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**PRIME MINISTER'S OFFICE REGIONAL ADMINISTRATION &
LOCAL GOVERNMENT (PMO – RALG), DODOMA, TANZANIA**



LOCAL GOVERNMENT SUPPORT PROJECT

(IDA CREDIT No. 4003-1-TA)

**ENVIRONMENTAL AND SOCIAL IMPACT
ASSESSMENT (ESIA)**

DRAFT REPORT

FOR

TANZANIA STRATEGIC CITIES PROJECT – MBEYA CITY

NOVEMBER, 2009



SMEC INTERNATIONAL PTY LIMITED, AUSTRALIA

IN ASSOCIATION WITH

MAKCONSULT

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LIST OF ABBREVIATIONS

BP	World Bank Procedures
EIA	Environmental Impact Assessment
EIS	Environmental Impact Statement
EMA	Environmental Management Act
ESIA	Environmental and Social Impact Assessment
NGO	Non Governmental Organisation
EMP	Environmental Management Plan
IAPs	Interested and Affected Parties
NEMC	National Environment Management Council
MC	Mbeya Municipal Council
OP	Operational Policy of the World Bank
PAPs	Project Affected People
PMO-RALG	Prime Minister's Office - Regional Administration and Local Government
RFP	Request for Proposals
RoW	Right of Way
TANESCO	Tanzania Electric Supply Company
ToR	Terms of Reference
WB	World Bank

EXECUTIVE SUMMARY

1.0. INTRODUCTION

On January 27, 2009, the Consultant received a letter of invitation to submit the Request for Proposal (RFP). The consultant submitted the proposal to the client on Friday 6th March 2009. Following competitive tender, M/s SMEC International Pty Ltd in association with Makconsult Ltd (the consortium is further referred to as 'Consultant'), were selected by the Prime Minister's Office - Regional Administration and Local Government (PMO-RALG) to provide the following consulting services: Provision of Consultancy Services for Preparation of Preliminary and Detailed Engineering Designs, Cost Estimates and Bidding Documents, and Environmental and Social Impact Assessments for the Investment Sub-Projects for Mbeya Municipality under the proposed Tanzania Strategic Cities Project. Contract negotiations were held in PMO Conference room, Mjilezi Building in Dodoma, on June 19th 2009.

The work on the study officially started on August 26, 2009, with the arrival of the ESIA Team in Mbeya, and was carried out according to the work plan.

The scope of the ESIA study was defined in the TOR prepared by the Client. Overall scope of the consultancy assignment comprises the preparation of environmental and social impact assessments, preparation of environmental management plans and, where necessary, resettlement plans and indigenous people's development plans, for all investment sub-projects proposed by the Mbeya City Council for financing under the core urban infrastructure sub-component of the TSCP.

2.1. THE EXISTING CONDITIONS

According to the 2002 National Census, Mbeya City Council had a total population of 266,422 in habitants, out of which 126,679(48%) are males and 139,743 (52%) are female. The City population growth rate is 4% per annum compared to the national average of 2.9 per annum. Population projection for the year 2009 is estimated to 352,511 people being males 169,205 and females 183,306. While the roads are poor and are in bad shape, the level of other social service provisions is good especially on health, education and water. About all primary and secondary schools available have sufficient staffs to support an increasing student

enrollment. There are both private and public owned health facilities with some skilled specialists and good working facilities. Waste management in the city is poor.

The proposed Mbeya sub-project investments comprises of twenty (20) subprojects. Seventeen subprojects are road improvement projects, one bridge linking Ilemi and Iganzo, Bus/Lorry parking area adjacent to *Nane-Nane* Exhibition ground at Uyole and a solid waste landfill at Ntundu Street. These subprojects will be implemented in areas with diversified characteristics like urban residential areas, shopping/business areas, offices/institution headquarters and industrial areas etc. Many sub-projects are amidst densely populated and built streets in the middle of the city.

2.2. POTENTIAL IMPACTS AND MITIGATION MEASURES

The identified negative impacts of the proposed investment sub-projects as well as proposed mitigation measures are summarized below.

NAME OF SUB-PROJECT AND DESCRIPTION	TARGETED INTERVENTIONS	POTENTIAL ENVIRONMENTAL IMPACTS
<p>TANESCO-SAE-KISANJI-length 3.39 km The project transverses residential and business premises. A number of community based organizations, public institutions, water pumping and electric power sub-station are located along this route.</p>	<p>Upgrading from Earth Surface to asphalt</p>	<p>Changes are anticipated in the hydrologic and drainage regimes; including biodiversity along the sub-project areas.</p>
<p>COMMISSIONER : Road: Length 0.54 km The road is inclined with a gentle gradient. The Regional Commissioners' offices are located along the road. Residential neighborhoods, a church and school are also along this stretch of road.</p>	<p>Upgrade from gravel surface to Asphalt</p>	<p>Substantial Sediment load from areas up the hill could clog drainage structures and cause flooding at lower levels. Biodiversity could also be altered on due to the clearing of bush and trees which grow along the road embankment.</p>
<p>SAE-ITUHA DISPENSARY ROAD: Length: 2.52 km. The road traverses the Tanzam railway line at one section. There are both businesses and residential neighborhoods along the project area with the dispensary where the sub-project terminates.</p>	<p>Upgrade from earth surface to Asphalt.</p>	<p>Changes in hydrological and drainage regimes are anticipated along the route particularly at the railway crossing. Bush clearing and tree cutting along the project could alter the biodiversity.</p>
<p>ILOMBA MACHINJIONI: Road length:2.16 km A portion of this sub project is the former Tanzam highway. A few schools and a college are based here. The city slaughter house is located at the end of the sub-project. This road joins the Iloba Isyesye one at about half a kilometer from the Tanzam highway. It has one bridge crossing.</p>	<p>Upgrade from earth surface to asphalt</p>	<p>The raised level of the road with respect to adjacent houses a half kilometer from the main highway makes it is a potential black spot. Biodiversity will also be altered to some degree when trees and bush on the sub-project are cleared. The steep slopes on either side of the bridge will significantly affect the</p>

		hydrological and drainage regime on this section of the sub-project.
<p>ILOMBA IVUMWE: Road length:1.12 km The sub-project area comprises both residential and small businesses. There is also a small market and a cemetery at the end of the sub-project. A house at one section of the project is on the road reserve and earmarked for demolition.</p>	Upgrade from earth surface to asphalt.	Changes in the hydrological and drainage regimes are potential impacts at the end section of the sub-project which has a slope. Demolition of the house sitting on A section of the sub-project will also deprive the owner business income and a place to live. An informal market which operates on the RoW will have to be relocated.
<p>NDIO REGIONAL HOSPITAL Road length:0.61km A few bushes and trees may have to be cleared during construction phase.</p>	Upgrade from earth surface to asphalt	Storm Runoff from the hospital gate likely to empty in nearby properties.
<p>NEW FOREST Road length:2.22km Run off containment is a challenge in this sub-project. Bush clearance and tree (a few) removal will also have to be undertaken. Some telephone poles may have to be relocated.</p>	Upgrade from earth surface to asphalt	Storm Runoff will cause flooding in some sections.
<p>IGAWILO HEALTH CENTER Road Road length:0.44 km As with the case with Airport Jacaranda road, shops at the junction near the Malawi road are on the RoW.</p>	Upgrade from earth surface to asphalt	Runoff from the main road to Malawi will inundate the houses along the sub-project road.
<p>KABWE BLOCK T SIDO Road length: A:2.10 km B: 0.33 km A few NGO's, churches and a radio station are located along the sub-project. Telephone and water utilities are likely to be affected during construction.</p>	Upgrade from earth surface to asphalt	Vegetation will be altered on this project since some trees may be removed. The B sub-project (Soweto section) is a flood prone zone.
<p>AIPORT –JACARANDA Sec School—Forest Sec School—BHANJI Road Road length: 3.78 km The sub project road narrows at a crowded market centre and some</p>	Upgrade from earth surface to asphalt	Flooding at the flat section of the road. Adjacent to the Air field.

buildings may have to be demolished.		
<p>MIST road(Mbeya Institute of Science and Technology) Road length: 2.70 km The sub-project is located in an area where major industries are coming up. The Mbeya Institute of Science and Technology (MIST) are located where the project terminates.</p>	Upgrade from earth surface to asphalt	Upgrading the road will result in the drainage regime of the surrounding area.
<p>DAUSEN- LEGICO Road Road length: 0.74 km The sub – project road passes through an older neighborhood of Mbeya City. Drainage canals appear to be functional but will require minor rehabilitation to restore them to pristine condition.</p>	Upgrade from earth surface to asphalt	Upgrading this road and its drainage systems will result in an increase of storm runoff into the stream down the valley. The bridge in the valley marks the boundary between Majengo and Maendeleo Wards. Both wards have refuse collection problems
<p>SAE- TENESCO junction to Mjepyadau Road Road length: 0.99 km A few businesses operate in this area. The TENESCO power substation is also located along this road.</p>	Upgrade from earth surface to asphalt	Upgrading the road may result in an increase of storm runoff to surrounding properties.
SOLID WASTE LANDFILL:	Fencing of the facility and constructing access roads and installing a weigh bridge.	Emission of methane and also smoke during burning of refuse
<p>LORRY / BUS Park The area is 30,000m</p>	Bush clearing ground leveling	Soil waste (spoil) from excavations, possibly contaminated could easily pollute the environment. There could be damage to water and power utilities.

3.0. CONCLUSION AND RECOMMENDATIONS

The findings of the Environmental and Social Impact Assessment (ESIA) Study indicate that, overall, the net socio-economic benefits of the Mbeya Sub-projects far outweigh the limited and site-specific social and environmental costs. The implementation of the investment sub-projects at the chosen sites will cause some impacts, all of which, however, are small and of no further relevance. Furthermore, some of them can be reduced by applying suitable mitigation measures and conventional environmental best practices.

In addition, the ESIA process has indicated that local population and other stakeholders are very positive about the proposed sub-projects and their immediate implementation in the project area is most welcome. Indeed the people feel that the project is an event that will solve their many problems, including transport, trade and commerce within the city and with other neighboring regions.

The environmental sustainability of the investment sub-projects in Mbeya, like in many other regions of Tanzania, is highly dependent on the institutional capability at all levels (i.e. staffing, training, and provision of other necessary support services) to carry out the associated ESMP implementation work. In view of this, a focused institutional training program designed for various role players coupled with a strategic and targeted capacity building exercise will substantially enhance the ESMP implementation capacity.

1. INTRODUCTION

1.1 Scope of the Study

The scope of the ESIA study was defined in the TOR prepared by the Client. Overall scope of the consultancy assignment comprises the preparation of environmental and social impact assessments, preparation of environmental management plans and, where necessary, resettlement plans and indigenous people's development plans, for all investment sub-projects proposed by the Mbeya City Council for financing under the core urban infrastructure sub-component of the TSCP.

The scope of works for the Mbeya City Council as per the TOR is as follows:

- Upgrading of approximately 35 km of existing earth and gravel roads to asphalt concrete or double surface dressing (bitumen surfacing); including vertical and horizontal alignments, pavement design, drainage structures, street lights etc.
- Construction and installation of one (1) Bailey bridge (approximately 6 m span) with associated structures
- Construction of several new bus and lorry parking areas (30,000 m²); including pavement design, concrete interlocking paving block surfacing, lighting, drainage and other associated structures.
- Construction of about 3 km of murram access and inner roads for the existing dumpsite for solid waste disposal including drainage structures and boundary chain-link fence
- Acquisition of a package of solid waste management equipment (skip loaders, skip buckets, skip pads, side loaders, tipper/trucks, tractor, excavator, refuse street containers/collection centers, compactors, weighbridge, truck washing equipment, etc)

The overall scope of this sub-consultancy assignment comprises the preparation of environmental impact assessment, preparation of environmental management plan and, where necessary, resettlement plan and indigenous peoples development plans, for all investment sub-projects proposed by the Mbeya City Council. The purpose of the ESIA is to identify ways of avoiding, reducing and where possible eliminating unacceptable impacts and shaping the project to suit its environment. The study is by definition multi-disciplinary, and attempts to identify the methods, approaches and alternatives which represent the optimal combination of economic, social and environmental costs and benefits. The process is predictive and must ultimately produce a decision-making tool. The incorporation of ESIA into project design facilitates progress towards sustainable development.

1.2. Contractual Framework

On January 27, 2009, the Consultant received a letter of invitation to submit the Request for Proposal (RFP). The consultant submitted the proposal to the client on Friday 6th March 2009. Following competitive tender, M/s SMEC International Pty Ltd in association with Property Consult (T) Ltd (the consortium is further referred to as 'Consultant'), were selected by the Prime Minister's Office - Regional Administration and Local Government (PMO-RALG) to provide the following consulting services: Provision of Consultancy Services for Preparation of Preliminary and Detailed Engineering Designs, Cost Estimates and Bidding Documents, and Environmental and Social Impact Assessments for the Investment Sub-Projects for Mbeya Municipality under the proposed Tanzania Strategic Cities Project. Contract negotiations were held in PMO Conference room, Mjilezi Building in Dodoma, on June 19th 2009.

The work on the study officially started on August 26, 2009, with the arrival of the ESIA Team in Mbeya, and was carried out according to the work plan.

The Terms of Reference are attached as Appendix 1.

1.3 Study Approach and Methodology

A Triangulation of various data collection methods was necessary to elicit various quantitative and qualitative data. These methods include:

Review of documents

The consultant reviewed the review of secondary data/ information in various documents to help get an insight into the project and identify any existing gaps in the documents. A review of various policies, regulatory and relevant legal documents was also carried out.

Participatory methodology

The consultant adopted a participatory methodology during the study. The study was conducted in a participatory and consultative manner in order to gather appropriate information. The team sampled out specific number of households in streets where the sub projects are based. Likewise, participatory meetings were held in all villages to identify key issues pertaining to the sub projects including perceptions, knowledge and attitudes of the beneficiaries. Also, consultations were made to street leaders, ward governments, politicians and representatives of communities at local levels.

Surveys

Household surveys, questionnaires are quantitative methods were used to determine public attitudes, values and perceptions on a variety of issues.

Field Visits

The ESIA team carried out extensive field visits between August and November 2009. During the field visits, the consultants conducted several consultative meetings with the key informants, organized focus group discussions and household interviews with Project Affected People (PAPs), and held meetings with key informers' e.g. relevant staff in respective institutions, relevant government officials and district authorities.

Use of many analytical tools/techniques

Various data analysis methods were used (SPSS and Excel) to come up with descriptive Statistics and establish baseline information. Qualitative information was collected from focus groups discussions, village meetings and in-depth interviews with key informers. During the focus group discussions, the consultant identified perceived positive and negative impacts of the project and established community's opinion on a sound mitigation measures and their associated costs.

1.4. The ESIA Team

The Consultant's ESIA Team consisted of the experts who were originally presented in the Consultant's Proposal and accepted by the Client.

1.5. Structure of the Report

The ESIA Report is structured as follows:

- **An executive summary** provides an overview of significant findings and recommended actions.
- **Chapter 1** introduces the road sub-projects and the ESIA study,
- **Chapter 2** briefly describes the project area, the proposed project features and justifications for the investment sub-projects;
- **Chapter 3** provides a brief description of the main physical, biological and socio-economic conditions prevailing in the road project area.
- **Chapter 4** summarizes the policy, legal and administrative framework within which the ESIA was carried out, including the environmental and social impact assessment requirements of the World Bank,
- **Chapter 5** presents the stakeholders and public consultations conducted during the course of the ESIA and outlines the main findings of the consultations discusses.
- **Chapter 6** discusses the alternatives considered to achieve the project objectives. On the basis of evaluation of the baseline environmental condition and the proposed project activities,
- **Chapter 7** presents the analysis of potential positive and negative environmental impacts of the road upgrading project whereas
- **Chapter 8** outlines the proposed mitigation measures for the adverse impacts.

- **Chapter 9** provides the Environmental Management Plan considered in the ESIA complete with the proposed monitoring plan.
- **Chapter 10** is the monitoring program that will be implemented to verify the conclusions of this ESIA and to allow refinement of future mitigation.
- **Chapter 11** provides the proposed capacity building program for effective implementation of the EMP
- **Chapter 12** presents the conclusions drawn from the ESIA study including the environmental and social acceptability of the proposed road upgrading project

2. DESCRIPTION OF THE PROPOSED SUB-PROJECTS

2.1. Project Description

Tanzania Strategic Cities Project (TSCP) - The GoT and the World Bank are preparing a new credit for the TSCP. The overall objective of the TSCP is to: (i) improve basic urban infrastructure and services in selected urban LGAs; and (ii) strengthen the management and fiscal capacity of those urban LGAs for improved operations, maintenance and infrastructure development. The Prime Minister's Office, Regional Administration and Local Government (PMO-RALG) is the Implementing Agency (IA) for the Project which will be done over a period of five years. The selected urban LGAs to be supported under the proposed credit are: Mwanza, Kigoma, Arusha, Tanga, Mbeya, Mtwara, and Dodoma.

The indicative scope of works for the Mbeya City Council is as follows:

- Upgrading of approximately 35 km of existing earth and gravel roads to asphalt concrete or double surface dressing (bitumen surfacing); including vertical and horizontal alignments, pavement design, drainage structures, street lights etc.
- Construction and installation of one (1) Bailey bridge (approximately 6 m span) with associated structures
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Table 1. Project Subcomponents and clusters

S/NO	CLUSTER	SUB-PROJECT	LENGTH
1	Artery Road - bypass- semi- ring Rds	A- Air port – sokoni - Jacaranda sec school (not surveyed) B - forest sec school- Bhanji road (surveyed) Ward: Iyela; Streets: Mapambano, Airport, Iyella I & II, and Ilembo	3.8
		Kabwe – Block-T SIDO 4A Ward : Iyela; Street : Block T	2.4
		Sae – Ituha dispensary road Ward : Ilomba ;Street : Ituha	2.55
		Ilomba – Machinjioni ;Streets : RRM, Ilemi	2.16
		Ilomba – Isyesye road;Wards : Ilomba/Isyesye Streets: Hayanga and Mwantengule	2.47
2		Collection roads	Commissioner Road.(area: regional block) Ward: Sisimba
	Ndiyo Regional hospital road;Ward : Iyela		0.65
	Kabwe Block T 4B;Ward : Ruanda; Street : Soweto		0.5
	Igawilo Health center; Ward : Iganjo; Street : Ilowe		0.41
3	Residential/ Commercial Rd		RTD sabasaba road area: RTD Jacaranda Ward : Sisimba
		Baraba ya pili;; Ward : Maendeleo streets : (soko matola area) crossing Nonde, Kanisa and kliniki streets	0.25
		Dausen – Legico Road area: Majengo Ward : Majengo; Streets:Majengo south and North	0.8
		New Forest Road; Ward : Nzovwe	2.16
		MIST Road; Ward: Iyunga	3.0
		Sae – Kisanji and Sae- TANESCO road Ward ;Ilomba ; Street : Sae	3.86
		Sae –TANESCO junction to Mjepyadua road Ward: Ilomba/mwakibete; Street : Mwakibete,Sae	1.06
		Ilomba – Ivumwe road; Wards : Ilomba/mwakibete Street : Mwakibete and Sae	1.8
4		Parking buses & Lorries	Parking Buses & Lorries; Ward : Uyole Area: nane nane grounds
5	Damp site		Damp site access road Weigh bridge fence ;Ward: Uyole; Street : Ntundu
6		Bridge	Bridge Ilemi/Iganzo; Wards : Ilemi/Iganzo Streets: Mapelele and Ilemi

3. DESCRIPTION OF ENVIRONMENTAL SETTING

3.1. Physical Environment

Topography

The City Council is situated at an elevated land along the slopes of the Mbeya Range at an altitude rising from 1600 to 2400 meters above sea level. The climate is influenced by its attitude and receives a mean annual rainfall of 1200 mm (November-May) accompanied with mean temperature ranging between 110 C – 250C. Mbeya City is generally characterized by a moderate climate.

Geology

The core of the Mbeya Range, including Mbeya peak is basically composed of metamorphic and Intrusive rocks. In the North-East of the range the rock structure is predominantly banded, streaky, composed of iron and quartz elements which form upstanding hills and ridges. Similarly intruding in the Chunya area are rocks which may be members of the metamorphic complex.

The greater part of Mbeya range and its foothills to the North-East also have characteristics of quartz over a large area particularly along the Songwe Scarp of Mbeya range and in the region of Itete, the rocks have been felspathised, carbonatised and silicified during emplacement of carbonatite along the Songwe Scarp. Associated with carbonatite is an intrusive rock containing rounded and angular fragments of altered country rock. The composition of silicon and iron matrix is largely obscured by iron staining.

Lake beds mostly white sands and volcanic silts are well developed around Shanya hill in the Songwe Scarp overlain with pebble beds, gravels, pumice and tuffs which contain a lot of material from Rungwe volcanic province. In the area where the Tanami highway traverses the floor of the Songwe valley, these deposits are widespread; the pebbles and boulders being set in a matrix of tuff and pumice, a situation which probably extends further North. Hot springs are to be found in the lakebed lime stones at the northern end of the Mbeya Range.

Soils and Agriculture

The soils in Mbeya region therefore vary from the shallow rocky and Stony (Chromic Cambisols eutric Cambisol) suitable for forestry and grazing and a variety of food crops to deep brown clay loams(Mollic Andosol and Haplic Andosol),deep red clays(Ferralic Cambisol), shallow gravelly(Iron stone overlying soft weathering rock,orthic Ferrasol) , deep

sandy clay over sandy loam(Albic Arenosol, Fine Sodic Eutric Gleysol);Excessively drained highly sodic soils(Sodic Regosols,Gleyic Solonetz);dark brown to yellow brown loam calcareous and saline(Calcic Cambisol eutric). These soil types define the agro-ecological regime for Mbeya Region.

Agriculture is therefore the main occupation for City residents. Mbeya City Council has a total of 21,400 hectares and 9,937 hectares (46%) is suitable for agricultural activities. The land which is currently utilized for agriculture is 44%, out of which maize, beans, potatoes, wheat and vegetables are the food crops produced while, coffee, tea and sun flower are produced as cash crops. For the year 2007/2008 44% of the land was cultivated and produced about 32,920 tons, with potatoes yielding the highest tonnage per hectare.

Meteorology and climate

The Mbeya region and similarly Iringa normally experiences its onset of the seasonal rains in November. **Figure 3** below shows the mean monthly rainfall trends for Mbeya with rainfall peaking between November and February in a normal year. El-Nino events are predicted for next season September – December2009 and South-western highlands, which comprise Mbeya and Iringa Regions, are likely to the experience normal to above normal rainfall. Mbeya region experiences mean temperatures ranging from 11⁰ C – 25⁰C.

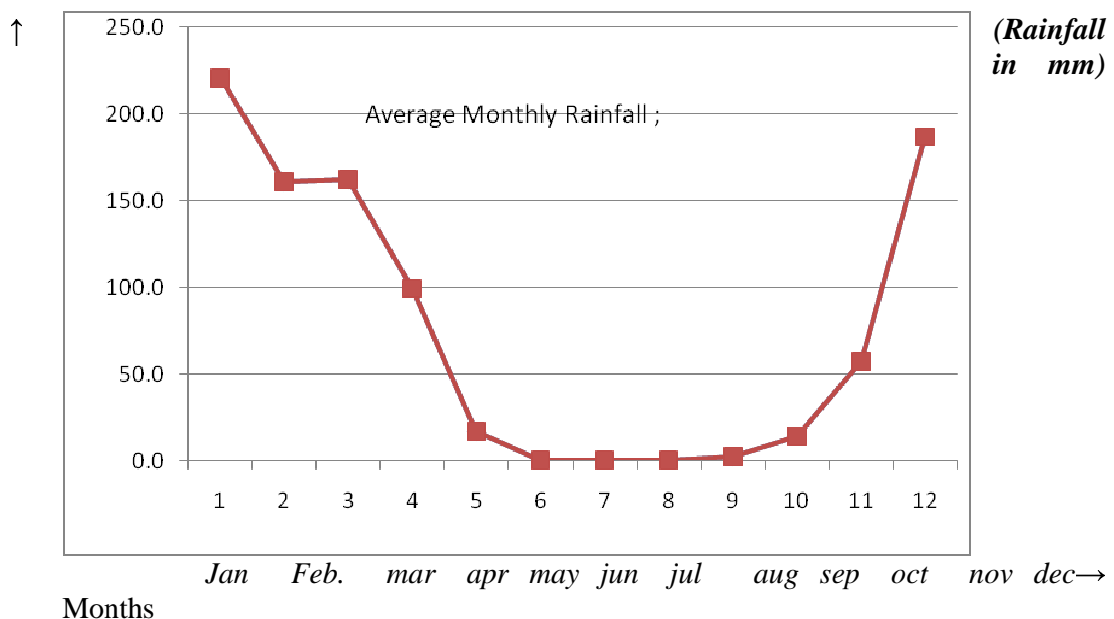


Fig. 2: mean monthly Rainfall for Mbeya Region

Hydrology and Water Resources

Mbeya City Council Water services are run by the Urban Water Authority. Currently there are 10 water sources within the City which are run by The Urban Water Supply Authority (UWASA). These sources provide 29,000 M³ of water which is 85 percent of the total demand. The UWASA laboratories and those of private companies such as the Coca

Cola bottling plant monitor the quality of the water on a monthly basis from eight (8) water sources ,these being: ivumwe Streams, Nzovu springs, DP Makunguru,Ivumwe springs, DP Iwambi, Nsalanga

3.2. Biological Environment

The Mbeya Region is endowed with a varied flora and Fauna with extensive populations of eucalyptus and pine tree genus. The City Council has two tree seedlings some of which have been planted in water sources, schools, residential areas, commercial areas and offices and some given to Wards for planting. According to the Regional Natural Resources Secretariat based at the regional headquarters in Mbeya, there exists a re-forestation programme for the Mbeya range. The Secretariat also has plans to re-introduce indigenous tree species long lost through use for firewood by the local population and also introduce broad-leafed perennials and annual species particularly shrubs for the urban areas. Forestation and re-afforestation efforts are in line with universal efforts of combating global warming by creating carbon sinks.

3.3. Socio-cultural environment

3.3.1 Population

According to the 2002 National Census, Mbeya City Council had a total population of 266,422 in habitants, out of which 126,679(48%) are males and 139,743 (52%) are female. The City population growth rate is 4% per annum compared to the national average of 2.9 per annum. Population projection for the year 2009 is estimated to 352,511 people being males 169,205 and females 183,306.

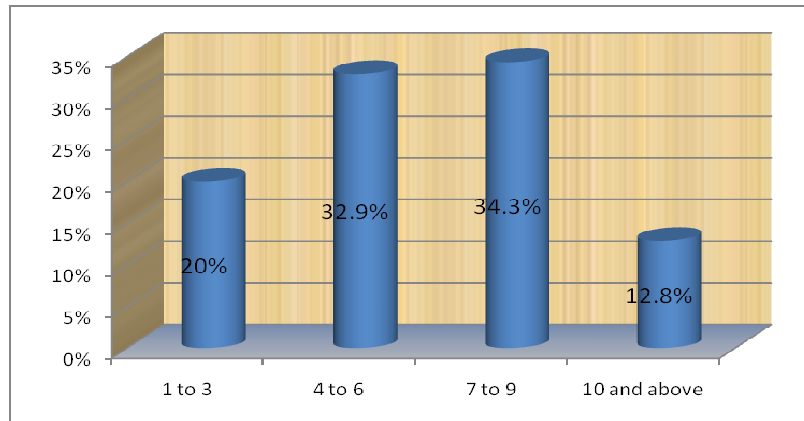
Twenty four (24.3%) of the households had at least one vulnerable member in their family. Types of vulnerable available are widows (10%), orphan vulnerable children (8.6%), disabled (4.3%) and divorced women (1.4%). On the other hand 75.7% of the interviewed respondents have no any vulnerable person in their families. Majority of these dependants are school children aged 6-17 years (55.7%) and preschool youngsters aged between 0-5 years (18.6%)

Furthermore, the study wanted to know the number of year the interviewed persons have been living in the project area. Some of them (31.4%) of the interviewed reported to have been living in the project area less than 10 years while the majority (35.7%) reported to be in project villages for 10-20 years and 17.1% of all interviewed respondents said that they have been living in the area for more than 30 years.

3.3.2. Family Units and size

Majority of families comprises of father, mother and children. However, like other African communities, most families in the study area have extended family set up. It is possible to find married couples living with one of their parents, orphan children, brother/sisters, in-laws or even uncles and aunts. Regarding family sizes in the project area, household survey results show that number of people in each unit vary from two to 10 and above. Figure 3 below shows that majority of the families (34.3%) have 7-9 persons followed by those which have 4-6 (32.9%) and 20% have 1-3 members per household. It also shows that 12.9% have a big family of people ten people, in some cases even more.

Figure 3: Number of people in the households



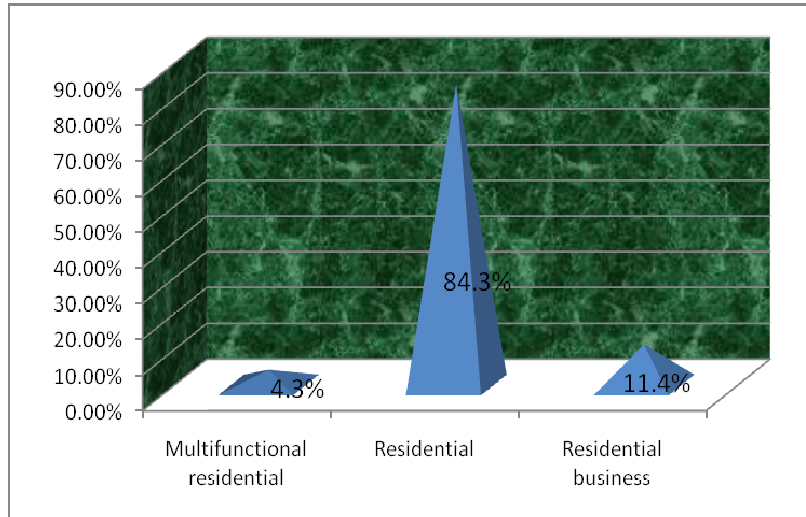
Such family size surpasses the national population statistics which show that the average Tanzanian household has 6 members. However, this does not necessarily imply that the communities in this area have high fertility rate. The survey revealed almost in all households there was at least one person who is not a member of the nuclear family. Presence of so many extended family members increases the dependency ratio.

3.3.3. Housing Status

Household survey explored from the respondents about the ownership and status of the house structures. The results show that all respondents possess at least one structure that belongs to the families. These structures have diversified sizes depending on affordability of the head of household. Data shows that about half of the houses (48.5%) have 3-6 rooms followed by 27.1% that have 1-3 rooms. On the other hand 15.6% have 7-9 rooms. The rest 8.6% of the structures are large containing 10 and above rooms.

The study wanted to explore the uses of the structures. Purposes of the main house structures owned by the respondents in the project area are as narrated in figure 4 below which shows that 84.3% are residential structures whereas 11.4% are rental houses.

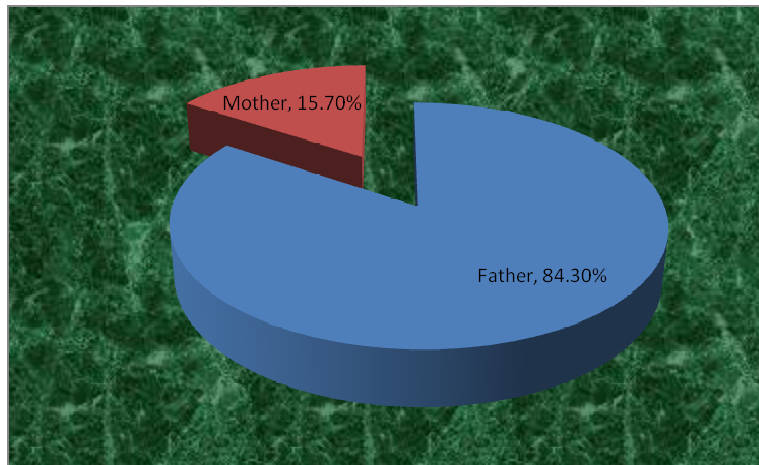
Figure 4 : Purposes of the main owned house structures (n=70)



3.3.4. Ownership of house structures in the project area

Majority of the affected household structures are mainly owned by male. This situation is common in many Africans societies where men are the head of households as well as properties of the households. They own most of means of production. Women are mainly considered as helpers who obey their husband. As shown on figure 3 below, 84.3% of the structure owners are male whereas 15.7% are female owned properties (see Figure 5).

Figure 5 : Owners of houses in the project area



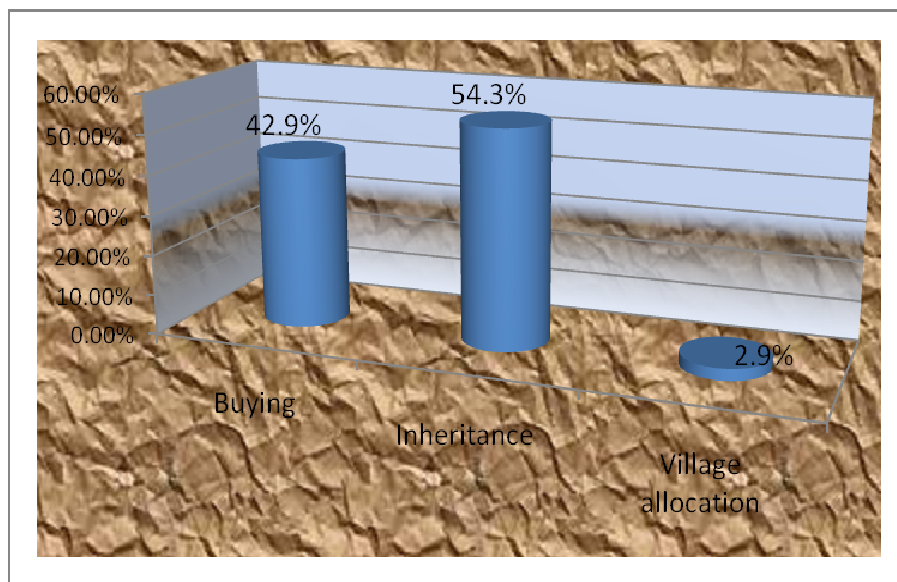
In addition, 30% of the people in the project area have more than one house. Some of these structures operate as alternative place for living for household heads. Data obtained from the survey depict that 18.6% of the household heads do have alternative accommodation in different areas and some of them in the same street. Out of them 15.7% live in the same street but in a different house and 2.9% in neighbouring streets. This is a sign of presence of either polygamous or concubines among men in the project area.

3.3.5. Land Tenure and Land availability

In the project area there are three main land tenure systems as revealed in the household survey carried out during the SIA study. As shown in figure 6 below more than half of the interviewed respondents (54.3%) got land through inheritance whereas 42.9% bought land. Very few people (2.9%) were allocated by the government showing that majority live in squatters.

Most of the street government regimes do not have land left under their supremacy to allocate to the needy. People who are in need of land will have to acquire it through buying from those who have extra plots or those who want to migrate out of the area. It is important to consider this component during RAP preparation especially if big portions of land will be taken. If this factor will not be considered the project-affected people might end up having inadequate sources of settlements and livelihoods.

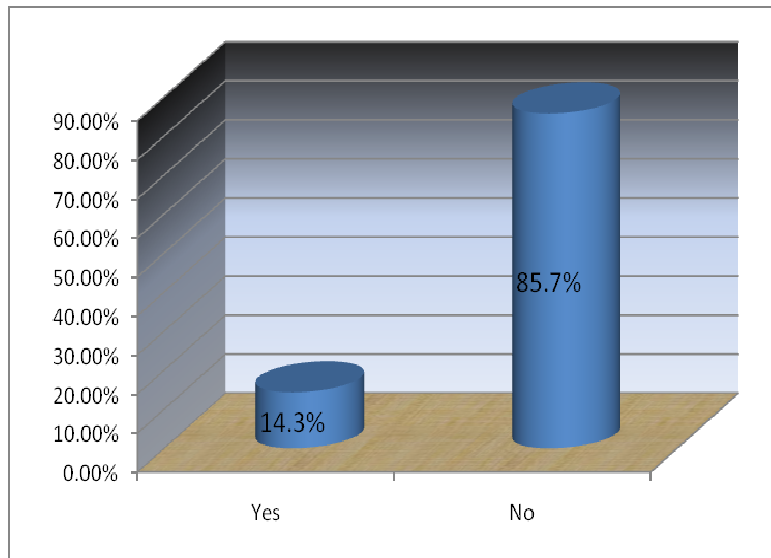
Figure 6. Existing Land tenure systems in the project area



3.3.6. Land Use

There are three main types of land use along within the subject areas. The big part of the area is used for residential settlements as well as community infrastructures such as roads including social services like schools, medical facilities and etc. Majority live on their own land because the survey results reveal that only 8.6% did not have own houses, whereas the rest 91.4% possess at least one house structure located on legally owned land. Moreover, respondents claimed that all land they acquire is cultivated/ developed and no more land space is left without development within their plots. This is because land value in the city is very valuable, and developing a structure within the plots secures lives of the developer even up to old age. On the other hand, 14.3% of respondents as shown in figure 7 below claimed to have located cemeteries along their plots.

Figure 7. Presence of graves located locally along the plots

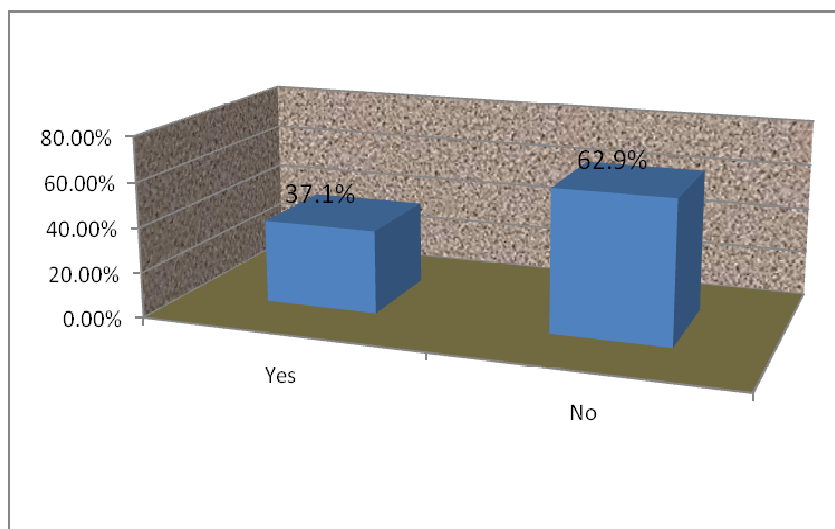


SIA study results revealed that majority of the households owned farms outside the city for farming purposes. Sizes of land differ with majority (31.4%) possessing of 1 to 2 acres of land followed by 30% who possess 3 to 4 acres of land. The reported highest number of acres owned in the impacted villages are 9 acres by one household but a total of 12.9% of respondents possesses an average of seven and above acres. As it has already been stated above, 8.6% reported to have no land at all. The landless among the population do resort to renting land for farming. Poor families are those who cannot access land either by buying or renting.

3.3.7. Business engagements

Figure 8 below describe information obtained from the respondents showing that 37.1% of the households have at least one family member engaged in business activities even if it is not their main employment source. Further exploration revealed that 18.6% of the businesses conducted are retail shops. Other commercial activities include food vending, milling machine, bars, selling of fresh fruits/relishes and handicraft activities.

Figure 8: Presence of business engaged person in households



Almost all business conducted depends on markets based within the city but very few (5.7%) deploy market based within and outside the city. Some of the business persons supplement main sources of livelihood of the people such as formal employment and even farming, although they also act as sources of cheap employment to some people

3.3.8. Household Income Sources

Distribution of income among the inhabitants differs tremendously, based on their occupations of the people. For the livestock keepers and peasants earn very little income from their farms and livestock produce due to nature of production system which is not market oriented or low prices paid to farmers. On the other hand, those who are engaged in trading have relatively better earnings.

Data obtained during the survey shows that 2.9% of the interviewed households obtained income from remittances, up to 100,000 Tshs. On the other hand, 20% of the interviewed households earn income from formal employment (salaries/wages). The salary range between 100,000 and 700,000 /= Tshs 11.4% are paid less than 100,000 Tshs followed by 5.7% paid more than a million per month and the rest 2.9% get 700,000/= Tshs per month. More people reported to earn income from business activities with majority making gross profit ranging from 300,000 to 600,000 Tshs per month.

Less people (4.3%) reported to earn income from livestock sales almost certainly this is because usually livestock in the project area are expressed as stubborn to neighbours and even for the keepers. About 1.4% of person who sold livestock earned 250,000 Tshs while 2.9% obtained 700,000-1,000,000 Tshs. On the other hand 80% of the people reported to earn income from selling their agricultural produce with majority gaining 100,000-300,000 Tshs per annum.

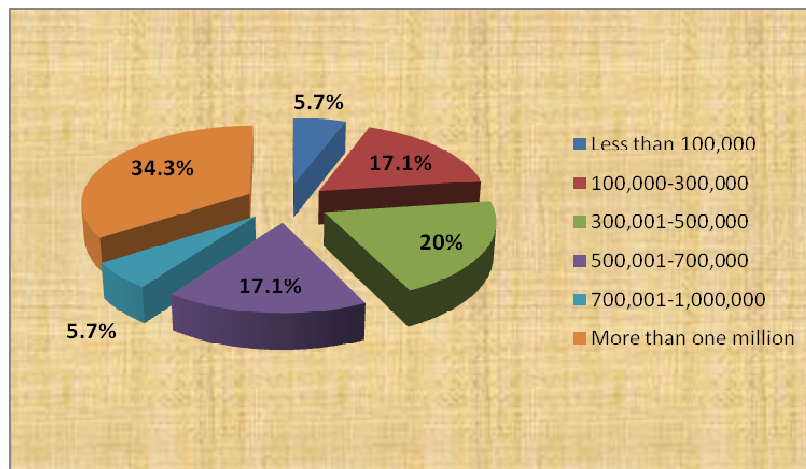
However, none of the respondents reported to have income earned from farming within the road right of way (RoW), instead, 5.7% reported to earn income from rented premises located along the RoW. The income described was less than 100,000 per month. Gender wise, distribution of income between men and women is unequal. Men own all major means of production like houses, plots and financial capital while women are considered as the group

meant to provide unpaid labour instead are rewarded marriage and domestic tasks. Some livestock which are of little number and less value like chicken are considered to be women properties. People who are perceived to be well-off are mainly those who earn salaries/wages as well as those engaged in business either as traders or owners of trading structures.

3.3.9. Household Expenditure

All respondents who engage in farming activities revealed that they do so not for commercial but for household consumptions. This assists families in minimizing household cash expenditure. It was reported that expenditure levels do rise during the dry season when crops like vegetables and relishes are difficult to produce within the compounds. Expenditures reported by the respondents are summarized in figure 9 below. It shows that 34.3% of the household spend more than one million per month. Also there are 5.7% who spend less than 100,000.

Figure 9: Average Household expenditures per annum



It should be noted that most Tanzanians do not have habit of record keeping especially on household expenditures. This tendency is not only pronounced in rural areas where production is mainly intended for household consumption but also in the city because majority depend on informal sources of income. Also, majority usually do not include value of own farm products consumed at home as expenditures.

3.3.10. Household ownership of facilities

Social study survey recorded various items owned by individual households in order to understand economic status of the affected population. As it was predicted, none of the household had table telephone because of change in technology in current world. Only 2.9% do not possess music system. On the other hand, 77.1% own music system and TV set.

As supplement to electricity some households 11.4% have decided to use solar energies and generators on their compounds perhaps because of increased costs of electricity connection. Social survey results show that 11% of the interviewed households own generators some of them uses the facility as supplement to electricity. Due to high prices of refrigerators and cool weather condition of the project area many households could do without refrigerators. On the other hand 16.3% of the impacted household heads have private toilets and 83.7% uses this

facility with other family members. About all respondents (99.1%) possess modern bed and very few i.e. (0.9%) do not have modern bed in their houses.

Regarding to working facilities and implements data shows that few peasants 2.9% possess tractors indicating increasing readiness to transform agriculture in the areas. Also, some respondents have been able to possess car (1.4%) indicating that they are wealthier than others. On the other hand 2.9% owned milling machines.

3.3.11. Education

The Council has 81 Primary school, 74 are owned by the Council and 7 are privately owned with a total number of 74,059 pupils (36,669 boys and 37,390 girls). Council schools has 71,577 pupils of which 35,410 (49%) are boys and 36,167 (51%) are girls. All schools have pre-primary classrooms with a total of 4960 pupils being 2478 boys and 2482 girls. Among the schools, three are special schools with 276 disabled pupils. Facilities at these primary schools are as summarized in table below:

Table 2: Status of Primary School Facilities

S/No	Service	Required	Available	Shortage	Percentage requirement
1.	Teachers house	1,486	106	1,380	93
2.	Classrooms	1,531	1041	490	32
3.	Toilets (Pit latrine)	2,967	1122	1,845	62
4.	Desks	25,522	18,156	7,892	31
5.	Teachers IIIA	1,699	1,477	222	12

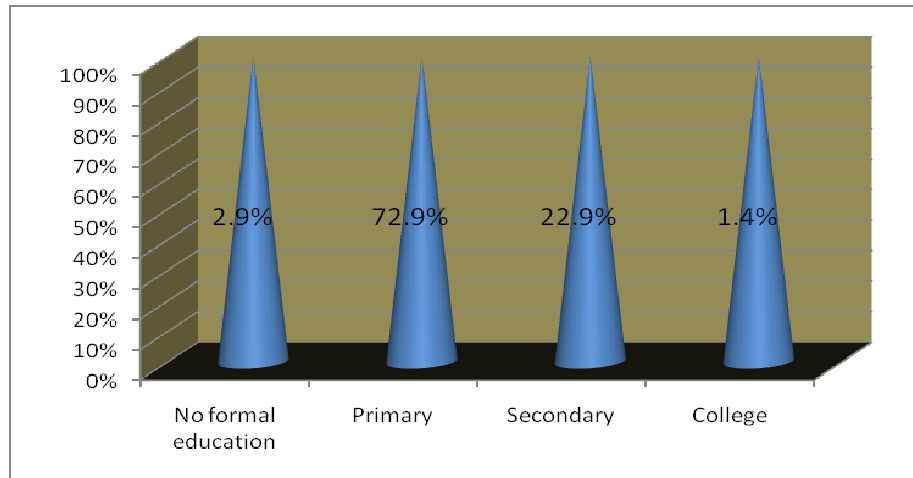
Moreover, Mbeya City Council has 48 Secondary Schools of which, 18 are privately owned and 30 are Government Schools. Out of the 30 government secondary schools, three are boarding schools Loleza girls, Iyunga and Mbeya which is a mix of both day and boarding. All boarding schools are A-Level. Through Council efforts, one secondary school (Nsenga) is expected to start form V this year. The schools have a total number of 22,458 students of which 2,410 are boarding students.

Secondary schools in the city employ 470 teachers and 69 non teaching staff making a total of 539 staffs. In 2009/2010 123 teachers are expected to be employed. Government secondary schools face many challenges including shortages and poor infrastructures like classrooms, laboratories, libraries, toilets, furniture and shortage of teachers.

Level of education of the inhabitants in the impacted villages is relatively high. Households with high education normally have better income than families with low education. Poverty levels are strongly correlated with the education levels achieved by heads of household. Approximately 72.9% of the respondents have attained primary school education whereas 22.9% have attended secondary education as shown in figure 10 below. The figure also show that 1.4% of them have reached college level of training.

A similar pattern of comparatively high levels of education among people in the community is reflected through ability to read and write. About 97.1% of the respondents can read and write. Several factors have contributed to this, which include presence of primary and secondary schools in the project area. For the primary schools for instance 94.3% access them within their own streets and 82.9% walk a distance of 1-2 kms only where the rest travel 3-4 kms.

Figure 10 : Maximum level of education of household heads



For secondary schools 68.8% access these facilities within their own streets and the rest go to one of neighbouring streets. None of them go outside their wards for secondary school education. They are accessed within 1-2 kms (68.6%) and 3-4kms (31.4%).

3.3.12. Water Supply

Water sector in the project area is favourable because all respondents' access water within their own street majority of them (91.4%) walks less than 1 kms and the rest walk 1-2 Kms from their own compounds. Regarding private water connection 81.4% of the households are connected to water services in their own compounds whereas the rest 18.6% depend on communal water sources.

3.3.13. Waste Management

Most of the households do not have adequate solid and liquid waste disposal. The solid and liquid wastes are disposed haphazardly, some are used for manure on backyard garden while others burn or bury the waste. People urinate just anyhow within the house compound, on bushes and along roads where there are trees or vegetation to hide. Poor sanitation is main causes of some of water-borne diseases including diarrhoea.

3.3.14. Health

Out of existing 19 Government Health facilities, 4 Health centers and 6 Dispensaries are owned by the Council. The major problems faced by the sector are inadequate number of health staff; insufficient drug supplies, equipments and health service delivery points. The

Council is expecting to inaugurate its own City Hospital by upgrading Igawilo Health Centre by July 2010.

Table 3: Health services and ownership in the city

S/No	Government	Religion	Public Institution	Private	Total
Hospital	2	0	0	2	4
Health Centers	4	2	0	1	7
Dispensaries	13	3	2	16	34
Clinics	0	0	0	4	
Total	19	5	2	23	49

The major top ten (10) diseases in Mbeya City Council are:-

1. Malaria;
2. Acute respiratory infections;
3. Sexually transmitted Infections;
4. Diarrhea diseases;;
5. Pneumonia;
6. Skin infections;
7. Intestinal worm Infestations;
8. Minor injuries;
9. Urinary Tract Infections; and
10. Eye infections.

In ensuring that the Health service becomes accessible and available to majority of people, the Council is expecting to start implementing the Health Sector Development Program by improving infrastructure to its old health facilities as well as constructing new facilities to eligible wards.

3.3.15. Energy

Electricity, fuel wood, charcoal and kerosene are the main source domestic energy. Very few households are not connected to electricity. Data obtain from household survey pertaining to number of household connected to electricity shows that 71.4% are connected to electricity whereas 28.6% are not. However, data do not reflect the situation of people in the project area because part of the project area is far from the main road where situation might be different. Those connected to the electricity use it for lighting and operating radio and TV and other electronic facilities. Cooking energies remain to be charcoal and firewood.

Due expansion of the city, fuel wood and charcoal have become scarce commodities. Majority buy from retailers near their home compounds therefore Women and girls (who bear the responsibility for cooking) spend few minutes to get it. Kerosene is used for lighting as majority cannot afford its prices.

3.3.16. Transport services

Roads are the major means of transport within and outside the project area. All villagers access busses for transport within their own streets at distances of 0-1kms from their compounds. The distance is similar for transportation facilities of goods and commodities

3.3.17. Religious Affiliation

Most of the settlements have worship facilities, which include mosques and churches. The majority of populations are Christians and followed by Muslims in number. Christians access worship facilities within the village (92.9%) i.e. 90% walking about 1-2kms to worship places and 10% percent stride 3-4kms from their living compounds. For the Islam, 77.1% access the mosques within their villages whereas 22.9% walk to the neighbouring villages for worship. The Islam followers walk 1-2kms (80%) and 3-4 Kms (20%) for worship. These worship facilities are very crucial in social environment and they play important part in setting up a well tied community.

3.3.18. Attitude towards the project

Almost all the villagers accept the project; as they could foresee the benefits from the road project. It will improve the socio economic of the villages along the route including the neighbouring streets. All villages were positive about the project and have high expectation on its improvement. They prefer the roads to follow the existing alignments to reduce impacts on people's properties and enhance economic growth of the households.

4. DESCRIPTION OF THE POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK

4.1. Overview of national policy and administrative framework

Policy, Legal and administrative framework requirements and their relevance to the subprojects in Mbeya City are briefly discussed in the sections and sub sections of this Chapter. The chapter includes the relevant laws, regulations, acts, policies of the Government of Tanzania, World Bank policies; national and international standards.

4.1.1. National Policy Framework

4.1.1.1. National Environment Policy (1997)

National Environmental Policy (NEP, 1997) is the main policy document governing environmental management in the country. The policy addresses environmental issues as both natural and social concerns, and adopts key principles of sustainable development. The policy has also proposed framework environmental legislation to take account of the numerous agencies of Government involved in regulating various sectors. Thus, the policy provides strategic plans on environmental management at all levels. It provides approach for mainstreaming environmental issues for decision-making and defining sector policy action plans.

In regards to environmental management and protection the policy identifies six key problem areas as:

- Land degradation;
- Lack of access to good quality water;
- Environmental pollution;
- Loss of wildlife habitat and biodiversity;
- Deterioration of aquatic ecosystems and
- Deforestation.

The policy requires EIA to be mandatory for all development projects likely to have significant environmental impacts. The intention is to ensure that the Mbeya sub-projects are implemented in an economically sustainable manner while safeguarding environmental and social issues for the benefit of the present and future generations.

Relevance to the project:

The project will be required to address policy objectives by ensuring that environmental degradation / pollution is minimized during implementation of sub projects, which have are expected to have impacts.

4.1.1.2. Agricultural and Livestock Policy (1997)

The number and nature of guidelines that constitute Tanzania Agricultural and Livestock policy is complex. However, the overall aim is to promote and ensure a secure land tenure

system to encourage the optimal use of land resources, and facilitate broad-based social and economic development without upsetting or endangering the ecological balance of the environment. The major theme is the conversion of land into an economic asset to which all citizens should have equal access, especially in response to the vulnerability of smallholders and livestock keepers who do not produce a surplus. The focus is therefore on the commercialization of agriculture so as to increase income levels and alleviate poverty.

On the other hand land occupiers are required to develop land use plans where by a certain amount of land is put aside for livestock grazing while the area for agriculture is also categorized. This is done to minimise conflict between farmers and livestock keepers. It has also an advantage in relation to proper land management and conservation. However, during the study it was observed that the land use plan has been interfered and in some places it does not exist at all. Generally absence of land use plans lead to problems and conflicts between different land users and during project intervention.

Relevance to the project:

Most of the subprojects (roads, a landfill and a parking area) and are on existing sites in urban areas. Therefore no major specific issues regarding agriculture land are expected to for the proposed works.

4.1.1.3. National Transport Policy (2003)

The policy vision is to have efficient and cost effective domestic and international transport services, while at the same time maintaining maximum safety and minimum environmental degradation. The policy emphasizes on having bitumen roads for all trunk roads but at the same time ensure that all regional and district roads are sufficiently rehabilitated and maintained to ensure smooth traffic flow.

The policy recognizes the importance of involving the private sector and local communities in the planning and rehabilitation of the road that pass within their areas. The policy wants urban residents to contribute towards maintenance of the road in their areas through direct involvement or through user charges.

It wants the design of residential area to be done in tandem with provision of adequate transport infrastructure to ensure security, safety and comfortably to pedestrians and cyclists by providing them with dedicated lanes, especially in urban areas. The policy promotes / supports ongoing programs by encouraging improvement of transport infrastructure and services to inaccessible parts of the country.

It requires people to influence land use planning and settlement patterns to achieve easy access to amenities. It discourages the use of road reserve to prevent smooth flow of traffic and future road expansion. The policy recognizes the need to provide urban transport that is environmentally friendly and sustainable. It recognizes the importance of providing sewerage and drainage systems when developing road infrastructure. The policy calls for timely and adequate road maintenance to avoid flooding and damage to infrastructure and road pavement. Thus, the policy calls for:

- Reduction of traffic generated pollution;
- Enhancement of traffic safety and management;
- Promoting environmental awareness;
- Strengthening human resource development;

- Provision of adequate and comprehensive drainage system during design, and Maintenance of urban road infrastructure

Relevance to the project

The policy is relevant to this project because the road infrastructure project which is addressed in the policy as one of the important transport infrastructures and reduction of unnecessary traffic jam in the city. Thus, to address the policy objectives the project management would be required to adhere to the relevant issues outlined in the policy regarding the road infrastructure development.

4.1.1.4. National Land Policy (1995)

The National Land Policy of 1995 (Revised in 1997) recognizes the need for protecting environmentally sensitive areas. The policy emphasizes on the protection of environment and natural ecosystems from pollution, degradation and physical destruction.

In addition, the policy recognizes the importance of social services such as water, roads, energy and solid waste management for environmental protection. It also identifies the need for conservation and preservation of prehistoric/historic sites and buildings.

Relevance to the project

This policy is relevant to the subprojects and the design and project management will need to ensure protection of existing social services, proper disposal of solid wastes (landfill design) and suitable landscape works (design of bus/lorry parking area).

4.1.1.5. National Water Policy(2002)

National water policy objective is to develop a comprehensive framework for sustainable management of the national water resources. In this case the policy recognizes the need to protect water sources against pollution and environmental degradation. The policy recognizes the role of road transport system as one of the effective tool in the implementation of water resource management activities.

Relevance to the project

The road project could result into degradation of water source for instance if proper drainage and disposal of stormwater is not designed and executed properly. In this case the designs and project management need to ensure water sources (including streams which ultimately flow into the water sources) are suitably protected to minimise impacts during construction and operation of the sub projects.

4.1.1.6. Energy Policy of Tanzania (1992)

Objective of this policy is to provide input into development process through the establishment of an efficient energy production, procurement, transportation, distribution with its end resulting in an environmentally sound exploitation of available resources.

Energy policy recognizes the critical role of energy in all sub-sectors of economy, including road sector and electricity infrastructures. It underscores importance of having sufficient supply and efficient use of energy in order to realize sustainable development and satisfy

basic needs of the society. This policy also recognizes the relationship between road condition and fossil fuel consumption energy by vehicles, which is one of the important sources of energy in the country. Therefore, the policy recognizes the need to rehabilitate roads to minimize fuel consumption.

Relevance to the project

The policy is relevant to this project because the road transportation relies on fossil fuel, which is the major source energy supply in the transport sector. However, poor road condition may lead into increased consumption of fuel, with low efficiency. Poor road condition also leads into increased emission of exhaust fumes due to overworking of vehicle engines. It is expected that city roads improvement will ensure efficient use of energy resource is being used efficiently in an environmentally sound manner. Within the proposed road reserved areas there are electricity poles of which will need to be relocated to maintain lighting energy for the people.

4.1.1.7. National Gender Policy (1999)

Main objective of this policy is to provide guidelines to ensure gender sensitive plans, programmes and strategies in all sectors and institutions. The policy gives emphasis on gender equality with its aims at establishing strategies on poverty eradication through ensuring that both women and men get access to existing resources for their development. It values the role played by women in bringing about development in the society.

Road sector is also highly committed to gender mainstreaming at all levels, through provision of equal opportunities to both men and women in road works and related activities.

Relevance to the project

The policy requires the project management to ensure that gender issues are given emphasis. It also requires that women and men are given equal employment opportunities in the project, whenever possible.

4.1.1.8. National Mining Policy, 1997

The Mineral Policy covers all activities regarding extraction from the ground. This includes minerals and material such as that for construction. The policy however, promotes private sector led mineral development relegating the role of the government to regulation, promotion and facilitation. The responsibilities of the government include monitoring of mining activities, collection and maintenance of geo-technical data for promotional purposes and administration and inspection of mining activities, and environmental management with regards to mining. The project sourcing for materials shall be guided under this policy as extraction of sand, gravel and stone are considered as mining.

4.1.1.9. National Forest Policy (1988)

The Policy goal is to enhance the contribution of the forest sector to the sustainable development of the nation and the conservation and management of natural resources for the benefit of present and future generations. To attain this goal the policy focuses on four main

areas; land management, forest based industries and products, ecosystem conservation and management and institutions and human resources. The national forest policy has three key statements pertaining to the proposed project:

Policy statement (1): To ensure sustainable supply of the forest products and services and environmental conservation, all types of forest reserves will be managed for production and/or protection based on sustainable management objectives defined for each forest reserve. The management of all types of forest reserves will be based on forest management plans.

Policy statement (5): To enable sustainable management of forests on public lands, clear ownership for all forests and trees on those lands will be defined.

The allocation of forests and their management responsibility to villages, private individuals or to government will be promoted. Central, local and village governments may demarcate and establish new forest reserves.

Policy statement (15): New forest reserves for biodiversity conservation will be established in areas of high biodiversity value. Forest reserves with protection objectives of a national strategic importance may be declared as nature reserves.

This statement allows for local governments to enforce protection on locally determined areas of importance for conservation or production.

The proposed road rehabilitation and upgrading will occur in the existing alignment and no forests will be disturbed. The ESIA process will take on board the provisions of the forest policy.

4.1.1.10. Tanzania Wildlife Policy, 1998

The aim of the policy and regulatory framework is to involve a broader section of the society in wildlife protection, utilization, management and development of protected areas. The wildlife sector mandate is sustainable utilization of the wildlife resources. Anti-poaching activities have been intensified resulting in the decrease of poaching incidences. The wildlife policy and legislation focuses on peoples' participation in the conservation and protection of the resources. The policy has facilitated improvement in performance of the sector in attaining the overall goal of effective conservation and sustainable utilization of the wildlife resources. However, the road upgrading project is not close to any protected area ecosystem. The sub-project areas are poorly endowed with game species and there are no any expectation/concerns for wildlife crossing the ROW in the Mbeya setting.

4.1.1.11. Transport Policy, 2002

The main Policy objective in the transport sector is to enhance transport and promote environmental protection. Environmental problems created by the transport sector are pollution and safety. Emission into the environment from vehicles is beginning to take its toll in Tanzania. The majority of fuel is leaded and a lot of the vehicles are in poor condition. Furthermore, improper disposal of oils, fuels, and other pollutants from garages and petrol stations may contaminate soils and water sources.

The implementation of this ESIA process will take aboard all these issues as appropriate.

4.2. National Legal Framework

4.2.1. Environmental Management Act (2004)

Environmental Management Act No. 20 of 2004 is the principle legislation governing environmental management in the country. The Act recognizes the right of every citizen to clean, safe and health environment, and the right of access to environmental resources for recreational, educational, health, spiritual, cultural and economic purposes.”

Thus, the Act provides a legal framework for coordinating harmonious and conflicting activities by integrating those activities into overall sustainable environmental management system by providing key technical support to Sectoral Ministries.”

In order to ensure there is effective implementation of national environmental policy objectives, the Act has identified and outlined specific roles, responsibilities and functions of various key players and provides a comprehensive administrative and institutional arrangement which consists of:

- National Advisory Committee;;
- Minister Responsible for Environment;
- Director of Environment;
- National Environmental Management Council (NEMC);
- Sector Ministries;
- Regional Secretariat; and
- Local Government Authorities (City, Municipal, District and Town Councils).

Part VI Sub-section 81(1) the Act requires a project proponent or developer of a project to undertake Environmental and Social Impact Assessment (ESIA) at his/her own cost prior to commencement or financing of the project or undertaking. Types of projects requiring EIA are listed in the THIRD SCHEDULE of the Act. Thus, in that regard the Act prohibits any development to be initiated without an Environmental Impact Assessment (EIA) Certificate.

Sub-section 86(1) states that ” the Council shall upon examination of a project brief, require the proponent of a project or undertaking to carry out an Environmental Impact Assessment study and prepare an Environmental Impact Statement”. According to the Act (Sub-section 1-4) the EIS should be submitted to the Council, which carries out a review through its Technical Review Committee (TRC). The Council is also required to make a site visit during the review process for inspection and verification at the proponent costs.

Relevance to the project

The Act is relevant to the project because the project is expected to have some impacts (noise and air and even water pollution during construction stage) to the environment. Thus, monitoring of the mentioned parameters would require adherence to the developed environmental standards (international and national) and environmental management plans to be prepared as part of designs for the sub projects.

4.2.2. The Environmental Impact Assessment and Audit Regulations (2005)

The Environmental Impact Assessment and Audit regulations (2005) are made under Environmental Management Act No. 20 of 2004. The regulations provides basis for undertaking Environmental Impact Assessment and Environmental Audit for various development projects with significant environmental impacts in the country. This section gives a brief description of some provisions in the regulations that are relevant to this study.

Part III of The Environmental Impact Assessment and Audit Regulation, formed under G.N. No. 349 of 2005, deals with project registration and screening procedures. Section 5 requires the registration applicant for Environmental Impact Assessment Certificate to submit a project brief report in the format shown in the THIRD SCHEDULE of the EMA (2005) and FIRST SCHEDULE of the regulation. According to the provision, the applicant is required to submit a project brief report to the National Environmental Management Council (NEMC). Section 6(1) requires a developer/project proponent to register the project in accordance with format specified in the THIRD SCHEDULE of the regulations. The section also, specifies issues to be covered by the proponent in the project brief report. Section 6 (3) requires a project brief to be prepared by a registered environmental impact assessment expert.

According to Section 11(1) project proponent is required to undertake an environmental impact assessment especially if the project brief has no sufficient mitigation measures, or undertake a preliminary assessment if more information is required to determine a screening decision.

Section 11(2) outlines relevant steps for undertaking a preliminary environmental assessment (PEA). These include:

- Description of the project characteristics and affected environment;
- Identification of impacts on the local environment; and
- Assessment or evaluation of the significance of the impacts.

Part IV Section 13(1) requires the proponent to conduct EIA in accordance with general environmental impact assessment guidelines and in accordance with the steps outlined in the FOURTH SCHEDULE of the regulations. Section 16 specifies EIA study should examine environmental, social, cultural, economic and legal issues.

A FIRST SCHEDULE gives list of projects subjected to EIA and those that do not requiring EIA and it categorizes the projects into two types:

- Type A – projects requiring a mandatory EIA; and
- Type B – project requiring PEA.

According to the schedule, Type B Projects are those projects that are likely to have some significant adverse impacts but the magnitude of impacts is not well known. Thus, a PEA is required to determine whether the project should proceed without a full EIA.

Part X Section 44 (1 and 2) outlines the objectives of Environmental Audits and its principal functions. Section 45 outlines the basic principles under which the environmental audit is conducted and Section 46(1) specifies the type of projects requiring environmental audits as specified in the THIRD SCHEDULE to EMA (2005) and FIRST SCHEDULE of the regulations

Relevance to the project

The project management will be required to undertake environmental monitoring and environmental audit before commencement of the road construction activities. Project brief for ESIA have been submitted to NEMC.

4.2.3. Occupational Health and Safety Act No. 5 of 2003

This Act make provisions for safety, health and welfare for persons at work in factories and other places of work; to provide for the protection of persons other than persons at work against hazards to health and safety arising out of or in connection with activities of persons at work. Proposed road rehabilitation and upgrading operations will entail the employment of both skilled and unskilled laborers, and as such will comply with this Act.

Occupational health and safety are key aspects in the operations. First aid and appropriate personal protective equipment will be provided to employees and maintained by the contractor during the period of construction.

4.2.4. Local Government Act (District and Urban Authorities) of 1982

This Act provides for detailed responsibility for urban and district councils in the administration of their day-to-day activities. ESIA and waste management is pointed out as one of the activities to be managed by both district and urban authorities. Accordingly, the proposed investment sub-project activities including this ESIA process will seek to liaise closely with Mbeya Municipal Council and other key stakeholders in the area.

4.2.5. Land Act No. 4 and Village Land Act No. 5 of 1999

The Land Act seeks to control land use and clarify issues pertaining to ownership of land and land-based resources, transactions on land and land administration. This act identifies three categories of land — village, public and general, and distinguishes protected or restricted land (e.g. national parks, forest reserves, etc), and ensures that tenure and rights of legitimate land users are considered and respected. Land sensitivity and potential environment impacts of the proposed road works shall be considered in order to ensure that the land is not polluted and to allow for natural and rapid restoration of cleared vegetation or disturbed land.

The Village Land Act provides for legal framework for the management and administration of land in villages. The Act empowers the Village institution or Council to manage all village land. It is important therefore that there should be close consultations and consideration of views of local authorities over any matter, e.g. compensation of damaged

properties, as a result of the implementation of investment sub-projects along the existing road alignments.

The design and implementation of this ESIA process is consistent with both legislations.

4.2.6. The Wildlife Conservation Act (1974)

This legislation was enacted to protect and ensure the conservation of wildlife species. The Act operates in accordance with the requirements of the Convention on International Trade in Endangered Species (CITES), the National Park Ordinance and other related legislations. Though there are no conservation area and fauna of conservation interest, the ESIA process and the sub-project investments will observe the provisions of this Act.

4.2.7. Water Acts of 1974 and 1981

The Water Act no. 42 of 1974 and Act no. 10 of 1981, principally seek to ensure that water is utilized without sectoral conflicts and without causing pollution. They were enacted to control and protect water resources, and place a regime of water rights to govern access to water use. Pollution control norms and standards are embodied in the water rights.

Apart from incorporating pollution control and having prevention conditionality in the water rights, the Act goes a step further by putting in place a regime in consent with discharge of effluent. Under Section 15 A (1) of the Act, no person may discharge effluent from any commercial, industrial or other trade waste systems into receiving waters without a consent duly granted by a Water Officer. The Act also contains two schedules, which set standards for receiving waters and effluent. The ESIA process will see to it that all relevant adverse impacts from the proposed road works are properly mitigated to avoid any potential pollution problem in the project area.

4.2.8. Mining Act, No. 17 of 1980, as amended

The Act sets out government policy on all forms of mining and is supported by various regulations covering claims, prospecting rights, mining rights and royalties. Mining license applicants are required to submit plans for environmental protection. Each industry is required to establish realistic resource recovery standards and to adhere to them. Mining plans are required to be presented before operations begin.

The implementation of investment sub-projects will take on board all the relevant provisions of the mining act.

4.2.9. The Roads Act 2007

Road transport in Tanzania is legally governed by the following Acts: Tanzania's Road Traffic Act of 1973, and the Transport Licensing Act of 1973. The Roads Act (2007) was passed by Parliament in April 2007, and published in August 2007. This Act covers all aspects related to road construction, development and upgrade. Of particular relevance for undertaking the ESIA for this road are the following sections: With regards to acquiring land, Part IV, 19 – (1) which states: “The road authority may, with necessary vehicles and equipment after consultation with relevant authorities, enter upon the land owned by any person in place not less than fifty meters from any dwelling-house, and on, through and over

such land construct a passage way for such vehicles, and may collect from such land any stones, sand, earth, gravel or other material which may be required for the purpose of opening, making or repairing any public road in the vicinity”. With regards to quarrying, Part IV, 19 – (2) states: “The road authority may acquire quarries for the purpose of developing and maintaining road in any area under its jurisdiction and the Minister responsible for finance after consultation with the Minister responsible for minerals may exempt the road authority from paying any levy, royalty and fees for licence.” Part IV, 19 – (3) continues to state: “In exercising the powers vested under this section, the Road authority shall give the owner of such land notice in writing at least fourteen days before entry on such land”. With regards to protection of the environment, Part IV, 30 states: “The road authority entrusted with the duties of developing, managing and maintaining the public roads under its jurisdiction, shall comply with the prescribed guidelines, regulations or any other written law relating to environmental protection and waste disposal”. Regarding Safety, Part V, 33 – (1) states: “The road authority shall ensure to the safety of road users during the design, construction, maintenance and operation of a public road by providing side walks, overhead bridges, zebra crossings and other matters related thereto”. All these sections are of particular importance in undertaking this ESIA, because it involves cross cutting issues regarding land acquisition, environmental protection, and road safety, all of which are addressed by sectoral legislation, but which are also referred to within the Roads Act, and are addressed in this document.

4.2.10. Water Acts of 1974 and 1981

The Water Act no. 42 of 1974 and Act no. 10 of 1981, principally seek to ensure that water is utilized without sectoral conflicts and without causing pollution. They were enacted to control and protect water resources, and place a regime of water rights to govern access to water use. Pollution control norms and standards are embodied in the water rights.

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The implementation of investment sub-projects will take on board all the relevant provisions of the mining act.

4.2.12. The Roads Act 2007

Road transport in Tanzania is legally governed by the following Acts: Tanzania's Road Traffic Act of 1973, and the Transport Licensing Act of 1973. The Roads Act (2007) was passed by Parliament in April 2007, and published in August 2007. This Act covers all aspects related to road construction, development and upgrade. Of particular relevance for undertaking the ESIA for these investment sub-projects are the following sections: With regards to acquiring land, Part IV, 19 – (1) which states: "The road authority may, with necessary vehicles and equipment after consultation with relevant authorities, enter upon the land owned by any person in place not less than fifty meters from any dwelling-house, and on, through and over such land construct a passage way for such vehicles, and may collect from such land any stones, sand, earth, gravel or other material which may be required for the purpose of opening, making or repairing any public road in the vicinity". With regards to quarrying, Part IV, 19 – (2) states: "The road authority may acquire quarries for the purpose of developing and maintaining road in any area under its jurisdiction and the Minister responsible for finance after consultation with the Minister responsible for minerals may exempt the road authority from paying any levy, royalty and fees for licence." Part IV, 19 – (3) continues to state: "In exercising the powers vested under this section, the Road authority shall give the owner of such land notice in writing at least fourteen days before entry on such land". With regards to protection of the environment, Part IV, 30 states: "The road authority entrusted with the duties of developing, managing and maintaining the public roads under its jurisdiction, shall comply with the prescribed guidelines, regulations or any other written law relating to environmental protection and waste disposal". Regarding Safety, Part V, 33 – (1) states: "The road authority shall ensure to the safety of road users during the design, construction, maintenance and operation of a public road by providing side walks, overhead bridges, zebra crossings and other matters related thereto". All these sections are of particular importance in undertaking this ESIA, because it involves cross cutting issues regarding land acquisition, environmental protection, and road safety, all of which are addressed by sectoral legislation, but which are also referred to within the Roads Act, and are addressed in this document.

3.2. International Legislations

The most appropriate international legal frameworks are

3.2.1 The United Nations Convention on Biological Diversity

This Convention, which calls for the sustainable use of biological diversity, was ratified by Tanzania in 1996. Mbeya Municipality, where the sub-projects will be implemented has a very low diversity of both flora and fauna. However, best practices of flora and fauna protection will be observed by contactors under supervisions of resident engineers.

3.2.2. Convention on Protection of Workers against Occupational Hazards in the Working Environment Due to Air Pollution, Noise and Vibration.

This Convention, ratified by Tanzania in 1984, provides the framework for ensuring a safe working environment for workers. The implementation of infrastructural sub-projects will ensure that it prevents the exposure of its workers and the public from any occupational hazards by providing appropriate security and safety equipment.

4.2.3. The World Bank's Safeguard Policies

This ESIA has been designed so that all investments under this contract will comply with all the Environmental laws of the United Republic of Tanzania and the Environmental and Social Safeguard Policies of the World Bank. In this chapter, the Bank's safeguards policies and their applicability is discussed.

The World Bank Safeguard Policies are;

1. Environmental Assessment (OP4.01, BP 4.01, GP 4.01) ;
2. Natural Habitats (OP 4.04, BP 4.04, GP 4.04) ;
3. Forestry (OP 4.36, GP 4.36);
4. Pest Management (OP 4.09) ;
5. Physical Cultural Resources (OP 4.11);
6. Indigenous Peoples (OP 4.10);
7. Involuntary Resettlement (OP/BP 4.12);
8. Safety of Dams (OP 4.37, BP 4.37);
9. Projects on International Waters (OP 7.50, BP 7.50, GP 7.50); and
10. Projects in Disputed Areas (OP 7.60, BP 7.60, GP 7.60).

In light of the type and location of the future sub-projects investments planned vis-à-vis the baseline data presented in Chapter 4 against the requirements of the Bank Safeguard policies, the following Bank operational policies will /may apply.

OP 4.01 Environmental Assessment

OP 4.12 Involuntary Resettlement

4.2.3.1. Environmental Assessment (OP4.01, BP 4.01, GP 4.01)

This policy requires environmental assessment (EA) of projects/programs proposed for Bank financing to help ensure that they are environmentally sound and sustainable, and thus to improve decision making. The EA is a process whose breadth, depth, and type of analysis depend on the nature, scale, and potential environmental impact of the sub projects under the core urban infrastructure (Mbeya) component. The EA process takes into account the natural environment (air, water, and land); human health and safety; social aspects (involuntary resettlement, indigenous peoples, and cultural property) and trans-boundary and global environmental aspects.

The environmental and social impacts will come from the implementation of sub projects activities of the contractor. The EA process calls for the GoT to prepare an Environmental and Social Management Framework (ESMF) report which will establish a mechanism to determine and assess future potential environmental and social impacts during implementation of the sub project, and then to set out mitigation, monitoring and institutional measures to be taken during operations of these activities, to eliminate adverse environmental and social impacts, offset them, or reduce them to acceptable levels.

OP 4.01 further requires that the ESIA report must be disclosed as a separate and stand alone document by the Government of Tanzania and the World Bank as a condition for bank Appraisal. The disclosure should be both in Tanzania where it can be accessed by the general

public and local communities and at the Infoshop of the World Bank and the date for disclosure must precede the date for appraisal of the program.

The policy further calls for the project as a whole to be environmentally screened to determine the extent and type of the EA process. This infrastructural project has thus been screened and assigned an EA Category B. This category of projects/programs is defined as follows.

Category B projects are likely to have potential adverse environmental impacts on human populations or environmentally important areas – including wetlands, forests, grasslands, and other natural habitats – and are less adverse than those of category A projects. These impacts are site specific, few if any of them are irreversible, and in most cases mitigation measures can be designed more readily than for category A projects. The EA process for category B projects examines the potential negative and positive environmental impacts and recommends any measures needed to prevent, minimize, mitigate, or compensate for adverse impacts and improve environmental performance.

Therefore, this EIA sets out to establish the EA process to be undertaken for implementation of program activities in the proposed infrastructural subprojects when they are being identified and implemented.

This process requires the use of the screening forms and checklists contained in Annexes 3.0 and 4.0 respectively, to identify potential adverse impacts of the construction and operation of sub-projects and thereby determine the corresponding mitigation measures to incorporate into their planned activities. Section 9.0 sets the relevant process and requirements for environmental and social management.

4.2.3.2 Involuntary Resettlement (OP/BP 4.12)

Significant efforts are to be made in the design and screening stages of sub-projects to avoid impacts on people, land, property, including people's access to natural and other economic resources, as far as possible. Notwithstanding, land acquisition, compensation and resettlement of people seems inevitable for certain type of sub projects located in certain areas. This social issue is of crucial concern to the Government of Tanzania and the Bank, as its impact on poverty, if left unmitigated, is negative, immediate and widespread. Thus, OP 4.12 will be triggered in those cases. Thus a Resettlement Policy Framework (RPF) has been prepared by the government and approved by the Bank in compliance with OP 4.12. The RPF sets the guidelines for the Resettlement and compensation Action Plans (RAPs) that would have to be prepared when any program investment triggers this policy. The RAPs would be prepared by the sub project contractors and would have to be submitted to the respective District Executive Director for approval but would also have to be approved by the World Bank before sub project investments are financed.

This policy would be triggered when a sub-project causes the involuntary taking of land and other assets resulting in: (a) relocation or loss of shelter, (b) loss of assets or access to assets

(c) loss of income sources or means of livelihood, whether or not the affected persons must move to another location.

The World Bank Safeguard policy OP 4.12, in most cases, is triggered because the program activity causes land acquisition, whereby a physical piece of land is needed and people may be affected because they are cultivating on that land, they may have buildings on the land, they maybe using the land for water and grazing of animals or they may otherwise access the land economically, spiritually or any other way which may not be possible during and after the sub project is implemented. Therefore, people are in most cases compensated for their loss (of land, property or access) either in kind or in cash or both.

The resettlement policy applies to all displaced persons regardless of the total number affected, the severity of the impact and whether or not they have legal title to the land. Particular attention should be paid to the needs of vulnerable groups among those displaced. The policy also requires that the implementation of the resettlement plans are a pre-requisite for the implementation/start of the construction to ensure that displacement or restriction of access does not occur before necessary measures for resettlement and compensation are in place. For chosen sites involving land acquisition, it is further required that these measures include provision of compensation and of other assistance required for relocation, prior to displacement, and preparation and provision of resettlement sites with adequate facilities, where required. In particular, the taking of land and related assets may take place only after compensation has been paid, and where applicable, resettlement sites, new homes, related infrastructure and moving allowances have been provided to displaced persons. For program activities requiring relocation or loss of shelter, the policy further requires that measures to assist the displaced persons are implemented in accordance with the project resettlement plans of action. The policy aims to have the displaced persons perceive the process to be fair and transparent.

Where there is a conflict between the Laws of Tanzania and the Bank OP4.12, the latter must take precedence if the Bank is to fund this project.

OP 4.12 requires the RPF to be disclosed both in Tanzania and at the Bank before appraisal.

5. PUBLIC CONSULTATION

5.1. Overview

Stakeholder consultations are an important element of an ESIA since it ensures that all the Interested and Affected Parties (I&APs) are involved in the project. It also enhances collaboration between the developers and I&APs throughout all the phases of a project. This section provides a detailed description of the Stakeholder Engagement Process conducted for the ESIA for the proposed project. The public consultation process in Mbeya was conducted in accordance with the Tanzanian Environmental Impact Assessment and Audit Regulation of 2005. Both the Tanzanian policy and regulatory framework and World Bank Guidelines for environmental and social safeguards emphasise the need for stakeholder involvement in the development process. These two documents therefore informed the consultation programme designed for this ESIA.

The objectives of public process were to:

- Provide clear and accurate information about the Project to communities living in the sub-project area, especially along the proposed road sub-projects in order to obtain feedback/valuable suggestions directly from impacted communities on their preferred mitigation measures;
- Promote understanding through the active engagement of individuals, groups, stakeholders, organizations who have a stake in the sub-project and its outcomes. Public consultation plays a critical role in raising awareness of impacts of the new developments;
- Share information with stakeholders on proposed sub-project, implementation schedule and expected impact on the physical, biological, and socio-economic environment of the sub-project;
- Understand stakeholder concerns regarding various aspects of the subprojects and the likely impacts in both construction and operation phases;
- Allow participants to ask questions in order to better understand the specifics of the sub-project investments, voice their opinion and their expectations from each sub-project;
- Understand the perceptions key concerns of the population and their representatives regarding the sub-projects; and
- Identification of local leaders of who further dialogue can be continued in subsequent stages of the Project.

5.2. Identification of key stakeholders

There are two types of stakeholders related to the sub-projects i.e. primary and secondary stakeholders. Primary stakeholders are those who are directly affected by the Sub-project activities and secondary stakeholders are those who are affected indirectly. In this ESIA study public consultation process focused on three levels of stakeholders' consultations. These are:

- a) Regional Government and Agencies in Mbeya municipality;
- b) Utility companies and other Local authorities; and

- c) Local Communities including vulnerable groups along the proposed roads.

These stakeholder groups are further sub-divided as follows:

- City residents;
- Businessmen, Traders;
- Council staff;
- Political leaders (Councilors, Mitaa Chairpersons etc);
- Donors, Financiers;
- Central Government/Regional Secretariat;
- Public Institutions and Other service providers; and
- Religions Organization.

All these stakeholders have different types of stakes according to their involvements in various aspects of the subproject. However, in many development projects the vulnerable groups in most cases are left behind as the results their interests, worries and expected benefits from the projects are always excluded in the planning process. The deliberate efforts were made to include the interest and air the expectation of these groups. Consultations sought to present opinions and concerns of women, disabled, aged people and youth regarding the proposed road and involve them in the overall planning of mitigation measures.

5.3. Meeting with stakeholders

In order to ensure that all the aforementioned stakeholder groups participate in public meetings, prior information through letters were sent to ward governments explaining to them necessity to invite everybody including disabled, women, aged people and youths. Adequate time to disseminate information about consultative meeting was provided. In collaboration with respective wards executive officers, every street indicated their convenient date, time and venue to convene the meeting. Prior to the commencement of proposed road survey work, letters were sent to the Regional offices of Mbeya, the City Council Director, Planning Officer and City engineer. These letters apart from giving the project details in brief, they were requesting the above named government leaders to inform their respective Wards Executive officers about initiation of the project activities. Wards Executive officers informed respective street leaders to arrange participatory meetings with people in the streets where the project will be implemented. For each meeting hosted by local authorities took about two hours, the Consultant had at least two persons present; one to act as moderator, and other to take notes for the minutes of the meeting.

Agendas for the Community consultations included:

- Presenting the Project;
- Presenting the proposed road alignment and paths or /and subproject area (landfill or parking area);
- Defining the local institutional framework and stakeholders;
- Obtaining from the local population their environmental and socio-economic concerns and perceptions regarding the proposed road; and
- Facilitating identification by the communities of the main land uses and land tenure issues along the proposed road.

5.3. Issues and Concerns as Raised During stakeholder Meeting

5.3.1. Stakeholder Concerns

The concerns of the local communities can be summarized as follows:

- Deteriorating environmental quality due to the piling up of garbage where collection centres exist down;
- Refuse is disposed haphazardly in areas where there no permanent designated spots for collection before disposal;
- Pollution of streams which are still being used by other people down -stream raising concern on health and hygiene issues;
- Bad state of access roads which hinder efficient transportation and delivery of other basic services;
- Lack of basic education on environmental awareness and public education issues related to health and hygiene;

5.3.2. Key Issues Raised

The main issues raised by stakeholders during the public consultations have been analyzed and organized around sub-project clusters as well as based on Wards visited (see also Table 4 below) as follows:

5.3.2.1. Key stakeholder issues based on sub-project clusters

Cluster 1: Artery Roads

- Development of sub-projects that touch on peoples properties should be implemented in a participatory manner and the community should be informed before commencement of survey exercise. People living at Ituha area complained to see the surveyors in their plots without any notification or even feedback;
- Road sub projects will provide jobs to people in the streets either directly through being employed on cheap duties during construction or indirectly through trading with workers and road users during and after construction. Hence the women have to be involved in light construction works and not to sell foods for contractors only. “Kazi ndogo ndogo tunaziweza mfano kushika vibendera, kufagia, n.k.”;
- Excavations during construction will destroy original shape of the areas especially where materials will be extracted. Here machinjioni we have very good environment because of the presence of many trees along the road, Clearance of trees will affect village weather and the environmental outlook of the place; and
- Reliable transport will increase demand for house in the street. More vehicles and minibuses including taxes will serve people in the street.

Cluster 2: Collection Roads

- They wanted to hear from the government if there is any special care or favour for the affected people who also happen to have physical disability;

- The program needs to consider possibility of allocating funds aside that will be used to compensate any property outside the RoW that will be divulged as affected by the road program.
- Existing rented properties at Soweto have very narrow rooms and if they are partially reduced/affected, will no longer be functional, therefore owners of the properties asked for full compensation;
- Removal of electricity and TTCL poles may cause loss of power and communication networks to health facility. This might affect lives of patients in the health centre (Igawilo , Ituha and kiwanja mpaka health centres);
- There were some differences among participants with some asking the possibility of skipping the encroaching road route (Soweto) to avoid destructions on peoples properties on; others were uncomfortable with changing the existing road path, as during rain season there are floods that make it impassable and it's an important road as it connects many streets to the main road; and
- Some customers have specific places/suppliers who they usually buy their requirements. If the place/suppliers' structures are relocated, unprecedented inconveniences will be caused to these customers.

Cluster 3: Residential/commercial Roads

- Main anticipated benefits from the project were mentioned as direct and indirect employments, easy and reliable transport services and improved shopping centres;
- They expect smooth road that will make it easy to take patients to the health centre from bus stand;
- Available city market in the area will be boosted through easy access that will bring in more customers;
- Road project will increase risks of road accidents especially if taxes and mini buses will not slow down along market areas, shopping centres and settlements;
- City council will lose revenues those currently collected from market frames that seem to be near proposed bus stand;
- all affected household structures at Sokomatola are sources of livelihood for people who have no alternative sources of income, is the city council going to look other place to accommodate us;
- They are expecting that, the proposed sub projects will raise people's income through increased prices of existing assets like shopping frames and houses for lease. Hence improving quality of life;
- Roads project will provide jobs to people in the streets either directly through being employed on casual labour basis during construction or indirectly through trading with workers and road users during and after construction. Hence the project is expected to have impact on reducing poverty in the street to some extent;
- There will be easy transport within the streets. With such situation these streets will be a right place to live for establishment of offices, institutions etc;
- If the project affect any public property e.g. school like UWATA School, water facilities, electricity poles or any other institution, it will be better for the city to make sure such properties are relocated and the services are not affected/stopped during construction;
- After reaching in consensus with the affected people on ultimate of their properties, it is better to provide people with enough time to remove the structures themselves because they can relocate some of valuable materials for reconstruction in the future “ Msije kutubomolea usiku, tupeni muda wa kutosha kuondoa vitu vyetu kwa usalama”;

- Rumours about the road project have been on government mouth for a long time but there is no serious steps taken to implement the plans. This has retarded development of people especially those residing along the RoW because they can neither improve their houses nor strengthen business facilities. The community are keen to understand when the project is going to be implemented;
- Current level of vehicles using street roads have increased considerably compared with the past levels and therefore all house structures and business conducted near the roads will benefit from reduced dusts which then will reduce amount of money currently spent by households to water the roads for the purpose of reducing dusts.
- They are also expecting easy access to town busses because a better road attracts more investors to come up and utilize the available population;
- Along Ilomba – Ivumwe Road there are people who utilize part of the road reserve for bricks making as sources of their livelihood. Implementation of the road project means they have to quit the area, they asked if the city can locate another place where they can continue with their work as the demand of bricks is still high and may be will increase when the affected people will be constructing new houses.
- They want the Government to choose the best contractor to avoid sub standard roads that are not sustainable;
- Community members were divided on the road project, some claiming for compensation on any loss source of livelihood and settlement and others demanding project implementation without compensation;
- Some participants proposed that the road can be improved to bitumen standard by following the existing earth road without any other increase of width and even they cited the example of Dar- es Salaam improved roads in squatter areas;
- Participants were unaware on what road alignment the road project is going to use. They want city engineer to come and define the route before project plan is set (Isyesye and Ivumwe raods);
- They wanted to be informed on what procedures and legal frameworks they can use to defend themselves when road projects diverge from the defined routes and impact people’s properties;
- During the road construction the priority for employment opportunities should be given to them instead of bringing in people from other places to work in sections of street while local youth are unemployed;
- Government should fulfill their promises of improving these roads because people are fed up of promises from the city authority;
- It is important for the road design to put road humps at every street centres and where the road transverse populated areas; and
- It was mentioned in the meeting that some landlords have been paid rent of up to two years. Tenants wanted to hear on how this project will compensate or cover such inconveniences.

Cluster 4: Bus and Lorry Parking Area /Terminal

- The project will provide jobs and income generating opportunities to the people hence reducing poverty for people living in Isyesye;
- Construction of bus stand near Nane-Nane Exhibition ground will provide chances for women and youth to run their small business the area
- Nane-Nane Exhibition area is famous for cultivation of farm relishes but currently utilization of the area is still seasonal. The project will alter production in this area throughout the year

- It will reduce transport cost for Isyesye resident as the terminal is near /walking distance from their settlements; currently they are paying high transport costs especially during rain season.
- It will also facilitate smooth transport services throughout the year for residents near to the bus terminal
- The crops production will increase as many farms are located in Isyesye and Uyole, having the lorry park near to the farms will simplify the transportation costs and raise the farmer's income.

Cluster 5: Landfill

- They congratulate this road program for implementing the project in a participatory manner unlike in some other programs where there is no communications made by government to the beneficiaries;
- Decay of waste are bringing unpleasant smell to them, they are hoping that improvement will reduce if not totally end the unpleasant smell they are experiencing now;
- Majority were worried on outbreak of unknown diseases including skin rash, red-eyes, respiratory etc;
- They proposed that the dump should be build using concrete materials instead of iron and steel materials which can be easily be vandalised;
- Since currently small garden cultivated in the area utilizes water from the river through traditional irrigation facilities crossing the dumping place, it will be impossible to do that after construction of the dump.
- Construction of a landfill will provide hygiene and safety for people living at neighbourhood because children who prefer to play in the area will not be able to reach the wasted; and
- In addition to the landfill sub-project, advice was provided to the government to support other socio-economic sub-components in the village in order to enhance standard of living of people in the area and mitigate negative impacts of the anticipated project.

Table 4. Key stakeholder issues based on Wards

STAKEHOLDERS/ WARD OFFICIALS	ISSUES RAISED
MAENDELEO	<p>The main issues raised are:</p> <ul style="list-style-type: none"> • Lacks capacity in all its committees, particularly in Environment, health and sanitation. • Public awareness and above issues education in the above issues(environment, health and sanitation • Due to garbage disposal problems (i.e. uncollected for long periods), there is always risks of disease outbreaks
MAJENGO	Same issues as above.
MBALIZI ROAD	<ul style="list-style-type: none"> • The area major problem lack of capacity in areas of health and sanitation and garbage disposal. • Lack of access roads which creates problems of garbage collection. • No fixed garbage collection centres, leaving residents to carry out uncontrolled dumping of waste. • High flood potential of the areas' unpaved roads during the rains and heavy dust during the dry season. • Water supply is inadequate, leaving some household to share a few water delivery points.
IYELA	<ul style="list-style-type: none"> • The major problem in this ward is its poor road conditions; Unpaved and lacking in drainage facilities. • The above results in run-off deluge into residents' dwellings. • They there is need to strengthen/ build capacity in the Wards' committees on environmental management and health and also public awareness campaigns in health and hygiene.
NZOVWE	<ul style="list-style-type: none"> • About 10,000 Residents are frequently affected by floods in the low lying areas during the seasonal rains in the months of November to April. • The storm run offs would often deposit eroded soil and other debris into residential houses. • Due to garbage disposal problems (i.e. uncollected for long periods), there is always risks of disease outbreaks. • There is inadequate capacity in the area of health and sanitation and waste disposal • Poor roads lacking in drainage facilities.
ILOMBA	<ul style="list-style-type: none"> • The major problems are in health and sanitation, garbage disposal and poor roads. • Water quality also wants pausing health risks such as outbreaks of diseases such as typhoid.
MWAKIBETE	<ul style="list-style-type: none"> • The area has poor access roads.

STAKEHOLDERS/ WARD OFFICIALS	ISSUES RAISED
	<ul style="list-style-type: none"> • Lacks drainage facilities for storm run-off • Lacks capacity in all its committees, particularly in Environment, health and sanitation. • Public awareness and above issues education in the above issues(environment, health and sanitation)
IGANZO	<p>The ward</p> <ul style="list-style-type: none"> • Lacks capacity in all its committees, particularly in Environment, health and sanitation. • Public awareness and above issues education in the above issues(environment, health and sanitation)
ISYESYE	<p>The main issues raised are with regard into:</p> <ul style="list-style-type: none"> • Lack of permanent designated collection centers for final disposal at the dump site • Poor and inaccessible road network • Lacks capacity in all its committees, particularly in Environment, health and sanitation
IGAWILO	<ul style="list-style-type: none"> • Problems of Igawilo are in flooding risks in the lower areas due to lack of drainage structures in most of its in the roads • As in other areas of the City, garbage collection and disposal is a major challenge, particularly at the crowded Igawilo market. • There are no permanent designated collection centers for final disposal at the dump site. • Capacity building needs to be enhanced for its committees in health and sanitation and environment.
NSALAGA	<ul style="list-style-type: none"> • The dump site is located d herein this ward. The major issues highlighted here are : • Inadequate water supply. • Poor access roads for farmers to market their produce and obtain supplies. • Inadequate capacity in its committees of health, sanitation and environment. • Collection centers for garbage disposal are not in fixed positions and pose a problem in proper disposal.
Water and Sewerage authority(UWASA)	<ul style="list-style-type: none"> • The agency was consulted on water supply, quality and networks and possible disruptions when project activities commence.
TANESCO	<ul style="list-style-type: none"> • The utility was consulted on its network particularly those in close proximity to the sub-projects. Developer/ contractor

STAKEHOLDERS/ WARD OFFICIALS	ISSUES RAISED
	<ul style="list-style-type: none"> • Before commencement of activities .The major issue of concern is their undergo
TTCL	<ul style="list-style-type: none"> • The network engineers will cooperate with the • On- site construction crews.
Government Regional Departments and Agencies	<ul style="list-style-type: none"> • Regional department consulted are those Natural resources, Planning and communication networks Geology and the Meteorological Agency

6. SELECTION OF ALTERNATIVES

SMEC is aware that the city council prioritized the subprojects as much as possible when selecting the areas for project implementation. Usually selection of project implementation area depends on environmental, social economic and political factors. The social survey conducted by SMEC discovered that all subproject areas selected are socially and economically viable for the project. However, a series of consultations made with stakeholders in the areas discovered that some of the beneficiaries preferred other alternatives in which for their opinions they would have been of more economic value to them.

The following alternative project areas were mentioned by beneficiaries during consultations and participatory meetings. Table 5 below summarises responses obtained from the beneficiaries:

Table 5: Mentioned alternative project areas by beneficiaries

S/No	Community	Selected Sub-Project	Alternative	Reasons
1.	SAE	Sae – Kisanji Sae – Ituha Sae - TANESCO	Sae – Mjepyadua	This is a crucial road route that link two streets of Sae and Mjepyadua. Vehicles usually prefer to use this route during rain seasons and when there are some damages on TANESCO road
2.	Sokomatola, Kati and Kiwanjampaka	Barabara ya Kati plus Car park	Barabara ya kati remove a car park in order to reduce car congestion.	Since there are no funds prepared for compensation, the project management can consider eliminating car parking areas to avoid impacting on peoples properties. A second alternative is elimination of city market to get enough space for car parking.
3.	Isyesya	Ilomba - Isyesya	Follow the proposed city master plan road route	Current road route transverse on people’s occupied land and exotic trees from area around Partzanki to Dr. Mlozi area. The route transverse on peoples land in attempt to avoid impacting cemetery ground. Beneficiaries proposed the road route to follow the city master plan that impact the cemeteries instead of causing problems with the people
4.	Mwambeja	Ilemi – Iganzo bridge	Mwafute bridge	It is very crucial for people living in the Iganzo residents who are key providers of farm products to a famous market of Mwanjelwa. The bridge will boost up peasants to supply products in the market hence market prices will be more favourable to consumers
			Kwa-Alioto bridge	It link Iganzo to a key burial ground, primary schools, and secondary school and farming lands. It also link the area to a famous “machinjio” which supply meat to majority butchers in the city
5.	Ntundu	Ntundu damping area	Mlima wa nyoka open space area	Since Ntundu damping area is within two rivers (alinji and gogo) of which are sources of water for domestic use for communities living on lower parts of the river, it was proposed that the dump can be shifted from the area to mlima wa nyoka free space where population around the damping site will be lower than Ntundu

It should be noted that during the discussion for alternatives to the project the beneficiaries themselves were not on consensus on specific areas. They had different interests and one group would not agree to the other one except the Isyesya community who wanted the city engineer to visit the area and decide on the right road route. For this reason, this study believes that proper assessment was carried out by city council before selecting the project specifications.

7. IDENTIFICATION, ASSESSMENT AND ANALYSIS OF MPACTS

7.1. Overview

Potential impacts are identified and discussed in this Section for each sub-project cluster and from the construction and operation phases of the sub-projects. The impacts have been differentiated for the various phases of the project: construction, operation, and decommissioning. For the activities of these phases of the Project, the ESIA identifies the aspects that can potentially impact the environmental resources and socio-economic receptors. The following resources and receptors are considered:

- Soil, water and groundwater resources;
- Biological resources (terrestrial and aquatic);
- Socio-economic receptors (land use, economic activities, archaeology, visual resources);
- Air Quality; and
- Ambient Noise Levels.

The assessment differentiates between:

- **Positive** and **negative** impacts (beneficial or detrimental);
- **Direct** and **indirect** impacts;
- **Temporary** and **permanent** impacts (including short-term, i.e. less than 3 years; and long-term, i.e. greater than 3 years);
- **Cumulative** impacts.

The definitions used throughout this report are as follows.

Direct Impacts: which are caused by the actions or alternatives and they occur at the same time and the same location where the action is done.

Indirect Impacts: which are caused by the action and are later in time or farther removed in distance, but can be reasonably foreseen. Indirect impacts may include effects related to induced changes in the pattern of land use, population density or socio-economic growth rate, and related effects on air and water and other natural systems, including ecosystems;

Cumulative Impacts: which result from the incremental impact of the action when added to other past, present, and/or reasonably foreseen future actions, regardless of the organization (public or private) or person who undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

7.2. Identified Potential Environmental Impacts

It is very important that the potential impacts related to a proposed subprojects are identified at an early stage and their mitigation measures are considered in order to ensure environmentally sustainable development. Following is a brief description of the environmental impacts identified during the field investigations, literature reviews and public consultations. The environmental impacts have been addressed from both localized and holistic approach to be able to capture impacts in close proximity to each sub-project area as well as the entire project area.

7.2.1. Negative Impacts

The likely negative impacts of the proposed sub-projects during construction and operational phases of the project are outlined below and summarized in Table 6.

7.2.1.1. Construction Phase

- There could be a possible disruption of utilities: water electricity and landline telephone in road sub-projects during this phase.;
- Earthworks, excavation of borrow pits, construction traffic;
- And bush clearing will have visual impact, pollute the air through dust and other emissions from construction machinery;
- Heavy construction traffic on excavated areas would create high levels of dust during the construction period as well as along the deviations throughout the dry season, until paving has been completed. Dust in quarries and at crushers could present a health hazard to the workforce;
- During construction, noise will be created by construction activities and traffic;
- Vegetation loss will arise from clearance of land needed for the permanent works and for temporary use during construction for the purposes of deviations, camps sitting and, quarries. In the sub-projects affected this vegetation is composed of trees and shrubs;
- Traffic disruption will occur in the road sub-projects entailing risks of accidents during construction work; and
- Health and safety risk to workers are real; due to prolonged exposure to smoke and dust emissions and operations of heavy construction equipment.

7.2.1.2. Operational Phase

- Concentrated drainage flows along the road sub-projects ;
- Has been a cause for erosion and flooding events, and upgrading of the roads could worsen the existing situation;
- An increase in vehicular traffic due an upgrade of sub- project roads may contribute to long term environmental impacts. Emissions of carbon dioxide may increase during the operation phase leading to accelerated impacts on climate change;
- During operational phases; noise will emanate from engines and exhaust systems of heavy commercial and private vehicular traffic. Road traffic may double and speeds increase especially at night, causing disturbances to communities asleep near areas of sub-project roads; and

- Emissions of methane gas and other noxious substances could pose a health hazard to personnel working at the landfill and also residents in the neighbourhood

Table 6. Identified potential Negative Impacts for each sub-project

NAME OF SUB-PROJECT AND DESCRIPTION	TARGETED INTERVENTIONS	POTENTIAL ENVIRONMENTAL IMPACTS
<p>TANESCO-SAE-KISANJI-length 3.39 km The project transverses residential and business premises. A number of community based organizations, public institutions, water pumping and electric power sub-station are located along this route.</p>	<p>Upgrading from Earth Surface to asphalt</p>	<p>Changes are anticipated in the hydrologic and drainage regimes; including biodiversity along the sub-project areas.</p>
<p>COMMISSIONER : Road: Length 0.54 km The road is inclined with a gentle gradient. The Regional Commissioners' offices are located along the road. Residential neighborhoods, a church and school are also along this stretch of road.</p>	<p>Upgrade from gravel surface to Asphalt</p>	<p>Substantial Sediment load from areas up the hill could clog drainage structures and cause flooding at lower levels. Biodiversity could also be altered on due to the clearing of bush and trees which grow along the road embankment.</p>
<p>SAE-ITUHA DISPENSARY ROAD: Length: 2.52 km. The road traverses the Tanzam railway line at one section. There are both businesses and residential neighborhoods along the project area with the dispensary where the sub-project terminates.</p>	<p>Upgrade from earth surface to Asphalt.</p>	<p>Changes in hydrological and drainage regimes are anticipated along the route particularly at the railway crossing. Bush clearing and tree cutting along the project could alter the biodiversity.</p>
<p>ILOMBA MACHINJIONI: Road length:2.16 km A portion of this sub project is the former Tanzam highway. A few schools and a college are based here. The city slaughter house is located at the end of the sub-project. This road joins the Ilomba Isyesye one at about half a kilometer from the Tanzam highway. It has one bridge crossing.</p>	<p>Upgrade from earth surface to asphalt</p>	<p>The raised level of the road with respect to adjacent houses a half kilometer from the main highway makes it a potential black spot. Biodiversity will also be altered to some degree when trees and bush on the sub-project are cleared. The steep slopes on either side of the bridge will significantly affect the hydrological and drainage regime on this section of the sub-project.</p>

<p>ILOMBA IVUMWE: Road length:1.12 km The sub-project area comprises both residential and small businesses. There is also a small market and a cemetery at the end of the sub-project. A house at one section of the project is on the road reserve and earmarked for demolition.</p>	<p>Upgrade from earth surface to asphalt.</p>	<p>Changes in the hydrological and drainage regimes are potential impacts at the end section of the sub-project which has a slope. Demolition of the house sitting on A section of the sub-project will also deprive the owner business income and a place to live. An informal market which operates on the RoW will have to be relocated.</p>
<p>NDIO REGIONAL HOSPITAL Road length:0.61km A few bushes and trees may have to be cleared during construction phase.</p>	<p>Upgrade from earth surface to asphalt</p>	<p>Storm Runoff from the hospital gate likely to empty in nearby properties.</p>
<p>NEW FOREST Road length:2.22km Run off containment is a challenge in this sub-project. Bush clearance and tree (a few) removal will also have to be undertaken. Some telephone poles may have to be relocated.</p>	<p>Upgrade from earth surface to asphalt</p>	<p>Storm Runoff will cause flooding in some sections.</p>
<p>IGAWILO HEALTH CENTER Road Road length:0.44 km As with the case with Airport Jacaranda road, shops at the junction near the Malawi road are on the RoW.</p>	<p>Upgrade from earth surface to asphalt</p>	<p>Runoff from the main road to Malawi will inundate the houses along the sub-project road.</p>
<p>KABWE BLOCK T SIDO Road length: A:2.10 km B: 0.33 km A few NGO's, churches and a radio station are located along the sub-project. Telephone and water utilities are likely to be affected during construction.</p>	<p>Upgrade from earth surface to asphalt</p>	<p>Vegetation will be altered on this project since some trees may be removed. The B sub-project (Soweto section) is a flood prone zone.</p>
<p>AIPORT –JACARANDA Sec School—Forest Sec School—BHANJI Road Road length: 3.78 km The sub project road narrows at a crowded market centre and some buildings may have to be demolished.</p>	<p>Upgrade from earth surface to asphalt</p>	<p>Flooding at the flat section of the road. Adjacent to the Air field.</p>

<p>MIST road(Mbeya Institute of Science and Technology) Road length: 2.70 km The sub-project is located in an area where major industries are coming up. The Mbeya Institute of Science and Technology (MIST) are located where the project terminates.</p>	Upgrade from earth surface to asphalt	Upgrading the road will result in the drainage regime of the surrounding area.
<p>DAUSEN- LEGICO Road Road length: 0.74 km The sub – project road passes through an older neighborhood of Mbeya City. Drainage canals appear to be functional but will require minor rehabilitation to restore them to pristine condition.</p>	Upgrade from earth surface to asphalt	Upgrading this road and its drainage systems will result in an increase of storm runoff into the stream down the valley. The bridge in the valley marks the boundary between Majengo and Maendeleo Wards. Both wards have refuse collection problems
<p>SAE- TENESCO junction to Mjepyadau Road Road length: 0.99 km A few businesses operate in this area. The TENESCO power substation is also located along this road.</p>	Upgrade from earth surface to asphalt	Upgrading the road may result in an increase of storm runoff to surrounding properties.
<p>WASTE DUMP:</p>	Fencing of the facility and constructing access roads and installing a weigh bridge.	Emission of methane and also smoke during burning of refuse
<p>LORRY / BUS Park The area is 30,000m</p>	Bush clearing ground leveling	Soil waste, possibly contaminated could easily pollute the environment. There could be damage to water and power utilities.

7.3. Identified Potential positive Impacts by phase of the project

The residents of Mbeya City will benefit economically and socially from the proposed sub-projects as follows (see also Table 6):

7.3.1. Construction phase

- Creation of temporary employment during construction; and
- Increased income for local community, especially youth and women by selling food and other goods to construction workforce

7.3.2. Operation phase

The positive Impacts at the operation phase are summarized as follows:

- Reduced accidents and vehicle congestion in the city centre because of alternative access roads;
- Improved health and hygiene conditions among the local communities of the project areas as result of improved solid waste management;
- Reduced accidents and increased safety during nights as result of street lighting and improved roads; and
- A relative rise in property values (at least 20% to 30%) e.g. room rent in Ilomba area prior to project initiation was Tshs 3,000, currently just after the consultation it has increased to Tshs 5,000 ;

Table 7: Positive Impacts of the sub-projects at Construction and Operation phases.

Sub -project Groups	Assessment of Impacts	
	During Construction Phase	During Operation Phase
Collection Roads : (Sae-TanESCO-junction to Mjepyadau road and, Ilomba Machinjioni.	As in the other projects below, employment creation will be a positive development during this phase.	These sub projects will serve as important links for services such as power, health services, meat and bread supply for the rest of the city. More business and employment opportunities are set to rise while GDP Locally and the City as a whole are bound to grow. This will contribute to poverty alleviation in the Country as a whole.
Residential / commercial access roads : (Dausen Legico ,Barabara ya Pili and Commissioner road and RTD Saba Saba)	These projects will also provide employment opportunities as in the case of the other groups.	The projects will service resident communities and City residents by providing reliable and quick access to business services.
Artery Roads : Ilomba Isyesye, Ilomba Ivumwe, Sae- Ituha dispensary, Ndio regional hospital, New Forest Road, TanESCO–Sae- Kisanji, Kabwe Block T and Airport- Jacaranda road.	These projects will provide many temporary jobs to the surrounding communities. They will also create small business opportunities for women and other marginalised groups.	At post construction phase the roads would provide vital links for farmers and business people to market their goods and produce and also obtain other services more efficiently. Property values particularly in surveyed areas such as Mwakibete, New Forest, and Isyesye wards. An improved transportation system will evolve with public vehicles venturing into the new routes, thus benefiting sensitive centers like Schools and

Sub -project Groups	Assessment of Impacts	
	During Construction Phase	During Operation Phase
		hospitals. The new road networks would also impact positively in more efficient garbage collection.
Solid Waste Landfill and Garbage collecting Centers in all road sub-projects:(200 centers to be constructed city wide):	Creation of temporary employment particularly for the unemployed youth from Nsalaga Ward . Opportunities will also be created for small scale market women from the adjacent Igawilo market to sell their produce to the workforce	The fencing of the dump site will enhance better controlled dumping and improve the quality of life of the surrounding communities collection whose present number is about = People. The establishment of permanent collection centres would lead to a cleaner environment City wide thus providing a conducive and healthier environment for residents and visiting the city. A boost in the economy and growth in GDP is envisaged on at least 5% to 6% per annum in the first three years post construction phase. Skilled and semi-skilled people could be permanently employed during this phase for project maintenance.

7.4. Analysis of Impacts

The significance of the impact, whether positive or negative, in this ESIA has been determined in accordance with World Bank guidelines, other international guidelines and other relevant ESIA's that have been prepared for similar operations.

The positive and negative impacts assessments associated with the grouped sub-projects are given in Table 8 and Table 9 below:

Table 8. Sub-projects Impact Analysis Matrix

PROPOSED SUB-PROJECT	PHYSICAL ENVIRONMENT					BIOLOGICAL ENVIRONMENT			SOCIO-ECONOMIC ENVIRONMENT		
	Pollution			Noise	Erosion	Flora	Fauna	Endangered species	Employment	Improved services	Attitude
	Air (Dust/Emissions)	Water	Soil								
TANESCO-SAE-KISANJI- RD	M 1 B 2 A +1	M 1 B 2 A +1	M 1 B 2 A +1	M 1 B 2 A+1	M 1 B 2 A +1	M 1 B 1 A 0	M 1 B 1 A 0	M 1 B 1 A 0	M 2 B 2 A +2	M 3 B 3 A +3	M 2 B 3 A +3

COMMISSIONER : ROAD:	M 1 B 2 A +1	M 1 B 2 A +1	M1 B2 A-1	M 1 B 2 A +1	M 1 B 2 A +1	M 1 B 2 A +1	M 1 B 1 A 0	M 1 B 1 A 0	M 2 B 2 A +2	M 3 B 3 A +3	M 2 B 3 A +3
SAE-ITUHA DISPENSARY ROAD:	M 1 B 2 A +1	M 1 B 2 A +1	M1 B2 A-1	M 1 B 2 A +1	M1 B1 A-1	M 1 B 2 A +1	M 1 B 1 A 0	M 1 B 1 A 0	M2 B2 A+3	M2 B2 A+3	M1 B2 A-4
ILOMBA MACHINJONI: ROAD.	M 1 B 2 A +1	M 1 B 2 A +1	M1 B2 A-1	M 1 B 2 A +1	M 1 B 1 A -1	M 1 B 2 A +1	M 1 B 1 A 0	M 1 B 1 A 0	M 2 B 2 A +2	M 3 B 3 A +3	M 2 B 3 A +3
ILOMBA IVUMWE: ROAD	M 1 B 2 A +1	M 1 B 2 A +1	M1 B1 A0	M 1 B 2 A +1	M 1 B 1 A 0	M 1 B 1 A 0	M 1 B 1 A 0	M 1 B 1 A 0	M 2 B 2 A +2	M 3 B 3 A +3	M 2 B 3 A +3
NDIO REGIONAL HOSPITAL ROAD	M 1 B 2 A +1	M 1 B 2 A +1	M1 B1 A0	M 1 B 2 A +1	M 1 B 2 A +1	M 1 B 1 A 0	M 1 B 1 A 0	M 1 B 1 A 0	M 2 B 2 A +2	M 3 B 3 A +3	M 2 B 3 A +3
NEW FOREST ROAD	M 1 B 2 A +1	M1 B1 A-1	M 1 B 2 A +1	M 1 B 2 A +1	M1 B2 A-1	M1 B1 A0	M1 B1 A0	M1 B1 A0	M 2 B 2 A +2	M 3 B 3 A +3	M 2 B 3 A +3
IGAWILO HEALTH CENTER ROAD	M 1 B 2 A +1	M 1 B 2 A +1	M1 B2 A-2	M 1 B 2 A +1	M1 B2 A-2	M1 B1 A0	M1 B1 A0	M1 B1 A0	M 2 B 2 A +2	M 3 B 3 A +3	M 2 B 3 A -3
KABWE BLOCK T SIDO	M 1 B 2 A +1	M1 B2 A0	M1 B2 A-1	M 1 B 2 A +1	M1 B1 A-1	M 1 B 2 A +1	M1 B1 A0	M1 B1 A0	M 2 B 2 A +2	M 3 B 3 A +3	M 2 B 3 A +3
AIPORT – JACARANDA SEC SCHOOL— FOREST SEC SCHOOL— BHANJI RD	M 1 B 2 A +1	M 1 B 2 A +1	M1 B2 A-2	M 1 B 2 A +1	M1 B3 A0	M1 B1 A0	M1 B1 A0	M1 B1 A0	M 2 B 2 A +2	M 3 B 3 A +3	M 2 B 3 A +3
MIST ROAD(MBEYA INSTITUTE OF SCIENCE AND TECHNOLOGY)	M 1 B 2 A +1	M 1 B 2 A +1	M1 B2 A0	M 1 B 2 A +1	M1 B2 A-2	M1 B1 A0	M1 B1 A0	M1 B1 A0	M 2 B 2 A +2	M 3 B 3 A +3	M 2 B 3 A +3
DAUSEN-LEGICO ROAD	M 1 B 2 A +1	M 1 B 2 A +1	M1 B2 A-1	M 1 B 2 A +1	M1 B2 A-1	M1 B1 A0	M1 B1 A0	M1 B1 A0	M 2 B 2 A +2	M 3 B 3 A +3	M 2 B 3 A +3
SAE-TENESCO JUNCTION TO MJEPYADA U ROAD	M 1 B 2 A +1	M 1 B 2 A +1	M1 B2 A-1	M 1 B 2 A +1	M1 B2 A-1	M1 B1 A0	M1 B1 A0	M1 B1 A0	M 2 B 2 A +2	M 3 B 3 A +3	M 2 B 3 A +3
SOLID WASTE :		M 1 B 2 A -2	M 1 B 2 A -2	M 4 B 3 A -3	M1 B1 A0	M1 B1 A0	M1 B1 A0	M1 B1 A0	M 2 B 2 A +2	M 3 B 3 A +3	M 2 B 3 A +3

LORRY / BUS PARK	M 1 B 1 A 0	M 1 B 2 A +1	M 1 B 2 A +1	M 1 B 3 A +1	M 1 B 2 A -1	M 1 B 1 A 0	M 1 B 1 A 0	M 1 B 1 A 0	M 2 B 2 A +2	M 3 B 3 A +3	M 2 B 3 A +3
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Interpretation: MAGNITUDE (M)

- 4 National/ International
- 3. Regional/National
- 2. Local
- 1. Site Specific

Interpretation: PERMANENCE (B)

- 1 = No Change / Not Applicable
- 2 = Temporary
- 3 = Permanent

Interpretation: SIGNIFICANCE (A)

- +4 Very High Positive Impact with national or international benefits
- +3 Highly Positive Impact (High)
- +2 Moderately Positive Impact – Likely to impact on quality of life within the project area
- +1 Light Positive impact – Minor impact but of significant local benefit
- 0 No Impact
- 1 Light Negative Impact – Minor negative impact at the local level
- 2 Moderate Negative Impact – A negative impact likely to adversely affect the environment or quality of life in project area if not mitigated
- 3 Highly significant negative impact (High)
- 4 Very High significant Impact (Very High) with national or international implication

Table 9. Positive Impacts of the sub-projects at Construction and Operation phases.

Sub -project Groups	Assessment of Impacts	
	During Construction Phase	During Operation Phase
Collection Roads : (Sae-Tanesco- junction to Mjepyadau road and, Ilomba Machinjioni.	As in the other projects below, employment creation will be a positive development during this phase.	These sub projects will serve as important links for services such as power, health services, meat and bread supply for the rest of the city. More business and employment opportunities are set to rise while GDP Locally and the City as a whole are bound to grow. This will contribute to poverty alleviation in the Country as a whole.
Residential / commercial access roads : (Dausen Legico ,Barabara ya Pili and Commissioner road and RTD Saba Saba)	These projects will also provide employment opportunities as in the case of the other groups.	The projects will service resident communities and City residents by providing reliable and quick access to business services.
Artery Roads : Ilomba Isyesye, Ilomba Ivumwe, Sae- Ituha dispensary, Ndio regional hospital, New Forest Road, Tanesco–Sae- Kisanji, Kabwe Block T and Airport- Jacaranda road.	These projects will provide many temporary jobs to the surrounding communities. They will also create small business opportunities for women and other marginalised groups.	At post construction phase the roads would provide vital links for farmers and business people to market their goods and produce and also obtain other services more efficiently. Property values particularly in surveyed areas such as Mwakibete, New Forest, and Isyesye wards. An improved transportation system will evolve with public vehicles venturing into the new routes, thus benefiting sensitive centers like Schools and hospitals. The new road networks would also impact positively in more efficient garbage collection.
Solid Waste Dump and Garbage collecting Centers in all road sub-projects: ((200 centers to be constructed city wide):	Creation of temporary employment particularly for the unemployed youth from Nsalaga Ward . Opportunities will also be created for small scale market women from the adjacent Igawilo market to sell their produce to the	The fencing of the dump site will enhance better controlled dumping and improve the quality of life of the surrounding communities collection whose present number is about = People. The establishment of permanent collection centres would lead to a cleaner environment City wide thus providing a conducive and healthier environment for residents and visiting the city. A boost in

Sub -project Groups	Assessment of Impacts	
	During Construction Phase	During Operation Phase
	workforce	the economy and growth in GDP is envisaged on at least 5% to 6% per annum in the first three years post construction phase. Skilled and semi-skilled people could be permanently employed during this phase for project maintenance.

8. MITIGATION MEASURES

8.1. Overview

The likely impacts of the Project on the biophysical and social environments in the project area are described in Chapter 7 of the ESIA Report. The pertinent Mitigation measures for negative impacts of the project are assessed and summarized in Table 10 below. It is noteworthy that the recommended mitigation measures are based on stakeholders input/concern, expert analysis, experience with similar and/ or related sub-projects and the best practice available.

8.2. Proposed mitigation measures of the physical, biological and socio-economic environments

Table 10. Summary of Assessed Negative Impacts and Mitigation Measures

Sector addressed	Impacts Assessments	Mitigation Measures
PHYSICAL Environment		
Modification of landscape	Demolition of structures along and lorry parking area sub-projects roads. Relocation of utilities in some areas.	<ul style="list-style-type: none"> Limit construction within RoW's and preparation of RAP in cases of land acquisition. Integrate landscaping design to moderate effects of cuttings in sloppy areas
BIOLOGICAL Environment Tree Cutting	Trees and bush along some road sub-projects RoW's will be removed	<ul style="list-style-type: none"> Replace vegetation on the reserve upon completion of construction Planting of shrubs and grasses to reduce erosion of road embankment to be carried out just before the rains. Choice of indigenous plants to maintain local plant diversity

HUMAN ENVIRONMENT		
Loss of residence, business sheds and land plots	<p>1. Some business plots and sheds could adversely be affected in sub-projects A and B, Kabwe block T.</p> <p>2. A residential house and some business plots could be affected and an informal market will have to be relocated in Ilomba Ivumwe road sub-project.</p> <p>3. A residential property (perimeter wall) will be affected in the RTD SabaSaba road sub-project.</p> <p>4. Some shops are likely to be affected along Barbara ya Pili and</p> <p>5. A shop along Dausen Legico sub-project.</p> <p>6. A plot (perimeter wall) will be affected along Sae-Tanesco- junction to Mjepyadau road.</p> <p>7. Some shops are likely to be affected along Igawilo Health centre road.</p> <p>8. Some houses at Tanesco-Sae-Kisanji- Road will be affected during construction. Both are business cum business premises.</p> <p>9. Sae - Ituha dispensary road. Some houses and fences will be affected.</p> <p>10. New Forest Road: Some fences on both sides of the road will be affected.</p>	<p>Replacement or relocation owners of property. (See the Social Impact Assessment and the RAP report)</p> <p>Slight Modification of the RoW if this is possible</p>
Employment	The project will create temporary and permanent employments	<ul style="list-style-type: none"> Local recruitment of workers will be desirable
Noise pollution	Construction work (heavy construction equipment), vehicles transporting materials) Normal frequent traffic at night during operational phase.	<ul style="list-style-type: none"> Impacts from noise can be mitigated by adhering to a daytime work, schedule maintaining plant and equipment and mufflers, controlling the speed of construction equipment in residential areas, Noise pollution at night will be limited to the area alongside the road.

Air pollution and dust	Transportation of sand and aggregates to working sites. Road works (clearing, excavation). Smoke emission from solid waste dump	<ul style="list-style-type: none"> • Watering and covering of earth materials • Creating a buffer zone to keep residences away from waste dump activities. • Emissions of carbon dioxide may increase during the operation phase, which will lead to an impact on climate change
Contamination of water supply and spread of communicable diseases	Transportation waste by trucks may create contamination of water or human environment	<ul style="list-style-type: none"> • Daily inspection of sewerage trucks. Consult UWASA about sewerage and water supply systems
Diseases, HIV/AIDS	Risk for spreading of communicable diseases such as HIV/AIDS between workers and host community	<ul style="list-style-type: none"> • Sensitize workers on HIV/AIDS.
Accidents and disruption of traffic and pedestrian movement	Interruption of traffic and pedestrian movement by project activities. Reckless driving on tarmac roads	<ul style="list-style-type: none"> • Use of sign/warning posters at project sites against traffic accidents • Construction of humps /road bumps to slow down speeding vehicles.
Safety to workers and road users.	Use of heavy equipment during construction activities and asphalt preparation	<ul style="list-style-type: none"> • Adhere to Occupational Safety and Health Authority and contractors regulations. • Practice safety and Health measures/policy • Provide employees with personal protective gear and enforce application, • Keep public from materials sites. • Regular maintenance of equipments and use of Instruction manuals
Solid Waste management	Haphazard disposal of solid waste such as plastics and metal objects may contaminate water supplies and affect human/animal life if ingested.	<ul style="list-style-type: none"> • Proper handling of waste by installation of facilities for it. • Fencing of waste dump and solid waste collection centre
Damage to Utilities in the sub - projects.	Roads works may severe water, electricity and telephone landlines. Effect on Poles and overhead power lines by construction equipment.	<ul style="list-style-type: none"> • Careful design of Infrastructures to include layout for water and telephone utilities. • Relocation can be effected before construction begins.

8.3. Proposed Mitigation Measures at Council and Community Levels

Experience in the past has shown that local communities do not actively participate in implementing issues prioritized at City consultations, unless there are demonstration projects to be implemented in their areas. In view of this, the Tanzania Strategic Cities Project (TSCP), Mbeya Sub-Project is now attempting to "downstream" the EMP process to the Ward level (see Table 10 below). In ward consultations, the local communities have identified issues which are critical for their development. Eventually, it will be desirable for development plans to be integrated into the strategic urban development planning framework

for the City. We therefore propose the mitigation measures at council/ community levels for both construction and operation in a tabular from (Table 11) as follows:

Table 11. Mitigation measures at council/ community levels.

INTERVENTION PHASE	MITIGATION MEASURES
Construction	<ul style="list-style-type: none"> • Use of sign/warning posters at project sites against traffic accidents • Watering and covering of earth materials • Creating a buffer zone to keep residences away from waste dump • maintaining plant and equipment and mufflers, • controlling the speed of construction equipment in residential areas, • Sensitize workers and communities at large on HIV/AIDS. • Professional handling of point sources of pollution (squatter areas)
Operation	<ul style="list-style-type: none"> • Sensitization campaigns HIV/AIDS should continue and additional initiatives on opening of new VCT facilities launched. • City to enhance its Planning capability and move small scale traders to surveyed areas and markets. • Waste management and public hygiene awareness and education programs to be strengthened.

9. ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN (ESMP)

9.1. Overview

The ESMP has been developed to eliminate and / or mitigate the negative social and environmental impacts of sub-projects envisaged during the design, construction and the operation stages; enhance its overall benefits and introduce standards of good environmental practice. Specifically, the primary objectives of the Environmental and Social Management Program (ESMP) contained in this ESIA are as follows:

- to monitor implementation of all the mitigation measures and commitments as discussed in this ESIA report during the implementation of the proposed project;
- to ensure best practices management as a commitment for continuous improvement in environmental performance;
- to provide early warning signals on potential environmental degradation for appropriate actions to be taken so as to prevent or minimize environmental consequences;
- to provides specific guidelines for long-term monitoring by identifying the roles and responsibilities of the Proponent, Design and Supervision Consultants, and Construction Contractor(s).

Accordingly, environmental safeguards and the cost of each proposed mitigation measure have been developed and form integral components of the comprehensive ESMP prepared for this project. The ESMP, outlined below, takes into account the impacts identified and described in the previous chapters. A series of environmental management sub plans detailed below have been prepared which specify the environmental requirements and safeguards for construction activity in 5 (five) clusters. These sub-plans are provided at Sections 9.2.1 to 9.2.5.

Tables 8.1 present the environmental and social aspects, issues, mitigation measures, implementation responsibility and the costs incurred at all the stages.

The Environmental Management Plans for the sub- projects will comprise the following:

- Dust Management Sub-Plan
- Noise and Vibration Management Sub-Plan
- Health , Safety and Security Management Sub - Plan

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9.2. Environmental Management Plans

9.2.1 Dust Management Plan

The sensitive receptors for dust are any property neighbouring the sub- project sites that could be affected by dust. As a guide, any property within 50 m of the worksite is considered a sensitive receiver, and dust management measures must ensure that the occurrence of dust at these sites is minimised. These measures are outlined in the plan below (Table 12):

Table 12. Dust Management Sub-plan

Dust generators	Works phase	Potential impacts	Management and Mitigation Measures	Responsibility/ costs of Mitigation
<ul style="list-style-type: none"> Excavations and earthworks and wind erosion of spoil and/or material stockpiles 	<p>Construction/ Operation</p>	<ul style="list-style-type: none"> Air pollution due to wind generated dust. Poor working conditions due to health implications. 	<ul style="list-style-type: none"> Spray water on road reserves as soon as they have been cleared. Develop a works program that includes progressive rehabilitation to ensure all disturbed areas are stabilized. <ul style="list-style-type: none"> Dust control measures must continue until surfaces have been stabilized and/or vegetative cover has been established. 	<p>Contractor/Developer OSHA</p>
<ul style="list-style-type: none"> Clearing of vegetation around the work sites, along road reserves ,lorry / bus park and near the site compounds 	<p>Construction</p>	<ul style="list-style-type: none"> Water pollution due to dust transported by wind. Additional cleaning effort/costs due to dust transported by wind. 	<ul style="list-style-type: none"> Minimise the amount of vegetation to be cleared Monitor weather conditions to ensure appropriate planning of daily dust management at the work The Work package specific EMP must identify notification and response protocols for managing spills on public roads 	<p>Contractor/ Developer/ Meteorological Agency/ TANROADS/ UWASA</p>

<ul style="list-style-type: none"> • Wind erosion of cleared areas with bare earth (prior to rehabilitation). And removal of the existing structures • Use of multiple site compounds during construction • Vehicles entering and leaving the site, and on-site machinery and with uncovered loads. 		<ul style="list-style-type: none"> • Health impacts (i.e. breathing or eye irritation) • Damage to personal property due to dust transported by wind. • Reduced visibility due to dust in the air. • Loss of soil resources due to dust transported by wind away from original area. • Negative aesthetic impacts due to reduced visibility. 	<ul style="list-style-type: none"> • Regular inspections of construction vehicles leaving the work site to use public roads to ensure that dirt spoil and dust is not being transported by the undercarriage of the trucks. <ul style="list-style-type: none"> • Develop a works program that minimizes the area of exposed surfaces at any one time and stabilize exposed bare earth as far as practicable using mulches, soil stabilizers or dust retardants • Develop visual monitoring and reporting protocols on site to ensure that dust does not affect sensitive receivers • The Work package specific EMP must identify mitigation strategies for controlling dust generation on hot, windy days. Mitigation measures should include: 	<p>Contractor/ Developer/ Contractor Contractor</p>
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			<ul style="list-style-type: none">• Limiting vehicle speed on unsealed road reserves to 10km/h.• Increasing the use of dust control measures e.g. water tankers.• Stopping dust generating activities until favorable conditions return• Cover or stabilize material stockpiles.• Ensure all plant and equipment is properly operated and maintained• Switch off plant and equipment is when not in use.• Maintenance records to be kept for all plant and equipment	
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Noise Sub-Plan

Table 13. Noise Management Sub-Plan

Project Impact Noise (generators)	Mitigation Measures	Implementers	Monitoring Responsibility
Noisy Machinery, Pneumatic hammers and Rock crushers	<ul style="list-style-type: none"> Prohibit the use of noisy machinery, such as pneumatic hammers and rock crushers during sensitive periods and particular receptors: when schools are in session; hospitals and at night time. Employ low noise machinery or machinery equipped with noise insulating and or muffling Materials, for example, the power generators used on the construction site can be treated with noise Insulating and muffling materials. 	Contractor/ Developer Costs to be met by the above Supervising Consultant/ Resident Engineer	CEMO/MEMO PMO- RALG NEMC
construction structures (i.e. Concrete mixer, vibrator,)	<ul style="list-style-type: none"> Construction structures, used for the Project will be prefabricated off-site and then transported to the site for installation 	Contractor/ Developer Supervising Consultant/ Resident Engineer	CEMO/MEMO PMO- RALG NEMC
Road traffic vibrations	<ul style="list-style-type: none"> Rationalize the work timetable and construction fields, keeping the noisy operations far away from the sensitive receptors 	Contractor/ Developer Supervising Consultant/	CEMO/MEMO PMO- RALG NEMC

		Resident Engineer	
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Erosion and Sediment Control Sub-plan

Table 14. Erosion and Sediment Control Sub-plan

Project Impact	Mitigation Measures	Implementers	Monitoring Responsibility
Soil Erosion along the RoW	<p>Control of Erosion and Sedimentation in all sub-project areas Roadwork including:</p> <ul style="list-style-type: none"> • Identification of the construction activities that could cause soil erosion or discharge sediment or water pollutants from the site; • Sediment control devices will be installed before construction commences; • Stormwater runoff will be controlled by diverting stormwater from denuded areas, and minimising slope gradients, lengths and runoff velocities; • Areas of bare surfaces will be minimised during construction and stabilised as soon as practicable; • Stripped topsoil will be stockpiled for reuse on site in revegetation areas where possible, and protected from erosion by using suitable erosion control measures; • Excess soil or unsuitable spoil material will be taken off site and disposed at an approved disposal area; • Stockpiles will be located close to reuse areas to minimize transference of soil between areas; • Contingency plans will be implemented for events such as fuel spills; • In the event of a spillage, spilled material will be removed as soon as practicable within the working day of the spillage; • There will be a progressive rehabilitation strategy for exposed surfaces. <p>Revegetation activities will proceed as soon as work activities are completed within a disturbed area;</p>	<p>Construction contractor</p> <p>Supervising Consultant / Resident Engineer</p>	<p>Mbeya City Council</p> <p>NEMC</p> <p>PMO - RALG</p>

	<ul style="list-style-type: none"> Regular reviews shall be undertaken to ensure management measures are installed and kept up to current environmental standards; The quality of surface water discharges from site will be monitored should there be concerns in relation to water quality. Parameters to be monitored shall include, but are not limited to, pH, Total Dissolved solids, Suspended Solids, Dissolved Oxygen, Heavy Metals, Trace Ions and Total Oil and Grease. The monitoring frequency shall be determined on a case by case basis 		Mbeya City Council NEMC PMO - RALG
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A Waste Management Sub-plan

Table 15. Liquid and Solid Waste Management Sub-plan

Project Impact	Mitigation Measures	Implementers	Monitoring Responsibility
Liquid and solid waste disposal	<ul style="list-style-type: none"> Ensure that the contractor abides to Road Specifications Provide solid waste/ garbage collection tanks and sanitation facilities at all construction sites Liquid and Solid waste must be handled as prescribed in the Standard Specification for Road (Section 1713) Management of stormwater is via the existing stormwater drainage system; Management of sewage is via the existing system Works 	Construction Contractor Resident Engineer Supervising Contractor	MEMO CEMO NEMC PMO-RALG

<p>Pollution of Solid waste at source</p>	<ul style="list-style-type: none"> • All hazardous and non-hazardous waste that may be generated in the target area will be stored and disposed of in a manner that minimises the impacts of the waste on the environment, including appropriate segregation for storage and separate disposal. • Non-hazardous waste (e.g. sand/ gravel, paper, plastic, food waste) will be segregated at source from hazardous waste (e.g. waste oils, oil filters, used absorbent, old chemical/ paint/ fuel, batteries, acids, and used tyres) and separate recyclable material; • Recyclable wastes will be recycled where possible; • Waste will be stored neatly in appropriate bins or stockpiles, with hazardous wastes stored in such a manner that stormwater run-off does not come into contact with the waste; • Soil contaminated by fuel or oil will be managed as hazardous waste; • All contractors and sub-contractors working on the site would be informed of their responsibility to reduce waste where possible. - All personnel would receive instruction on what waste materials can be recycled and where the appropriate bins are located. • Secure lids would be fitted to bins that store food waste to prevent scavenging by birds and animals; • Complaints will be investigated promptly and appropriate action initiated to reduce impact. 	<p>Construction Contractor</p> <p>Resident Engineer</p> <p>Supervising Consultant</p>	<p>MEMO</p> <p>CEMO NEMC</p> <p>PMO-RALG</p>
<p>Pollution at the Dumpsite</p>	<ul style="list-style-type: none"> • on-site protection of soil and groundwater aquifer through storm water control; • installation of fencing to control access to, and movement within the site and provide litter control; • refuse covering with impermeable soils to reduce odour, control flies and rodents, reduce spreading of litter and discourage scavenging; • Screening – planting of vegetation around the landfill provides wind barriers to help control dust and minimize blowing litter. 	<p>Construction Contractor</p> <p>Resident Engineer</p> <p>Supervising Consultant</p>	<p>MEMO</p> <p>CEMO NEMC PMO-RALG</p>

Environmental Health Safety and Security

Most of the households do not have adequate solid and liquid waste disposal. The solid and liquid wastes are disposed haphazardly, some are used for manure on backyard garden while others burn or bury the waste. People urinate just anyhow within the house compound, on bushes and along roads where there are trees or vegetation to hide. Poor sanitation is main causes of some of water-borne diseases including diarrhoea.

With regard to Health Safety and Security Sub-Plan, the developer or contractor will be required to implement these measures at the project sites. Much emphasis will be put on measures against accidents and ensuring safety to people/workers. Workable safeguard practices for the project will include the following;

- Appointment of Environmental, Health and Safety (EHS) Manager during construction phase to implement EHS inspections
- Preparation and implementation of Safety Contingency Plans for each sub-project.
- Risk Assessment and Emergence Response Plan for each sub-project including fire risks.
- Environmental and safety inspection and daily reporting procedures and protocols.
- Issuing of permits and approval for sensitive works.
- Environmental communication and reporting on environmental compliance
- Appointment of community liaison person for awareness creation and communication.

The developer is obliged to comply with the Occupational Health and Safety regulation of (OSHA) 2003 and Environmental Management Act (EMA) of 2004 which speaks about health and safety at work places. Additionally, the contractor will be required to provide handbooks and operational manuals to site supervisors about how to manage safety and health at construction sites. The project developer will implement the mitigation measures proposed in this document. The contract for contractor will have an attachment of safety rules for worksite personnel as established under OSHA, including a plan for emergency procedures in case of accidents

Table 16. Health and Safety Issues Sub-plan (HSS SUB – PLAN)

Health and Safety Issues generators	Works phase	Potential impacts	Management and Mitigation Measures	Responsibility/Costs of Mitigation
Influx of temporary or permanent project Labor.	Construction/ Operation	Transmission of communicable diseases	HIV plan, Vector Control Plan.	Contractor/ OSHA/ Developer
Security Personnel at Project Sites	Construction	Risks posed to those outside the Project site.	International best Practice to be applied to hiring, training and Mobilizing security staff.	Contractor/ Developer
Respiratory Diseases	Construction	Influx of workers and overcrowding of living quarters and number of occupants per room.	Minimize Community exposure.	Contractor/ OSHA/ City Health Dept./ Labor and Human Resources Plan

“Men, Money, Movement And Mixing” with local women.	Construction/ Operation	Sexually Transmitted Diseases (or STI’s)	HIV plan	Contractor/ Community Development(City)
Community attraction to construction sites	Construction/ Operation	Accidents/injuries particularly to children	Emergency Preparedness and Response Plan	Contractor/ Developer
overtaxed Existing community infrastructure and support systems (i.e. Sanitation and Waste Management)	Construction	Soil, water and food borne diseases	Waste management plan; sanitation plan.	Contractor/ Developer
Exacerbation of natural hazards (e.g. floods).	Operation	Adverse impacts on soil and water resources	Minimise community exposure to water-borne, water-based and water related or vector-borne disease. Put in place a Soil and Erosion Control Management Plan, Air quality management plan, and a water management plan.	Contractor/ Developer

Underground and Surface Water Management Sub-plan

Table 17. Water Management Sub-plan

Project Impact	Mitigation Measures	Implementers	Monitoring Responsibility
Surface water and Underground aquifers	<ul style="list-style-type: none"> • Retaining grassed drainage lines and minimising vegetation removal in drainage lines to reduce topsoil run-off; • Developing and implementing drainage management practices including:- Diverting of clean run-off around construction works, installing catch drains as soon as practicable to ensure drainage is in place during the early stages of construction and lining of catch drains where necessary; • Using temporary and permanent diversion banks and drains to convey run-off to required areas and reduce run-off volume and velocity; and short- or long-term stabilisation of drains, as appropriate; • Installing wheel cleaning systems at construction site exits to remove excess mud from truck tyres and underbodies; • Developing and implementing appropriate measures when constructing waterway, e.g. Minimising the extent of vegetation clearing and soil disturbance in waterways; • Undertaking water quality monitoring upstream and downstream of affected area, if required; • Restoring disturbed areas of channels and banks to their former condition as soon as possible following the completion of earthworks. This would involve plantings of locally indigenous species of plants; • Consulting prior to and during construction activities with relevant Mbeya authorities; • Daily inspections of all work areas and the site in general, including all roads, drains, gutters, natural watercourses and sediment control devices, for potential contaminants. A major focus of these inspections shall be housekeeping and waste clearance and disposal; 	<p>Contractor/ Developer</p> <p>Costs to be met by the above</p> <p>Resident Engineer</p> <p>Supervising Consultant</p>	<p>CEMO</p> <p>MEMO</p> <p>NEMC</p> <p>PMO-RALG</p>

	<ul style="list-style-type: none"> • Daily inspections shall ensure management measures are installed and kept up to current environmental standards. 		
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10. MONITORING PROGRAM

The main objective is to confirm the implementation of mitigation measures recommended in the ESIA study. Specifically the purposes of Environmental monitoring program are:

- to monitor the effective implementation during the construction and operation phases of: proposed mitigation measures;
- to confirm compliance with environmental, public health, and safety legislation/regulations during construction;
- to control the risks and ecological/social impacts;
- to ensure best practices management as a commitment for continuous improvement in environmental performance; and
- to provide environmental information to community/stakeholders

Main tasks that are required to be performed include:

- Assigning monitoring responsibility ;
- Scheduling various functional elements and operational activities;
- Responsibilities of the monitoring team;
- Monitoring methodologies;
- Cost estimate; and
- Reporting procedures.

The key verifiable indicators which will be used to monitor the impacts will be: i) air quality ii) noise levels and the provision and use of working safety gears; iii) heavy metals, oil and grease prior to, during and after project construction; iv) effectiveness of the drainage system v) effectiveness of the erosion prevention measures; vi) waste disposal strategies at the pre-construction and construction phases; vii) sanitary facilities for staff/workers (including construction sites); viii) road safety measures (adherence to road signs, markings, accidents, traffic diversions and maintenance works; ix) employment opportunities for the local community members; x) rate of disruption of power and water supply and relocation of services; xi) relevant social conflicts; and xii) frequency of HIV/AIDS and STIs awareness programs.

Resident Engineer, supported by an appropriately qualified Environmental Management Officer (EMO) and an Environmental Site Agent (ESA) will be responsible for performance and other monitoring activities including: monitoring, reviewing and verifying compliance with the EMP by the Construction Contractor (CC).

The EMO on behalf of the project developer will be responsible for monitoring of the implementation of the EMP. The contractor will also appoint an ESA who will be responsible for the implementation of the EMP. All contractor teams will be made aware of their obligations towards environmental controls in the EMP. Construction workers will also be given basic health awareness training to diminish the spread of diseases.

EMO Roles and Responsibilities should include the following:

- working with the Resident Engineer (RE) who has day-to-day interaction through supervisory staff,
- Ordering the removal of person(s) and/or equipment not complying with the specifications;
- Verifying Environmental Compliance, the issuing of penalties for contraventions of the EMP;
- Taking decisions in case of severe non-compliances to the EMP are detected;
- Providing input for ongoing internal review of the EMP;
- Stopping works in case of emergency or if significant environmental impacts are apparent or imminent.
- The EMO ensures the CC has all plans, procedures, approvals, and documentation in place to ensure EMP compliance prior to commencement of any work.
- Monitoring and verifying that environmental impacts are kept to a minimum;
- Provide induction courses for all ESA and permanent staff
- Sampling sites and surrounding areas regularly with regard to compliance with the EMP;
- Reporting on the environmental issues;
- Recommending the issuing of penalties (via the proponent) for contraventions of the EMP;
- Support from the Resident Engineer through the site construction supervision staff.
- The EMO coordinates with the various Contractors and with the ESA(s) appointed by the Construction Contractors. The overall role of the EMO is to oversee and monitor adherence to, and implementation of, the EMP by the CCs (which includes compliance with the relevant obligations contained in the EMP).
- The EMO is assisted by the RE site supervision staff and the ESA on the CC's side, responsible for monitoring construction-related activities and implementing environmental measures on site as part of the EMP conditions.

ESA Roles & Responsibilities

The ESA(s) has the principal responsibility for observing construction activities and ensuring that those activities are in compliance with the EMP requirements. To accomplish this, each ESA should be familiar with the EMP and contract specifications.

The ESA:

- Is the CC's focal point for all environmental matters, and coordinates directly with the EMO and CE.
- Is routinely on-site for the duration of the construction works.
- Carries out regular inspections of the CC activities in relation to environmental issues, and provides day-to-day advice to Contractor personnel about environmental issues. Verification is provided by the EMO.

The specific responsibilities of the ESA include:

- Monitor implementation of environmental measures by CC construction staff against contractual obligations by:
 - Providing an induction courses for all CC staff on site;
 - Performing regular monitoring activities;
 - Detecting non-conformance and approving corrective action (with advice from EMO if necessary);
 - Evaluating CC environmental efforts and effectiveness; and
 - Identifying circumstances requiring management decisions to evaluate variance or compliance issues.

Compile documentation of monitoring observations by:

- Collecting any specific data that the ESA is assigned to monitor;
- Interface with EMO to assist in field interpretation of environmental requirements, provide advice regarding corrective actions and resolving non-compliance situations, and issue specific formal instructions to the CC workforce;
- Interface with CC manager to help communicate requirements, obtain a hands-on view of special problems so that implementation difficulties can be communicated to the EMO to aid in problem resolution especially in situations where adjustment of compliance requirements may be necessary;

Communicate to EMO by:

- Interaction with EMO as needed to define corrective action recommendation for any identified non-compliance situation.
- Implementation of environmental controls and measures specified in the EMP, Sub-Plans.
- Ensuring measures to protect project staff health are implemented.

The National Environmental Management Council (NEMC) will have an overall responsibility of undertaking enforcement, compliance, review and monitoring of Environmental Management and

Monitoring Plan and in this regard provide national level support to the DMC EMP implementation process. The Road Sector Environmental Section (RS-ES) under the Ministry of Infrastructure Development will oversee management of environment and the implementation of EIA aspects of the EMP. The Municipal Council' Environmental Management Officer will be responsible to promote environmental awareness in the municipality related to the protection of the environment n the sub-project area. The Village Development Committee (VDC) will be responsible for the proper management of the EMP at the village level.

The overall Implementation cost of the ESMP including monitoring cost is summarized in a tabular form (see Table 17 below) in the following section. You will note that the monitoring costs include follow up of mitigation measures by an environmental expert, sensitization campaigns and implementation of the Health & Safety programs and related training and quality control and quality.

Phase	Parameter	Control/sampling point		Method	Frequency/time	Reason/objective	Responsible person
Construction	Top-soil storage. Reinstatement.	Construction site		Supervision	Periodic (Unannounced inspections during work hours); Following completion of the works.	Assure compliance with Legal requirements.	Works contractors; oversight EMO, ESA
	Erosion control, dust						
Construction	Noise levels; (Equipment, machinery)	Construction site		Inspection; noise measuring device	Periodic; Following complaints	Assure compliance with Legal requirements. Complaints and disturbance reduction	Works contractors; oversight EMO, ESA
Construction	Vibration	Construction site		Supervision	Unannounced inspections; Following complaints	Assure compliance with Legal requirements. Complaints and disturbance reduction	Works contractors; oversight EMO, ESA
Construction	Dust and air pollution	At or near construction site		Visually, measurements (in case of necessity)	During, earthworks and periodically in dry periods during construction	Assure compliance with Legal requirements. Complaints and disturbance reduction	Works contractors; oversight EMO, ESA
					removed vegetation after completion of construction.		
	prevention water pollution.				inspections		
Construction	Material and waste storage, handling, use -Water and soil quality	Run off from site;	material storage areas	Observation, measurements (in case of necessity)	Periodically during construction, especially	Preservation of soil and water quality	Works contractors; oversight EMO, ESA
Construction	Equipment maintenance and fuelling -	Material storage areas;		Observation, measurements (in case of necessity)	Periodic during construction	Preservation of soil and water quality	Works contractors; oversight EMO, ESA
	Water and soil quality	equipment maintenance Facilities					
Construction	Waste	At or near construction site		Control	Periodic during construction	Preservation of soil and water, visual amenity	Works contractors; oversight EMO, ESA
Construction	Worker safety –Protective equipment.	Construction site		Inspection	Unannounced inspections during works	Assure compliance with legal requirements.	Works contractors; oversight EMO, ESA
Operation	Vegetation	ROW		Inspection	Periodic	Re-forestation	EMO, ESA

Table 17 Environmental Monitoring Program

11. IDENTIFIED CAPACITY REQUIREMENTS FOR EFFECTIVE IMPLEMENTATION OF THE ENVIRONMENTAL AND SOCIAL MANAGEMENT PROGRAM (ESMF)

The ESIA team undertook a capacity needs assessment of the stakeholders in Mbeya to see whether there is enough capacity to implement the Environmental and social Management Program effectively. The results are discussed in the following sections and details on the stakeholder needs, SWOT analysis and strategic development needs are presented as annex 4 to this report.

11.1. Institutional Arrangements and Identified Capacity Requirements for ESMP Implementation

The Institutional framework for addressing environmental issues within Mbeya City can be summarised as shown in Table 18 below:

Table 18. Institutions handling Environmental Related Issues in Mbeya City.

Institution	Environmental Issues To be Addressed
Metrological Agency	Weather Conditions and Climate data
Geology Department	Geological surveys and mapping
Water and Irrigation	Water quality control and standards
Urban Water Supply and Sewage Authority	Liquid waste disposal and upholding Of standards
Regional Natural Resources Secretariat	Biodiversity and water catchments conservation
Lands and Urban Planning, City Council	Planning and Resource conservation
Ministry of Agriculture	Crop production, soil surveys.
Ministry of Health	Vector disease surveillance
Uyole Agricultural Institute	Soil classification and mapping. Monitoring of soil quality standards.
TANROADS	Material testing and standards.
Coca Cola Company Ltd	Water quality Testing and monitoring

Though these institutions can contribute towards implementation of environmental and social management Plan, the institutional capacity is wanting. However, the city needs to build capacity in terms of manpower and equipment at all levels. At the community Level, Environmental Committees as well as those of health and security need to be provided with appropriate capacity building including training in new trends in environmental management. Tailor made workshops and specialized training can be used to address these capacity issues. At the council level institutional capacity is highly inadequate. Mbeya City Council composed of 53 Councillors out of which 36 are wards representatives. The City Director and heads of departments constitutes the executive component of the Council. The full council under the elected Mayor is the highest decision making organ in the Council. The Council consists of five standing committees in Finance and Administration; Economic, Health and Education and, Urban Planning and Environment Works and Communications and Control of HIV/AIDS. All these departments have the mandate to execute plans in Environmental management. However capacity needs to be enhanced in the following areas:

- Workshops, seminars and capacity building study tours for waste management staff and leaders on issues such as waste management, separation and recycling of waste
- Developing and execution of community-based environmental management plans
- Environmental health and social security including HIV/ AIDS prevention and management
- Urban Planning and Environment Management; and
- Project planning, development and Management.

This programme of capacity building needs to be extended to the ward level.

Table 19. Cost Estimate for Implementing the ESMP, Monitoring Plan and Capacity Building Program

Name of sub-plan	Cost of Implementaion(IN US DOLLARS)
Capacity Building Plan	60,000.0
Erosion & sediment control sub-plan	30,000
Surface and Underground water management sub-plan	30,000
Environmental Education and Public hygiene Awareness Plan.	30,000.0

Community-Based Environmental Management plans	30,000.0
Waste management and Sanitation plan.	30,000.0
the HIV / AIDS plan.	30,000.0
Air (Dust & Noise) quality management plan, and a water management plan.	30,000.0
Implementation of a monitoring Plan	30,000
Total cost for all plans	300,000.0 (IN US DOLLARS)

It is important to bear in mind that the proposed capacity development should occur at all levels i.e., village, wards, CBOs and NGOs and the Mbeya city management to ensure that the ESMP is effectively operationalized. The council personnel will be exposed to formal training in the management of environmental issues. The training program for various role players will include an orientation program on the ESMP, Environmental Assessment Processes, Participatory Methodologies and Project Management. Strengthening the institutional capacity of Mbeya city council will help improve the effectiveness of local proponents in the management of environmental and social impacts during planning, implementation and operation of proposed investments.

12. CONCLUSION AND RECOMMENDATIONS

The findings of the Environmental and Social Impact Assessment (ESIA) Study indicate that, overall, the net socio-economic benefits of the Mbeya Sub-projects far outweigh the limited and site-specific social and environmental costs. The implementation of the investment sub-projects at the chosen sites will cause some impacts, all of which, however, are small and of no further relevance. Furthermore, some of them can be reduced by applying suitable mitigation measures and conventional environmental best practices.

In addition, the ESIA process has indicated that local population and other stakeholders are very positive about the proposed sub-projects and their immediate implementation in the project area is most welcome. Indeed the people feel that the project is an event that will solve their many problems, including transport, trade and commerce within the city and with other neighboring regions.

The environmental sustainability of the investment sub-projects in Mbeya, like in many other regions of Tanzania, is highly dependent on the institutional capability at all levels (i.e. staffing, training, and provision of other necessary support services) to carry out the associated ESMP implementation work. In view of this, a focused institutional training program designed for various role players coupled with a strategic and targeted capacity building exercise will substantially enhance the ESMP implementation capacity.

Resettlement Action Plan (RAP) has also been prepared as some properties have encroached road reserves of some road projects. RAP report is included as an Annexure A.

APPENDICES

Appendix 1

Specific Terms of Reference

1 Introduction

These Terms of Reference (TOR) outline the scope of work to be carried out in preparation of the Environmental Impact Assessment (ESIA) and an Environmental and Social Management Plan (ESMP) for Component 1(a): Core Urban Infrastructure of the proposed Tanzania Strategic Cities Project (TSCP). The ESMP will be a compilation of information gathered through Environmental Impact Assessments (EIAs) and Social Impact Assessment (SIA) carried out for all sub-projects to be implemented through Component 1(a) of the TSCP. The ESMP will be carried out in accordance with the World Bank's Operational Policy for Environmental Assessment (OP 4.01).

Specifically the consultant (s) shall:

- ③ Carry out the Environmental and Social Assessment works;
- ③ Prepare the Environmental and Social Management Plan;
- ③ Prepare draft and final reports of Environmental Impact Assessment, Environmental Management Plan, Social Impact Assessment and Social Management Plan as per World Bank and NEMC standards; Prepare a consolidated ESIA report
- ③ At all times to meet the Lead Consultant's requirement regarding programme of work, report submission and completion of tender documents assigned on;
- ③ Carry out necessary environmental and social works related to the project as instructed by the Lead Consultant

The Environmental Management Plan to be prepared by the Consultant for the participating urban LGA under the assignment includes: (1) Environmental Overview Report for the LGA; (2) Environmental Management Plans for each sub-project proposed by the LGA, to be an integral part of the consolidated final LGA sub-projects investment proposal document and; (3) the Environmental Impact Assessment Section prepared for the LGA for incorporation in the Overall Operational Manual for the TSCP. An executive summary synthesizing the process and incorporating the findings from the above reports will also need to be prepared.

Appendix 4

Stakeholder Capacity Analysis

The ESIA process has identified the following key stakeholders in Mbeya city: City residents; Businessmen, Traders; Council staff; Political leaders (Councilors, Mitaa Chairpersons etc); Donors, Financiers; Central Government/ Regional Secretariat; Public Institutions and Other service providers; and Religions Organization. A critical assessment of stakeholder capacity to implement the Environmental and Social Management Program (ESMP) under the TSCP was analyzed and presented here in three sections.

a) Stakeholder needs and expectations

Stakeholder needs and expectations are summarized in a table below.

S/No	Stakeholder	Expectations/interests	Potential impact of not fulfilling expectations	Ranking
1.	City residents	<ul style="list-style-type: none"> - Get necessary social Economic service - Peace, order and good security - Governance 	<ul style="list-style-type: none"> - Law Tax payment compliance - Non involvement and participation in Council affairs - Unrest and social disorders 	H
2.	Trader and Businessmen	<ul style="list-style-type: none"> - Get necessary social Economic service - Peace, order and good security - Good Governance - Conducive environment for 	<ul style="list-style-type: none"> - Law Tax payment compliance - Non involvement and participation in Council affairs - Unrest and social disorders 	H

S/No	Stakeholder	Expectations/interests	Potential impact of not fulfilling expectations	Ranking
		conducting their business		
3.	Council staff	<ul style="list-style-type: none"> - Get remuneration - Recognized and respected - Conducive working environment 	<ul style="list-style-type: none"> - Poor performance of council formation - Bad Government 	H
4.	Political leaders (council, mite chairperson)	<ul style="list-style-type: none"> - Incentive - Recognized and respected - Meet political Interest 	<ul style="list-style-type: none"> - Decreased community participation awareness of Council affairs - Poor decision making - Conflict and poor performance 	H
5.	NGO'S	<ul style="list-style-type: none"> - Logistic and resource support 	<ul style="list-style-type: none"> - Decreased level of service provision - Pressure group 	L
6.	Donor funded Development programmers/fi nanciers	<ul style="list-style-type: none"> - Accountability - Good Governance 	<ul style="list-style-type: none"> - Decreased resource 	M
	Central Government/R egional secretariat	<ul style="list-style-type: none"> - Abide with government policies directives - Perform Council function - Accountability and good governance 	<ul style="list-style-type: none"> - Sanctions, disciplinary actions and decreased subvention 	H
	Public institution and other service providers	<ul style="list-style-type: none"> - Conducive environment 	<ul style="list-style-type: none"> - Decreased Level of service provision 	L

S/No	Stakeholder	Expectations/interests	Potential impact of not fulfilling expectations	Ranking
	Religious organization	- Recognition - Law and order	- Unrest - Pressure	L

Note:

Ranking

H = High: If not fulfilling their expectation will fail to achieve objective

M = Medium: If not fulfilling their expectation will limit the extent of achieving objectives

L = Low: If not fulfilling their expectation has little effect on the extent of achieving objective.

b) Strength, Weakness, Opportunities and Threat (SWOT) analysis

Mbeya City Council is a key public institution that is legally mandated to provide basic social –economic services to the people of Mbeya City. The Council has, to large extent, implemented its mandate successfully over the years.

However, like any other organization it has strengths and weaknesses that define the internal environment in which it operates. This internal environment was exhaustively scanned during the course of the reform process (step 5) as was the external environment to which the council is linked. The latter was scanned for opportunities and threats. Some important issues within the internal and external environment that the Council faces in its operations are summarized below.

STRENGTHS

The Council has

- The Legal mandate to provide a wide range of basic socio-economic services
- Good infrastructure facilities
- Extensive experience in service provision
- Mandate to mobilize resources from various sources
- Mandate to pass by-laws to facilitate enforcement of its plans and programmes
- Competent administration
- Qualified and experienced staff
- Organization structure that facilitates participatory planning
- Democratically elected leadership (Councilors) that is cooperative and committed

WEAKNESSES

- Low revenue collection
- Shortage of skilled staff in some sectors
- Inadequate facilities in some sectors
- Few day Secondary Schools
- Poor service delivery in some sectors
- Low budgetary allocation for participatory planning activities

OPPORTUNITIES

- High potential to increase revenue generation
- Readiness of the community to support and co-operate with the Council
- Existence of adequate land suitable for urban development
- High demand for education among the people and their leaders
- Readiness of Council leadership to embrace good governance

THREATS

- Evasion of tax
- High infection rate of HIV/AIDS
- Unplanned development of urban settlements
- Pollution and degradation of natural water sources
- High illiteracy rate among adults
- Low educational awareness
- Self interests among some political leaders

c) Issues for Strategic Development

From the above SWOT analysis, it is clear that there is a broad range of issues to be addressed by the strategic plan. Critical issues relate to three broad areas that require significant improvement. The first is service delivery. This applies to all the sectors in which the Council is mandated to provide basic services (Namely education, health, community development, co-operatives, trade, infrastructure development, urban planning, agriculture, livestock development and natural resources). The third area concerns Council's operational capacity and efficiency. Improved service delivery depends on good governance, competent staff, the availability of adequate equipment and tools and the efficiency of the administrative systems.

③ Institutional Setup and Capacity of Mbeya City Council (2009/2010)

Table 12: Establishment and Strength 2009/ June 2010

S/No	Department	Required Staff (No)	Available Staff (No)	Staff Shortage (No)	Designation
1	Administration	28	26	2	Human Resource Katibu wa kamati (CC)
2	Finance	28	19	9	Prin. Accountant Accountant I Accountant II Internal Auditor (department head) Internal Auditor I Internal Auditor II (5)
3	Community Development	37	23	14	Community Development Officer II (14)
n4	Urban planning & Environment	45	35	10	Senior Economist I Statician I Valuer II (3) Asst. Land Officer I (2) Forest Officer II (2) Prin. Assit. land Officer II
5	Road & Services	69	55	14	Assit. Inspector of Fire (3) Fire Constable Police Auxiliary (10)
	Road services	61	59	2	Engineer II (2)
6	Education - Administration	21	21	-	
	Primary Education	1508	1498	10	Teacher III (10)
	Adult Education	20	20	-	
	Secondary Education	662	539	123	Principal Education Officer II Senior education Officer (2) Education Officer II (42) Assit. Education Officer III (75) Principal Education Officer Personal Secretary II Driver II
7	Health - Curative	134	85	49	Dental Tech. II Assit dental Officer I (2) Accountant Assit. (4) Pharmaceutical Tech II (7)

S/No	Department	Required Staff (No)	Available Staff (No)	Staff Shortage (No)	Designation
					Driver II (2) Security Guard (3) Record management Assit, (6) Health Officer II (7) Clinical Officer II (6) Medical Attendant II (6) Assit Medical Officer II (4) Medical Doctor (department head)
	Preventive	128	128	-	
	Health Centre	124	84	40	Senior Health Secretary Prin. Clinical Officer (2) Clinical Officer II (10) Health secretary I Nurse II (15) Lab. Tech (5) Medical Attendant II (10)
	Dispensary	60	60	-	
8	Livestock	30	23	7	Livestock Field Officer I (2) Livestock Field Officer II (5)
9	Mtaa Executive Officer	180	172	8	MEO (8)
10	Ward Executive officer	36	36	-	
	TOTALS	3135	2847	288	

- **Management of City council infrastructures, Identified key issues/problems**
 - ③ Lack of enough competent, qualified and experienced staff;
 - ③ Understaffing in the departments;
 - ③ Lack of transport facilities, technical equipments and working tools;
 - ③ Insufficient budgets;
 - ③ Lack of regular training and short courses to improve staff performance capacities;

- ③ Lack of an accurate Data base; and
- ③ Lack of updated Council by- laws.
- Strengthening the City council management requires the following activities.
 1. Recruiting enough staffs- there are departments that have shortage of staff as shown in **Error! Reference source not found.** above. For the year 2009/2010 the city has shortage of 288 staff.
 2. Retooling – provision of needed tools & technical equipments for different departments such as:
 - ③ Global Positioning System (GPS), this is needed by works, Health & sanitation, Urban planning and Environment Departments.
 - ③ Levelling machine, colored printer, Design platter (HP Design jet T610 printer)- works, Urban Planning and environment departments
 - ③ Video camera, power point projector, desk computer &lab top computer- all departments
 - ③ Photocopier, scanner, printer, binding machine, lamination machine – works, administration and Human Resource, and Finance departments
 - ③ Furniture and offices – MEO, WEO, Community development, urban planning, works departments
 3. Transport Facilities
 - The city needs at least one vehicle for each department, and 2 vehicles and motorcycle for Administration department, 2 vehicles for works department- rooting maintenances
 4. Training and short courses to city council staff
 - Specific trainings are required to each department such as:
 - ③ human resource package- Human Resource offices
 - ③ E- Record management –Record management officers and personal secretaries
 - ③ technical design – engineers and technicians
 - ③ procurement- engineers, technicians & members of Tender Board
 - ③ contract management, Monitoring and Evaluation- Economist, technicians, Engineers
 - ③ Financial management – Accountants, trade officers

- ③ Package revenue data base- accountants
- ③ project identification , development and Management- Director and Economist
- ③ housing and urban Development- urban planners
- ③ land Management and Valuation – land officers and valuers
- ③ organisations and spatial Data infrastructures – engineers and technicians
- ③ design, implementation and operation of Drainage systems – engineers and technicians
- ③ environmental policy making , planning and management – environmental officers and Engineers
- ③ solid waste management and engineering – environmental engineer and health officers
- ③ interactive methods for governing sustainable development- Community development Officers and Economists
- Expecting impact from the activities for the performance of the city council is:
- **Short term impacts:**
 - ③ improved staff performance capacities
 - ③ improved working conditions and environment
 - ③ reliable data base
- **Long term impacts:**
 - ③ improved service delivery to the community
 - ③ improved economic and social services
 - ③ increased surveyed , upgraded and planned settlements

Appendix 5

Environmental Education and Public Hygiene Awareness Program

As Mbeya City moves in tandem with the rest of Tanzania's cities and municipalities keeping pace with technology and development, the Council's natural environment may often be taken for granted. Protecting, maintaining and improving the cities fragile environment can only be brought about through a combination of responsibility and action, both individual and collective. A well-informed and well-initiated public will be better positioned to effect real and sustainable change in public health and environmental issues.

The goal of the Environmental and Social Impact Assessment for all the sub-projects in Mbeya City is to improve environmental sustainability in this region as a whole by, helping achieve the desired Millennium Development Goals (MDG) targets. More immediately, it will develop and test on an environmental management Plan that focuses predominantly but not solely on environmental health and awareness.

In addition to building capacity for Environmental Assessment it is desirable to introduce Innovative **Environmental Education and Public Awareness** a specially designed environmental awareness program that will Increase understanding of the issues to the local affected communities. This programme should have the following elements:

- Selecting and developing adequate methodologies and tools for promoting environmental education and awareness;
- developing materials for an environmental awareness, education, and outreach program;
- testing the education awareness program by conducting training in selected communities
- preparing outline guidelines for teachers or community trainers and conducting a train-the-trainers program
- developing indicators for evaluating the program after 3 months methods for raising awareness will make use of local and indigenous knowledge,
- Allowing the learners to draw scientific principles and social insights from their immediate environment and increasing the connection between school and community, exogenous and endogenous knowledge.

Although the environmental education program is expected to have a strong focus on Environmental health and hygiene, the component must be integrated with long-term sustainable environmental management, natural resource conservation practices, and elements of education for disaster risk reduction. Thus, proposed modules should include topics such as

- rain and groundwater resources;
- vegetation and groundwater;
- salinity, water resources management,
- and appropriate groundwater extraction systems;
- point pollution sources;
- community solid waste management (including collection, segregation, and composting);
- community-driven natural resource management;
- disaster awareness, preparedness, and management.
- organizing for Community-Based Environmental Management.
- conducting preliminary technical and organizational workshops in all aspects of water supply and sanitation (WSS) and solid waste management (SWM).
- identifying community “mobilizers
- developing community organization and mobilization guidelines;
- transferring community development skills to “mobilizers” in preparation for the transfer of the sanitation and solid waste management schemes

Appendix 6

Environment Section for TSCP Operational Manual

General

The purpose of this Section in the TSCP Operational Manual is three-fold: (i) establish the appropriate institutional arrangement for managing the environmental assessment process; (ii) guide the development of possible future sub-projects; (iii) catalogue the “typical” environmental mitigation measures that need to be incorporated in the engineering design of any variation/additional works or additional sub-projects.

(i) Process Used to Prepare EMPs

- Immediately following the identification of the sub-projects and subsequent invitation of the Consultant, in June, 2009, the PMO-RALG in conjunction with the City Council of Mbeya, the SMEC consulting firm on EIA undertook a wide process of consultation with the affected communities to elicit their views on the proposed road sub-projects, waste dump, lorry parking and Ilemi bridge construction.
- In total, 88 community leaders in eleven wards where the sub-projects are located were consulted on the purpose of the sub-projects, and its impact on the affected communities and the nation as a whole. Discussions were held regarding the ward’s capacities in implementing the Environmental management Plan for health, safety, security, and waste disposal which the Consultant has prepared.
- All of the participants from the affected communities endorsed the project and admitted
- The critical importance of good roads in their economic and social life. Issues which emerged of most concern were inadequate water supply, lack of access roads and garbage disposal. They also made several suggestions pertaining to the construction of the roads in a manner that would benefit the local communities e.g. the employment of available local skills, providing bus stops and shelter along the roads, providing good drainage, to stem flooding episodes in some areas. Annex 1 shows the community’s participation list.
- All these recommendations are featured in EMP’s prepared by the consultant. Details regarding the format for EMP’s are discussed in part **6.3.5** of this document.

(ii) Institutional Arrangement Responsibilities for Monitoring EMPs

The administration of Mbeya City Full Council is composed of 53 Councilors out of which 36 are Wards representatives, 14 nominated members and 3 are members of Parliament (1 of the Constituency and 2 are nominated) of the legislative body of the Council. The City Director and Heads of departments constitutes the executive component of the Council.

The full council under the elected Mayor is the highest decision making organ in the Council. The Council consists of five standing committees:-

- Finance and Administration
- Economic, Health and Education
- Urban Planning and Environment
- Works and Communication
- Control of HIV/AIDS

Most of the Council wards have in existence committees in security, waste management and health services. The city can draw expertise from 4 University campuses, 3 colleges and Vocational Training Centers. In addition to the Regional Offices' for Environment, Planning, Roads Health, Agriculture, Forestry, Geology, Water, Irrigation and Weather Agency. All of which have been informed about the proposed sub-projects. Other Institutions which have been consulted include TTCL- The State Telecommunications Company, TENASCO- the electricity supply company and UWASA, the Urban Water Supply Authority.

It is desirable for the City Council to enhance its capacity in order to improve ownership and create awareness among decision makers and other stakeholders at the Regional and district levels, such as government agencies; the private sector; and civil society, including non-government organizations and representatives of those affected the project (Ward level) regarding EMP implementation. As a start there will be need to establish a steering committee at City hall comprising members from the above organizations to oversee the Implementation processes.

(iii) Checklists and Guidelines for Sub-project EIAs

The checklist for sub-project EIA's should identify impacts on:

- **Soil** e.g. land uses, unique physical characteristics, etc.
- **Water** e.g. Quality, flow alteration, etc.
- **Atmosphere** air quality, temperature variation, etc.
- **Flora** endangered species, deforestation, etc.
- **Fauna** rare species, endangered species, etc.
- **Resources** natural landscapes, swamps, etc.
- **Recreation** loss of fishing, camp sites, countryside walks, etc.
- **Cultural aspects** indigenous communities, changes of habits, etc.

The following types of lists are considered:

- **Simple lists:** that contains a list of environmental factors with impacts or a list of characteristics of impact-producing activities or both, and serves as an aide-memoire.

They ensure that a particular factor is not omitted in the analysis.

- **Descriptive lists:** that guides the assessment of impacted environmental parameters. For instance, they suggest possible mitigating measures, bases for a technical estimate of the impact, bibliographic references, or data on the affected groups

- **Graded lists.** Criteria are established to assess a set of environmental elements. Their minimum acceptable values (MAV) as specified in the environmental quality standards and criteria are compared, as well as value variations (VV), for three project alternatives: without action (WA), average investment (AI) and major investment (MI). The negative environmental impact (NEI), if any, is indicated for each case. Since this is criteria, units should be adapted to each case (i.e. project alternative).

- **Questionnaires.** Set of systematic questions on generic environmental categories. There are usually three answers (yes, no, don't know) with regard to the specific impact. The questionnaire enables us to find out how much information is available on the impact. The answers can provide a qualitative idea of the relative importance of a given impact, whether it is negative or positive. The environmental analysis of a project is a systematic procedure of questions and answers with the addition of quantitative and qualitative information if necessary

EIA's Guidelines

Criteria for assessing a project and setting a level of assessment are:

- The character of the receiving environment
- The potential impact of the proposal and confidence of predicting impacts
- Resilience of the environment to cope with change
- The technology to be used
- Plans, policies or procedure which influence land use changes
- Degree of public interest (i.e. concerns of the general public)
- Any other relevant factors to the particular undertaking

The following methodologies can be applied:

a) **Meetings of experts.** This method is useful when the impact to be studied is specific and limited. If it is not so, neither speed nor thoroughness can be demanded because of interdisciplinary conflicts. The Delphi method has been very useful.

b) **Checklists.** Detailed lists to identify impacts rapidly. There are merely indicative lists and quantitative lists that use standards to define the main impacts (for example, air pollution according to number of households).

c) **Simple cause-effect matrices.** They are limited matrices that relate the affected environmental variable with the human activity that induces it.

- d) Graphs and flow charts.** They seek to determine chains of primary and secondary impacts with existing interactions and are used to define the types of impacts expected.
- e) Environmental cartography or map overlay.** Set of maps that represent the main environmental characteristics. For instance, synthesis maps define soil capacities for different uses, protection levels, and constraints on development in each area.
- f) Networks.** Expanded flow charts with primary, secondary, and tertiary impacts.
- g) Geographic information systems.** Computer programs that do not identify impacts, but rather attempt to assess their importance.
- h) Matrices.** Double-input tables with environmental characteristics and expected activities of the project. The corresponding impact is identified by intersecting each row with each column. The Leopold matrix is a good example. In more complex matrices, sequence between primary and secondary effects can be deduced.

Existing key policies and laws relating to environmental management

Existing key policies and laws relating to environmental management. The following are key policies and laws of The Government of Tanzania (GoT) governing Environmental management:

- Town and Country Planning Ordinance, of 1966, Chapter 378: The Ordinance was intended to establish a land-use planning scheme for designated areas. The National Land Use Planning Commission was established to advise Government on land conservation and development
- Water Utilization and Control Act, No. 42 of 1974: The Act establishes temporary standards for receiving waters, as well as effluent discharge standards.
- Urban Water Supply Act, No. 7 of 1981 : The Act gives the National Urban Water Authority powers to monitor and control surface water and groundwater pollution and specifies when such Ministry of Water and Livestock pollution is a punishable offence
- Local (District and Urban) Local Authorities Act, No. 7 of 1982 : Local Authorities are empowered to make by-laws regarding the Local Authorities protection of soil, agriculture, water supplies and other natural resources. The Act contains provisions to protect human health and regulate pollution problems.
- National Environmental Management Council (NEMC) Act, No. 19 of 1983: The Act provides for the establishment of the NEMC, as well as all functions and other matters related and incidental to its establishment.
- Forestry Policy of 1993: The revised Policy continues to recognize the important role of forests in maintenance of the environment, the provision of forestry products, and protection of watersheds and biodiversity.
- Land Act, No. 4 of 1999: Private Group Property is given either through Granted Rights in General Ministry of Lands and Human and Reserved Land (Land Act, Section 19) or through Customary Rights in Settlement Development Village Lands (Village Land Act, Section 22). Provision is also made for holding land by joint occupancy or occupancy in common (Land Act, Part XIII).

- Public Health, Sewerage and Drainage Ordinance Chapter 336: The Ordinance prohibits the discharge of certain substances into sewers. Violation of the Ordinance is an offence, and penalties may be imposed on offenders.

(iv) Formats for EMPs

The Environmental Management Plans' (EMP's) scope, content, and activities will be formatted to conform with the safeguard requirements of the Government of Tanzania (GoT), City Council By-laws, World Bank, and other donors with relevant international best practices. The targeted EMP will cover, but will not be limited to, the following:

- Construction roads,
- Resettlement sites,
- Quarries,
- workers' camps,
- waste disposal sites,
- Materials staging and storage sites and other ancillary facilities and Identified sensitive areas such as schools and health centres.

It will cover preconstruction, construction, and operational phases. The City Councils' experience with EMP's implementation is limited and the Consultant recommends capacity building in this regard.

Mitigation in the Sub-projects aims at eliminating/reducing adverse impacts and maximizing the positive ones. Mitigation measures generated by construction works are integrated in the technical designs and will be included in the construction contracts. The project implementation unit, management and contractors will make sure that all the measures are properly implemented.

The project will induce land-take; especially the pieces of land located in the right of way.

In this project (TSCP-Mbeya), the developer has prepared a resettlement and Compensation plan to be implemented prior to roads construction.

Regarding the economy; mitigation will focus mainly on: **minimizing land expropriation and compensations**; establishing appropriate compensation mechanisms, recognizing income and asset losses; planning of adequate space and facilities to locate new businesses; and ensuring that the poor and other vulnerable groups maintain or improve their capacity to satisfy their basic needs. Regarding **information, education and communication**, mitigation will focus on informing all groups of people affected by the project on **project activities, schedule and potential disturbances**, as well as on means to reduce disturbances; and planning of session of information, education and communication activities during and after project implementation to increase awareness of all users on dangerous behaviors and safety measures that shall be taken.

Health and communicable diseases distribution are highly affective during road construction:

- There is an increased incidence of HIV and other STDs associated with construction, transit, and economic change. This will necessitate the distribution of HIV/AIDS prophylaxis through appropriate health service organizations as well as wide distribution of condoms (for men and women), particularly at hotels and overnight stops;

- There is the need for environmental management for vector control, especially in drainages and culverts, and un-reclaimed borrow pits. Insecticide and molluscicide will be applied to minimize water/roads related diseases such as malaria 3) Medical services will be strengthened to ensure rapid diagnosis and treatment.

Non-communicable diseases mainly related to dust and pollution will be minimized as follows: **Control of dust emissions or provision of protective devices** (especially for roads workers), promote public transport (to minimize individual transportation and proliferation of vehicles), control vehicle emissions and noise; plan facilities for pedestrians and cyclists.

Roads can significantly affect the hydrology of the areas crossed. To avoid or minimize adverse effects and mitigate, properly designed culverts, inverts, and drains should be installed. Road engineers are well aware and trained on this issue.

Soils and landscapes are sensitive to road construction. Therefore, areas sensitive to erosion should be avoided or special measures taken to minimize effects. In this regard, engineering

design and implementation are highly critical.

(v) Guidelines for Sub-project Appraisal

The following elements on the environmental impacts being considered for sub- project appraisal can be applied:

The beneficial or detrimental character of the impact with regard to the situation prior to the action.

The magnitude represented by extension, quantity, and intensity of the impact. For instance, it answers questions such as: how many hectares are affected?, how many species are threatened?, what is the volume of pollutants or percentage above the standard limit, etc.?

The significance of the impact and its relative importance (impact quality). For example, ecological importance of eliminated species, intensity of effluent toxicity or environmental value of a land area.

The type of impact, i.e., direct, indirect or synergistic (the latter accumulates and increases with the presence of several impacts, which end up exceeding the sum of the individual impacts).

The duration of the impact refers to the behavior of predicted environmental impacts in time: whether it is short-term and then stops; whether it appears rapidly; if it is long-term or intermittent, etc.

The reversibility of the impact, which considers the possibility, difficulty, or impossibility of returning to the situation previous to the action or project. There are reversible, terminal, and irreversible impacts.

The impact risk and its probability of occurrence.

The spatial area or area of influence, the land area receiving the environmental impact, which does not necessarily coincide with the location of the proposed action. It informs about the dilution of the impact intensity, which is not lineal to the distance from the source that induces it; when environmental characteristics are more sensible, the impact severity will increase (the example of toxic accumulation in ravines with impermeable soils is relevant).

Sub –project appraisal may be carried out by analysis of the following: Water quality, Air quality analysis, Soil degradation analysis, Soil cartography, Tele-detection (i.e. satellite) data, Analysis of flora and fauna and Landscape analysis.

As an example, a study of the landscape can be based on the following criteria:

- The value of the landscape corresponds to the set of interrelations among other elements (water, air, plants, rocks, etc.) and its study requires previous research.
- Landscape encompasses an important fraction of the plastic and emotional values of the natural environment; it is therefore recommended that a study of the landscape be based on visual qualities or values.

Parameters vary from one area to another depending on the objectives proposed in each study. Hence, there are different techniques to **inventory**, **identify**, and subsequently **assess** the condition of the landscape. The properties mainly addressed are **visibility**, **fragility**, and **quality**, as described below:

- a) **Visibility** encompasses possible observation points from which the activity is visible. Some techniques used are: in situ observation, manual profile determination, automatic methods, search by sector, and grids. Manual methods of creating visibility maps may be used or a microcomputer.
- b) **Fragility** refers to the set of characteristics of the land area related to its capacity to respond to changes in the properties of its landscape. It is used as a guide for locating the possible facilities or their elements in such a way as to produce the least possible visual impact. **Biophysical**, **perceptive**, and **historical-cultural** factors usually affect fragility. **Proximity** and **visual exposure** can also be considered.
- c) **Quality or beauty** of the landscape: these values also need to be assessed in terms comparable to those used for other resources. Perception of the landscape depends on the sensitive conditions or mechanisms of the observer, educational or cultural conditions, and the relationship between the observer and the observed object. Although the formal quality of the objects that make up the landscape and the relations with its environment can be described in terms of **design**, **size**, **shape**, **color**, and **space**, there are many differences when measuring the relative value of each and its weight in the total Composition.

The following methods have been established for this purpose:

Direct methods. The appraisal is made based on the observation of the whole landscape:

Accepted subjectivity. It is the simplest, though the least objective method, but it is accepted because of the degree of subjectivity that the landscape itself possesses. The result can correspond to a parceling of the land area classified; in visual quality categories, for instance, excellent, **very good, good, fair, and poor.**

Controlled subjectivity. Based on a universal scale of landscape values to establish comparable figures in different areas. Certain categories such as **spectacular, superb, distinguished, pleasant, vulgar, and ugly** are used. It is carried out with the participation of specialized personnel, using universal scales to ensure that the subjective assessment of different sites is comparable.

Shared subjectivity. This is similar to the accepted subjectivity method. The appraisal is performed by a group of professionals who should reach consensus, thereby eliminating extreme positions within the group. In brief, the aesthetic appraisal of the landscape is discussed.

Representative subjectivity. In this case, the appraisal is carried out by a representative group of the society. Surveys are used in order to classify the selected landscapes. **Photographs** serve as a support tool.

Indirect methods. These include qualitative and quantitative methods that assess the landscape and analyze and describe its components. Some of the methods considered are:

Methods of appraisal through landscape components. Physical characteristics of the landscape are used, for instance, **topography, land uses, presence of water**, etc. Each unit is appraised in terms of the components and subsequently, partial values are added to obtain final data.

Methods of appraisal through aesthetic categories. Each unit is appraised in terms of the aesthetic categories established, and partial appraisals are added or harmonized in one single value. Categories such as **unit, variety, contrast**, etc., are used. Its key point is related to the selection of the components to be used and the criteria that represent them.

Mixed methods. These methods combine the two previous ones and the appraisal is carried out directly using a component analysis that weights the participation of each component in the total value.

(vi) Guidelines for assessing variations/Additional work - Assessment Guidelines

This assessment may be carried out by applying the principles of environmental mitigation, EMP implementation and compensatory mechanisms.

Mitigation measures

Mitigation is the designing and execution of measures to reduce, mitigate, minimize the negative impacts of the sub-projects, work, or activity on human or natural environments. Mitigation can restore one or more environmental components to pre-impact quality; if this is not possible, it can re-establish the basic properties. This is done by implementing the environmental management plan.

Implementation of EMP

The Environmental Management Plan identifies measures to mitigate and compensate significant environmental impacts. It includes a program with mechanisms for the execution of actions aimed at minimizing negative environmental impacts and strengthening the positive ones during the construction, operation, and abandonment of projects, works, and facilities; and a program with compensatory measures to restore the environment.

Compensatory principles

Compliance with environmental protection programs depends to a large extent on the mitigating and compensatory measures, since it is these measures that make human activities viable from the environmental perspective. The purpose of mitigation is to set in motion pre-designed actions to reduce environmental impacts to acceptable levels. Compensatory measures aim to produce a positive alternative effect to match an identified adverse effect and they are implemented only in areas where significant adverse impacts cannot be mitigated.

Establishing Preventive measures

When establishing preventive measures to reduce or eliminate impacts, we must work on the premise that it is always far better not to produce impacts than to have to set up mitigation measures. Mitigation involves **an additional cost** that, although low in comparison with the global value, can be avoided if the impact is not produced. It should be added that, in most cases, mitigating measures eliminate only part of the alteration while other benefits derived from impact reduction, such as, for example, the possibility of making use of other alternatives, are lost. Moreover, it has been emphasized that impacts can be greatly reduced if a project has an adequate environmental design and follow-up is carried out during the construction, operation, and abandonment stages. It is important to note that the cost can be reduced significantly if mitigation actions are applied at an early stage. Another important aspect is the spatial and temporal scale of the application of mitigating measures. Most of such measures have to be applied through agreements with affected organizations or people. Regarding the time of application, it is desirable to do it as soon as possible to avoid non-desirable secondary impacts, for instance, erosion on slopes that have been left without vegetation.

(vii) Overall Environmental Monitoring and Evaluation Framework

The environmental monitoring and Evaluation Framework for the sub- projects can be best illustrated by the Table below:

Table : Overall Environmental Monitoring and Evaluation Framework

Project component	sub- Mitigation Measure	Institutional Responsibility
Quarrying	<ul style="list-style-type: none"> *New sites or extensions to existing quarries *avoid good agricultural land *No 'mega' quarries *Topsoil must be retained and conserved *There must be a written restoration plan and funds must be retained to ensure it can be implemented *Restoration must include grading, stabilizing slopes, relaying topsoil, seeding and planting of local species of grass and tree *Worker safety precautions to be in place *Advance notice of blasting where quarries close to settlement or areas of heavy land use *Ensure no landfill in exhausted quarries. 	<p>PMO – RALG initiating cooperation With NEMC, OSHA, CITY COUNCIL AND WARD COUNCILS. early in Phase 1. NEMC must ensure post project responsibilities of TANROADS for quarry restoration.</p>
Stabilization of road embankments	<ul style="list-style-type: none"> *Ensure no interference with seasonal/permanent springs *Incorporate steps and ramp access to enable pedestrians to climb embankment at road crossing points 	<p>City Council Engineering Consultant for as Phase 2 responsibilities.</p>

Project component	sub-	Mitigation Measure	Institutional Responsibility
Land Take		<p>Compensation procedures to be initiated and implemented in a timely fashion</p> <p>World Bank to consider conditionality to ensure compensation payment programme adhered to</p> <p>A single scale of compensation for the project to be used</p> <p>All payments to be made before properties are Taken.</p> <p>Householders to be given adequate time to dismantle structures for reassembly</p> <p>Design sensitive to retaining very mature trees where possible, consulting if necessary</p>	<p>City Council prior to and early in Phase in order to submit Resettlement & Compensation Plan to the World Bank to consider conditionality and to consider and approve Resettlement & Compensation Plan prior to Phase 2 disbursement</p> <p>Min. Lands early Phase 2</p> <p>Min of Finance early in Phase 2</p> <p>City Council Engineering Consultant in Phase 2</p>
Resource Requirements		<p>*Maximize local sourcing of materials</p> <p>*Maximize local employment</p>	<p>PMO-RALG in Phase 1 thru Bid Docs & contractor supervision</p>
Nuisance, Pollution, Disposal of wastes		<p>*Contractor Guidelines on Good Practice implemented</p> <p>*Proper disposal of wastes</p> <p>*Maintenance of working width and designated works areas</p>	<p>PMO – RALG thru Bid Docs and hands-on construction phase supervision</p>

Project component	sub-	Mitigation Measure	Institutional Responsibility
Gender		<ul style="list-style-type: none"> *Equal opportunity for employment *Restoring or building new sheds at the Lorry/ Bus park area. * Provision of lay-by areas at junctions for market stalls for women *Graded hard shoulder with adequate width for all non-motorised use and with graded edges so that there is no sharp drop off the sides *Emphasize importance of pedestrian/bicycle use in road user design 	Consultant together with Min. Youth, Employment & Women, PMO – RALG thru Phase 2
Villagers and Farmers		<ul style="list-style-type: none"> *Ample lay-by area at junctions for waiting areas and pick up points *Emphasize importance of pedestrian/bicycle use in road user design Feeder road upgrade initiated *Safety maximized in villages and near schools Expansion of daradela routes to be encouraged 	Consultant in Phase 2 design generally & including making outline recommendations for priorities in any subsequent feeder road upgrade study PMO- RALG commencing in Phase 2 and continuing thru commissioning
Liaison & Institutional Cooperation		<ul style="list-style-type: none"> *Ongoing liaison with communities through: PMO-RALG Min. Youth, Employment & Women, Council Ward Offices Dialogue with NEMC *Safety campaign in schools, transport sector, communities 	PMO- RALG must ensure, prior to Phase 2, that responsibilities outlined in the ESMMP are agreed, especially with Min Youth, Employment & Women, Ward Executive Officers, NEMC. Police

Project component	sub-	Mitigation Measure	Institutional Responsibility

(vii). EIA Capacity Building Program in the Implementation Units, Local Authorities and at the relevant community level

A programme for building capacity for EMP Implementation for the Project Monitoring Units, Local Authorities and at the local ward levels is essential to ensure successful outcomes. The proposal is to have a workshop on the findings of the Mbeya TSCP ESIA and the proposed EMP’s for experts represented in the steering committee for EMPs’ implementation. Training events for Trainers on EIA’s will be targeted to the committee members on Health, Security and Environment at the Ward level and Public Awareness meetings on EIA’s and EMP’s implementation in all the Wards is also envisaged.

1. WORKSHOPS

This should ideally be a three day event and will employ best practices. Participants should be drawn from organizations represented at the steering committee level of EMP’s implementation at City hall and project monitoring Unit staff at the PMO RALG. The Work Bank and the City Council should finance this event, with the latter recruiting the necessary resource expertise. The number of proposed participants is expected to be twenty (20).

2. TRAINING OF TRAINERS

This will be a middle level one week event drawing participants from implementing Agencies such as ward councils and NGO’s and community based organizations at sub-Project level. The Number of earmarked participants will be about 40.

3. PUBLIC AWARENESS MEETINGS

These will be one day meetings to be conducted at ward level for the general public. Local experts conversant with the local language- KISWAHILI will have to be recruited especially for this purpose if the exercise is to achieve any success. These meetings should cover three broad areas:

Health (Communicable diseases)

Waste disposal

Health Sanitation and Public hygiene.

The number of people expected for these events to be defined.