2 mill (USD 1,100) for the ‘CG’ type and TShs. 1.9 mill (USD 1,650) for the ‘off road’ type which is more ideal for rural transport. Import duties on motorcycles are 25% and a VAT of 20%. The dealer of the motorcycles confirmed that there are arrangements for credits to employees through The Federal Bank of Middle East but no any arrangements have been negotiated for similar scheme for farmers.

New bicycles are available in the main towns within the region at different prices for different models. Second hand bicycles from outside Tanzania (mostly the mountain bikes types) are also available in Iringa town. A few centers in the town of Iringa have bicycles of different types for hire at a price of TShs 200 (USD 0.18) per hour or TShs2,000 (USD 1.8) per day. The mountain bikes which have no seats for cargo are considered more luxurious and hired out at TShs 3,000 (USD 2.6) per day.

Table 9: Price of different models of bicycles in Iringa town as compared to Prices in Dar es Salaam

Type of bicycle	Price in Iringa (TShs / USD).	Whole sale Price in D’Salaam (TShs / USD)
Phoenix (new)	80,000 – 89,000 / 70 – 78	73,000 / 64
Avon (new)	63,000 –70,000 / 55 – 61	56,000 / 49
Mountain bikes (Second hand)	50,000 –55,000 / 44 – 48	43,000 / 38

The import duty imposed on bicycles and spare parts is 10% and the VAT is 20%. This translates to 35% of the price of the bicycle.

Animal drawn carts are used mostly on the flat lands in northern part of Iringa. These are produced by a Vocational Centre (VETA) in Iringa town at a cost of around TShs.250,000 (USD 240). The cost of oxen and donkey for pulling the carts stands at TShs. 80,000 (USD 70) and TShs. 45,000 (USD 40) respectively. A Village Travel and Transport Project (VTTP) is being implemented in parts of Iringa Region. Animal drawn carts are among the NMTs that are being promoted in the region through the VTTP.

At Ikuvala village near Ilula market town, the villagers claimed that they were instructed not to pass the animal drawn carts on the rehabilitated roads because the four-legged animals destroy the roads. A number of deserted carts were seen near the homes of the villagers and some villagers said that they sold their donkeys because they found them useless.

The study team contacted the District Engineer (DE) using a mobile phone, to enquire on the truth behind the story. The DE refuted by saying that the villagers were told not to pull ploughs on the roads when they go or come back from their farms and they had misinterpreted the instruction. He undertook to ensure that the villagers are properly informed. However, three months later, the study team enquired and found that the villagers had not heard from the DE and the carts are still grounded

Pack animals (donkeys) were introduced in Makete district of Iringa region in the late 80's through the Makete Integrated Rural Transport Project (MRITP). The donkeys have multiplied substantially with an increasing demand. The demand cannot be met at present due to the high cost of the donkeys, which many households cannot afford. The prices range from TShs 160,000 to TShs 200,000 (equivalent to USD 140 to 185) depending whether it is a male or a female, the latter being more expensive. The normal price of donkey in other parts of the country is between TShs. 30,000 and 50,000 (USD 25 to 45). There are now more than 600 donkeys at the moment while the figure during the closure of the MIRTTP in 1996 was about 120.

4.9.2 Spare Sparts

Most of the spare parts for most of the makes of vehicles are readily available in the main towns in the region. The fast moving spare parts which are on demand for the types of vehicles serving the rural areas are springs, shock absorbers, ball joints, tie rod ends, steering dumpers, and brake parts. These wear out faster due to the poor condition of the rural roads.

Spare parts for bicycles are available in towns as well as in villages. The fast moving parts are the spokes, wheel bearings, hubs, brakes and sprockets.

4.9.3 Repair shops

Garages for repair of vehicles are located in towns and the operators interviewed did not complain on the services offered by the garages. The garages have experienced mechanics and are equipped with enough tools for carrying out repairs. Most of the garages repair some 15 to 20 vehicles monthly of types that ply in rural areas (trucks, buses, bush taxis) in addition to saloon vehicles that are used in urban areas. The most common repairs undertaken are replacing broken springs, shock absorbers, steering related parts, and brakes. Occasionally, they carry out repairs of the bodies and chassis. Most of the garages do not sell spare parts and prefer that the vehicle owners supply the spares parts required but for those garages which sell spare parts, they sell them with a profit mark up of 15% to 20%. Their opinion is that prices of spare parts have increased and many of the operators are failing to repair their vehicles. The repair business is not seasonal. It is at the same level all year round. There are unregistered garages which provide similar services and the registered garages feel that they make them loose businesses.

Bicycle repair shops are found in most places, in towns as well as in villages. The number of bicycles repaired by the repair shops differs from place to place and range from 3 to 8 per day. The main repairs undertaken are change of spokes, spindles, hubs, steel balls and rim alignment. Spare parts are available in towns and in villages. When interviewed, a bicycle repairer at Ipogoro

suburb of Iringa town confirmed that bicycle usage is increasing in the villages and their use is not seasonal (all year round). The most common types in use are Phoenix and Avon bicycles from China and India respectively. He earns between TShs. 3,500 to TShs. 5,500 (USD 3 to 5) and has been a cycle repairer for about 10 years. Most of his customers are farmers and due to their low income they bargain for the lowest possible cost for maintenance. He had no phone but felt that it could help him to check on availability of spare parts before going to the shops.

4.10 Perspective of Local Informants of Specific Issues Related to Rural Transport Services in the Locality

The different authorities in the region were interviewed and gave their views on the subject of rural transport. The views and opinions are provided as follows:

4.10.1 District Authorities

The district authorities are responsible for planning of programs related to rural transport but are facing acute shortage of funds to meet their expectations. They receive funds from the Roads Fund for maintenance of the district and feeder roads but these funds are only about 30% of the actual maintenance requirements. Some donors are assisting in solving the rural transport problems and the district authorities are fully involved in the planning and execution of such programs. Programs of this kind include the MIRTP (1985-1995) and the ongoing DRDP and VTTP.

The authorities know the deficiency in transport services in some of the rural areas. They try to encourage some of the services providers to provide the services in those areas but the service are discouraged by other factors such as low demand and poor infrastructure. In efforts to raise more funds for development and maintenance of rural roads, the authorities have imposed a tax on sale of crops. It is the opinion of the authorities that due to the past and ongoing programs and the presence of the Road Fund the condition of the rural road network has improved. However many roads are still in bad condition and passable only during dry season.

4.10.2 Village Authorities

The village authorities are very concerned with unreliable transport services in the villages. They put the blames on the bad condition of roads and the low income of the villagers that make them fail to meet the transport costs and resort to walking long distances. The authorities in the villages believe that more could be done by the government to solve the rural transport problems. Some of the suggestions put forward are:

- Introducing more NMTs in the rural areas at lower prices or arrange for credit facilities to enable the villagers to own them
- Improve the road conditions so as to encourage vehicle owners to go to villages

4.10.3 Police

The police are responsible to ensure that vehicles providing transport services are road worthy. They are failing to be very strict on enforcement of regulations in rural areas because this will affect most of the old vehicles providing services in the areas. They feel that the bad condition of roads limit the speeds and therefore there are fewer accidents. Statistics obtained from the Iringa Regional Traffic Police Officer show that there are few fatal accidents occurring in the rural roads.

On NMTs, the police complained that cyclists are not following the road safety rules and are careless. They move from one side of a road to another carelessly and sometime getting involved in accidents with motorized transport. They cyclists feel that they have more right in the rural roads. There are no rules regulating the NMTs.

The problem of overloading exists and is discouraged. Overloaded vehicles lose stability and cause accidents. There is a restriction of buses with two wheels at the rear (mostly mini buses) to carry loads on the roof.

4.10.4 Health Managers

The concerns of health managers in the rural areas are the difficulty of transporting the sick to referral hospitals. Most of the health centers do not have ambulances and depend on public transport that is not there in many rural areas. Telephones are not available and communication with district and regional hospitals is very limited. Their recommendations included improving the road conditions to encourage more vehicle owners to provide the services (at affordable prices).

4.19.5 Education - Head teachers

Some of the schools in rural areas are not accessible by motorized transport. There are cases of teachers quitting their jobs because of the transport difficulties they face when they have to go to towns for official or private reasons. Most of the school children are living in the villages and travel short distances to schools. Very few stay far and some use bicycles to schools. There have been no efforts to introduce motorized or NMTs in the villages to transport school children. The low incomes of the parents could have effect on this initiative, as many will not be able to afford the fare.

4.10.6 Transport Associations

The transporters association, which exists in Iringa region, is weak and not very active on transportation in rural areas. It has not been involved much in matters related to rural transport. However, the chairman of the association observed that although the conditions of rural roads have improved considerably and there is more motorized transport in rural areas now, there is less farm produce to be transported. This is due to high costs of farm inputs. The situation exacerbates poverty in rural areas making the farmers fail to afford to pay fares and many have to walk long distances.

4.10.7 Financial organisation

There have not been any credit facilities to assist in solving rural transport problems before but the CRDB bank is now introducing a Small and Medium Enterprises (SME) facility (with softer lending conditions) to offer credits which can be used to solve the rural transport problems. However, the low income of the farmers and low levels of education make the farmers less creative thereby failing to be aggressive in applying for loans (no sense of entrepreneurship). With trade liberalization initiatives taking roots, it is expected that the farmers will be more exposed to opportunities and will become more entrepreneur.

4.10.8 NGO / development programmes

There is still a lot to do to improve accessibility and mobility in the rural areas. The country's weak economy can not provide the required infrastructure and the private sector does not see the opportunities for investing in rural transport services. Knowing this fact, the NGO's and development partners are mobilizing more resources to complement the Government's sources to improve the rural infrastructure so that the private sector is encouraged to provide the transport services. The introduction of NMTs is also being promoted through supports provided by the donors. The USAID assisted in improving rural roads in the past years and currently DANIDA is providing financial and technical support in the areas of rural roads improvements as well as promoting NMTs and capacity building of local communities to improve their local rural infrastructure through the VTTP.

4.11 Commodity and Retail Prices

The prices of commodities in Iringa town and at the end of different spokes were compared and found to be varying considerably on some items. While agriculture produce was cheaper in the villages, the commodities were more expensive in villages. The only reason given by traders was the high transportation costs. This shows how the rural poor become victims of the traders who buy their produce cheaply and sell them the commodities at high prices. The table 10 below provides the comparison of prices at different places.

Table 10: Comparison of prices of agriculture produce and commodities

S/n	Item	Price in Dar es Salaam (Capital City)		Price in Iringa regional HQ		Price at Kilolo District HQ		Price at Lulanzi village	
		TShs	USD	TShs	USD	TShs	USD	TShs	USD
1	Peas – appr. 20kg	25,000	22.5	20,000	18	14,000	12	11,000	9.5
2	Maize–appr.20kg	6,500	5.8	5,000	4	2,500	2.2	1,500	1.3
3	Kerosene - 1 litre	750	0.62	900	0.8	1,000	0.85	1,200	1.1
4	Sugar – 1kg	650	0.57	700	0.6	900	0.8	1,000	0.85
5	Petrol – 1 litre	1,040	0.88	1,040	0.88	1,300	1.17	Not available	

5.0 ANALYSIS AND CONCLUSION

Following the observations by the study team as provided in the preceding chapters, it is clear that there are transport difficulties encountered by the rural communities in Iringa region. This chapter analyses the issues affecting rural transport services and gives recommendations for solving rural transport problems

5.1 Key Issues

5.1.1 The transport situation and trends

The main means of travel in the rural areas of Iringa region is by using bicycles and walking. Motorised transport is available on main roads and although regulated but is still unreliable and in instances dangerous (overloading and bad condition of roads). There is an increasing use of bicycles while use of motorcycles is minimal. Other NMTs such as animal drawn carts and pack animals are available in certain locations of the region and demand for them is increasing. The condition of rural roads is improving as a result of the increasing finances from the Road Funds and the support from the donors.

5.1.2 Profitability and supply issues

The rural transport services providers are not realizing much profit due to the high operation costs (due to bad condition of roads). This is clearly seen from the type of vehicles providing services in the rural areas (old and in poor state). Bicycles hire, although not very common in rural areas, is profitable. While the supply of transport equipment and spares is reliable, the prices for the same is on high side compared to the income of many of the rural communities. The animal drawn carts are produced locally in Iringa (VETA) and in other main towns of Mafinga and Njombe (local manufactures). Donkeys are available in Makete and may also be supplied from the neighboring region of Dodoma.

5.1.3 Affordability and demand

While there is demand for rural transport services, the poverty levels of the rural communities is an obstacle for them to acquire or even pay for transport services. There are frequent incidences

of people walking long distances, even when there are public transport services, because they do not have money to pay for the fare. This is also true for workers in the education, health and agriculture sectors. The health centres require reliable transport services to cater for emergencies and referral cases.

5.1.4 Regulation and associations

There are regulations controlling rural transport services but their enforcement is weak due to fear of the elimination of the few services providers as well as bribery. The transporters association is not active due to many reasons including weak membership level, members having personal interests and undermining the role of the association, and its low recognition by the regulatory authorities. However, the association is playing a 'controlling role' of making the passenger transporters to load by turns and to ply on their routes.

5.1.5 Other key factors influencing

The other factors influencing rural transport services are:

- Lack of credit facilities to rural communities for acquiring transportation facilities
- Lack of 'self help' approach by the rural communities and their leaders to improving accessibility to their areas (roads, drainage structures, tracks and paths). This is necessary as limited financial and human resources capacity of the local governments (responsible for upkeep of district and feeder roads) cannot cope with the demand.
- Taxation on IMTs such as bicycles and motorcycles increases the prices and make them expensive to the rural community.
- Increasing fuel costs make the motorized transport more expensive and unaffordable to many of the rural communities. Fuel costs contribute to about 40% of the total operators' costs

5.2 Cross Cutting Issues

There are various cross cutting issues that should be taken into account when looking at the rural transport situation. These are listed below:

5.2.1 Safety

Safety in rural transportation is not very serious due to bad condition of roads that limit the speed of the vehicles. During the market days lorries are overloaded with cargo and traders going to the market. There are incidences of accidents involving NMTs (especially cyclists) and the police have been reminding the cyclists to be more disciplined when riding on roads. Some cyclist change sides on the road carelessly and collide with vehicles and other cyclists. There are no reported cases of accidents involving animal drawn carts. As for other laws and regulations, enforcement in this area is also weak.

5.2.2 Gender

There is no gender discrimination in the rural transport services as all female and male passengers are treated equally while using motorized transport. There are fewer female cyclists and the reasons as mentioned earlier are cultural (consideration that the bicycle is men's property) and belief that they could lose their virginity. However, this latter belief is currently not considered by many women as the reason. Many feel that they could ride bicycles if they own them. The animal drawn carts are mostly managed by women for transportation of domestic needs and farm inputs and produce. The study showed that both men and women walk for long distances and carry loads (of small sizes) on their heads/shoulders.

5.2.3 Environment

There are no many issues of environmental concerns within rural transport area. Guidelines on environmental management are available and the contractors are supposed to adhere to them

when constructing new roads or maintaining roads. Main issues of concern are the treating of gravel pits and unnecessarily felling of trees alongside the roads. Although dust is very common on unpaved roads and has a negative effect to villagers living alongside the roads, there is no much being done to control the level of dust.

5.2.4 HIV/Aids

The fact that increased accessibility results in higher levels of HIV/Aids cases is also felt in Iringa region. In certain parts of Iringa region (Makete district in particular), HIV/AIDS has hit hard and a large number of both women and men have died leaving many orphans. The reasons given are many and include that of many movements of Makete people in looking for opportunities outside the district. The 'monthly markets' on different parts of the region may also be contributing to increased incidences of HIV/Aids infection as the traders move from one market to another and spend nights in the villages. There were no any campaigns to alert the communities on HIV/Aids at the market visited on 5th July 2005 at Kilolo.

5.2.5 Marginalised people

The old persons are respected in the buses by being given seats if it happens that the bus is over full. There was no any tricycle seen in the rural areas although there were many handicapped persons. The reason for this is again the affordability. Tricycles are more expensive than bicycles. When asked if they have any consideration for the disabled, the drivers of the buses said all they could do is make sure they get a seat and they will not charge for transportation of a tricycle of a handicapped.

5.3 General Implications

5.3.1 Poverty, millennium development goals (MDGs) and rural transport services

The overriding objectives of all the MDGs are eradication of extreme poverty and hunger. The poverty situation in the rural areas is fuelled by unaffordable and inefficient transport services. With improved and affordable transport services the farmers will be able to get better prices for their produce and the prices of commodities will be low. Better health facilities resulting from improved transport services will reduce the share of their income that they use for medical expenses thereby enabling them to use their income for other development activities.

5.3.2 Priorities according to the different stakeholders

The different stakeholders in the rural transport area have been raising their concern on a number of issues that contribute to poor rural transport situation in the region and the country at large. Among the issues raised were lack of a comprehensive rural transport policy which will focus and provide directions and strategies to improvement of rural transport. Other priority areas mentioned include:

- Mobilising more funds for improving rural infrastructure especially the roads;
- Promoting more use of NMTs by lowering their prices through de-taxation and use of cheaper but durable materials (for animal drawn carts, push carts, etc.)
- Organising credit schemes for farmers to be able to acquire transport means especially NMTs;
- Encouraging private sector to provide rural transport service;
- Enforcement of laws and regulations to enhance comfort and safety to the rural community;
- Recognise and empower transporters association to assist in the proper planning of transport services;

5.4 Specific Recommendations

Taking all the above into consideration and recognising the status of rural transport situation in Iringa, it is necessary to improve the rural transport services.

5.4.1 Ways to improve rural transport services

- a) The rural roads, which have a vital role for providing access to the rural community, have to be kept in a good standard that will attract private operators. The most appropriate way to ensure that the roads are sustainably maintained at reasonable costs is to use the workforce living alongside the roads. i.e. the villagers. With proper agreements between authorities responsible for upkeep of roads and villagers (through village governments on a payment basis), the roads will be kept in good condition.
- b) Bicycles are the cheapest transport means that most of the rural community could afford if the prices are lowered. The abolishment or lowering of the import duties will make them available at lower costs and many more people can afford them. Credit facilities could help the smaller farmers to own bicycles
- c) Since there is scarcity of buses that offer passenger transport services, the other vehicles such as pick-ups and station wagons should be officially licensed (after making the necessary modifications to make them safe and comfortable) to provide the services to areas that buses do not reach.
- d) Incentives should be introduced to the people who are ready to offer transport services in the rural areas. Such incentives could be lower taxes; special credits schemes with low interest rates, etc.

5.4.2 Specific follow up activities proposed

The above information provides a true picture of rural transport services in Iringa region and in particular in the Kilolo district. These findings from the study may not be known by many of those who have a role to play in solving rural transport problems. The best way to make most of the responsible people aware of the situation could be to organize a seminar in the region and disseminate the findings so that the institutions such as the transporters association, farmers and the district authorities can continue discussing how rural transport problems in their respective areas could be solved.

Reference:

1. Starkey P, 2005. Methodology for the rapid assessment of rural transport services: Project Inception Report: Intermediate Technology Consultants (ITC), Rugby, UK
2. Department of Statistics, 2004 - Tanzania Population Census 2002; General Report - Iringa Region
3. Ministry of Education and Culture, 2005. Basic Statistics in Education.

Annex 1.**List of People Contacted/Interviewed**

S/n	Name	Position and Institution	City / Town
1	Richard Musingi	Director Regional Coordination, President's Office Regional Administration and Local Government	Dar es Salaam / Dodoma
2	Dieter Schelling	Lead Transport Specialist World Bank	Dar es Salaam
3	B. Rufunjo	Director of Transport and Communications, Ministry of Communications and Transport	Dar es Salaam
4	Anna Mwashu (Ms)	Assistant Director, Poverty Eradication Department, Vice President's Office	Dar es Salaam
5	Rahul Gupta	Dealer of Cycles and spare parts, R.G.N. International Ltd	Dar es Salaam
6	Simbo Mushi	Agent for Chinese Zongshen motorcycles, Kazzar Ltd	Dar es Salaam
7	Fuime	District Executive Director, Iringa Rural District Council	Iringa
8	Rose G. Mhongole (Ms)	District Executive Director, Kilolo District Council	Iringa
9	Haule	District Engineer, Iringa Rural District Council	Iringa
10	Nicolaus Mwangogo	Ag. District Engineer, Kilolo District Council	Iringa / Kilolo
11	Mohamed Mpinga	Regional Traffic Officer Iringa region	Iringa
12	Ngolo Damian	Ag. District Planning Officer,	Iringa
13	Japhet Emmanuel	Statistician, Iringa Rural District Council	Iringa
14	Salim	Planning Officer, Iringa Rural District Council	Iringa
15	Msafiri Mhina	Credit Officer, CRDB Bank – Iringa Branch	Iringa
16	Jumaa Amiri Jumaa	Asst. Administrative secretary, Iringa Region Secretariat	Iringa
17	Daudi Mwangasi	Chairperson, Iringa Transporters Association	Iringa
18	Said Chilamile	Agricultural Officer, Iringa Rural District Council	Iringa
19	F. Maleko (Ms)	Coordinator, Village Travel and Transport Project (VTTP), Iringa Rural District Council	Iringa
20	Joshua Kapungu	Regional Secretariat Engineer, Iringa Regional Administrative Secretariat	Iringa

21	Khamis Mbilinyi	Bicycle Hire Centre.	Mlandizi, Iringa
22	Iqbar Iarb	Heavy truck owner	Mshindo, Iringa
23	Festo Lugusi	Mini bus owner	Iringa
24	Enite Ezekiel (Ms)	Nurse, Kilolo Govt. Hospital	Kilolo
25	S.E. Mkane (Ms)	House wife	Kilolo
26	Elias Kisingi	Passenger in a bus	Kilolo
27	Shani Mhanga (Ms)	Teacher,	Lulanzi village
28	I. Motto	Village Chairman	Lulanzi village
29	Fasnas Nyaulingo	Sick person	Lulanzi village
30	Raymond Magawe	Trader	Ukwega village
31	Mzee Nyamba	Old person	Lusinga village
32	Kefa Msigwa	Student	Ukwega village
33	Petro Msigala	Handicapped person	Ukwega village
34	Saidi Juma	Mechanic, Mlandege Express Auto Garage	Iringa
35	Emmanuel Mwakatundu	Proprietor. Coach & Truck Garage.	Iringa
36	Willy Chaula	Proprietor, Bicycle repair shop	Ipogolo, Iringa
37	Napesh Premji	Shop Keeper, Iringa cycle mart	Iringa
38	Ana John (Ms)	Proprietor, Down Town Shopping Centre	Iringa

Lessons from the methodology

The following may be summarized as the lessons from the methodology used in assessing rural transport services in Iringa region:

1. With the limited time and resources, most of the information collected could not be verified and therefore some of the data provided by the operators could be unreliable (overestimating costs/underestimating income)
2. The methodology can provide very good information for a particular area and not for a region in its totality. Some of the regions are big in size and have varying topography with different types of transport problems in the different areas.
3. It is important to do at least two counts on the different spokes (on non-market and on market day) so as to capture the different type of transport facilities used.
4. The interviews with the different actors provide good information but should be done by a rural transport expert as there is always an additional question that can be asked that could give a very pertinent answer.

ANNEX 3

SURVEY SUMMARY SHEET – REGIONAL SPOKE – (Iringa to Kilolo) – Non Market day

Mode	Numbers	Over full	Full	Half full	Empty	Primarily Freight	Primarily Passengers
Trucks - less than 3 tonnes	6	2	1	1	2		2
Trucks - more than 3 tonnes	18	7	5	2	4		
Buses (more than 20 seats)	10	6	2	2	-	-	
Rural taxis - Mini bus (less than 20 seats)	6	3	3	0	-	-	
Rural taxi - pick ups	12	6	4	2	-	18	
Rural taxi - cars, 4x4s	4	2	2	-	-	4	
Government / NGO -car / pick ups/	10	2	4	2	2		
Government / NGO - trucks	3	-	1	1	1		
Private - car, pick ups, 4x4s	9	1	5	1	2		
Pack / riders animals (donkeys, camels etc)	0						

Pedestrians	Number	more 5kg load	less 5kg	No load	Livestock to market
Female pedestrian	162	11	68	83	
Male pedestrian	126	39	23	64	4

Cyclists	Number	1 passenger	over 5kg load	neither
Male bicycles	139	34	42	63
Female bicycles	1			1

Motorcycles	Number	1 passenger	2 passenger	3 passenger	Load only	Load in addition to passengers
Male motorcyclist	5	3	-	-	2	0
Female motorcyclist	0	-	-	-	-	

Animal drawn	Number	Full	Half full	Empty	1 passenger	2 passenger	3 passenger
Animal drawn	0	-	-	-			

SURVEY SUMMARY SHEET – REGIONAL SPOKE – (Iringa to Kilolo) – Market day

Mode	Numbers	Over full	Full	Half full	Empty	Primarily Freight	Primarily Passengers
Trucks - less than 3 tonnes	4	2	1	1			2
Trucks - more than 3 tonnes	26	9	11	2	4		
Buses (more than 20 seats)	14	9	3	2	-	-	
Rural taxis - Mini bus (less than 20 seats)	6	3	3	0	-	-	
Rural taxi - pick ups	14	6	6	2	-	18	
Rural taxi - cars, 4x4s	4	2	2	-	-	4	
Government / NGO -car / pick ups/	16	2	7	4	3		
Government / NGO - trucks	0	-	-	-	-		
Private - car, pick ups, 4x4s	12	2	5	3	2		
Pack / riders animals (donkeys, camels etc)	0	-	-	-	-		

Pedestrians	Number	more 5kg load	less 5kg	No load	Livestock to market
Female pedestrian	90	11	28	60	
Male pedestrian	86	39	16	31	3

Cyclists	Number	1 passenger	over 5kg load	neither
Male bicycles	390	112	154	134
Female bicycles	1	1		

Motorcycles	Number	1 passenger	2 passenger	3 passenger	Load only	Load in addition to passengers
Male motorcyclist	20	11	-	-	6	4
Female motorcyclist	0	-	-	-	-	

Animal drawn	Number	Full	Half full	Empty	1 passenger	2 passenger	3 passenger
Animal drawn	0	-	-	-			

SUMMARY SHEET – MARKET SPOKES (Kilolo – Lulanzi and Kilolo – Lukani) – Non Market day (Avrg)

Mode	Numbers	Over full	Full	Half full	Empty	Primarily Freight	Passengers Primarily
Trucks - less than 3 tonnes	2	1	2	-	-		1
Trucks - more than 3 tonnes	2	-	1	1	-		
Buses (more than 20 seats)	1		2	1		-	
Rural taxis - Mini bus (less than 20 seats)	0						
Rural taxi - pick ups	0						
Rural taxi - cars, 4x4s	0						
Government / NGO -car / pick ups/	2		1	1			
Government / NGO - trucks	2		1		1		
Private - car, pick ups, 4x4s	1				1		
Pack / riders animals (donkeys, camels etc)	0						

Pedestrians	Number	more 5kg load	less 5kg	No load	Livestock to market
Female pedestrian	86	12	35	39	
Male pedestrian	55	20	11	24	

Cyclists	Number	1 passenger	over 5kg load	neither	
Male bicycles	69	23	21	25	
Female bicycles	1	1			
Motorcycles	Number	1 passenger	2 passenger	3 passenger	Load only
Male motorcyclist	6	3			3
Female motorcyclist	0				
Animal drawn	Number	Full	Half full	Empty	1 passenger
Animal drawn	2	1		1	

SUMMARY SHEET – MARKET SPOKES (Kilolo – Lulanzi and Kilolo – Lukani) – Market day (Avrg)

Mode	Numbers	Over full	Full	Half full	Empty
Trucks - less than 3 tonnes	3	1	2		
Trucks - more than 3 tonnes	2		1		1
Buses (more than 20 seats)	1		1		
Rural taxis - Mini bus (less than 20 seats)	0				
Rural taxi - pick ups	0				
Rural taxi - cars, 4x4s	2		1	1	
Government / NGO -car / pick ups/	2		1		1
Government / NGO - trucks	1		1		
Private - car, pick ups, 4x4s	0				
Pack / riders animals (donkeys, camels etc)	0				

Pedestrians	Number	more 5kg load	less 5kg	No load	Livestock to market
Female pedestrian	225	35	64	126	
Male pedestrian	144	42	32	70	

Cyclists	Number	1 passenger	over 5kg load	neither	
Male bicycles	172	43	48	81	
Female bicycles	3	1	2		
Motorcycles	Number	1 passenger	2 passenger	3 passenger	Load only
Male motorcyclist	12	9			3
Female motorcyclist	0				
Animal drawn	Number	Full	Half full	Empty	1 passenger
Animal drawn	0				

SUMMARY SHEET – VILLAGE SPOKES (Lulanzi – Isele and Lukani - Lugalo) Non Market day (Avrg)

Mode	Numbers	Over full	Full	Half full	Empty	Primarily Freight	Primarily Passengers
Trucks - less than 3 tonnes	0	-	-				
Trucks - more than 3 tonnes	1	-		1			
Buses (more than 20 seats)	0						
Rural taxis - Mini bus (less than 20 seats)	0						
Rural taxi - pick ups	0						
Rural taxi - cars, 4x4s	1		1				
Government / NGO -car / pick ups/	1		1				1
Government / NGO - trucks	0						
Private - car, pick ups, 4x4s	0			1			
Pack / riders animals (donkeys, camels etc)	0						

Wooden Wheel Barrows	2		1	1		
Pedestrians	Number	more 5kg load	less 5kg	No load	Livestock to market	
Female pedestrian	40	21	8	11	2	
Male pedestrian	32	11	3	18	-	

Cyclists	Number	1 passenger	over 5kg load	neither			
Male bicycles	40	12	18	10			
Female bicycles	2	-	2				
Motorcycles	Number	1 passenger	2 passenger	3 passenger	Load only	Load in addition to passengers	
Male motorcyclist	4	3			1		
Female motorcyclist	0						
Animal drawn	Number	Full	Half full	Empty	1 passenger	2 passenger	3 passenger
Animal drawn	0						

SUMMARY SHEET – VILLAGE SPOKE (Lulanzi – Isele) Market day

Mode	Numbers	Over full	Full	Half full	Empty	Primarily Freight	Primarily Passengers
Trucks - less than 3 tonnes	0	-					
Trucks - more than 3 tonnes	4			3	1	2	
Buses (more than 20 seats)	0						
Rural taxis - Mini bus (less than 20 seats)	0						
Rural taxi - pick ups	3	1	1	1			3
Rural taxi - cars, 4x4s	0						
Government / NGO -car / pick ups/	0						
Government / NGO - trucks	0						
Private - car, pick ups, 4x4s	0						
Pack / riders animals (donkeys, camels etc)	0						
Wooden Wheel Barrows	6		2	2	2		
Pedestrians	Number	more 5kg load	less 5kg	No load	Livestock to market		
Female pedestrian	75	43	25	7			
Male pedestrian	78	40	20	18	2		
Cyclists	Number	1 passenger	over 5kg load	neither			
Male bicycles	65	14	32	19			
Female bicycles	0	-	-				
Motorcycles	Number	1 passenger	2 passenger	3 passenger	Load only	Load in addition to passengers	
Male motorcyclist	9	4			4	1	
Female motorcyclist	0						
Animal drawn	Number	Full	Half full	Empty	1 passenger	2 passenger	3 passenger
Animal drawn	0						

