GOVERNMENT OF THE REPUBLIC OF UGANDA
Ministry of Works, Housing and Communications

ROAD SECTOR INSTITUTIONAL SUPPORT TECHNICAL
ASSISTANCE PROJECT (RSISTAP)

The Feasibility Study Review and Engineering Design of
KATUNGURU - KASESE - FORT PORTAL ROAD
KASESE - KILEMBE ROAD
EQUATOR ROAD

Phase 1: Feasibility Study

FINAL REPORT
ENVIRONMENTAL IMPACT ASSESSMENT
PART II: SOCIO-CULTURAL ASSESSMENT

Consultant
Scott Wilson Kirkpatrick & Co. Ltd
in association with
Associated Consulting Engineers

Client
Ministry of Works, Housing and Communications
P O Box 10
Entebbe - Uganda

DECEMBER 1999
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DECEMBER 1999
### ABBREVIATIONS

<table>
<thead>
<tr>
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<th>Description</th>
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<tbody>
<tr>
<td>ACE</td>
<td>Associated Consulting Engineers</td>
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<tr>
<td>CAO</td>
<td>Chief Administrative Officer</td>
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<tr>
<td>CMP</td>
<td>Construction Management Plan</td>
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<td>DEAP</td>
<td>District Environmental Action Plan</td>
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<td>DEC</td>
<td>District Environmental Committee</td>
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<td>DLC</td>
<td>District Local Council</td>
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<tr>
<td>DHEC</td>
<td>District Health and Environment Committee</td>
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<td>EA</td>
<td>Environmental Appraisal</td>
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<td>EIA</td>
<td>Environmental Impact Assessment</td>
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<td>EIS</td>
<td>Environmental Impact Study</td>
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<tr>
<td>ELU</td>
<td>Environmental Liaison Unit</td>
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<td>GOU</td>
<td>Government of Uganda</td>
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<td>IMD</td>
<td>Information and monitoring Division</td>
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<tr>
<td>LC</td>
<td>Local Council</td>
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<tr>
<td>LEC</td>
<td>Local Environmental Committee</td>
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<tr>
<td>MNR</td>
<td>Ministry for Natural Resources</td>
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<td>MOLG</td>
<td>Ministry of Local Government</td>
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<td>MOLWE</td>
<td>Ministry of Land Works and Environment</td>
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<td>MOWHC</td>
<td>Ministry of Works Housing and Communications</td>
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<td>MTTI</td>
<td>Ministry of Tourism, Trade and Industry</td>
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<td>NBS</td>
<td>National Bureau of Standards</td>
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<td>NEAP</td>
<td>National Environmental Action Plan</td>
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<td>NEMA</td>
<td>National Environmental</td>
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<td>NEMP</td>
<td>National Environment Action Plan</td>
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<td>NES</td>
<td>National Environmental Strategy</td>
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<td>NGO</td>
<td>Non Governmental Organisation</td>
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<tr>
<td>NRM</td>
<td>National Resistance Movement</td>
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<td>NWSC</td>
<td>National Water and Sewerage Corporation</td>
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<tr>
<td>QENP</td>
<td>Queen Elizabeth National Park</td>
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<tr>
<td>RA</td>
<td>Road Agency</td>
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<tr>
<td>RAFU</td>
<td>Road Agency Formation Unit</td>
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<tr>
<td>RSISTAP</td>
<td>The Road Sector Institutional Support Technical Assistance Project</td>
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<td>SCIA</td>
<td>Socio-Cultural Impact Assessment</td>
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<tr>
<td>SWK</td>
<td>Scott Wilson Kirkpatrick &amp; Co. Ltd</td>
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<tr>
<td>UEB</td>
<td>Uganda Electricity Board</td>
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Scott Wilson in Association with Ace

December 1999
USAID United States Agency for International Development
UWA Uganda Wildlife Authority
WCA Wildlife Conservation Area
WMA Wildlife Management Area
WPA Wildlife Protection Area
GLOSSARY

**Carriageway** - Area of road for use by motorised vehicle, bounded on either side by road shoulder.

**Duka** - Local name widely used to refer to roadside retail shops.

**Matatu** - Public minibus, widely used mode of travel both within and between urban areas and other settlements.

**Murrum** - Local name commonly used to refer to gravel suitable for road building.

**Pavement** - A structure composed of layers of increasing rigidity and strength and of varying thickness, designed to carry traffic loads on natural soil formations. Typically comprising subgrade, sub-base and base layers.

**Maintenance** - All those activities undertaken to prevent deterioration of the road pavement during its serviceable lifetime. Such activities may include clearing of side ditches, desilting of culverts, repairing of potholes, ravelled surfaces and deformations, clearing of vegetation on the verges and restoration of road furniture and markings. The activities are categorised as Routine, Recurrent or Periodic, depending on the extent of work, plant used, frequency of such requirements and cost.

**Rehabilitation** - An enhanced period of maintenance intended to restore the road to its original condition. Structural defects are repaired without major changes to alignment and width standards as would be implemented in a reconstruction.

**Road Reserve** - Area of land typically extending 15 metres from the centre line of the road, owned by the MOWHC and within which they have rights to extend the road and place associated infrastructure (signs etc). This area is often also used for placing of underground or overground utilities (water mains, electricity, telephone cables etc).

**Shoulder** - Area of road (typically 1.5 metres wide), between the carriageway and ditch, often used by pedestrians and cyclists, may or may not be sealed.
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SUMMARY

Introduction
The Ministry of Works Housing and Communications (MOWHC) of the Republic of Uganda is currently examining various rehabilitation options that would minimise the need for ongoing maintenance and increase the lifetime of the following sections of road in the western part of Uganda (Figure 1):

- From Katunguru to Fort Portal via Kasese;
- From Kasese to Kilembe; and
- The Equator Road (between the Katunguru-Kasese Road and Bwera on the Congo border).

In accordance with Ugandan legislation and conditions associated with the scheme’s funding by the World Bank, an Environmental Impact Assessment (EIA) is required. The study reported in this document considers the potential effects of the proposal on social, cultural and economic resources. In accordance with a request from the World Bank the social, effects on the physical and biological environment have been addressed in a separate report.

Proposals
The works will comprise on-line improvements focussed on:

- reconstructing, strengthening and sealing of existing carriageways and shoulders;
- localised widening of the carriageway within the current road reserve;
- sealing of verges;
- clearing of ditches;
- replacement of three bridges; and
- repair of existing, and construction of additional, drainage infrastructure.

The rehabilitation is unlikely to increase the number of vehicle movements that would otherwise occur, since it is not changing the nature of the road but rather minimising the need for ongoing intensive maintenance.

Construction is expected to extend over two-three years and employ 2-300 men. The works will be undertaken in three packages using a combination of manual labour and mechanised plant. Various sites have been identified for the sourcing of murrum and sand and for the disposal of spoil. Several work camps (probably three) will be required as well as storage areas along the project roads. The workcamps will include various workshops, maintenance and processing facilities including batching.
Figure 1 - Location Map
Map of Uganda showing Katunguru - Kasese - Fort Portal, Kasese - Kilembe and Equator road
plants as well as housing and staff infrastructure (shops, canteen etc). Temporary landtake will also be required for working widths, diversions and parking/storage areas. In general these will be accommodated within the road reserve.

Method
The study has been undertaken in accordance with World Bank Operational Directive 4.01 - Annex B; Republic of Uganda Guidelines for Environmental Impact Assessment (NEMA, 1996) and the Draft Road Sector Guidelines (Arcadis Euroconsult and Makarere University, 1998) and has included:

- Identification and review of relevant Ugandan and World Bank policy, legal and administrative framework and requirements;
- Determination of details of scheme components, as well as construction requirements and activities (including those taking place off-site) associated with the project, in particular those which could have implications for environmental resources;
- A determination of current and anticipated social, cultural and economic conditions and the nature and location of receptors. These were established through review of: existing reports and documentation; field visits and surveys; consultations with statutory bodies, concerned groups and local communities, including a public consultation meeting;
- Identification and evaluation of potential impacts, both positive and negative; and
- Proposals of cost-effective mitigation measures, and where appropriate, opportunities for enhancement during construction or operation of the schemes.

It is recognised that the proposals could have significant consequences for local communities. In addition, these communities also have valuable local knowledge that can aid the design and implementation of the scheme. A key component of the EIA was therefore the participation of concerned groups and NGOs and incorporation of their concerns in the formulation of recommendations. This was undertaken through informal consultation with individuals and community representatives as well as a public consultation meetings held on 26 November 1999.

Impacts on Social, Cultural and Economic Resources
Key impacts are associated with loss of or damage to land or property, disturbance during construction and the potential for increased risk to safety as a result of faster travelling vehicles.

Since in general any road widening or temporary requirements for working widths, to accommodate local diversions, storage areas, will be within the existing road reserve, the requirements for landtake will relate largely to borrow pits, work camps and storage areas - all of which can be reinstated after
completion of the works. There may be a requirement, however, for some permanent land acquisition in Bwera and Kasese and short term landtake in the vicinity of three bridges. It is important that appropriate planning is made for such temporary or permanent landtake and that commensurate compensation is made for any losses. In addition full reinstatement should be undertaken following completion of works on all areas of temporary landtake.

During construction there is potential for disturbance to local communities and road users as a result of the works and the movement of construction traffic as a result of noise, dust, delays, risks to safety, interruptions to utility supplies and damage to property access. In the longer term, faster traveling vehicles could present a threat to other road users including bicycles and pedestrians. Various mitigation measures have therefore been recommended and include:

- forewarning all affected parties of nature and timing of works;
- agreement of all compensation packages prior to commencement of works;
- separation and reinstatement of topsoil in roadside areas of temporary landtake;
- proposal and implementation of specific reinstatement requirements for each borrow pit;
- removal of waste at end of works period;
- routing of new haul roads away from settlements;
- damping of haul roads, wheel washing and covering of vehicles;
- use of flag men;
- restriction on working hours;
- local sourcing of materials;
- maintaining access to properties during works and reinstating on completion of rehabilitation;
- placement of speed bumps and signs at sensitive areas e.g. towns, schools etc.; and
- sealing of all shoulders.

**Beneficial Impacts**

Although the rehabilitation works has potential, if inappropriately undertaken, to present a threat to the environment, there are also considerable benefits to be gained. These have been discussed in Report and include:

- reduced risk of erosion and land degradation as a result of improved road drainage;
- reduced risk of ponding and associated risks to property and to health;
- reduction in frequency of maintenance activities and hence disturbance to human communities adjacent to the road and road users;
- opportunity to introduce safety measures in the vicinity of towns and settlements e.g. speed controls, sealed shoulders, signs etc.; and
economic benefits through provision of an improved and reliable infrastructure to transport passengers and goods. This should encourage economic activity and also, in the longer term, may result in additional community benefits e.g. improved access to schools, medical centres etc.

Environmental Management
An Environmental Management Plan has been prepared which itemises the required mitigation measures and identifies the agencies responsible for implementing and monitoring these measures during design, construction and operation of the proposed works. A list of monitoring requirement has also been determined. Provisions for such measures should be included in the tender documents and the Construction Management Plan. An overview of the responsibilities, resources available to and capabilities of the individual agencies involved in the environmental management and monitoring of the project is also provided and areas where capacity building, increased resources and interagency coordination is required are identified. In particular the implementation of an ELU within the MOWHC, appointment of an Environmental Manager in RAFU and establishment of a working relationship would benefit the environmental management of both this and future highway projects in Uganda.

Alternatives
Alternative options in terms of transport mode, road route, rehabilitation methods etc have been identified, together with a consideration of the environmental, technical and cost implications of each option. Air and rail transport modes are shown to be inappropriate in view of the lack of existing infrastructure (rail) and high economic and environmental costs (air). Similarly, an alternative road option would involve substantial cost and could give rise to a range of environmental effects. The preferred engineering options are considered to be environmentally acceptable as they represent an optimal balance of larger scale, but less frequent and managed, disturbances associated with rehabilitation against the smaller but more frequent and ad hoc disturbances associated with routine, recurrent or periodic maintenance. The Do Nothing scenario is shown to be unfavourable in environmental terms since, within a relatively short time, sections of the road would become unsuitable for use by motorised vehicles, with a range of resultant environmental effects including increased potential for erosion, accidents, safety, reduced economic activity and associated effects.
1. INTRODUCTION

1.1 Background
The Ministry of Works Housing and Communications (MOWHC) of the Republic of Uganda is currently examining various rehabilitation options that would minimise the need for ongoing maintenance and increase the lifetime of the following sections of road in the western part of Uganda (Figure 1):

- From Katunguru to Fort Portal via Kasese;
- From Kasese to Kilembe; and
- The Equator Road (between the Katunguru-Kasese Road and Bwera on the Congo border).

As part of this process, an application for funding has been made to the World Bank. The MOWHC now wishes to obtain financial and economic cost estimates for undertaking the works associated with the various rehabilitation options. It has therefore commissioned Scott Wilson Kirkpatrick & Co (SWK) in association with Associated Consulting Engineers (ACE) to provide consultancy services to undertake a Feasibility Study Review of the rehabilitation options for these sections of road as part of the Road Sector Institutional Support Technical Assistance Project (RSISTAP). Depending on the findings of the Feasibility Study and on authorisation from the Government, in consultation with the World Bank, the detailed engineering design and cost estimate for the favoured options will be undertaken.

An economic feasibility study, preliminary engineering study and detailed engineering design of the Katunguru-Kasese-Fort Portal and Kasese-Kilembe sections was undertaken in 1995 by Sabbour associates. An Environmental Impact Assessment (EIA) of the Katunguru-Kasese-Fort Portal section was included as part of that feasibility study. Although repair works have subsequently been undertaken to sections of that road, these have been limited to surface treatment with no replacement of road bases or sub-bases. The nature of the works, combined with the continuous passage of overloaded trucks, has, however, meant that the effects of such improvements are relatively short term and there is a continual need for ongoing repairs, which is expensive.

An inception report for the current Feasibility Study Review was provided to the MOWHC and World Bank soon after the commencement of the project, followed by an Interim Report on 30th November 1998. The agreement for undertaking the Feasibility Study Review also required the
completion of Environmental Impact Assessment comprising an Assessment of the Physical and Biological Issues (PBA) and Socio-Cultural (SCA) Assessments of the options under consideration. The Feasibility Final Report was submitted in April 1999. This report comprises the SCA. In accordance with a request from the World Bank this has been submitted as a separate document from the EA.

1.2 Objectives of the SCA

The objectives of the SCA study are to identify potential social-economic or cultural concerns at a sufficiently early stage in the project development so that appropriate measures can be incorporated into the scheme selection, planning and design to ensure that it is socially and culturally sound. It allows the design engineers to address such issues at an early stage and in a cost effective fashion, after considering various schemes and design alternatives.

The World Bank screening process has identified the project as of Category A i.e. 'the project may have diverse and significant environmental impacts'. In general road rehabilitation works which do not require major realignment or engineering works might be expected to be assigned a lower category and therefore would be subject to a more limited environmental analysis. However, a substantial component of the proposed works are within, or adjacent to, the Queen Elizabeth National Park (QENP), a site of national significance for wildlife conservation, and it is for this reason that the project has been assigned the highest category in terms of the requirements for environmental analysis.

An Environmental Impact Assessment (EIA) is required under Ugandan Legislation (National Environment Statute, 1995) and although a formal notification as to the level of study required has not been received it is likely that the project will be considered to require the highest level of environmental analysis or Environmental Impact Study (EIS) comprising a major and detailed assessment. The SCA reported in this document, together with the PBA (which is reported in a separate document), are likely to fulfil many of these requirements. In addition the PBA and SCA serve as mechanisms for inter agency co-ordination and promotes the building of environmental management capabilities.
2. METHODOLOGY AND REPORT STRUCTURE

The approach adopted for the overall EIA comprising the SCA and the PBA has been developed in accordance with World Bank Operational Directive 4.01 - Annex B: Republic of Uganda Guidelines for Environmental Impact Assessment (NEMA, 1996) and the Draft Road Sector Guidelines (Arcadis Euroconsult and Makarere University, 1998) and has taken account of various relevant guidance documents (ODA, 1996; Sumokawa and Hoban, 1997; World Bank, 1991). This has resulted in the following general approach:

(i) Identification and review of relevant Ugandan and World Bank policy, legal and administrative framework and requirements. This was undertaken through both desk study and consultation with statutory bodies, environmental specialists and agencies in order to ensure that necessary measures are included in the design and implementation of the scheme to meet the appropriate requirements and is summarised in Section 3.

(ii) Determination of details of scheme components, as well as construction requirements and activities (including those taking place off-site) associated with the project, in particular those which could have implications for environmental resources is presented in Section 4. These were identified through a review of the Feasibility Study Final Report, examination of engineering proposals (plans, methods of construction, location of borrow pits etc) and ongoing discussions and site visits with the project engineers to gain a sound appreciation of the proposals.

(iii) A determination of current and anticipated socio-cultural and economic baseline conditions has been established through review of:

- existing reports and documentation. In particular for the Katunguru-Kasese study area, the determination of baseline conditions has drawn on the review presented in the previous EIA report produced by Sabbour and Associates in 1994;
- field visits and surveys in December 1998 and September 1999 to determine details of landuse, vegetation types, soils, topography, drainage conditions etc;
- consultations with statutory bodies, concerned groups and local communities, including two public consultation meetings on 26 November 1999 to establish the nature and location of receptors and local concerns and interests.

These are described in Section 5.

Details of documentary sources, people consulted and attendees and issues raised at the public consultation are contained in the Appendices to this report.
(iv) Where potential impacts were identified, evaluation of both their positive and negative environmental effects has been undertaken using established criteria and is reported in Section 6. Where impacts can be reduced to acceptable levels through the incorporation of practical and cost-effective mitigation measures, these have been identified and developed together with the project engineers. Where direct mitigation is not possible or cost-effective, compensation measures have been proposed. Where appropriate, opportunities for enhancement during construction or operation of the schemes have also been identified.

(v) An Environmental Management Plan (Section 7) has been prepared, which itemises the required mitigation measures and identifies the agencies responsible for implementing and monitoring these measures during design, construction and operation of the proposed works. A list of monitoring requirements has also been provided. This is followed in Section 8 by a discussion of the responsibilities, resources available to and capabilities of the individual agencies involved in the environmental management and monitoring of the project and identifies areas where capacity building, increased resources and interagency coordination is required.

(vii) Alternative options in terms of transport mode, road route, rehabilitation methods etc have been identified in Section 9, together with a general description of the environmental, technical and cost implications of each option.

Supporting information is contained in various technical Appendices to this report.

The PBA has been reported in a separate document, where physical and biological considerations have been addressed.
3. POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK

3.1 Historical Perspective

Uganda became independent from Britain in 1962 under a Federal Constitution which was abrogated five years later when the country became a republic. In 1971, the government was overthrown in a military coup. In 1979 the military regime was itself overthrown by anti-dictatorship forces backed by the Tanzanian army. Following the removal of the military dictatorship, the ruling forces became divided and started in-fighting which plunged the country into a period of political confusion, violence, large internal displacement of the population and mismanagement of the economy and resources. This situation, which also intensified environmental degradation, continued up to 1986.

In 1986, the National Resistance Movement (NRM) took over the government after a five year guerrilla war in the bush. From then, the new government embarked on a wide ranging recovery programme that has had effect on all social, political and economic aspects of the country. Chief among these are: spearheading a vigorous campaign to attract investment; privatising public enterprises to encourage private management; and restructuring the public service to increase efficiency. The restructuring process has included the decentralization of services and devolution of powers to the districts and lower levels to encourage the public to manage their own resources. Others include the new constitution and prioritising environmental management practices and legislation.

Due to political upheavals that characterised the post-independence period until 1986, no new policy or legislative instruments were put in place to promote sustainable development. This was compounded by the view that since Uganda is well endowed with abundant natural resources, environmental management was not a priority issue.

3.2 Government Organisation

3.2.1 National Government

At the highest level, the institutions with an interest in the project are the various relevant ministries whose main role is to handle the policy issues of the respective areas for which they are responsible under them. The ministries of relevance to the current study are the Ministry of Land, Water and Environment (MOLWE) which amongst other roles is responsible for environmental policy and the Ministry for Works, Housing and Communications (MOWHC) which is responsible for road infrastructure.
Below these ministries are two types of institutions, namely Departments and Parastatals. The former are purely government institutions whose day-to-day activities are directly supervised by respective ministries as, for example, the Departments of Energy, Works and Antiquities. By contrast, Parastatals are semi-autonomous organisations which execute their day-to-day duties almost independently of the parent ministries. These include Uganda Electricity Board (UEB), National Water and Sewerage Corporation (NWSC), Uganda Wildlife Authority (UWA), the National Environmental Management Agency (NEMA), Uganda Railways Corporation (URC) and the National Bureau of Standard (NBS). It is intended that in time the Road Administration Formation Unit (RAFU), the road implementing unit within the MOWHC will become a separate Road Agency (RA).

There is a tendency for Parastatals to have links directly to Ministries rather than through corresponding Departments. The Parastatals of most relevance to this project are:

- NEMA, which is the main agency responsible for coordination of environmental concerns within Uganda. Its functions, including approval of EIAs and environmental monitoring, are discussed further in Section 3.3.1 below;
- UWA, whose interest in the project relates to the fact that a section of the project road passes through the nationally designated Queen Elizabeth National Park; and
- the various utility agencies whose infrastructure may be located within the road reserve and could therefore be affected by works.

All ministries, departments and Parastatals operate at the national level.

### 3.2.2 Local Government

When the NRM Government took over power in 1986, it introduced a new mode of local government based on a 5-tier system. This system which promotes grass roots participatory democracy begins from the village or Local Council One (LC I) level up to the District or Local Council Five (LC V) level. In between, there are LC II; LC III and LC IV which correspond to the Parish, Sub-county and County or Municipality respectively. Councils are led by executive committees of nine people, each who serve for a particular period of time and are eligible for re-election. Apart from LC I executives, who are elected by all adults in respective councils, the rest of the executives are chosen from executives of lower councils also known as electoral colleges.

In the planning process, only three levels in the LC system are effective and these are LCs I, III and V. The Local Government Statute of 1993 entrenched and strengthened the LC system in Uganda.
Uganda is currently implementing a national programme of decentralisation through the Ministry of Local Government (MOLG). This is provided for by the Local Government Statute of 1993 which reorganises the role of local governments, provides for new responsibilities, empowers them, and establishes new relationships with the central government. Key decentralisation policy objectives among others, are to free local managers from central constraints and, as a long term goal, allow them to develop organisational structures tailored to local circumstances and to increase their capacity to plan, finance and manage delivery of services to their people. The Chief Administrative Officer (CAO) steers and directs all the decentralisation activities in each district.

The Local Councils (LCs) operate under the Ministry of Local Government and have representatives of all other sectors at the national level. Environmental issues at LCV are supervised by the District Environment Committee (DEC) with the help of an environment officer who in turn is responsible for the Local Environment Committees (LECs).

3.3 Environmental Management In Uganda

3.3.1 Management at National Level

The post-1986 era in Uganda has been associated with many development programmes and an average economic growth rate of over 6% per year. This trend necessitated a need to direct national development efforts to ensure that plans aimed at improving the standard and quality of life take due consideration of environmental concerns.

With the above background, the NRM government created a number of institutions to cater for environmental issues, initially, the Ministry of Environment Protection in 1987, followed by the Directorate of Environment Protection and NEMA. The establishment of NEMA was legalised by the 1995 Environment Statute. It is now the main coordinating agency of environmental concerns in the country and operates under the general supervision of the Minister of Lands, Water and Environment which is also represented on the Committee which provides and coordinates environmental policy guidelines. NEMA is headed by an Executive Director who is also an ex-officio member of the board that oversees the implementation and successful operations of the policy and functions of the Authority.

NEMA is made up of four divisions one of which is the Information and Monitoring Division (IMD) whose primary purpose is to ensure adequate surveillance and control of the environment and any related areas of interest to it. Part of IMD's mandate is to ensure that environmental regulations such as EIA are complied with; environmental standards are set; and an environmental monitoring system is put in place.
It is intended that each sectoral lead agency, should have an Environmental Liaison Unit (ELU) to act as a contact point for NEMA. According to the Statute, a lead agency is "any ministry, department, parastatal agency, local government system or public officer in which or whom any law vests functions of control or management of any segment of the environment". The day to day activities, and running, of the ELUs is not the responsibility of NEMA but of the respective lead agencies.

As can be deduced from the above, there is no provision for a structure to handle environmental issues at the centre i.e. in the Ministry of Lands, Water and Environment. Instead, all issues that are beyond the mandate of NEMA are pushed to the Policy Committee, whose chairman is the Prime Minister.

### 3.3.2 Management at Local Level

In line with the national programme of decentralisation, the NES of 1995 provides for the transfer of environmental management responsibilities to districts, municipalities and rural communities at the grass roots. Based on the guidelines that had been provided during the NEAP process, the NES gives a framework in which to manage the environment at districts and lower levels so as to be in line with the overall decentralisation process which is one of the current priority government policies.

This framework results in an environmental management system that integrates and fortifies links among all levels in the district (i.e. LC V, LC III and LC I), public sectors and NGOs, through creation of environmental committees at district and local levels. At the highest level, the District Environment Committee’s (DEC) main objective is to co-ordinate the activities of the District Local Council (DLC or LCV) relating to the management of the environment and natural resources and to ensure that environmental concerns are integrated in all plans and projects approved by the DLC. On the advice of the DEC, a local government system may create Local Environment Committees (LECs) whose main responsibility is to prepare local environment work plans which are consistent with NEAP and District Environment Action Plan (DEAP).

Environment related activities in districts are facilitated by District Environment Officers (DEOs) who are direct employees of respective districts. Among other duties, a DEO is supposed to serve as Secretary to and advise the DEC; liaise with NEMA on all matters relating to the environment; and assist LECs in the performance of their functions as provided for in the Statute.

All these structures are intended to be part and parcel of the district local government and not NEMA. Their functions are to facilitate coordination be in place between NEMA and the districts and to transfer "real power" to districts and lower levels so that decision making and budgeting are
realigned to suit district priorities. As a result, the capacity of local authorities to plan and manage
delivery of services to their people while ensuring sustainable use of the environment in its broadest
sense, is expected to improve.

3.4 Summary of Relevant National Legislation and Guidelines

There are several legal statutes and guidelines which are relevant to the environmental appraisal of
this project, controlled by the various government departments. Most of these documents however are
not more than five years old and their implementation is still in early stages. For example, the
Constitution was promulgated in 1995, while the National Environment Management Policy was
formulated in 1994. There follows a brief summary of the Constitution and relevant statutes.

3.4.1 The Constitution of the Republic of Uganda, 1995

Amongst other matters addressed by the new Constitution, land related issues were given high
priority. Article 237 vests all the land in the country to the people, while Article 26 prohibits forceful
seizure of individual property including land by any authority, public or private without adequate
compensation. This has instilled a sense of security of tenure in most Ugandans, especially those
who have been squatting on public or other lands. Since the contents of these articles cannot be
described as land reform actions, a land bill was provided for by the same constitution in which
issues pertaining to land tenure and land use would be dealt with in detail. A Land Act, 1998 is now
in place and provides for all issues related to land in Uganda.

One of the national objectives and principles of state policy is to promote sustainable development
for present and future generations. To ensure this, Article 245 empowers parliament to provide for
measures intended to protect and preserve the environment from amongst others abuse, pollution and
degradation. Within the same framework, Articles 39 and 41 give every citizen the rights to a clean
and healthy environment and access to information. Being the supreme law of the land, the 1995
Constitution has brought changes in many other legal documents which existed previously, more
specifically in land and environmental management.

3.4.2 The National Wetlands Policy

Wetlands, commonly known as swamps in Uganda, are a resource of considerable importance just
like any other natural resources such as forests and rangelands. This resource had been exposed to
uncontrolled exploitation for a long time, which forced the Government in 1986 to impose a ban on
large-scale drainage schemes until such a time when a more elaborate and socially harmonious policy
was put in place. In 1995, the National Policy for the Conservation and Management of Wetland
Resources was made. The policy aims at curtailing the rampant loss of wetland resources and
ensuring that benefits from wetlands are sustainable and equitably distributed to all people of Uganda.

In summary, the wetlands policy does not allow drainage of wetlands except in extreme cases pertaining to important environmental management; it calls for sustainable use and sound management of wetlands: equitable distribution of wetland benefits and the application of EIA on all activities to be carried out in a wetland.

3.4.3 The Water Statute, 1995

The Water Statute was made to provide for the use, protection and management of water resources and supply; to provide for the constitution of water and sewerage authorities; and to facilitate the devolution of water supply and sewerage undertakings.

The main objectives of the Statute are to: promote the rational management and use of the waters of Uganda; promote the provision of a clean and sufficient supply of water for domestic purposes to all persons; allow for the orderly development and use of water resources for purposes other than domestic use; and to control pollution and to promote the safe storage, treatment, discharge and disposal of waste which may pollute water or otherwise harm the environment and human health.

3.4.4 The Uganda Wildlife Statute

The government, on behalf of, and for the benefit of the people of Uganda owns all wildlife in its wild habitat. The main purposes of this statute is to promote sustainable management of wildlife conservation through Uganda; implement relevant international treaties conventions agreements or other arrangements to which Uganda is a party; and promote public participation in wildlife management.

The Statute requires any developer with a project likely to have significant effect on any wildlife species or community to undertake an EIA in accordance with the NES, 1995.

Sections 18 and 19 give procedures for declaration of Wildlife Conservation Areas (WCA) and define what constitutes such an area. A WCA may be either a Wildlife Protected Area (WPA) or a Wildlife Management Area (WMA). WPAs comprise National Parks and Wildlife Reserves or any other areas declared as such by the Ministry of Tourism Trade and Industry (MTTI). Wildlife Sanctuaries, Community Wildlife Areas or other areas classified as such by the MTTI make up the WMAs. Subsection 5 of Section 19 describes a National Park as an area of international and national importance because of its biological diversity, landscape or national heritage value. A Wildlife
Reserve under this statute is an area of more local importance for wildlife conservation and management.

WCAs are administered by the Uganda Wildlife Authority (UWA), a Parastatal body for whom the line ministry is the MTTI.

Use of any resources in WPAs or carrying out an otherwise unlawful act in WPAs can only take place on permission granted by the Authority’s Executive Director on the advice of the Board or after carrying out an EIA. Section 27, however, gives powers to the Minister, on the advice of the Board, to make regulations controlling acts or omissions within a WCA and most activities are not allowed. A National Park is the highest level of wildlife protected area in Uganda, where extraction of natural resources is completely unacceptable unlike in a Wildlife Reserve or Community Wildlife Area where controlled activities may be allowed. General restrictions in WCAs apply to:

- hunting, taking, killing, injuring, or disturbing any wild plant or animal, or any domestic animal;
- taking, destroying, damaging, or defacing any object of geomorphological, archaeological, historical, cultural, or scientific interests or any structure lawfully placed on constructed;
- preparing land for cultivation, prospecting for minerals or mining or attempting any of these operations;
- driving, conveying, or introducing any wild animal into a wildlife conservation area;
- willfully driving, conveying or introducing any domestic animal into a national park or negligently permitting any domestic animal to stray into a wildlife conservation area; and
- starting or maintaining a fire without lawful authority.

3.4.5 Environmental Quality Standards

According to the NES, 1995, NEMA in consultation with respective lead agencies is responsible for the development of national environmental quality standards for use in environmental monitoring activities covering air, water, effluent, noxious smells, soil, noise, vibration and radiation. NEMA is also supposed to establish such criteria and procedures as they consider necessary for the determination of the standards for buildings and structures; industrial products; materials used in industry, agriculture and for domestic use; solid waste disposal; and such as other matters and activities that may affect the environment.

However, due to the relatively short time NEMA has existed, none of this standards have been fully developed to be ready for use. In June 1998 calls were made by the same agency in the mass media informing the public of the authority’s intention to start applying some of the standards being developed. In addition, comments were invited from all interested parties and more especially, the
lead agencies before these standards are confirmed or otherwise harm the environment and human health.

3.4.6 National EIA and Audit Guidelines

NEMA has finalised the development of the national EIA guidelines (NEMA, 1996), copies of which are available and provide a summary of their requirements. These guidelines are now in force because they have the required legal backing by the Environmental Impact Assessment Regulations, 1998 and of the NES of 1995.

The MOWHC has recently commissioned the production of Environmental Guidelines for the road sector in Uganda. These are currently in draft form (Arcadis and Makerere University, 1998) and are likely to be finalised in the near future. In general they follow the World Bank procedures.

The two sets of guidelines describe the various processes involved in undertaking an EIA from the initial screening to determination of the level of study required to production of the final statement. As part of the process the lead agency needs to submit the project brief to NEMA at an early stage to obtain a Certificate on the Screening decision and on completion of the study a Certificate of Approval needs to be obtained from the Agency before the project can proceed.

Unlike EIA guidelines, environmental audit guidelines are not yet ready because they were not accorded similar priority. Although the preparation is ongoing they are unlikely to be available for use in the near future.

3.5 World Bank Requirements

Under the World Bank’s Operational Directive 4.01 (World Bank, 1991), EIA is a flexible procedure depending on the nature of the project and is to be conducted during project preparation, closely linked to the feasibility study. EIA must cover project-specific and other environmental impacts in the area of influence of a project. EIAs also include the country’s own environmental study and action plans, and overall policy framework, national legislation and institutional capabilities.

The level of Environmental Assessment required is determined by the category to which the project is assigned by the World Bank screening procedure. The current project has been screened as Category A, i.e. it “may have diverse and significant impacts”. This classification requires a full EIA to be undertaken.
The objective of EIA is to ensure that project developments are environmentally sound and sustainable. Environmental consequences should be identified at an early stage of the project and be weighed in project selection, siting, planning and design.

The possible alternatives and possibilities for improving the project environmentally by preventing, minimizing, mitigation or compensating for adverse impacts should be included in the EIA; these steps may help avoid costlier remedial measures at a later date.

The EIA is also intended as a formal mechanism for inter-agency coordination on environmental issues, promotion and building of local environmental management capabilities. An important component of the EIA is the participation of concerned groups and NGOs and incorporation of their concerns in the formulation of recommendations.

Project-specific EIAs are intended to cover six main fields:

- existing environmental baseline conditions;
- potential environmental impacts direct and indirect including potential benefits and enhancements;
- systematic comparison of alternative investments, sites, technologies and designs;
- preventive, mitigatory and compensatory measures in the form of an environmental mitigation or management plan;
- environmental management and training; and
- environmental monitoring.

The EIA process needs to identify relevant environmental agencies to carry out the required EIA activities during planning and implementation. Projects with potentially major impacts generally need to strengthen several important organisational functions, such as monitoring, inspection and management of implementation of mitigation measures.

For highly risky or contentious projects and/or where there are serious and multidimensional environmental concerns, there should be an advisory panel of independent, internationally recognised environmental specialists to advise.

Under the World Bank's Operational Directive 4.30: Involuntary Resettlement (World Bank, 1991), a resettlement and rehabilitation plan must be implemented to ensure that project affected persons who are displaced as a result of the project are resettled and rehabilitated, providing them with the means to improve, or at least restore, their former living standards, income and production levels prior to the project. The operational directive describes the Bank's procedures for involuntary resettlement.
defining the policy objectives and resettlement planning. Involuntary resettlement should be avoided or minimised where feasible. A socio-economic survey should be undertaken to establish the number and economic status of the displaced population and assist with designing and implementing the resettlement programmes. The resettlers and hosts for the resettlement area should be involved in the resettlement process, which should include a time-bound resettlement plan and compensation packages.

This Directive does not apply to the current project as there will be no change in road alignment and no resettlement will be associated with the limited road widening that will be required.

3.6 Agencies with an Interest in the Project.
There are a number of agencies which have an interest in the proposed project. These include: MOWHC, RAFU, who are the project promoters as well as, NEMA, LCs, UWA, Kasese and Kabarole District Administrations and the Wetlands Management Programme. These agencies and representatives of local communities have been consulted during the EIA process (See Appendix C).
4. PROJECT NEED AND DESCRIPTION OF PROPOSALS

4.1 Project Need

The roads which are the subject of this study are located in the western part of the Uganda in the districts of Kabarole and Kasese, which are highly productive agricultural and industrial areas. The economic activities, and their potential for future growth, are dependent on the road infrastructure to transport goods to the major urban centres to the east, in particular Kampala, Jinja, Masaka and Mbarara (Figure 1), a dependence which has in recent years been compounded by the deterioration in the railway service between Kasese and Kampala arising from lack of adequate track maintenance; there are understood to be no immediate plans to rehabilitate the line. However, even if the railway line was fully operational, many of the agricultural activities would remain primarily dependent on road transport mode as a consequence of their method of trading, which relies on transport of goods by feeder road to roadside trading centres located on the trunk roads, and for onward transport of goods to Mbarara and Masaka, which are not served by rail infrastructure.

Although an alternative road between Kampala and Fort Portal, via Mubende, is currently being constructed, it is anticipated that this route will not be completed for at least three years and even then this may prove a difficult route for some vehicles as a result of its steep gradients and sharp corners. The southern route, comprising the project roads, will continue to be necessary to serve Mbarara and Masaka.

The project roads also comprise the main route to the Congo to which, until the recent outburst of civil unrest, Uganda sold much of its export produce. It is likely that this market will recover once the current troubles have been resolved.

The current conditions of the roads included in the project area are described in Section 4.2 below and are variable ranging from good to very poor. Although the majority of the sections can at present be classified as fair to good, this is a result of the ongoing costly maintenance works which need to be undertaken at regular intervals. In order to guarantee the presence of a reliable road transport route which is not dependent on the availability of funds from one year to the other, there is a need for a consolidated and more comprehensive programme of road rehabilitation to improve the integrity of the roads within the project area.
4.2 Current Road Conditions and Maintenance Activities

For the purposes of this study the following definitions of maintenance and rehabilitation activity have been adopted:

*Routine Maintenance* - comprises a continuous series of operations on the road, consisting mainly of cutting of grass from edges of the road, cleaning ditches, desilting culverts and undertaking some simple “first aid” repairs to the road pavement.

*Recurrent Maintenance* - comprises annual maintenance, normally at the end of a rainy season, to repair erosion, potholes or other faults that may have developed during the season.

*Periodic Maintenance* - comprises restoration to an “as new” condition and prevents further rapid deterioration. Activities include shoulder regravelling, repair of potholes, deformations, drainage structures, complete rescaling, road marking and repair of road furniture. The effectiveness of such maintenance is highly dependent on the integrity of the base course.

*Rehabilitation* - comprises more substantial interventions to strengthen a road, repair structural defects and restore a road to its original condition often after it has deteriorated to an unmaintainable state. Rehabilitation may also include changes to characteristics such as alignment and widening.

An inventory of the maintenance activities undertaken on and the current conditions of the project roads has been included in the Feasibility Study Final Report. A summary of the key findings is presented below.

**Katunguru and Fort Portal:** The general condition of this section of road is considered to be fair to good, but this is a reflection of the ongoing high cost routine, recurrent and periodic maintenance activities, which are currently undertaken.

**Kasese to Kilembe:** The initial 5 km from Kasese as far as the security gate of the Kilembe mines has been subject to routine, recurrent and periodic maintenance and consequently is in a fair condition. However, beyond the security gate the road was until recently in private ownership and the lower levels of maintenance have resulted in the road becoming deteriorated and heavily potholed.

**Equator Road:** The initial 20 km of this road has been subject to routine, recurrent and periodic maintenance and is considered to be in reasonable condition, although there are some local
deformations. The remaining 18 km has not been subject to such a level of maintenance and as a result has failed beyond repair and needs rehabilitation.

4.3 Project Proposals

Typical rehabilitation activities will include:

(i) Site preparation including clearing of vegetation and stripping and storage of topsoil from areas of works plus five metres;
(ii) Removal of existing shoulders and backfilling of existing side ditches;
(iii) Compaction of the newly formed shoulder surface;
(iv) Removal of the existing road surface, scarification, reshaping and compaction of the exposed surface to form the new road sub-base;
(v) Construction of new shoulders to the required width, filling with two layers of lime-stabilised sub-base to existing road level and laying of lime-stabilised base course on the carriageway;
(vi) Strengthening of road carriageway and shoulders with a new lime stabilised base coarse overlay;
(vii) Sealing of carriageway with two coats of surface dressing and the shoulders with a single coat of surface dressing;
(viii) All necessary repairs and/or improvements to drainage structures including those on bridges;
(ix) Opening new side ditches;
(x) Dressing the newly formed side slopes with the stored topsoil; and
(xi) Reconstructing the new road furniture to the required standards.

4.3.1 Katunguru to Fort Portal

Pavement
The pavement strength in the southern section between Katunguru and Hima appears to be reasonably adequate to accommodate anticipated increases in traffic flow: for the northern section, the pavement strength may be too low.

Option 1

(i) - (xii) above with:
• Lime base in (vi) is 0.15m thick
• Carriageway in (vii) is 6.7m wide, and the shoulders 1.65m wide
The periodic maintenance requirement for such an option would be every 6 - 7 years.
**Option 2 - The Preferred option**

(i) - (xii) above with:

- Lime base in (vi) is 0.15m thick
- Carriageway in (vii) is 6.0m wide, and the shoulders 1.5m wide i.e. same width as exists

The periodic maintenance requirement for such an option would be every 6 - 7 years

**Option 3**

(i) - (xii) above with:

- Lay asphalt layer 40mm thick instead of lime base in (vi) - before which all potholes and serious deformations in the road need to be filled up, a tack coat applied to the base, and a prime coat applied to the shoulders.
- Carriageway in (vii) is 6.0m wide not sealed, and the shoulders are 1.5m wide sealed with a single coat.

The periodic maintenance requirement for such an option would be every 9 - 10 years

**Bridges**

The need for works at five bridges (chainages 31.980; 32.430; 35.180; 43.230; 61.530, as measured from Katunguru) has been identified with the possibility of completely replacing the existing single land bridge at chainage 43.230 by one of two lanes width.

**Culverts**

Most of the existing culverts require desilting and many of them also need repair. There is also a need for providing additional culverts typically, two per kilometre.

**4.3.2 Kasese to Kilembe**

**Pavement**

The initial 5 km from Kasese as far as the security gate is in fair condition. However beyond this point the road deteriorates becoming heavily potholed.

**Option 1 for Kn 0 to 5**

Low cost rehabilitation shoulder involving shoulder regravelling (1 to 1.5m wide), repairing pavement potholes, deformations, ravelled edges and drainage structures, complete resealing of 5.6m carriageway and a single seal 1m wide on the shoulders, road marking and repairing road furniture as necessary. It also includes rehabilitation of the longitudinal drainage system of the road.

The periodic maintenance requirement for such an option would be every 4 - 5 years
Option 2 for km 0 to 5 - the preferred option
(i)-(xii) above with:
- Lime base in (vi) is 0.15m thick
- Carriageway in (vii) is 6.0m wide, and the shoulders 1.5m wide i.e. same width as exists
The periodic maintenance requirement for such an option would be every 6 - 7 years.

Sole option for km 5 to 8.8
Low cost rehabilitation shoulder involving shoulder regravelling (1 to 1.5m wide), repairing pavement potholes, deformations, ravelled edges and drainage structures, complete resealing of 5.6m carriageway and a single seal 1m wide on the shoulders, road marking and repairing road furniture as necessary. It also includes rehabilitation of the longitudinal drainage system of the road.
The periodic maintenance requirement for such an option would be every 4 - 5 years.

Sole option for km 8.8 to 12
(i)-(xii) above with:
- In (iv), existing surface is removed 180mm to allow lime base construction 7.0m wide to as found levels
- Shoulder operations in (ii), (iii), (v) and (vii) are replaced with maintenance of existing 1.0m wide pedestrian walk and lined side ditch.
The periodic maintenance requirement for such an option would be every 6 - 7 years.

Bridges
There is a need for replacement of one bridge at chainage 10.75 km as measured from Kasese.

Culverts
Most of the existing culverts require desilting and many of them also need repair. There is also a need for providing additional culverts typically one every two hundred metres.

4.3.3 Equator Road
The initial 20 km of this road is considered to be in reasonable condition although there are some local deformations. The remaining 18 km has, however, failed beyond repair and needs reconstructing.

Sole option for km 0 to 20
Low cost rehabilitation shoulder involving shoulder regravelling (1 to 1.5m wide), repairing pavement potholes, deformations, ravelled edges and drainage structures, complete resealing of 5.6m
carriageway and a single seal 1m wide on the shoulders. road marking and repairing road furniture as necessary. It also includes rehabilitation of the longitudinal drainage system of the road.

The periodic maintenance requirement for such an option would be every 4 - 5 years.

*Sole option for km 20 to Border (km 38)*

Total reconstruction with all the typical rehabilitation operations except:
Where shoulders are treated in a single operation as the carriageway, rather than separately, and more layers constructed namely - 125mm of selected fill, 150mm of sub-base and 175mm of lime stabilised base. Carriageway in (vii) is 6m wide and the shoulders 1m wide.

The periodic maintenance requirement for such an option would be every 6 - 7 years.

**Bridges**

There is a need for providing one bridge at chainage 12.3 km as measured from the Kasese road junction.

**Culverts**

Most of the existing culverts require desilting and many of them also need repair. There is also a need for providing additional culverts typically one every five hundred metres.

### 4.4 Traffic forecasts

An assessment of anticipated traffic demand is presented in the main volume of the Draft Final Report for the Feasibility Study. The key findings of that assessment are that:

- Since no new alignments or major changes in road type will be implemented and as the most badly damaged areas are limited to the Kilembe and Equator Roads and probably do not discourage traffic, no additional traffic will be generated by the rehabilitation;
- In general, having consideration of the alternative routes within the road network the rehabilitation works are unlikely to divert traffic from other routes. The possibility that unrelated improvements to the Kampala, Fort Portal Road will lead to diversion of traffic away from the National Park has been examined as a sensitivity test.
- Traffic levels are likely in general to increase in line with the country as a whole, except perhaps for the agricultural sector which may, if it expands, contribute additionally to this figure. Consequently, a figure of 4% growth to 1999 followed by 7% per annum to 2001, 5% per annum to 2011 and 3% per annum thereafter has been adopted.

In summary, the rehabilitation works are unlikely to increase traffic levels above those which would occur if a more *ad hoc* approach to maintenance, as takes place at present, were to occur. What it
will do, however, is greatly reduce the need for such ongoing maintenance and ensure the presence of a route of suitable quality for the next twenty years or so, rather than this being dependent on the availability of resources at those times when repairs are required. Consequently, it will allow the natural growth of traffic to take place in an unconstrained fashion, rather than perhaps being limited at times when funding is scarce.

4.5 Construction Requirements and Activities

**Land Requirements:** In general the working width (including diversions and parking areas) will be confined to the road reserve, although there may a requirement for local short term landtake for diversions and parking/storage areas. Some longer term landtake will be required in the vicinity of the three bridges that will be replaced to accommodate traffic diversions, parking and storage of material and plant used for their construction. It is anticipated that three work camps will be required, each typically covering an area of 3.5 acres although the size could be reduced if a local workforce was used and/or foreign workers housed within existing towns such as Kasese and Bwera. In addition various longer term storage areas will also be required.

**Site Activities:** The construction activities are anticipated to extend over a period of 2-3 years. Work will be concentrated in the dry periods with reduced activity in the rainy season. The works will be undertaken in several consecutive (probably three) works packages and will involve the use of a combination of mobile mechanical plant and manual labour. The on-site plant is likely to include some or all of the following: graders, bulldozers, loaders, bitumen sprayer, chipping spreaders, trucks etc.

**Work Camps:** The work camps will contain all maintenance and processing facilities required to support the rehabilitation activity, including plant workshops and maintenance facilities, concrete and bitumen batching plants, facilities for the workforce (canteen, shops etc). If the workforce is not housed in local towns, it will be accommodated in buildings constructed in the work camps.

**Sourcing and Disposal of Material:** Murrum will be obtained from local borrow pits and chippings and sand from local quarries, and will be imported by truck. The potential borrow pits and quarries have been identified and are listed in Table 4.1 together with details of their location, issues associated with their use and likely reinstatement requirements. Other material e.g. culvert sections, bitumen etc will be imported from local suppliers, also by truck. Some old road surface material may be pulverised and re-used in the new subgrade and sub-base layers (i.e. the lower layers of the road pavement where deformations or deficiencies exist). The remainder of the old road surface material and spoil generated by excavation of new ditches will be disposed of in the borrow pits, except where
an agreement is reached with a local landowner. The volumes of such material have been estimated and are summarised in Table 4.2.

Workforce: As discussed above, it is not yet known whether a local or imported workforce will be used. If an imported workforce is used this could either be accommodated in a work camp or in local towns; in which in both cases the workers would require transportation to and from the work areas. It is anticipated that the works would require an average workforce of 2-300 men (unskilled labour) over a period of three years although this will depend on the options that are selected.

Traffic Management: In general, there will be no need for road closures during the construction period with single lane traffic management in the vicinity of the works. Although there could be some local off alignment diversions within the road reserve at certain locations. Where the three bridges are replaced, there will be short term diversions via a temporary bridge. The major source of vehicle movements during the works period will be associated with import of murrum and aggregate and export of spoil.
Table 4.1: Location of Borrow Pits

<table>
<thead>
<tr>
<th>Name</th>
<th>Link</th>
<th>Chainage</th>
<th>Offset</th>
<th>Material</th>
<th>New/Exsiting</th>
<th>Issues</th>
<th>Possible Mitigation Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>All sites</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Damping of haul roads in the vicinity of villages</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Use of flag men and warning signs in the vicinity of villages</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>and along sections of the road used by local communities.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Any new haul roads should be routed away from settlements.</td>
<td></td>
</tr>
<tr>
<td>Katunguru</td>
<td>Katunguru</td>
<td>-0.2</td>
<td>0.2</td>
<td>Sand</td>
<td>E</td>
<td>In Wildlife Reserve.</td>
<td>Previously exploited areas could be leveled to fill holes, and reduce cliff heights.</td>
</tr>
<tr>
<td></td>
<td>Fort Portal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Very poorly managed previously, so large holes</td>
<td>Use of this site should be avoided if possible and practical. If no alternative site can be identified, a detailed reinstatement will need to be undertaken following sand extraction.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>and 2-3m unstable sand cliffs exist.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Still being exploited by locals for a living.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>UWA have concerns regarding use of this site</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>owing to its proximity to QENP and the Kazinga Channel.</td>
<td></td>
</tr>
<tr>
<td>Rukoki</td>
<td>Katunguru</td>
<td>43.45</td>
<td>0.4</td>
<td>Gravel</td>
<td>E</td>
<td>Some of the gravel is on steep hillsides.</td>
<td>On steeper slopes, exploit the material in terraces, prepared from the bottom upward. Height between terraces not more than 2m. Top soil the ledges, provide interceptor drains on them.</td>
</tr>
<tr>
<td></td>
<td>Fort Portal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Vegetation cannot be restored easily, and erosion a serious problem.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Poorly managed previously resulting in an injunction from NEMA,</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>against further exploitation.</td>
<td></td>
</tr>
<tr>
<td>Name</td>
<td>Link</td>
<td>Chainage</td>
<td>Offset</td>
<td>Material</td>
<td>New/Existing</td>
<td>Issues</td>
<td>Possible Mitigation Measures</td>
</tr>
<tr>
<td>--------------</td>
<td>-----------------------------</td>
<td>----------</td>
<td>--------</td>
<td>----------</td>
<td>--------------</td>
<td>----------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------</td>
</tr>
<tr>
<td>Kinyamwenge</td>
<td>Katanguru - Fort Portal</td>
<td>54.6</td>
<td>1.0 LHS</td>
<td>Gravel</td>
<td>N</td>
<td>New road will be required</td>
<td></td>
</tr>
<tr>
<td>Ilima</td>
<td>Katanguru - Fort Portal</td>
<td>56.4</td>
<td>1.1 RHS</td>
<td>Gravel</td>
<td>E</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mobuku I</td>
<td>Katanguru - Fort Portal</td>
<td>51.8</td>
<td>1.7 LHS</td>
<td>Gravel</td>
<td>E</td>
<td>An open channel and water main to the KCCL hydro station. May require new access road to circumvent. One of the two hills located is fairly steep Topsoil thin on the hills</td>
<td>Level on terraces, and topsoil, sufficient to support grass.</td>
</tr>
<tr>
<td>Mobuku II</td>
<td>Katanguru - Fort Portal</td>
<td>-48.7</td>
<td>0.2 LHS</td>
<td>Rock</td>
<td>Aggregate</td>
<td>Rock to be extracted from river bed. So possibility of muddying potable water or oil spill contamination from plant.</td>
<td>Adoption of measures to minimise risks of water pollution.</td>
</tr>
<tr>
<td>Kikongo</td>
<td>Katanguru - Fort Portal</td>
<td>65.675</td>
<td>0.02 RHS</td>
<td>Gravel</td>
<td>E</td>
<td>Next to river Rwimi At foot of tall hill, to be excavated parallel to the river</td>
<td>Do not excavate band, 50m to river Level and topsoil to reinstate</td>
</tr>
<tr>
<td>Kimbugu</td>
<td>Katanguru - Fort Portal</td>
<td>76.7</td>
<td>0.02 LHS</td>
<td>Gravel</td>
<td>E</td>
<td>In cut next to road See Note 2</td>
<td>Level and topsoil to reinstate</td>
</tr>
<tr>
<td>Nsongyo stream / river</td>
<td>Katanguru - Fort Portal</td>
<td>87.35</td>
<td>1.0 LHS</td>
<td>Gravel</td>
<td>E</td>
<td>Grassland, may involve many landlords fairly steep hill See Note 2</td>
<td>level on terraces, topsoil and plant Napier grass and provide interceptor drains Borrow material at least 50m away from stream.</td>
</tr>
<tr>
<td>Name</td>
<td>Link</td>
<td>Chainage</td>
<td>Offset</td>
<td>Material</td>
<td>New/Existing</td>
<td>Issues</td>
<td>Possible Mitigation Measures</td>
</tr>
<tr>
<td>-----------------------</td>
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<td>--------------</td>
<td>----------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------</td>
</tr>
<tr>
<td>Rwensenene</td>
<td>Katanguru - Fort Portal</td>
<td>95.8</td>
<td>2.3 RHS</td>
<td>Gravel</td>
<td>N</td>
<td>In farm under livestock, owner unwilling to sell. New road required</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>See Note 2</td>
<td></td>
</tr>
<tr>
<td>Mparo</td>
<td>Katanguru - Fort Portal</td>
<td>99.15</td>
<td>1.0 RHS</td>
<td>Gravel</td>
<td>E</td>
<td>Exhausted Not properly reinstated See Note 2</td>
<td>Similar material in surrounding hills probably</td>
</tr>
<tr>
<td>Kimuhonde/ Kanyambeho</td>
<td>Katanguru - Fort Portal</td>
<td>108</td>
<td>16.0 RHS</td>
<td>Gravel</td>
<td>E</td>
<td>Long Haul Land owners in existing pits not compensated in five years since opening.</td>
<td>Several landowners may need to be dealt with Level and topsoil extensively</td>
</tr>
<tr>
<td>Nyabubaale</td>
<td>Katanguru - Fort Portal</td>
<td>108</td>
<td>1.5 RHS</td>
<td>Gravel</td>
<td>N</td>
<td>Gravel in thin layer about 1m, so excavation may be extensive See Note 2</td>
<td>Utilities can be avoided Many landlords showed willingness to sell if compensated</td>
</tr>
<tr>
<td>Kasese town</td>
<td>Kilembe Road</td>
<td>2.1 LHS</td>
<td>0.5 LHS</td>
<td>Gravel</td>
<td>N</td>
<td>Many utilities on potential sites Fragmented plots in township, so many owners to deal with Steep hills New haul road required</td>
<td></td>
</tr>
</tbody>
</table>
### Feasibility Study Review and Detailed Engineering Design

**Katunguru-Kasese-Fort Portal Road**  
**Kasese-Kilembe Road**  
**Equator Road**

<table>
<thead>
<tr>
<th>Name</th>
<th>Link</th>
<th>Chainage</th>
<th>Offset</th>
<th>Material</th>
<th>New/ Existing</th>
<th>Issues</th>
<th>Possible Mitigation Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rwensororo</td>
<td>Equator Road</td>
<td>4.0</td>
<td>0.5 RHI</td>
<td>Gneissic Gravel &amp; Rock</td>
<td>E</td>
<td></td>
<td>Level and topsoil, Terrace if exploited further uphill</td>
</tr>
<tr>
<td>Kabirizi Primary School</td>
<td>Equator Road</td>
<td>7.25</td>
<td>0.2 RHI</td>
<td>Lateritic gravel &amp; rock boulders</td>
<td>E</td>
<td></td>
<td>Level and topsoil</td>
</tr>
<tr>
<td>Kabirizi</td>
<td>Equator Road</td>
<td>7.0</td>
<td>0.2 RHI</td>
<td>Gravel</td>
<td>E</td>
<td>In park, on periphery. UWA object to use of this site</td>
<td>In accordance with UWA requirement this borrow pit will not be used.</td>
</tr>
<tr>
<td></td>
<td>Equator Road</td>
<td>20 to 38</td>
<td>LHS / RHI</td>
<td>Sand</td>
<td>E</td>
<td>Previous Exploitation in level areas has left gorges on the road side, extending beyond road reserves.</td>
<td>Restrict exploitation to the hills</td>
</tr>
</tbody>
</table>

**Notes:**

1. Mitigation measures included in the above Table are preliminary and final specifications should be prepared once the sites have been finalised and should take account of environmental recommendations provided in this report (see Section 6).

2. Gravel at the five sites north of River Rwimi within 3 km of Katunguru-Kasese-Fort Portal Road (km 66 - 108) is not of high quality and occurs in relatively thin seams, rarely more than a meter. It will require high percentages of stabiliser.

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December 1999
Table 4.2: Estimated Material Requirements

<table>
<thead>
<tr>
<th>Link</th>
<th>Length</th>
<th>Material Out</th>
<th>Material In</th>
</tr>
</thead>
<tbody>
<tr>
<td>Katunguru - Kasese</td>
<td>37.6</td>
<td>94,752</td>
<td>77,832</td>
</tr>
<tr>
<td>Kasese - Hima</td>
<td>18.0</td>
<td>45,360</td>
<td>100,260</td>
</tr>
<tr>
<td>Hima – Fort Portal</td>
<td>57.0</td>
<td>206,340</td>
<td>227,490</td>
</tr>
<tr>
<td>Kasese - Kilembe</td>
<td>12.0</td>
<td>36,316</td>
<td>39,766</td>
</tr>
<tr>
<td>Equator Road</td>
<td>38.0</td>
<td>24,440</td>
<td>191,130</td>
</tr>
<tr>
<td><strong>TOTALS</strong></td>
<td><strong>162.6</strong></td>
<td><strong>407,208</strong></td>
<td><strong>636,478</strong></td>
</tr>
</tbody>
</table>
5. BASELINE ENVIRONMENTAL CONDITIONS

5.1 Study Area

The project area is located in western Uganda close to the Democratic Republic of Congo border in the districts of Kasese and Kabarole in western Uganda. The Equator and Kilembe roads are entirely in Kasese District as is the southern part of the Katunguru - Kasese - Fort Portal road as far as the River Mubuku. Kasese district is divided into two counties namely Bukonzo and Busongora. These two counties are divided into twenty sub-counties, two of which are Town Councils, and the remaining, parishes. Within the Kabarole district there are 6 counties, the project road being located exclusively in two of them namely Buyangubu and Burahya. Within these two counties there are 11 sub-counties and 49 parishes. Since works will be confined to the immediate vicinity of the roads, the study area for direct impacts has focussed on the road corridor and its immediate vicinity. In terms of indirect impacts, for example those arising from increased accessibility, a more regional perspective has been adopted.

The following sections describe the existing socio-cultural and economic conditions. physical and biological conditions are detailed in the separate PBA report.

5.2 Landuse/Economic Activity

Settlements
The first 15 km of the Katunguru to Kasese section as far as the Equator Road junction passes through QENP while the remainder follows the boundary of the Kahendero area of the Park. Consequently, this section is not heavily settled with the exception of four centres, at Katunguru, the Equator Road junction, Mohokya and Kasese. Most of the section north of Kasese is characterised by small human settlements, but these are generally scattered away from the road, the exception being trading centres such as Rwimi and Kibito.

From the junction with the main Katunguru to Kasese road, the first section of the Equator road has few settlements, partly because the southern side is within the QENP. From Munkunyu secondary school the area becomes relatively well settled with increasing density towards Bwera Township close to the Congo border.

The Kasese to Kilembe road passes through settlements all the way to Kilembe town at its western end.
The study area is also closely linked with the urban area of Katwe-Kabatoro, located within the QENP between the Equator Road and the main Katunguru to Kasese Road. Within the study area, Fort Portal, Kasese, Bwera, Hima, Katwe-Kabatoro and Kilembe are recognised as urban centres while most of the other settlements along the road are trading centres, serving the villages with basic household commodities e.g. soap, paraffin, etc.

Between 1984-94 Kasese and Katwe-Kabatoro doubled their populations while there was a marked decrease in population growth for both Kilembe and Bwera. The rapid expansion of Katwe-Kabatoro and Kasese was closely linked to their emergence as major economic centres. Kasese is well served by road and until recently also had a rail connection to Kampala; this has however ceased to operate owing to inadequate maintenance and a resultant deterioration of the track and there are no immediate plans for its rehabilitation. Kasese also is a main link to the towns on the border between Uganda and the Congo and, until the recent troubles, brisk trade took place in food and other commodities between the two countries. It is anticipated that such trade will recover once the border reopens. Katwe-Kabatoro is a mining town for rock salt, which fetches a good price and is marketed countrywide. It also supports fishing activities.

The populations of Bwera and Kilembe have diminished for different reasons. The reduction at Bwera can be attributed to a tightening of cross border trade with the Democratic Republic of Congo. In particular the introduction of a revenue customs post in 1986 has reduced the potential for cross border smuggling, which previously attracted young people to this town. At Kilembe the relocation of people away from the town can be attributed to the reduction in mining activities, which resulted from a drop in world copper prices.

Agriculture

The project area has great agricultural potential, which is favoured by good climate and fertile soils. Agriculture is the main economic activity in the study area with the large majority (approximately 75%) of the population depending on agriculture to produce enough food both for subsistence and surplus for sale. Produce marketing of traditional cash crops is completely deregulated. And it is estimated that approximately half the food crops produced enter the market, the remainder being consumed by their producers.

In the low-lying areas close to the QENP, the main agricultural activities involve growing cotton and cassava. Maize, groundnuts, matooke, potatoes, passion fruit, sunflower seeds, onions, simsim, cabbage, yams and beans are also grown. Of these the most important are coffee, cotton maize and beans. These share the same farming system as the northern and eastern cereal cotton cattle system although this area supports very little livestock.
The highland areas of Kasese District are classified as being under the medium altitude coffee system, with major crops comprising coffee, beans, bananas, maize and cassava.

The most northern 30 km of the study area across Kabarole travels through an highly productive agricultural area containing plots of various size. Most notable is the Mobuku Irrigation area where large plots of land are under cotton and maize. There are also understood to be several prison farms in this area which operate large quantities of agricultural produce. The remainder of the area as far as Fort Portal comprises small holder farms in which crops such as cassava, robusta coffee, yams, paw paws sweet potato, beans, maize, tomato, passion fruit, onion and pineapples are grown as both subsistence and cash crops. Matooke is another dominant crop and is exported to the Port Bell distillery in Kampala. A number of fruit trees are also common along this section of road and include avocado, mangoes, jack fruit and guava. Livestock rearing, especially of Fressian cows and goats, is also popular in most of the Kabarole District but on a small scale.

Virtually all crops need to be transported from the area of production to urban centres and especially Kampala. Now that the railway line from Kasese is no longer operational, the only transport routes are by road either to the south through Kasese, Katunguru and Mbarara, or north via Fort Portal. This northern route, however, includes approximately 100 km of unmetalled road, which makes it impassable to many vehicles, particularly under wet conditions. Before reaching the trunk roads, produce needs to be transported by feeder roads from the rural areas where it is harvested. In general these feeder roads are of poor quality, which makes the acquisition of transport facilities to transport their products directly to the market difficult or impossible for the producers themselves. Consequently, they become dependent on middlemen who control the price payable to the farmers for their produce. In general this is low compared to the price obtained by the middlemen in the trading centres and there is little re-investment back into the rural areas that generate the produce.

Where there is agricultural activity adjacent to the project road, the cultivated areas are often observed to extend onto the road reserve as far as the ditch although they do not encroach on to the verge. This is observed particularly along the western stretches of the Equator Road, close to Bwera, and the agricultural area between Kasese and Fort Portal. In general there is no roadside agricultural activity on other stretches of the project roads, owing largely to the fact that most of those areas are located within the QENP, where agricultural activity is generally prohibited.

**Fishing**

Fishing activity is concentrated around Lakes George and Edward and along the Kazinga Channel. The development of commercial fishing activity was promoted by the Uganda Fish Marketing Corporation which had a freezing plant on Lake George between the 1950s-70s to process produce taken from these sources for subsequent distribution to both local and export markets. The proximity
of Katunguru to these resources and to the main road ensured that it grew into a commercial fishing and fish processing centre during this period. However, owing to poor management and subsequent drops in catch yields, which have been attributed to overfishing, this activity declined in the mid 1970s. Consequently the fish markets disappeared from and have not returned to Katunguru, although some small scale commercial fishing activity does take place from Katwe.

Within Kabarole there are two main landing sites at Mahyoro and Kayinja on Lake George, which act as major outlets to the urban markets. Other fishing grounds exist in the form of small lakes and rivers. In addition, fish farming in fish ponds is slowly growing with 330 ponds being established by 1993 most of which were stocked with *Tilapia* and *Mirror Carp*.

**Industry**

The area's main active industrial plant is the Hima cement works which is understood to currently produce 16,000 tonnes of cement per month. It is intended to increase this to 25,000 tonnes by 2000/2001. It is understood that the cement is transported to Kampala via the southern route through Katunguru. Oil, gypsum and pozzulana are imported to Hima for the works.

The copper mine at Kilembe was active until the early 1970s but 2 million tonnes of copper waste, including cobalt and nickel, remain in the Kilembe valley and at the copper smelting plant south of Kasese, to the west of the road. These are a continual source of pollution, much of which is washed into Lake George. The Kasese Cobalt Company Limited is currently constructing a plant at Muhokya to recover cobalt from the copper tailings, although transport demand associated with these works is likely to be relatively modest. There are also plans for a foundry at Kilembe, possibly at the disused copper plant, although details of these proposals have not yet been established.

Most other industries within the Kasese District are small scale in nature, the majority being agriculturally related and include the processing of foodstuffs such as animal feed, maize flour and coffee. In addition, there is a nail industry in Kasese township, a soap plant at Hima, and cooking oil processing facilities at Kisinga. Salt mining is undertaken from the crater lakes in Katwe and there are lime and cement industries in Muhokya. Small scale industries in metal and timber works are on an increase, especially around Kasese township.

The project area has a mini hydro power generating station at Mubuku. This is owned by Kilembe Mines Limited, but they sell the power to UEB and this has made a substantial contribution to supplementing power supplied by the Owen Falls dam and in supporting local industry. The Kasese Cobalt Company Limited is developing its own hydropower station on the Mobuku river for its own use.
Wildlife Conservation

The Lake George Game Reserve was established in 1925 and the Lake Edward Game Reserve in 1930. In 1951 the present area of 1,978 km² was designated as the Kazinga Game Reserve and was renamed the Queen Elizabeth national park in 1954. The extent of the Park is shown in Figure 4.2 with the boundary running for much of its length along the Equator Road and from the Junction of the Equator Road with the main road to a point just south of Kasese.

The land to the south of the Kazinga channel and east of the road is currently classified as the Kyambura Wildlife Reserve although it is understood that this area may soon be incorporated into the QENP and hence subject to a higher level of protection than at present.

The restrictions on activities in the QENP and the Kyambura Wildlife Reserve as a result of their designated status have been described in Chapter 3. The growth of the Park has led to conflicts between conservation and the activities of local communities, in particular poaching, fishing, fuelwood collection, grazing and agricultural activity. The current Park Management Plan (Olivier 1990) recognises these conflicts and the need to work with local communities since “National Parks cannot hope to survive in the long term without the support and cooperation of local people.” The Plan also specified zones within the Park for certain uses including exclusive tourism, integrated tourism, exclusive conservation, and buffer zones. In particular the area south of Kasese bordering the main road was zoned as for exclusive conservation.

The UWA is currently preparing a New Park Management Plan, although this was not yet available at the time of writing of this report. It is, however, understood that UWA are:

- intending to construct an earth road at the entrance to the Park near the Escarpment from Bushenyi;
- intending to redesign all road entrances to QENP;
- intending to incorporate Kyambura Wildlife Reserve into QENP;
- minimise travel by visitors along the main road through the Park, through the creation of a scenic route running from the Equator Road to the south of the Park and a river crossing of the Karzinga Channel;
- keen to operate launches along the Kazinga Channel to the east of the road to Kyambura, which is to be upgraded to National Park status and Lake George, where a new water based recreation centre and Lodge are being proposed. Currently the level of the road bridge at Katunguru, however, makes it impossible for even small boats to pass under it.
FIGURE 4.2 - EXTRACT FROM QENP MANAGEMENT PLAN - not to scale

Junction Improvement for Sight Lines

Major Concentrations of Uganda Kob

Concentrations of Lions

KATUNGURU

MWEYA LODGE
However, the fact that the road reserve is owned by the MOWHC means that UWA technically have no control over activities occurring within the width of the reserve that passes through the QENP, even though the Park has been designated as a site of national significance and its integrity could be substantially affected if the project is inappropriately designed, implemented and managed. In view of this technicality, it is particularly important that the measures proposed in this EIA are implemented and monitored and that there is ongoing liaison with UWA to ensure protection of the Park. The project should be seen as an opportunity for the MOWHC to work collaboratively with the UWA, district authorities and funding agencies to control the impacts that are already occurring and to ensure that there are no additional impacts associated with the road rehabilitation.

**Tourism**
Resources for the attraction of tourists include the animal game in the Queen Elizabeth National Park, which has experienced steadily increasing visitor numbers over the past decade. An extension to the Mweya Lodge, located within the Park, to provide better facilities for guests and in particular day visitors should be completed early in 1998. In addition, there are plans to build a new Lodge on Lake George, a new road near the Park boundary at Bushenyi and to redesign all road entrances to the QENP. It is understood that tourists have expressed some surprise and indignation at the presence of a tarmac road passing through the Park. Other tourist attractions in the vicinity include the Ruwenzori Mountains for which visitors use the Ibanda village, accessed off the Mubuki turn-off, as a base.

5.3 **Land Ownership/Tenure**
The road reserve along the entire route, including the section which passes through QENP, is owned by the MOWHC and no permits etc are required for landtake (temporary or permanent within this area).

Within QENP, UWA may request restrictions on activities e.g. no landtake outside the existing roadwidth, but MOWHC are not obliged to follow these requests and if they refuse to do so there are few options available to UWA.

Outside QENP most of the population are aware that road reserves belong the MOWHC and of the implications of development or agricultural activity within these areas. They also know that in general there is no compensation payable for losses experienced if the MOWHC wishes to undertake work within the road reserve.

Other land beyond the road reserve is likely to be in private or customary ownership/use and if such lands is required either temporarily e.g. for diversions during construction or permanently e.g. for realignment or borrow pits, losses must be compensated for at prevailing market rates according to

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the area and landuse affected. In most cases, local authorities may handle such issues if deemed necessary by the affected communities.

5.4 Socio-economic Status

Employment
The major employment sector is agriculture as the majority of the people still live in the rural areas. However, a big portion of this labour force is unpaid and lacks skills. Production is undertaken in a large number of small, scattered farms. Animal traction or mechanisation is still limited, while fertiliser and pesticide usage is minimal. The industrial sector is growing at a very slow pace and hence still offers minimal employment.

State of the Economy
On the whole output is still low. The study area relies predominantly on primary products i.e. agriculture. There is little value added and as such these commodities command low prices. The major problems affecting agriculture include poor technology, lack of infrastructural development, lack of markets and unfavorable factors such as uneven rainfall, floods, diseases pests and inability to get produce to markets particularly in rainy seasons.

As discussed above, the poor state of the feeder roads results in a high dependence of rural farmers on middlemen for transportation of goods to and from the urban centres, which limits the income that can be made from rural agricultural activity and hence economic growth in these areas.

Industrial products are still very limited and the few industries that exist operate below capacity. Industry is still on a small scale and includes metal works, wood works, production of animal feeds, bakery, shoe-making, printing and brick-making. The major problem affecting industry is lack of capital, skills and market and the absence of a reliable transport infrastructure.

Sociological background
A sociological review of the study area was undertaken as part of the Environmental Assessment produced by Sabbour and Associates in 1994. That study concluded that the project area has a sex ratio (males per 100 females) varying from 100 to 104 at a young age, which then declines with age reflecting the greater tendency of males to migrate from the area. The population is steadily growing, with an average natural population growth rate in the study area of 3%.

The Sabbour Study found that, within the study area, women grow and sell most of the crops for cash sale as well as looking after the household. Children are also used as labourers on small farm
holdings, selling produce and loading vehicles destined for towns. This is deemed to be free labour and diverts children from education. Although the marketing of crops is predominantly by women and children, they use the roads mostly as pedestrians, while men basically use bicycles and, if they have the money, vans or lorries.

5.5 Transport and Communication Networks

The road network is by far the most important mode of transport in the study area and is the main transport route for people and commodities between commercial centres, in particular between the agricultural and developing industrial areas of western Uganda and the urban centres around Kampala and Jinja to the east. Access to these urban centres from western Uganda is either along the Kasese to Katunguru road to the south and then through Mbarara and Masaka, or north along the Kasese to Fort Portal road and east through a section of unmetalled road between Kagorogo and Mubende and to Kampala. The murrum/earth section of this road is slowly being replaced by one with a tarmac surface. Whichever route is taken, the Katunguru to Fort Portal Road is likely to be used for some part of the journey. Although there have been plans to construct a new road from Kampala to Kasese, to the south of the Fort Portal route, this has not yet been completed. If and when these above routes are in place, alternative and more direct routes could be provided from Kasese and Fort Portal to Kampala, but the road between Katunguru and Fort Portal would still be important in linking the western part of the country to Kasese and to the onward routes through to Kampala.

As well as being the main internal transport mode, the highway network is the major transport route to Uganda’s neighbors, particularly the Congo to which, until the recent troubled times, Uganda sold much of its export produce. It is likely that this market will recover once the current civil unrest ceases.

The importance of the highway network has increased in recent years owing to the cessation of the railway service between Kasese and Kampala. This arose from lack of adequate track maintenance and there are understood to be no immediate plans to rehabilitate this line.

Like most of Uganda there are three types of road network classified in accordance with the type of surface and institution/authority responsible for their maintenance.

Trunk roads are maintained by the Ministry of Works Transport and Telecommunications, while feeder roads are a responsibility of the Local Administration. Earth roads are under the care of local councils and communities through which they pass. In general the feeder roads are in a bad state and this leads to problems of market development for rural populations, their dependence on middlemen who have a monopoly for transportation of goods to and from the urban centres. However, it is recognised that
improvement of feeder roads would not be effective on its own without also improving the main trunk roads between the towns.

There are several airports in the study area including at Kasese from which there are passenger services to Entebbe and other Ugandan regional airports. However the cost of flying is prohibitive to most travelers and air freight is not an economic method of transporting produce.

The bicycle is the most common mode of transport for the rural/urban communities. Charges depend on volume/weight and distance to be covered. Motorcycles for hire have of recent entered the transport industry. Their charges are slightly higher than those bicycles. Special hire taxis/commuter taxis are common in urban centres.

There are currently various accident blackspots within the study area. These are summarised in Appendix E.
6. ENVIRONMENTAL EVALUATION

6.1 Introduction
This chapter identifies and evaluates the potential social, economic and cultural consequences of the construction, operation and maintenance of the proposed interventions. Sections 6.2 and 6.3 address direct and indirect effects respectively. Effects on the physical and biological environments are dealt with separately in the PBA Report.

Mitigation measures are included in general terms in the initial evaluation of impacts described in this Section, and are summarised in tabular form in the EMP in Section 7.

6.2 Direct Effects

- Loss of land
During construction there will be requirements for landtake associated with:

- Road widening;
- Working widths including diversion routes;
- Borrow pits, quarries, spoil disposal and haul roads; and
- Work camps and storage areas.

While some of this land may be reinstated following completion of works, other areas may be subject to longer term effects. The Public Works Act, the Constitution of Uganda (1995) and the Land Act (1998) provide for the payment of adequate compensation for any damage caused to crops, buildings and for land taken for works purposes. However, it is well known that in the past contractors have used the law and law enforcement organs of government to under compensate land owners. This must not be allowed to happen during the planned works. Funds should therefore be set aside by the MOWHC and landowners should not be expected to restore land from their own resources. The various levels of compensation payable for specific types of loss should be negotiated and agreed at an early stage in order to ensure consistency and avoid the possibility of disputes. The various types of loss are discussed in turn below.

Road Widening - In general all permanent landtake associated with widening of the roads will be within the existing road reserve except at the junction in the centre of Bwera and the roundabout between the main road and the Equator Road at Kasese, where some permanent landtake could be required from commercial urban areas in order to improve visibility and turning radii to the
appropriate standards. Whether or not any land is required and if so the specific extent and locations will be considered and determined as part of the detailed design.

Where the widening is contained within the road reserve no compensation is payable to anyone currently using this land. However, at some locations, the land within these areas is informally used by local communities for annual crops, and at certain sites, fences and temporary structures have been erected. It is understood that the practice of using this land for agriculture arises in part from the need to manage these areas to control vermin etc adjacent to private land, in view of the lack of maintenance (in particular cutting back of vegetation) undertaken by the MOWHC, rather than a lack of available alternative sites for cultivation. Although compensation is not payable for damage to structures or crop losses in these areas, the potential for any detrimental effects should be minimised through forewarning of the works, including specification of the time when they will take place and/or undertaking the works after the end of the harvest period.

Once the requirement for landtake in Bwera and Kasese has been determined, a detailed inspection must be undertaken to identify losses and determine specific compensation packages. This should be undertaken in accordance with Ugandan and World Bank requirements and should involve consultation and negotiation with the district valuer, landowner and, if necessary, an independent lawyer. Once agreement has been reached, the valuer should submit the details to the Ministry of Land and Surveys which in turn should notify MOWHC of its requirement to make and administer the payment. Any compensation package will need to be agreed and in place before finalisation of the design and commencement of construction activity. During consultation a preference was expressed for payments to be made directly by MOWHC rather than through the local administration. The small areas required means that no resettlement will be necessary.

**Working widths** - During construction of the highway sections, small local storage and parking areas, as well as road diversions will be accommodated within the road reserve, except in the vicinity of the three replacement bridges and some larger works storage areas. At these sites there will be a need for temporary landtake outside the reserve to accommodate traffic diversion via a temporary bridge (which is necessary to keep the road open during bridge replacement) and for storage of the materials (in particular concrete) required for the bridge construction.

As described above with respect to road widening, there should be forewarning of local communities undertaking agricultural activity within the road reserve in order to minimise loss of crops and structures within that areas. At many locations it may be possible to return the land to agriculture after completion of the works, although this will depend on the level of management (cutting back of vegetation) undertaken by MOWHC. Where landtake is required outside the road reserve (i.e. at the bridges and larger storage areas) appropriate compensation measures should be established. These should be based on the market rates for the crops and again should be negotiated between the
It is important that the compensation agreement should include specification of the timing of the works and requirements for post construction reinstatement e.g. separation and storage of top soil, digging over of ground to counter the effects of compaction and reinstatement of topsoil and removal of all construction waste as these could affect the level of any loss incurred by the landowner. In the past in Uganda, when land has been used during construction, the developers have regarded this land as belonging to them and re-used it in the future. Appropriate reinstatement after completion of works should minimise the potential for such an occurrence.

**Borrow Pits, Spoil disposal, haul roads** - The location of the borrow pits and access roads are provided in Table 4.1. The majority of these pits are existing and already have access from the road network via haul roads. However any further extraction from existing pits, creation of new ones and associated haul roads, or disposal of spoil on private land will need agreement with and compensation to the landowner through a similar process of negotiation, agreement and payment described above. Such agreement should include the reinstatement requirements which should be implemented wherever possible to return the land to its natural state and to prevent erosion and encourage revegetation. The need for such measures is discussed in the PBA reported in a separate document. A preliminary determination of these requirements has been provided in Table 4.1; specific requirements for each site should, however, be defined and included in the CMP once the sites have been finalised and should include the following principles:

- removal and storing topsoil for reuse, or use topsoil from areas being worked to re-instate previously worked areas;
- where the natural topography is gently sloping, filling of depressions and shaping of slopes at less than the angle of natural repose of the local soil type for maximum seed survivability. Where the pit is on the steep edge of hill, terracing should be undertaken;
- reinstatement of topsoil; and
- construction of intercepting ditches at the tops and bottoms of slopes, cut-off drains and dissipation structures.

Owing to the high rainfall and soil fertility in the study area, the natural revegetation rate is very high and will be particularly so if the reinstatement is undertaken during or just before the rainy season. In general therefore, reseeding will not be necessary except where:

- the slopes are considered to be at a high risk of erosion (for example locations where physical constraints such as the presence of buildings, utilities etc prevents adoption of suitably shallow slopes). In these cases seeding with local varieties of grass should be undertaken; and
there is a risk that the land will be cultivated before the soil has a chance to stabilise, resulting in erosion. This has been observed at the sites of reinstated pits elsewhere in Uganda where the availability of an apparently reinstated area has proved an attraction even though it can take several years for the soils to settle. At these sites it is recommended that the area is planted with napier grass which will act to stabilise the soil and through its value as fodder for cattle will discourage alternative cultivation of the site with annual crops which could threaten soil stability.

It is understood that often once Ugandan land owners are compensated by public works, they have regarded the borrow pits as belonging to the government and, therefore have no obligations towards that piece of land and do not use the compensation payments for restoration purposes. In order for this not to happen the contractors to reinstate the land prior to handing it back to the owner rather than including the cost in the compensation to the owner to do this work himself.

In general it is proposed to dispose of all spoil (mostly from ditch construction) within the borrow pits as the first stage of reinstatement so that no local spreading or tipping of spoil will take place unless specifically negotiated with a landowner.

Work Camps/Storage Area - The use of land for work camps or material storage areas will require compensation to landowners for any temporary losses. Unlike the areas of temporary landtake associated with the bridges, there is considerable choice over the selection of such sites and opportunities for negotiation with landowners. However, the area of landtake involved (probably three sites of several acres for the works camps and many smaller roadside areas for the storage areas) together with the level of infrastructure and activity taking place on these sites, has the potential for longer term consequences for the environment. In particular, the need for workshops, maintenance areas, batching plants, housing and support infrastructure and the associated activities (noise dust and traffic generation, use of natural resources and waste generation) could have long terms implications for land quality (see the PBA report for effects on soils and water quality). In practice such sites are rarely reinstated to their former use; in some cases they are abandoned and subsequently occupied by itinerants or vagrants whilst in others the facilities are reused for housing or other development.

Sites for these activities should therefore be carefully selected and subject to environmental consideration prior to commencement of negotiation with landowners. In particular the potential for water pollution should be evaluated. It would be preferable and may be possible to reuse former works sites. It is understood, for example, that there is such a site at Kasese and the possibility of leasing it should be investigated. In addition use of a local workforce and/or housing any workers within the towns would minimise the need for on site housing, workers facilities and the associated waste generation. On completion of works all plant and waste should be removed from the site including any underground material such as waste oils. Full reinstatement of the site is often
impracticable, and such areas are usually more suitable for future development. Such future uses should be taken into account when choosing the sites.

- **Community disturbance and risk to safety during rehabilitation works**

  During construction there will be potential for community disturbance principally through:

  - noise and dust generation and threat to safety of local communities from plant operations associated with rehabilitation activities;
  - interruption of utility supplies and temporary access restrictions to certain properties during rehabilitation works;
  - noise and dust generation and threat to safety to communities on access routes, associated with vehicle movements to and from the site. In particular the need to transport material to and from borrow pits could result in dust disturbance to local communities, particularly if they are situated close to the unsealed haul roads;
  - presence of an alien workforce

While the road passes through several settlements, the disturbance at any one location due to the rehabilitation works will be relatively short term. However, particularly sensitive receptors such as schools and health clinics should be identified and if it is considered that they may be affected by the works, it is recommended that working hours in these areas are restricted and flag men are used. In particular works often attract children (with resultant risks to safety and potential for truancy); the local communities should be forewarned of this potential so they can set up mechanisms to discourage such activities which can also be enforced by the contractors. At many locations it may be sufficient to forewarn communities of the timing and nature of the works in their vicinity and of any anticipated disruption and to ensure that accesses, ditch crossing points etc are maintained during the works period appropriately reinstated on completion of the works. Liaison with the utility companies is necessary to minimise disruption caused by interruption of services. Responsibility for forewarning communities and industry of such interruptions lies with the utility companies.

The same communities will, however, be on the access route to other works areas and could therefore be subject to disturbance as a result of traffic movements associated with the import and export of materials and transport of personnel during the entire construction period. In particular dust from construction vehicles, particularly those travelling along haul roads could cause disturbance. Local sourcing of material and disposal of any spoil should be adopted to reduce the length of vehicle journeys and wheel washing practices and covering of loads should be undertaken to minimise dust disturbance. Specific measures and restrictions may be required e.g. warning signs placed at schools and other possible accident spots and restriction of construction traffic movements on market days.
Where haul roads pass close to settlements, the roads should be dampened and flag men used. New haul roads should be routed away from settlements.

During construction, the presence of a large alien workforce with relatively high incomes and free spending habits can have social repercussions and tensions e.g. as a result of drunkenness, prostitution, pollution, influx of disease (in particular HIV), inability to integrate with local communities, competition for jobs, removal of natural resources e.g. wood, fish etc. As discussed in the PBA Report, the presence of work camps can also pose a risk to local natural resources. Use of a local workforce would minimise the potential for such problems. In addition, the provision of on-site health facilities could prevent problems associated with health and disease.

- **Community disturbance due to inadequate road drainage**
  At present it is understood that inadequate road drainage at certain locations within the project area results in flooding of adjacent land, including compounds and in some cases buildings. In addition to the disturbance and damage to properties that this can cause it also presents a risk to safety and to health. In particular such effects have been reported during the consultation exercise (Appendix F). The proposed design should ensure that the rehabilitation addresses such effects and that any potential for future occurrences at these or other locations is minimised.

- **Community disturbance and risk to safety as a result of increased traffic movements and vehicle speeds once rehabilitation is complete**
  In the long term the improvement to the roads is likely to result in an increase in number and speed of vehicles travelling along them, which could result in higher noise and air pollutant levels as well as presenting a risks to other road users including pedestrians and cyclists.

Noise and air pollution are not major issues in the context of upgrading an existing road since, while traffic levels may increase, the design of the road surface should improve both air and to an extent noise pollution. The improvements in the road surface should decrease problems associated with dust, while the avoidance of the need to slow down at potholes etc may reduce air exhaust emissions.

The sealing of all shoulders should provide a safe pavement for pedestrians and cyclists. In addition, the recommendations for speed control measures that have been formulated through inspections and liaison with local officials, summarised in Table 6.1 below and comments received during consultation (appendices F-F) should be implemented etc. Where rumble strips or speed bumps are constructed, these should extend onto the shoulders to prevent road vehicles driving around them. The location of the strip/bump should be clearly sign posted to avoid accidents associated with vehicles hitting them unexpectedly. The proposed provision of stopping areas for *matatus* in all the major settlements should improve safety standards.
In all urban centres, speed limits should be signed and imposed. In all cases where schools are located, correct warning signs should be posted.

Table 6.1: Recommended Speed Control Measures

<table>
<thead>
<tr>
<th>TRADING CENTRE</th>
<th>CHAINAGE</th>
<th>SPEED CONTROL MEASURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>FORT PORTAL-KATANGURU</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Muchwa</td>
<td>110</td>
<td>Junction improvement and signs</td>
</tr>
<tr>
<td>Kasuu</td>
<td>108.3</td>
<td>Speed bumps, signs and parking areas</td>
</tr>
<tr>
<td>Mugusu</td>
<td>100.1</td>
<td>Speed bumps, parking areas, road widening and signs</td>
</tr>
<tr>
<td>Nyakigumba</td>
<td>87.1</td>
<td>Signs and parking</td>
</tr>
<tr>
<td>Yerya</td>
<td>81.0</td>
<td>Parking and signs</td>
</tr>
<tr>
<td>Kibiito</td>
<td>80.0</td>
<td>Speed bumps, signs, parking</td>
</tr>
<tr>
<td>Kabale</td>
<td>76.8</td>
<td>Signs, parking</td>
</tr>
<tr>
<td>Kasunganjanja</td>
<td>71.9</td>
<td>Signs, speed bumps, parking</td>
</tr>
<tr>
<td>Rwemi</td>
<td>67.1</td>
<td>Signs, speed bumps, parking</td>
</tr>
<tr>
<td>Hima</td>
<td>56.3</td>
<td>Speed bumps, sign posts, parking</td>
</tr>
<tr>
<td>Mubuku</td>
<td>48.7</td>
<td>Speed bumps, sign posts</td>
</tr>
<tr>
<td>Rukoki</td>
<td>43.8</td>
<td>Parking, signs</td>
</tr>
<tr>
<td>Nyakasanga 1 (at playground)</td>
<td>38.2</td>
<td>Zebra crossing signs</td>
</tr>
<tr>
<td>Kasese Cobalt</td>
<td>34.4</td>
<td>Speed bumps, signs</td>
</tr>
<tr>
<td>Mbarara Junction</td>
<td>37.2</td>
<td>Roundabout may need widening to enable trailers to move comfortably; still awaiting technical decision</td>
</tr>
<tr>
<td>Muhokya</td>
<td></td>
<td>Parking, speed bumps and signs</td>
</tr>
<tr>
<td>Kikorongo</td>
<td>15.2</td>
<td>Major junction improvement and signs</td>
</tr>
<tr>
<td>Katunguru</td>
<td>0.2</td>
<td>Speed bumps and signs</td>
</tr>
<tr>
<td>EQUATOR ROAD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kiburara</td>
<td>13.0</td>
<td>Signs</td>
</tr>
<tr>
<td>Bwera Town</td>
<td>33.8</td>
<td>Junction improvement, signs, parking for big trailers</td>
</tr>
<tr>
<td>KILEMBE ROAD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Base Camp</td>
<td>2.0</td>
<td>Speed bumps, traffic signs</td>
</tr>
<tr>
<td>Road Barrier</td>
<td>4.3</td>
<td>Speed bumps and signs</td>
</tr>
</tbody>
</table>
• Effects on road vehicle users
During the construction period, road users may experience delays owing to the road works. No closures are anticipated and, in general, roads will be kept open through local diversions within the road reserve, single lane traffic management or temporary bridges. Forewarning of works would also minimise any disruption to road users.

In the longer term, the improvement in the road should result in an overall reduction in travel time. The exception would be in QENP where the imposition of a speed restriction and speed bumps/rumble strips would increase the travel time by a few minutes. This restriction is being implemented largely to reduce the potential for road kills within the Park and is described further in the PBA. The increased travel time through the Park will, however, be compensated many times over by the gains achieved elsewhere on the road. In addition, the provision of acceleration/deceleration lanes at the two Park entrances within the project area should minimise delays to road users.

Within the QENP the potential for accidents is considered to be of particular concern where the side roads join or cross the main highway and are often not visible owing to local topography. The proposed incorporation of deceleration/acceleration lanes at the two Park entrances within the project area should help to reduce this potential. The engineers should liaise with UWA’s landscape architects regarding the layout of these facilities. Similarly there should be liaison with UWA and their architects regarding the location and content of any signs and the location and nature of speed bumps and rumble strips within the Park.

• Effects on tourists
The presence of an upgraded road may enhance accessibility for tourists in particular to the QENP. As tourist numbers increase, the demand for other services and articles are also likely to increase and could generate additional income for the local communities (see Section 6.3 below). However, it is important that the presence of the road does not detract from the tourist experience particularly when visiting the QENP and observing animals, for example through speeding vehicles and the associated noise implication and threats of accident. The potential for accidents to road vehicle users in QENP has been discussed in the previous section.

• Historic and cultural resources
Since there will be no deviation from the current road alignments no loss of or damage to historic or cultural resources is anticipated.

• Landscape and visual effects
Since the roads will follow their existing alignment and there are unlikely to be any changes in levels no effects are anticipated directly from the road works. There will, however, be some local changes in topography at borrow pits, quarries, camp sites. The proposed reinstatement following laid down procedures including grading, planting etc. should minimise visual effects and at some locations where there has been minimal restoration in the past could represent an improvement in existing conditions.

6.3 Indirect and off-site effects

- Economic activity

Agriculture and Fisheries
Apart from the direct physical effects of land or crops being taken or destroyed, the longer term effects of a guaranteed good road infrastructure on agricultural activities will be largely positive. The project area is potentially a highly productive agricultural region, which may benefit from the presence of a reliable route for export of excess produce both within and outside the region and hence increased opportunities for enhanced income to farmers. It may be more worthwhile for farmers to invest in non-traditional cash crops once the rehabilitation has taken place and the export route is more secure. However, any benefits to farmers in rural areas may continue to be limited while the feeder roads remain in a bad state and the farmers continue to be dependent on middlemen for the transportation of their products to trading centres as well as for the import of commodities produced elsewhere. While it is recognised that the improvement of the main trunk roads between the towns is important for increasing agriculture related economic activity, in order for the farmers rather than the middlemen to gain from this improvement, it must also be accompanied by an improvement of feeder roads. It is not possible at this stage to determine whether the rehabilitation will act as a catalyst for the upgrading of the feeder road infrastructure serving the local communities.

In the long term, prices for farmers' produce may improve if new buying centres are established in villages and farmers may benefit from competition and save time normally spent on ferrying produce to markets which are currently inaccessible. The time saved could then be used for other activities to further household incomes.

Industry
The benefits to industry should be similar to those that may be brought to farmers as discussed above. In particular, the reliability of the export and import route for materials may encourage the growth of the industries that are beginning to be developed or expanded in the region, for example the cement works at Hima.
Tourism
The rehabilitation will provide more reliable access to Queen Elizabeth National Park as well as Ruwenzori and Kibale National Parks and to Semliki Wildlife Reserve in the Bundibugyo District. This will also contribute to the potential for generating local income from tourist activity. The effects on wildlife conservation which is the source of many of the tourist activities have largely been addressed in the PA Report. Generally potential impacts can be avoided, and UWA have stated that there will be no conflicts with the proposed new QENP Management Plan provided there are no borrow pits or road widening within the Park and the measures to reduce vehicle speeds are implemented. The Park are very keen that the bridge at Katunguru is raised to allow tourists access by larger boats to the eastern part of the Park including the area which is currently Kyambura Wildlife Reserve, but will soon be upgraded to be part of the National Park. Unfortunately this bridge does not fall under the present project Terms of Reference. However, liaison regarding road junctions and speed restrictions would help ensure an optimal solution for both MOWHC and UWA.

Other economic activity
If increased economic activity does occur, petty traders may join the race to provide services such as sale of basic household goods and small holder farmers will have access to markets. More “dukas” and stalls may develop along the road and basic commodities such as paraffin, soap and salt may be more readily available than before. The improvement in the roads could result in lower vehicle operating costs which should be reflected in the price of commodities exported and imported to the regions as well as of passenger transport.

During construction there will be some income generation for local communities, both as a result of direct labour and through the provision of associated services e.g. accommodation, food, mechanical support etc to the construction team and contractor.

- Health, Welfare and Education
The reduction in ponding as a result of improved drainage infrastructure could lead to a reduced risk of malaria from flies that breed in the flooded areas and risk of accident. The rehabilitation of the road is unlikely to have other immediate benefits on health, welfare or education, although if it contributes to an increase in economic activity then this could be reflected in general improvements: however, this effect would take some time to become apparent. Moreover, the benefits would be largely confined to the urban communities located along the road unless the road rehabilitation acts as a catalyst for the upgrading of the feeder road infrastructure serving the local communities. If this does take place then the benefits to the local community arising from increased accessibility are likely to be significant, since in addition to the direct economic benefits to the rural communities that would arise, such an upgrading would also provide increased access to clinics, schools etc.

- Pressure on resources
Scott Wilson in Association with ACE 6-10 December 1999
If the area attracts people from outside the project corridor e.g. to new trading centres, there is likely to be increased use of fuelwood for energy requirements since electricity supply from the UEB is not sufficient even for the existing demand. This could result in pressures on the now well vegetated areas along the route, particularly for charcoal production. Existing plots of private land and some forest reserve may be depleted. While the potential impact may be moderate, it is likely to be of long-term significance.

Similarly, an influx of population may place pressures on existing infrastructure such as water supply, waste facilities, health and educational establishments etc. However, it is considered that any such influx is likely to be slow and providing municipal facilities are improved at an appropriate rate, such problems can be avoided through appropriate planning.

• **Maintenance Requirement**

Road maintenance is a common problem in Uganda. The rehabilitation would decrease the need for continuous intensive maintenance and hence the frequency of socio-cultural disturbance associated with this activity. However, some routine and recurrent maintenance e.g. desilting of culverts, maintenance of speed bumps etc will be required. The use of herbicides for maintaining road edges should be discouraged and, where possible manual labour should be used for maintaining the roadsides.
7. ENVIRONMENTAL MANAGEMENT PLAN

7.1 General

A specific mitigation plan cannot be finalised until the detailed design has been undertaken and reviewed. However, based on the findings of the evaluation described in Section 6, various mitigation proposals have been made. Wherever possible these have been specific, but where there is as yet insufficient detail e.g. reinstatement of borrow pits, location of speed bumps/rumble strips, the plan has included guidance on how to determine and specify the mitigation requirement once the detailed design is further advanced. These mitigation measures have been compiled into an Environmental Management Plan which itemises the requirements and agencies responsible for their implementation and monitoring during the Design, and construction and the Post Construction phases (Tables 7.1 and 7.2 respectively). A summary of monitoring requirements is also provided (Table 7.3). The Design and Construction Management Plans should be incorporated in the following:

- the final scheme design;
- the invitation to tender to contractors and subsequently in the conditions of contract; and
- the Construction Management Plan (CMP) and the monitoring requirements for implementation by MOWHC and the resident engineer.

The Contractor should then prepare a working method statement demonstrating how he proposes to undertake the works in accordance with these documents.

During construction, the Resident Engineer and his team will be responsible for ensuring adherence to the CMP. Within this team, there should be an experienced, qualified and independent environmental specialist, whose specific responsibility will be to ensure that the environmental aspects of the Plan (as derived from the EMP) are implemented. UWA have requested that a nominated representative of the Authority is on site during the period of the works and if such a representative is appointed, there should be a mechanism for him to liaise and consult with the resident Engineer's team, ideally through the Environmental Specialist, who will have the responsibility and authority for implementing the scheme in accordance with the EMP.
### 7.2 Environmental Management Plan: Design/Preconstruction and Construction

<table>
<thead>
<tr>
<th>Issue</th>
<th>Mitigation</th>
<th>Design/Preconstruction</th>
<th>Construction</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>Implementing Organisation</td>
<td>Responsible Organisation</td>
</tr>
<tr>
<td>DIRECT EFFECTS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Loss of land/crops as a result of:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Road widening</td>
<td>P</td>
<td>- Identification of all areas and extent of widening - For works within road reserve and where there is informal use of the land, forewarning of works and/or undertaking such works after harvest period - For works outside road reserve, compensation package should be agreed with landowner prior to commencement of works</td>
<td>Design Engineer</td>
</tr>
<tr>
<td>Temporary landtake for working widths (e.g. for road diversions, storage areas)</td>
<td>T</td>
<td>- For requirements within road reserve and where there is informal use of the land, forewarning of works (3-6 months) and/or undertaking such works after harvest period - Outside road reserve, identify and avoid areas of significant agricultural value. Where land is required, undertake surveys to quantify losses and agree compensation with landowner prior to commencement of construction</td>
<td>Design Engineer / MOWHC</td>
</tr>
</tbody>
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December 1999
<table>
<thead>
<tr>
<th>Issue</th>
<th>Mitigation</th>
<th>Design/Preconstruction</th>
<th>Construction</th>
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<tr>
<td></td>
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<td>Implementing Organisation</td>
<td>Responsible Organisation</td>
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<td></td>
<td>Design Engineer</td>
<td>MOWHC</td>
</tr>
<tr>
<td>Borrow pits, quarries, disposal of spoil, and construction of haul roads</td>
<td>• Specification of requirement in tender and contractor to undertake separation and reinstatement topsoil and if necessary additional reinstatement measures e.g. digging over compacted areas to encourage revegetation</td>
<td>Design Engineer</td>
<td>MOWHC</td>
</tr>
</tbody>
</table>
| Work camps and storage areas | • Determination and specification of reinstatement requirements for each site and incorporation in CMP;  
• Compensation package should be agreed with landowner prior to commencement of works;  
• Specification of requirement in tender and contractor to undertake separation and reinstatement topsoil and if necessary additional reinstatement measures as specified in CMP;  
• Identify site taking due account of environmental constraints | Design Engineer | MOWHC          | Contractor      | Resident Engineer       |
|       | • Compensation package should be agreed with landowner prior to commencement of works                                                                                                                  | Contractor | Resident Engineer |               |                           |
|       | • Removal of waste at end of use                                                                                                                                                                       | Contractor | Resident Engineer |               |                           |

*Community disturbance as a result of:*
<table>
<thead>
<tr>
<th>Issue</th>
<th>Mitigation</th>
<th>Design/Preconstruction</th>
<th>Construction</th>
</tr>
</thead>
</table>
| Noise, dust generation and risks to safety in the vicinity of the works during construction | • Forewarning of works  
• Limiting of working hours and placing of signs in sensitive areas  
• Discouragement of children close to the works  | Contractor  
Resident Engineer | Contractor  
Resident Engineer |
| Noise, dust generation and risks to safety as a result of increased speeds after completion of works | • Implementation of control measures to reduce speeds in urban or other sensitive areas (Details provided in Table 6.1 subject to agreement with local officials)  
• Sealing of road verges for pedestrians and cyclists and use of deceleration lanes at road junctions within the QENP  
• Provision for off-road matatu pick-up areas | Design engineers  
MOWHC | Contractor  
Resident Engineer |
| Improved drainage which should prevent flooding of compounds and properties | P | | |
| Interruption of supplies and temporary access restrictions during construction | • Forewarning of disruptions and liaison with utility companies  
• Maintaining access to properties during the works | Contractor  
Resident Engineer | Contractor  
Resident Engineer |
### Traffic movements during construction

**Mitigation:**
- Forewarning of works
- Local sourcing of material and disposal of spoil
- Routing of new haul roads away from settlements
- Wheelwashing and covering of trucks
- Damping of haul roads in the vicinity of settlements
- Use of flag men and warning signs

**Design/Preconstruction (Implementing Organisation):**
- Contractor
- Resident Engineer

**Construction:***
- Contractor
- Resident Engineer

---

### Presence of alien workforce during construction

**Mitigation:**
- Use of a local workforce
- Provision of on-site health facilities
- Sensitisation of communities and identification of community/contractor liaison officer
- Monitoring and enforcement of activities in particular in relation to local women

**Design/Preconstruction (Implementing Organisation):**
- Contractor
- Resident Engineer

**Construction:***
- Contractor
- Resident Engineer

---

### Effects on road users resulting from:

**Construction traffic movements, diversions etc**

**Mitigation:**
- No road closures
- Signing

**Design/Preconstruction (Implementing Organisation):**
- Contractor
- Resident Engineer

**Construction:***
- Contractor
- Resident Engineer

---

### Reduced travel time as a result of improvements

**Indirect Effects**

### Increased employment during construction period

**Mitigation:**

---

### Scott Wilson in Association with ACE December 1999
### Mitigation Requirements Table

<table>
<thead>
<tr>
<th>Issue</th>
<th>Mitigation</th>
<th>Design/Preconstruction</th>
<th>Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>P</td>
<td>Implementing Organisation</td>
<td>Responsible Organisation</td>
</tr>
</tbody>
</table>

**Guaranteed transport routes could encourage economic activity in the project area**

**Notes:**
- T = temporary/short term effect
- P = permanent/long term effect

*Effect in italics are beneficial*

Further details of mitigation requirements are provided in Section 6 of this Report.
# 7.3 Environmental Management Plan: Operation

<table>
<thead>
<tr>
<th>Effect</th>
<th>Mitigation</th>
<th>Implementing Organisation</th>
<th>Responsible Organisation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DIRECT EFFECT</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Loss of/damage to land</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Degradation of land value as a result of ndeficiency reinstatement</td>
<td>P • Defects period within which any rectification can be undertaken</td>
<td>Contractor</td>
<td>MOWHC</td>
</tr>
<tr>
<td>Community disturbance/benefits and risks to safety as a result of:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Increased traffic movements</td>
<td>P • Implementation of additional speed control measures if accidents increase or there are reports of excessive disturbance</td>
<td>MOWHC</td>
<td>MOWHC</td>
</tr>
<tr>
<td>Flooding of adjacent properties</td>
<td>P • Defects period within which any rectification can be undertaken</td>
<td>Contractor / MOWHC</td>
<td>MOWHC</td>
</tr>
<tr>
<td></td>
<td>• Ongoing maintenance of drainage infrastructure</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>INDIRECT EFFECTS</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Effects on economic activity as a result of:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Deterioration of road</td>
<td>P • Ongoing programme of maintenance to maximise benefits of the rehabilitation programme</td>
<td>MOWHC</td>
<td>MOWHC</td>
</tr>
</tbody>
</table>

**Notes:**

Scott Wilson in Association with ACE

December 1999
### 7.4 Monitoring Requirements

<table>
<thead>
<tr>
<th>Issue</th>
<th>Construction</th>
<th>Implementing Organisation</th>
<th>Responsible Organisation</th>
<th>Operation</th>
<th>Implementing Organisation</th>
<th>Responsible Organisation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loss / Damage to land</td>
<td>• Monitoring of reinstatement measures</td>
<td>Resident Engineer</td>
<td>MOWHC</td>
<td>• Monitoring of success of reinstatement and revegetation</td>
<td>MOWHC</td>
<td>MOWHC</td>
</tr>
<tr>
<td>Community Disturbance</td>
<td>• Working hours</td>
<td>Resident Engineer</td>
<td>MOWHC</td>
<td>• Accident levels</td>
<td>Police / LC</td>
<td>LCs</td>
</tr>
<tr>
<td></td>
<td>• Construction practices</td>
<td>Resident Engineer</td>
<td>MOWHC</td>
<td>• Drainage</td>
<td>MOWHC</td>
<td>MOWHC</td>
</tr>
<tr>
<td>Effects on road users</td>
<td>• Construction practices</td>
<td>Resident Engineer</td>
<td>MOWHC</td>
<td></td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
8. INTERAGENCY COORDINATION

8.1 Introduction

The environmental actions to be carried out cover a wide range of issues, as described in Section 7 of this report. To be most effective, these actions should ideally be integrated into the wider development of environmental capabilities and roles so that the initiatives and responsibilities of various organisations with an interest in the project (e.g. NEMA, MOWHC, RAFU, UWA, LCs, etc) are properly focused within a well defined environmental protection framework. In this way, possible duplication of effort will be minimised, and common goals can be established to reduce potential environmental conflicts between the activities of different organisations.

The process should be seen as part of the ongoing general strengthening of national and local institutional capabilities in Uganda to ensure that environmental concerns play a meaningful role in guiding developments in the country. The establishment of a such a national regulatory framework can be visualised as a four-stage process (UNEP, 1992).

1) Policy setting
2) Implementation of policy - establishing regulations
4) Verification of compliance with regulations
5) Enforcement of regulations.

This framework is being put into place on a national basis by NEMA but is not yet established in full. A clear statement of policy has been made through and the National Environment Action Plan. However, there is comparatively little verification that policies are being complied with and there appear to be, in some cases, insufficient resources and legislative and regulatory powers to permit enforcement, although new legislation is in progress.

The increasing concerns of bilateral and multilateral funding agencies over environmental consequences of project developments is an additional reason for Uganda, and MOWHC itself, to establish proper environmental controls and to ensure that effective environmental assessment is built into the planning and implementation processes from very early stages. A brief overview of the issues faced by the key agencies of relevance to the project in establishing and undertaking these environmental controls is discussed below.

8.2 NEMA
Within the short time NEMA has existed and within the framework of its mandate, a number of achievements have been made among which are the following:

- increased awareness of the need for environmental management in the public and private sectors;
- development of guidelines, regulations and standards for use in environment management which has increased chances of sustainable use of the resource base e.g. EIA Regulations and guidelines, draft environmental standards etc.;
- creation of institutional structures to implement the program on improved environment management e.g. LECs, ELUs, DECs;
- supporting a number of districts, NGOs, CBOs and local communities in their bid to conserve the environment and natural resources through provision of technical and logistical support; and

NEMA has increasingly become effective in executing its duties despite the fact that environment management and planning in Uganda are relatively new phenomena. However, in doing so some practical problems have become apparent in the institutional and legal framework that was created to implement environment management programmes in the country. For example:

- in some cases there are conflicts between the Constitution and specific legislation relating to environmental management;
- while NEMA’s role is to coordinate matters relating to the environment, it has no regulatory powers and is dependent on the relevant Ministries to enforce the standards;
- in some areas there is an overlap in functions between NEMA and Ministries which results in conflicts, and potential for competition and a lack of necessary cooperation and coordination; and
- standards developed by NEMA are inconsistent with those developed by specific Ministries, and it is not clear which ones should be applied.

Other practical problems include lack of financial and logistical support for the newly created institutions, inadequate staffing or the staff lacking appropriate skills to undertake the assigned tasks, matters to do with legislation over resources reserved for the central government such as water, mines, forests, wetlands and national parks. There is also the issue of support for NEMA after the current Environment Management Capacity Building Project (EMCBP) through which these functions are funded by the World Bank ends.
8.3 MOWHC and RAFU

As yet there appears to be no well established ELU within the MOWHC or environmental capability within RAFU. Consequently, there is currently no formal mechanism within the Ministry through which it can voice its environmental concerns and, in turn, interact with NEMA and ensure that its planning and operations do not cause undue environmental problems. These roles have in part been assumed by existing officers within RAFU and the Ministry, who have where appropriate sought advice and input from external agencies, for example in the recent preparation of EIA guidelines for road projects, specification of appropriate environmental considerations in Terms of Reference to contractors etc. However, even with the of best intentions, such an approach, which involves only limited and intermittent specialist environmental input, cannot guarantee the appropriate environmental awareness and implementation of appropriate management procedures. However, it is understood that the Ministry intends to implement an ELU and that the RAFU are actively pursuing the appointment of an Environmental Manager. Such measures should help to ensure the necessary coordinated approach and improvement in environmental management procedures in the future.

8.4 Other Agencies

\textit{UWA}

It is understood that in the past, developers have in some cases not taken due account of ecological resources, including those in protected areas, and as a result a deterioration in conservation value, which could have been avoided through liaison with UWA, has resulted.

\textit{Local Councils}

Although the national programme of decentralisation provides for transfer of environmental management responsibilities to districts, municipalities and rural communities the implementation of such a strategy has been in some cases hindered by various practical considerations including:

- a lack of resources, and the appreciation of the need for and function of DEOs in the district local governments has meant in some cases that they have not been effectively appointed or provided with the appropriate authority and resources;
- a potential conflict of interests between the roles of the DECs, which are proposed by NES 1995 and district health and environment committees (DHECs) proposed by the Local Government Statute of 1993, both a result of the ongoing decentralisation programme; and
the roles of all the local environmental institutional structures recommended by NES 1995 and the National Environment Management Policy such as DEO, DEC and LECs are not well defined which at times causes confusion. In many cases the individuals involved are not well guided about their duties and how they relate to other institutions and agencies.

8.5 Recommendations

While the creation of NEMA has had a considerable effect on environmental management in Uganda, there are inevitably some inconsistencies and lack of regulatory mechanisms that prevent it from becoming fully functional. These are gradually being addressed by new legislation, and implementation of the necessary mechanisms within the relevant lead agencies including the proposed ELU and Environmental Manager within the MOWHC and RAFU respectively. The implementation of such measures should be encouraged wherever possible.

At the local level there is also a need for allocation of resources to education of and empowering of environmental officers and committees. although it is recognised that this may achieve a higher priority as these measures are implemented at a national level.

Owing to previous development practices, which have in some cases not taken due account of the conservation value of ecological resources, there is a particular need to establish links between project promoters and the UWA so that both organisations develop an appreciation of the others requirements and concerns and can work together to find mutually acceptable solutions. The current project should be seen as an opportunity for the MOWHC and UWA to develop such relations. The proposed ELU within the Ministry and the Environmental Manager in RAFU should take responsibility for this function.
9. CONSIDERATION OF ALTERNATIVES

9.1 Introduction

There are various alternatives to ensuring good transport links between the east and western parts of Uganda and between Uganda and the Congo. On the macro scale there are alternative transport modes that could be used, whilst within the road transport option itself there are choices that can be made in terms of construction of new roads or use of existing alignments, standards adopted and methods of undertaking the works. In addition, there is the no project scenario. In summary the main alternatives comprise:

- use of other transport modes e.g. rail or air;
- use of other road transport routes;
- alternative rehabilitation options;
- alternative construction methods; and
- do nothing scenario.

These alternatives and their consequences are discussed briefly below.

9.2 Alternative Transport Modes

The current railway infrastructure extends from Kasese to Kampala and north to Jinja, Tororo and Soroti. At present, although it is used for the transport of freight (passenger transportation has ceased for safety reasons), it is costly and unreliable with many derailments. There are presently no plans for rehabilitation of this service. While in the longer term the use of rail rather than road infrastructure where practicable is likely to be a preferable option in terms of environmental considerations (energy consumption, air emissions etc), this would be dependent on a reliable and economically viable service which is unlikely to be in place for a considerable time. Even if the rail service was functional, the potential for its use would be constrained by the limited extent of the network which would not provide links to the south parts of Uganda or to the Congo. The use of such a mode of transport would also require an alteration in trading methods, particularly to minimise double handling of materials (which itself has a high environmental cost). Therefore, although transportation by rail may be a viable option in the future, it will only serve a proportion of the market (the rest will continue to be dependent on road transportation) and is unlikely to be feasible for some time.

The high costs of air transport both in terms of economic and environmental considerations (energy consumption, emissions to air) prohibit the use of such a transport mode.
9.3 Other Roads

Although an alternative road between Kampala and Fort Portal via Mubende is currently being constructed, it is anticipated that this route will not be completed for at least three years and may prove a difficult route for some vehicles as a result of steep gradients and sharp corners. Even when this new road is completed, the southern route, comprising the project roads, will continue to be necessary to serve areas to the south including Mbarara and Masaka as at present there is no other road serving these areas. While it is recognised that owing to its potential to affect the nature conservation value of the Park, the routing of the project road through the QENP is, there are substantial constraints associated with rerouting the highway to avoid the Park; these include the potential for considerable environmental impacts associated with landtake, associated ecological, resettlement and compensation issues, bypassing towns and trading centers that have grown up and are dependent on the existing road network, as well as the high cost and long implementation period.

In addition:

- the presence of the Congo border would prohibits construction of such a route to the west of the Park;
- the steep slopes of the rift valley escarpment on the Park’s eastern boundary restrict options in this area and could lead to an increase in costs; and
- a direct route from Kasese from Mbarara would be prohibitively expensive.

One of the project roads (the Equator Road) also comprises the main route to the Congo via the Bwera/Mpondwe border post and there are no suitable alternative routes to that post which would not require new construction across mountainous terrain. The nearest border post to the north is via the Fort Portal - Bundibugyo Road at the northern tip of the mountains and at that location the Congo side of the border is poorly served by roads. The southern post through Rukingiri is active but is distant from major town in both Congo and Uganda. The present route through Bwera/Mpondwe also has the advantage of being routes along the boundary of the Park rather than passing through this protected area.

9.4 Rehabilitation Options

Owing to the level of deterioration of the Kasese-Kilembe Road from km 8.8 to 12 and the Equator Road from km 20 to the border, any low cost maintenance activity would not be effective and there is therefore a need for significant rehabilitation. Although the level of deterioration of the Equator Road between km 0-5 is somewhat less, similar considerations apply to that stretch. Therefore, on these sections, total reconstruction is recommended. The other sections of these roads are in better condition and lower cost maintenance is the preferred option; while a more comprehensive
rehabilitation of these sections would result in a longer maintenance period and hence less
disturbance and associated environmental risks associated with maintenance, any environmental
benefits are considered unlikely to outweigh the considerable larger scale disturbances associated
with rehabilitation.

The Katanguru - Fort Portal Road carries relatively higher volumes of traffic, and while the present
condition of the road is fair to good, this is a reflection of the high cost and frequent maintenance
activities which are currently undertaken. Along this stretch, rehabilitation is the favoured
environmental option as it reduces the need for the frequent disturbance (considerably more frequent
than would be required on the less busy Kilembe and Equator Roads).

Various alternatives in terms of construction activities and mitigations have been discussed in
Sections 6 and 7 of this report and specific recommendations to minimise environmental impacts
have been made including:

- use of a local workforce where possible;
- housing of any foreign workforce within existing towns;
- siting of work camps away from QENP;
- specification of borrow pits, in particular, no use of pits within the QENP;
- use of local borrow pits to minimise haul distances; and
- if possible extraction of sand from existing pit at Katanguru should be avoided.

9.5 Do Nothing

The Do Nothing option comprises a continuation of the current levels of maintenance which require
frequent works and are dependent on availability of resources whenever this work is required. While
such an option could in the short term maintain the required standards between Katanguru and Fort
Portal, it would result in frequent maintenance and the associated high costs. In addition, the ad hoc
approach has more potential for generating environmental impact than a well planned and
comprehensive project which is subject to an EIA and designed, implemented and monitored in
accordance with an Environmental Management Plan. The ad hoc approach would therefore be of
particularly concern where the project road passes through the QENP. Other sections of the project
roads have deteriorated or are near to complete failure and cannot be rectified through the type of
maintenance activity associated with the Do Nothing scenario. This scenario would therefore within a
relatively short period of time render such road links unsuitable for use by motorised vehicle, with
resultant consequences in terms of erosion, accidents, safety, economic activity and associated
environmental effects.
APPENDIX A
TERMS OF REFERENCE
TERMS OF REFERENCE
SECTION I: TERMS OF REFERENCE

1. INTRODUCTION

1. Katunguru-Kasese-Fort Portal Road, 105 km, Kasese-Kilembe Road 12 km and Equator Road 38 km are located in the districts of Kasese-Kabarole in Western Uganda. The Katunguru-Kasese-Fort Portal road is a section of the Trans African Highway linking Mombasa in Kenya to Lagos in Nigeria. The road joins Equator road which runs western to the Zaire border. On national level, it completes the western road circuit that connects the towns of Kasese, Bushenyi, Mbarara and Masaka, and Fort Portal to the capital Kampala. Through the Equator road the route connects Eastern Zaire, Rwanda and Burundi to the railway terminal at Kasese where import and export goods from and destined to these countries can be trans-shipped to and from the port of Mombasa in Kenya.

2. Katunguru-Kasese-Fort Portal bisects the Queen Elizabeth National Park which is renowned for its wildlife and in particular the territorial grounds of the Uganda Kob.

3. Sabbour Associates Consulting Engineers Conducted the economic feasibility and preliminary engineering study of Katunguru-Kasese-Fort Portal and Kasese-Kilembe in 1995. This was followed by detailed engineering design by the same consultant. A comprehensive environmental impact assessment was included as part of the feasibility study.

4. In 1996 repairs were carried out on the section Katunguru-Kasese. The works included pothole repairs, pavement repairs in some sections and reinstatement of drainage. Works of similar nature are presently being carried out on the sections Kasese-Fort Portal and Kasese-Kilembe.

II OBJECTIVES

5. The purpose of the studies is to carry out an update of the technical and economic feasibility for rehabilitating and strengthening of the three road sections and to undertake detailed engineering design of the most viable strengthening alternative and prepare standard bidding documents suitable for international competitive bidding.

III SCOPE OF CONSULTING SERVICES

6. The consultants shall review the documentation prepared by Sabbour Associates and perform all engineering work, economic studies, field investigations and related work deemed to be required to attain the objectives in Section II hereof. An Environmental Impact Assessment (EIA) and Resettlement Impact Assessment (RIA) will also be carried out in accordance with the requirements
for EIA formulation legislated by the GOU and in accordance with the requirements of the financing agency as part of the feasibility study.

7. The Government will provide the consultants with the data and services outlined in Section IV hereof. The consultants shall be solely responsible, however, for the analysis and interpretation of all data received for the recommendations in the report.

A. Feasibility Study

Selection of Alignment and Design Standards

8. The consultants shall consider alternative strengthening strategies as a basis for the economic evaluation. And shall prepare financial and economic cost estimates for the proposed alternatives. In selecting design standards the consultants may base their cost estimates for road sections on typical construction costs per km.

9. The cost estimates shall be broken down into foreign and local cost components and all taxes and duties shall be identified separately. The foreign cost component shall include such items as depreciation of imported plant and equipment, imported materials and supplies, the foreign component of wages and overheads, profits of foreign firms, locally procured goods of foreign manufacture, and the principal foreign cost elements of locally produced goods and materials incorporated in the works.

10. The consultant’s Feasibility Report on the road shall include plans, typical cross-sections, a soils and materials report and traffic counts as well as preliminary engineering designs for the proposed construction, at the following scales:

   1: 5,000/500  horizontal/vertical alignment
   1: 250          cross sections
   1: 250          bridge/culverts

Economic Analyses

11. The economic analyses of alternative strengthening measures and design standards for the road shall include estimates of:

   (a) the type and volumes of forecast traffic which will form the basis for the for the selection of appropriate design standards and the estimation of potential savings in vehicle operating costs. The consultants shall analyze all existing statistical data on traffic and if they find that additional traffic counts or origin and destination data are required, they shall undertake necessary field studies with the account the effects of existing and potential traffic generating activity in the influence area of
the road and the possibilities of traffic diversion to and from competing modes. Traffic forecasts should be assessed with respect to available projections for growth in economic output.

(b) vehicle operating costs for the types and sizes of vehicles forecast under (a) above for both the existing and proposed investing and proposed alignments and standards. These estimates, in conjunction with the forecast of traffic with and without the proposed investment, shall form the basis for estimating potential vehicle operating costs and time savings. The estimated vehicle operating costs shall be compared with prevailing market rates for road transport services.

(c) road maintenance costs for both existing and proposed alternatives, have regard to the respective traffic forecasts under (a) above. The estimates shall be used to assess the net savings or increases in total maintenance costs likely to result from the proposed improvements;

(d) environmental costs and benefits of the proposed improvements, including but not limited to surface and ground water drainage, soil erosion, air pollution and possible preventive measures; and

(e) the net benefits of the proposed improvements assessed under (a) to (d) above. These shall be compared with the costs determined in para. 8 (adjusted to include detailed engineering, physical contingencies, and supervision costs), for a period of analysis considered appropriate for the investments being evaluated. Shadow-pricing shall be used in the analysis if deemed necessary. For each alternative, the net present value, discounted at 12%, the internal rate of return, and the first year benefit shall be calculated. On the basis of these calculations, the optimum alignments, design standards, starting date and staging schedule shall be determined; and

(f) Detailed cost/benefit streams should be presented for each alternative considered both for the with-and without-project cases. Multiple exclusive alternatives should be assessed based on the NPV. For the recommended alternative, sensitivity analysis should be conducted for a 20% increase in costs and for a 20% reduction in benefits. A risk assessment should also be developed, in order to highlight the likelihood of an unsatisfactory outcome. The fiscal and distributional impacts of the project should also be evaluated, with emphasis on poverty alleviation.

B. Detailed Engineering

12. Depending on the results of the feasibility study and on authorization by the Government to proceed which shall be done in consultation with the World Bank, the consultants shall undertake detailed engineering of the road, as outlined
below, subject to prior approval of the Government. Once the final engineering costs are known, a final economic analysis should be conducted as outlined in the preceding Para.

13. The consultant services in this regard shall include, but not be limited to:

(a) detailed engineering design, preparation of estimate of quantities, plans, drawings and bidding documents for the project suitable for international competitive bidding, soils and materials report;

(b) preparation of detailed cost estimates of the proposed work with a breakdown into foreign and local currency costs; and

(c) assistance in the prequalification of contracting firms and in the analysis and evaluation of bids.

14. The scope of the engineering investigations, design and related work shall include, but not limited to:

(a) Detailed Engineering

Engineering work will be carried out as necessary to complete the detailed engineering and preparation of bidding documents and will include all necessary surveys; location and adequate marking of center line leveling of profile and cross sections; soils and materials investigations; design of sub-base, base and wearing course thickness; drainage and bridge site investigations and the location and testing of sources of gravel and rock required for construction. Bidding Documents suitable for international competitive bidding, following the World Bank's Standard Bidding Documents of works, will be prepared including conditions of contract, specifications, plan and profile drawings, cross-sections, bridge and culvert drawings (to an appropriate scale), bills of quantities and forms for bid and performance bonds/bank guarantee;

(b) Cost Estimates

Estimates for the cost of construction will be prepared based on reliable and full engineering information and detailed bills of quantities. The foreign exchange and local currency costs will be computed in detail for each item in the bill of quantities. The foreign exchange component of cost shall include such items as depreciation of imported plant and equipment, imported materials and supplies, locally procured goods of foreign manufacture, wages of foreign personnel, foreign component of wages and cost elements of locally produced goods and materials and supplies, locally procured goods and materials incorporated in the works. The local cost component shall identify all local cost; tax and duty elements shall be identified separately:
(c) **Prequalification of Bidders**

The consultants shall:

(i) prepare all necessary documents for the prequalification of contractors, including abbreviated specifications of the work to be performed, forms invitations to prequalify, draft advertisements, etc.; and

(ii) review and evaluate proposal for prequalification and prepare a list of qualified firms which should be permitted to bid.
APPENDIX B
PROJECT TEAM
<table>
<thead>
<tr>
<th>NAME</th>
<th>ROLE</th>
<th>ORGANISATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Simms</td>
<td>Project Director</td>
<td>Scott Wilson Kirkpatrick</td>
</tr>
<tr>
<td>R Golombok</td>
<td>EIA Project Manager</td>
<td>Scott Wilson Kirkpatrick</td>
</tr>
<tr>
<td>E Mujuni</td>
<td>Local EIA Specialist</td>
<td>Gissat Techno Consults Ltd</td>
</tr>
<tr>
<td>A Calzetti</td>
<td>Project Engineer</td>
<td>Scott Wilson Kirkpatrick</td>
</tr>
<tr>
<td>J Ntensibe</td>
<td>Local Engineer</td>
<td>ACE</td>
</tr>
<tr>
<td>Rosalind Lubanga</td>
<td>Local Socio-Cultural Specialist</td>
<td>Makarere University</td>
</tr>
</tbody>
</table>
APPENDIX C

INDIVIDUAL CONSULTATIONS
### INDIVIDUAL CONSULTATIONS

<table>
<thead>
<tr>
<th>Name of Person</th>
<th>Organisation and Position</th>
<th>Comments/Information Provided</th>
<th>Consultant's Comments</th>
</tr>
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<tbody>
<tr>
<td><strong>NATIONAL BODIES</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Justine Ecaat</td>
<td>NEMA EIA Specialist</td>
<td>• There is a need to submit a project brief to NEMA so that they can screen and scope the requirements in accordance with Ugandan EIA procedures</td>
</tr>
<tr>
<td>2</td>
<td>Bart Young</td>
<td>UWA Chief of Party</td>
<td>• in past there has been insensitive management of road works through the Park</td>
</tr>
<tr>
<td></td>
<td>Martin Strein</td>
<td>Deputy Chief Warden, QENP</td>
<td>• no borrow pits or spoil disposal in park or the road reserve within the QENP</td>
</tr>
<tr>
<td></td>
<td>Moses Mapasa</td>
<td>Deputy Director - EIA and Planning, Acting Executive Director</td>
<td>• no removal of vegetation of firewood from Park</td>
</tr>
<tr>
<td></td>
<td>Dr. Yakobo Moyini</td>
<td></td>
<td>• no road widening within the park</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• no changes in site lines within the Park</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• strong preference that sand should not be sourced from existing site at Katanguru</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• need for ongoing liaison regarding design of proposals within or close to QENP including speed control measures, signs and deceleration lanes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• need for on-site representative of UWA during works</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• no construction camp in Park</td>
</tr>
<tr>
<td>3</td>
<td>Derek Pomeroy</td>
<td>Makerere University Head of Institute of Environmental and Resources</td>
<td>• provided names of contacts at UWA</td>
</tr>
<tr>
<td><strong>KABALORE DISTRICT</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Mr. Ekoroit</td>
<td>Kabalare District surveyor (Agricultural Government Valuer)</td>
<td>• The position of the Government Valuer is currently vacant as the occupant had been elected Mayor of Fort Portal Municipality.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• A list of compensation rates dated February 1996 was provided</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Compensation prices are revised every 2-3 years.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Sometimes Contractors extract murram from road reserve or use crashed rock</td>
</tr>
</tbody>
</table>
Mr. Charles Godfrey District Agricultural Officer (DAO) * Provided more information regarding functions of compensation committee, procedures and agricultural activities in sub-counties along the project road as well as benefits.  
Compensation prices are supposed to be renewed every 2 years - but 1996 prices still being applied, pending the formation of a new committee to be set up by the land board as stipulated in new Land Act 1998  
Compensation Procedure - The Compensation Committee and Local Leadership (LCs), CAO and owner of the affected land visit the site to evaluate loss. The farmer is free to dispute the evaluation if this occurs can enter into negotiation. When agreement is reached an Assessment Form is completed and handed over to the authority/agency responsible for administering the payment.  
- The major role of the Committee is to do assessments. "It is always a problem reaching an agreement".  
- Sometimes it is the Government which pays (e.g. in the case of Kyenjojo - Fort Portal road), Sometimes it is the Contractor - e.g. Kampala - Mubende Road)  
- Government takes long to compensate e.g. Kyenjojo - Fort Portal Road.  
- Once there is a default in paying legal action is taken by affected farmers.  
- Improved roads are likely to affect marketing of crops, road network is a priority in spear heading modernization of agriculture".  
- Bunyangabo sub-county is a granary of the district producing matoke (bananas) maize, hort cultural crops such as tomatoes, cabbage, and passion fruits and coffee. They are taken to Kampala and Kasese  
- Burakya also produces diary products which are also taken to Kasese and Kampala.  
- Other products from Fort Portal to Kasese include Waragi - (an alcoholic spirit), and passion fruits.  
- Kabalore also produces 70% of the Uganda Tea.

<table>
<thead>
<tr>
<th>Name of Person</th>
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</tr>
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- The major role of the Committee is to do assessments. "It is always a problem reaching an agreement".  
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The northern stretch passes through Bunyangabo and Burakya sub-counties.
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</tr>
</thead>
<tbody>
<tr>
<td>6 Chris Kasaija</td>
<td>District Engineer Kabalole District</td>
<td>• The hinterland i.e. Bundibugyo district produces coffee, upland rice and cocoa. • Have written letters to people about road reserves reminding them not to encroach on reserve land i.e. 15 metres for feeder roads and 20 metres for trunk roads. • District authority have the responsibility to tell people about road renovations. • Politicians are interested in roads - They will handle the people and get them out of the reserve land • Prices of murram are negotiable depending on quantity needed</td>
<td>• People may already have information on reserved land. • Entry point to communities is politicians</td>
</tr>
<tr>
<td>7 Kabalore Elijah</td>
<td>Agricultural CAO - Kasese</td>
<td>• Do not have many cases involving compensation in the district. • However an adhoc committee is usually formed chaired by CAO and comprising of relevant technical officers to do the assessment. • The district has plans to construct a taxi park in Bwera away from Mpondwe Muslim primary School. Improvement of Bwera junction should not be a problem.</td>
<td></td>
</tr>
<tr>
<td>8 K. A. Musinguzi</td>
<td>Environmental Officer</td>
<td>Concerns • Poor drainage in Rukoki • The frontage needed between the road and houses may be lost • Heaping soils on the shoulders blocking pathways of people. The spoils must be taken and dumped in the cavities where they obtain murram. Suggestions/Recommendations • Define and direct the paths of the water to other waters or to the river. Drains must not be directed into people’s compounds or houses. • Spoils must be removed from the road shoulders • Fill up the borrow pits with other soil. Follow management plan for the borrow pit. The Rukoki borrow pit is developing such a plan.</td>
<td>Recommendations are required to address this issue which was reported by people in Rukoki and observed on Kilembe road. The dirty water may also create health problems - and injuries especially to children - due to the deep gulleys created as a result of the erosions</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>Name of Person</th>
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<th>Comments/Information Provided</th>
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</tr>
</thead>
</table>
| Mrs. Munyazikwiye N.T.               | District Agricultural Officer Kasese          | • People know they are supposed to leave 2 metres from the road - People can be reminded during rallies.  
• The reason why people have been encroaching on reserve land is because the MOWHC has not been maintaining the reserve land. Farmers fear their crops being eaten by pests, vermin. Farmers cannot spray bushes.  

Compensation Procedures  
• A technical team visits, assess and reaches a consensus over the right cost. The rate given to the farmer varies with the stage, type, of the crop, quality and what it would cost a farmer to establish it elsewhere.  

Impacts of Road improvement  
• Marketing of food crops is done by women. Improvement of the road would make women walk comfortably, and could be assisted by children if the road was made safer.  

Suggestions for the future  
• Trees should be planted to mark the boundaries of the road reserve. This could help the farmers as well trees would stop farmers’ soil being washed away into the road, which silts the drains.  
• The MOWHC Engineer should work hand in hand with affected villages and sensitize them over road reserve.  

• Could be done through the sub-county works committees and political leaders at all levels. |
| Mrs. Biira Eva                        | Assistant Chief Administrative officer/ Clerk to Kasese District Council | • There is a Probe Committee investigating among other things “encroachment on road reserve and construction of houses in green belts in Kasese Town Council.” The report is yet to come out but one person had been stopped to construct a building as it did encroach on road reserve.  
• mitigation. - Sensitization by LC leaders guided by the Engineers.  
• “We don’t know how wide the road reserve should be. We regard the slashed area by piida (MOWHC) as road reserve.” (We all laughed!!!!)  
• There is need to know the time when construction work will be done |

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Katunguru-Kasese-Fort Portal Road
Kasese-Kilembe Road
Equator Road

<table>
<thead>
<tr>
<th>Name of Person</th>
<th>Organisation and Position</th>
<th>Comments/Information Provided</th>
<th>Consultant's Comments</th>
</tr>
</thead>
</table>
| 10 Mr. Mura-Muhindo | Speaker Kasese District Council and
counselor for Kasese Town Council | and when this time is set, it must be respected else the people will always come back to cultivate. • Kilembe mines has a lot of displaced people - they tend to take every opportunity to cultivate any where. Who will compensate people who have build houses in reserve land in the Town Council? • People permitted by Town Council to Construct will be compensated by the Council. Those illegally constructing will move out at their cost. |
| 11 Hashim Mageya | Chairman General purpose Committee of Kasese Town Council | Reasons for illegal Construction • Planning reaching suburbs later after construction had been done. Town Council to compensate the affected people. Town Council stops slightly before Margarita Hotel. |
| 12 Mr. Muhindo Jonathan | Land Supervisor Kasese T.C. | Plot 177 - 179 located at the Mbara - Kilembe Fort - Portal Junction • Existing structure very close to plot boundary. Has been told to change architectural plans twice. Was stopped to construct as the building reduced on visibility, did not have enough frontage specially if the roundabout was enlarged to effectively cater for big trucks, no parking and may reduce safety of people using and moving around the building. There was a court injunction to this effect. The Engineers need to decide on whether and by how much to enlarge the Kasese T.C. roundabout and how much land is required from this landowner. The designers of the road, MOWHC and Town Council need to work on this case together. |
| 13 A group of about 20 people comprising of Taxi drivers and local | |

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<table>
<thead>
<tr>
<th>Name of Person</th>
<th>Organisation and Position</th>
<th>Comments/Information Provided</th>
<th>Consultant’s Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>leaders at Bwera Town board</td>
<td></td>
<td></td>
<td>to some other place. The people and also CAO told us that a new park was available but taxis don’t want to move away from the current place. The plot on the right hand side as one faces Mpondwe will have to be taken over and the owner compensated. * If round about was created it would improve the appearance of the town.</td>
</tr>
</tbody>
</table>
| Cyclist interviewed at Nyamwamba bridge | Road user | • He was riding his bicycle on the carriageway because he did not want his bicycle tyres to be damaged by the rough surface of the shoulder.  
• Pavement of shoulders will ease their movements. Cyclists will leave the carriageway to motorists  
• He suggested that sign posts should be put on the road and shining sign posts near the bridges and sharp corners. | * the project road has a lack of signing  
* these should be costed and put on all the road sections |
| A group of 7 people interviewed at Rukoki Trading Centre. One of them was a motorist Taxi driver and some two cyclists | Road users | • They identified the following locations as black spots:-  
a) Rukoki at Wamiko Sign Post  
b) Nyakasanga  
c) Kicongo - There is a slope - need humps  
• Road widening may require some people to remove their fences.  
• Complained of water from culverts which is directed in their houses | * Cyclists tended to complain more of the narrow road than the motorist.  
* Removal of fences and planting or constructing new ones may involve incur costs which is a negative impact on the people. |
APPENDIX D
PUBLIC CONSULTATION
APPENDIX D1: PUBLIC CONSULTATION

KASESE DISTRICT LOCAL GOVERNMENT COUNCIL HALL 26/11/1999

1 INTRODUCTION

The meeting was convened and facilitated by Associated Consulting Engineers (ACE), specifically to seek for people's views about the project of constructing/renovating the Kasese - Kilembe and Equator Roads. The meeting started at 10.45 a.m. with communication from the Executive Engineer - Ministry of works, housing and Communications (MOWHC).

The Executive Engineer informed the people about the main purpose of the meeting. He explained that there was need to get a an input (information) from the local population where the roads are going to be constructed/renovated. He subsequently invited the Chief administrative Officer (CAO) - Kasese District, to officially open the meeting.

Chief Administrative Officer
He highly welcomed the government initiative to consult the local masses as a good participatory planning approach. He gave an example Stirling Construction Company that constructed Kasese road without due consultation with local people. There has therefore, been no ownership of the project for purposes of sustainability.

Given that background, the C.A.O said this public consultation was imperative for purposes project sustainability. He informed the meeting the road construction/renovation is priority number two of the government of Uganda. The C.A.O. further said that the local people can stifle development projects if not impressed upon, i.e. conscientised. This is just an emphasis of his remarks on the need for mass participation in project planning and management.

In his final remark, he cautioned that since land belongs to the people, appropriate modalities should be earmarked for land compensation. This will prevent land disputes between the locals and the contractor and, or MOWHC (Government). However, he advised the local people to be open to the contractors and consultants for purposes of fruitful discussion. He then declared the meeting officially open.

Further Communication
The Executive Engineer informed the meeting that drainage is the biggest problem in road construction. Therefore, there is a need to improve and, or enlarge culverts. He requested the

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people's representatives to sensitise the people on what has transpired. He also emphasized that land belongs to the people. So it should be handled carefully, ie. amicably by the concerned parties. A case in point was getting murram for road construction. It will involve excavation of peoples land, which must be compensated for.

2 Representative - Associated Consulting Engineers (ACE)

He informed the meeting that his company (ACE) is charge of carrying out a Feasibility Study on the proposed renovation of the Kasese roads: namely Katunguru - Kasese - Fort Portal, and Kasese - Kilembe and Equator road.

Asked when the construction would begin, he said it was not known, until the feasibility study is complete. He accordingly sought for people's views on the feasibility study.

The ACE representative informed the people about the width of the roads in terms of carriage ways and shoulders. However, he said that the general guideline for road width with reserve is 30m.

Katunguru - Kasese: Carriage way 6.0m, Shoulder 1.5m
Kilembe: Carriage way 5.6m, Shoulder 1.5 m
Equator Road: Carriage way 6.0m. Shoulder 1.5m

He noted that there is a provision in the project document to widen the carriage ways up to 6.0m.

He informed the people about the bridges earmarked to be renovated.

- Mobuku bridge
- Nyambwamba bridge
- Mpondwe bridge

- Other road requirements:
  - To check all culverts for due repair.
  - Pavements will be made
  - Road furniture and paint marking especially special signing at sharp corners, will be provided.

3 People's Reaction/Submission

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The speaker of Kasese District Local Government Council, appreciated the initiative of public consultation. But he hoped that the project would be implemented as planned. On the drainage system, he cited some areas that should be worked on, namely, Katoro area (where there is a ridge) and Bukungara Valley on Equator road.

The Executive Engineer informed the people that most bridges are catered for in the contingency plans of the project.

The Chairman works committee, Kasese District Local Council (KDLC), added other areas that need to be worked on during the project. On Bwera road, there is stagnant water at many areas/points (No specific points). There is no culvert at Pokopoka. This also causes stagnant water which affects people's movement and sanitation.

The speaker mentioned other areas like Karambi, customs which have stagnant water.

There is need for a Zebra-crossing as you approach Kasese Town, due to heavy traffic. Bwera Town needs round about at the junction. The junction is a potential accident area, but drivers have only been careful.

### 3.1 Projects Benefits

<table>
<thead>
<tr>
<th>Item</th>
<th>Benefits</th>
<th>Beneficiaries</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Tourism</td>
<td>- Hoteliers, Government</td>
</tr>
<tr>
<td>2.</td>
<td>Improved Trade</td>
<td>- Transporters, manufacturers, central government, local government (Kasese District), traders, farmers (Women and men)</td>
</tr>
<tr>
<td>3.</td>
<td>Employment</td>
<td>- Women, men and youth</td>
</tr>
<tr>
<td>4.</td>
<td>Reduced transport and vehicle operational costs</td>
<td>- All road users and vehicle owners</td>
</tr>
<tr>
<td>5.</td>
<td>Improved accessibility</td>
<td>- All the people</td>
</tr>
<tr>
<td>6.</td>
<td>Reduced accidents</td>
<td>- Motorists, cyclists (Boda-boda) travelers and pedestrians</td>
</tr>
<tr>
<td>7.</td>
<td>Improved marketing leading to increased production</td>
<td>- Women, men, youth, local governments (taxes)</td>
</tr>
<tr>
<td>8.</td>
<td>Improved standard of Living from improved incomes</td>
<td>- Women, men, youth, local governments (taxes)</td>
</tr>
<tr>
<td>10.</td>
<td>General increased revenue collection</td>
<td>- Kasese district</td>
</tr>
<tr>
<td>11.</td>
<td>Urbanisation</td>
<td>- Local communities and road users.</td>
</tr>
<tr>
<td>12.</td>
<td>Improved security</td>
<td>- Kasese District and country at large</td>
</tr>
<tr>
<td>13.</td>
<td>Time saving</td>
<td>- Road users</td>
</tr>
<tr>
<td>14.</td>
<td>Reduced road maintenance costs</td>
<td>- MOWHC</td>
</tr>
<tr>
<td>15.</td>
<td>Prestige</td>
<td>- Local communities</td>
</tr>
<tr>
<td>16.</td>
<td>Reduced health hazards e.g. dust</td>
<td>- Road users, people along the road</td>
</tr>
<tr>
<td>17.</td>
<td>Improved road safety</td>
<td>- School children, teachers and local communication</td>
</tr>
</tbody>
</table>
3.2 Project Negative Impacts and Mitigation Measures

<table>
<thead>
<tr>
<th>Item</th>
<th>Element/Impact</th>
<th>Most Affected</th>
<th>Mitigation Measure</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Environmental degradation, e.g. borrow pits</td>
<td>Land owners and land itself, women and men.</td>
<td>- Tree planting, borrow pit restoration, collaboration with District Environment Officer</td>
<td>Contractor, MOWHC, and the local community</td>
</tr>
<tr>
<td>2.</td>
<td>Loss of property and crops</td>
<td>Local Community</td>
<td>- Compensation after proper assessment and in time. - Advance awareness and warning. - Clear road demarcation.</td>
<td>MOWHC, Contractor. Local leaders, CAO, and valuers.</td>
</tr>
<tr>
<td>3.</td>
<td>Increased road accidents</td>
<td>School children, cyclists, road users, and animals</td>
<td>- Road furniture, community awareness, proper training of drivers.</td>
<td>MOWHC, schools, police. Local Council 5, Road Safety Committees and Kasese Taxi Operators and Drivers Association (KATODA)</td>
</tr>
<tr>
<td>4.</td>
<td>Utilities</td>
<td>Uganda Electricity Boards (UEB) - National Water and Sewerage Corporation (NW&amp;SC) - Uganda Telecom Ltd - Kasese town Council (KTC)</td>
<td>- Networking with utility managers - Involve local communities</td>
<td>Contractor, utility managers and community</td>
</tr>
<tr>
<td>5.</td>
<td>Wildlife</td>
<td>Queen Elizabeth National Park</td>
<td>- Road furniture - Law enforcement - Increase awareness</td>
<td>Drivers, police - Contractors, game wardens</td>
</tr>
<tr>
<td>6.</td>
<td>Urbanisation - prostitution and thefts/robberies</td>
<td>Youth, women, men and children</td>
<td>- Law enforcement - Police patrol - Community sensitisation</td>
<td>Police and local leaders</td>
</tr>
</tbody>
</table>

3.2.1 Compensation

Further clarification was sought on compensation modalities as this was quite a contentious issue. The Executive Engineer said that property can be valued by the government valuer and the MOWHC effects payment. But the contractor can also pay if the contract states so.

The Kasese Town Council Engineer informed the people that there can be compulsory land take/acquisition in public interest.

The Kasese Town Council Land valuer said that the chief Government Valuer, through the district valuer and District Compensation Committee makes arrangements to pay people through the C.A.O’s office.
A member informed the meeting that Kasese Cobalt Company Ltd (KCCL) had a problem, when they paid/compensated the locals through Kasese Town Council. He advised the MOWHC to deal directly with the local people.

The Environmental Officer KCCL advised that there is need for neutral person(s) identified by the MOWHC to assess property for compensation. The lawyer should be on the assessment committee.

The C.A.O advised the local leaders to do a lot of Community sensitisation in as far as compensation is concerned.

4 Factors Affecting Project Implementation

a) Lack of Community Involvement in supervision
b) Thefts e.g. fuel siphoning
c) Delays in compensation
d) Poor quality construction materials
e) Inadequate funding
f) Poor Workmanship
g) Poor Engineering Design
h) Floods and Earth quakes

4.1 Observation

It was observed that this project planning needs to envisage other future development plans in the district. For instance an International Airport is due to be constructed and it will lead to increased traffic. So project designers need to take note of this. The ACE representative took note of it.

The C.A.O discouraged the contractors to import unskilled labour as the district has enough.

5 Social institutions along the project roads.

5.1 Subcounties;

5.1.1 Equator Road:

- Lake Katwe
- Kisinga
- Mukunyu
5.1.2 Kilembe Road:

- Rukoki
- Kilembe

5.1.3 Katunguru - Rwimi Road
- Lake Katwe
- Muhorya
- Bugoye
- Karusandara
- Maliba
- Kichwamba

5.2 Schools:

5.2.1 Equator Road:

- Busunga Primary School
- Kiburara Primary School
- SAAD Primary School
- St. John’s Seminary - Kiburara PS
- Kinyamaseke P.S.
- St. Andrews S.S.
- St John’s - Bukangara P.S
- Katojo P. S.
- St. Coboni P.S
- Mpondwe P.S
- Bwera High
- Nyabugando P.S.
- Nyakahya P.S.
- Bwera Demonstration P.S.
- Kyaminya - Wande P.S.
- Bwera Teachers’ College

5.2.2 Kilembe Road

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- Railway P.S.
- Kasese progressive school
- Kasese High
- Kasese Junior
- Celak Catering Institute
- Mother care upper P.S
- Rock P.S
- Base Camp P.S
- Kasese P. S.
- Mother Care infant Section P.S
- Namubanga P.S
- Katiri P.S.
- Bulembya P.S
- Royal Rangers Secondary School
- Kyamjuki P.S
- Kilembe Junior
- Road barrier P.S.

5.2.3 Katunguru - Rwimi Road

- Katunguru P.S.
- Muhokya P.S.
- Kamayiba P.S.
- Kasese S.D.A. P.S.
- Equator Model P.S.
- Kasese Technical Institute
- Kasese Moslem P.S.
- Airstrip P.S. and Secondary Schools
- Nyakasanga Government P.S.
- Nyakasanga St. Peters P.S.
- Asaba P.S
- Kanyangeya P.S.
- Kogele P.S.
- Ssebwe P.S.
- Mobuku P.S.
- Mobuku Moslem
- St Joseph’s Hima P.S
- Hima Hill academy Secondary School
5.3 Health Centres

5.3.1 Equator Road

- Kinyamaseke Health Centre (HC)
- Bwera Hospital
- Katolhu sub-dispensary
- Nyabugando Dispensary

5.3.2 Kilembe Road

- Kasese Town Council Health Centre
- Kilembe Hospital
- Kilembe Dispensary
5.3.3 Katunguru - Rwimi Road

- Muhokya Dispensary
- Katunguru sub-dispensary
- Kasese Moslem Dispensary
- St. Paul's Health Centre
- Rukoki Dispensary
- Mobuku Irrigation Dispensary
- Hima Cement Uganda Ltd Health Centre
- Hima Dispensary

5.4 Markets and Trading Centres

5.4.1 Equator Road

- Kikorongyo Market and Trading Centre (M&TC)
- Kiburara M & TC
- Mailo Kumu M&TC
- Kinyamaseke M & TC
- Bukangara M & TC
- Katolhu M & TC
- Kibala M & TC
- Rusese M & TC
- Bwera M & TC
- Nyambuka M & TC
- Nyabugando M & TC
- Mpondwe Customs Market
- Rubirha Market

5.4.2 Kilembe Road

- Kasese Trading Centre
- Base Camp Market
- Katonzi Market
- Railway Market
- Katiri Market
- Kyanjuki Market
- Road barrier market
5.4.3 Katunguru - Rwimi

- Katunguru Market and Trading Centre
- Kahendero Market
- Muhokya Market
- Kasese Market
- Nyakasanga Market
- Kisagazi Market
- Rukoki Market
- Majengo Market
- Kigoro Market
- Mwaro Market
- Mobuku M & TC
- Rugendabara M & TC
- Kinyamwenge M & TC
- Hima M & TC
- Kihogo M & TC
- Kikongo Market

6 Institutional Arrangements for Compensation

People were informed by the moderator that there was need for an institutional arrangement to handle compensation matters that may arise during project implementation. The moderator advised people to identify neutral people/parties to form the institutional arrangement.

The Structure below was proposed.

Note: Details pertaining compensation can be obtained in 3.2.1

At the subcounty level, the production and environment committee, as well as the secretary for production and environment should directly be involved in compensation matters.

The above can provide channels through which the public can submit their concerns regarding project implementation i.e road construction.

7 Any Other Issues
The following are other concerns of social nature that can be mitigated by the project.

Mr Muhindo B.M. chairperson LC III Rukoki subcounty wants flooded areas of Nyamusamba river at Kigoro Trading Centre to be controlled.

The Chief Engineer Kilembe Mines ltd identified the 2.1 Km stretch of Kyanjuki on Kasese - Kilembe road to be added on the project. He urged that this road serves a secondary school, two primary schools and a big housing estate.

The Headmaster Mpondwe Primary School requested for road signs, humps and Zebra crossing around the school (Equator Road). He argued that, the school has 1704 pupils including those with disabilities. The pupils normally fail to cross the road because it is busy.

The Headmaster Mother Care Preparatory School asked for humps on Kilembe - Kasese road. He states that many lives have lost, where children of Kasese P.S., Rock P.S. Mother Care P.S., Kasese High School and Celak cross daily. The Zebra Crossing has not helped much.

Below are specific engineering requests made

a) Culverts on Kasese - Kilembe road
   - Golf Club Junction
   - Kibenge
   - the end of Road Barrier
   - Kyenjojo
   - Recreation Club

b) The road in Hima Town Centre requires bridges on the trenches, humps to reduce accidents.

c) On Katunguru - Fort Portal Road.
   - humps are needed at Hima Township, Mukhoka Town and Katunguru Town.
   - Bridge on Hima River
Culverts are also needed, especially between Mobuku town and cobalt power house.

d) Equator Road

Bridge on Bukangara river should be renovated.
Road signs are needed at the school near the Eucalyptus forest as you come from Bwera and at Bukangra bridge.

8 Closure

The moderator thanked all the participants for their rich contribution to the public consultation. He handed over to the Executive Engineer who also appreciated participants' contribution. He officially closed the meeting at 3.00 p.m.
# LIST OF PEOPLE ATTENDING

<table>
<thead>
<tr>
<th>No.</th>
<th>Name</th>
<th>Designation</th>
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<tbody>
<tr>
<td>2.</td>
<td>Tom Maate</td>
<td>Chairman III - Kiswamba</td>
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<td>3.</td>
<td>Y. Ngarama</td>
<td>C/E KML</td>
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<td>4.</td>
<td>Mbyamira Geoffrey</td>
<td>H/Teacher, Katojo P/S</td>
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<td>5.</td>
<td>Kasirika Bonny</td>
<td>Headteacher, St. Comboni P/S</td>
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<td>6.</td>
<td>Mwanje Joseph</td>
<td>Headteacher, St. John's Bukanga</td>
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<td>7.</td>
<td>Kasimbazi David</td>
<td>AG. Town Engineer Kasese Town Council</td>
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<td>8.</td>
<td>Museruka Israel Isaac</td>
<td>Chairperson LC IV Busungorya</td>
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<td>9.</td>
<td>John Rwaboga</td>
<td>Hima Cement Ltd.</td>
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<td>10.</td>
<td>Katumiro Alex</td>
<td>District Physical Planner</td>
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<td>11.</td>
<td>Muhindo L</td>
<td>Sec. of C/man L.C.V</td>
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<td>12.</td>
<td>Mbulire Alalia</td>
<td>Chairperson LC III Munkunyu S/C</td>
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<td>13.</td>
<td>Munyazikwiye N.T</td>
<td>District AGAC Officer</td>
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<td>14.</td>
<td>Tinkasimire John</td>
<td>Sec/Tech &amp; Works</td>
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<td>15.</td>
<td>Balyebuga Godfrey</td>
<td>Headteacher - Kyanjuki P/S</td>
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<td>16.</td>
<td>Kule Asa Musunguzi</td>
<td>Dist. Em. Officer</td>
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<td>17.</td>
<td>Kirungi K Steven</td>
<td>H/M Basecamp P.S.</td>
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<td>18.</td>
<td>Muzamilu K. Bisanga</td>
<td>Director KCF/L Katwe S/County</td>
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<td>19.</td>
<td>Cosmas Byaruhanga</td>
<td>C/Man LC III Kasese Town Council</td>
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<td>20.</td>
<td>Kabatooro M Batholemew</td>
<td>Headmaster Katwe Quran P/S</td>
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<td>22.</td>
<td>Muhindo B. M. Johnson</td>
<td>C/P LC III Rukoki Model School</td>
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<td>23.</td>
<td>Mugabo Charles</td>
<td>H/Tr Rukoki Model School</td>
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<td>Muliro Wilson</td>
<td>H/M Kasese Progressive S.S</td>
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<td>26.</td>
<td>Begyele Abraham</td>
<td>LC III C/P Kilinde S.K</td>
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<td>27.</td>
<td>Muthubya Solumen</td>
<td>D/Headmaster Mukunyu S.S</td>
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<td>28.</td>
<td>Kansiiime Margaret</td>
<td>Headmistress Rugendabara P S</td>
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<td>29.</td>
<td>Tibelya Manimba</td>
<td>Headteacher Muhokya</td>
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<td>Twesigawe Benson</td>
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<td>31.</td>
<td>Syauswa Ali</td>
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<tr>
<td>32.</td>
<td>Ellys Mwatri</td>
<td>C/man - Works</td>
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<td>33.</td>
<td>Masereka I Jamil</td>
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<td>Kanyaruguru K.M</td>
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<td>35</td>
<td>Masereka M Charles</td>
<td>Deputy H/Teacher Busunga P/S</td>
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<td>36</td>
<td>Amute Jofred</td>
<td>O/C Traffic Kasese</td>
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<td>37</td>
<td>Baita Pascal</td>
<td>ACAO for CAO</td>
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<tr>
<td>38</td>
<td>Muhindo Jonathan</td>
<td>Valuer/land Supervisor - Kasese Town Council</td>
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<tr>
<td>39</td>
<td>Masereka Maliseri</td>
<td>Urban Committee Member (K.T.C.)</td>
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<td>40</td>
<td>Baguma Raphael</td>
<td>LC III Chairperson - Busule</td>
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<td>41</td>
<td>Bwambale Johnson</td>
<td>Chairman LC III Muhokya</td>
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<td>42</td>
<td>Absolm Baluku</td>
<td>A.E.O.I K.T.C.</td>
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<td>43</td>
<td>Matholi Wilson</td>
<td>Urban Committee Member (KKTC) H/T Katwe Primary School</td>
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<tr>
<td>44</td>
<td>Baluku Hassan</td>
<td>Headmaster Mubuku Moslem</td>
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<td>45</td>
<td>Kmacooko Albert</td>
<td>Director Airstrip Sec. School</td>
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<tr>
<td>46</td>
<td>Mwesigwa Jackson</td>
<td>Sec. Tech. S &amp; Works - LC III - Karambi</td>
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<td>47</td>
<td>Baguma Bonny</td>
<td>Chairperson LC III Nyakiyumba</td>
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<td>48</td>
<td>Baluku Charles</td>
<td>Deputy Speaker KDLG</td>
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<td>49</td>
<td>Julius Mughuna</td>
<td>Ag. Town Clerk KTC</td>
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<td>50</td>
<td>Mubingwa Zepher</td>
<td>Secretary Sience for District Chairman</td>
</tr>
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<td>51</td>
<td>Kabyanga F J</td>
<td>Headmaster Hima P. S.</td>
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<tr>
<td>52</td>
<td>Ruth Kahwa baluku</td>
<td>Production Marketing</td>
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APPENDIX D2: PUBLIC CONSULTATION

FORT PORTAL MUNICIPAL COMMUNITY HALL 26/11/99
INTRODUCTION

The meeting started with a remark from the Executive Engineer Ministry of Works Housing and Communication Kabalore District, who welcomed the people and apologised for the confusion over the venue of the meeting place. He informed the public that the meeting was convened to consult them on several issues regarding the proposed construction and renovation of the Fort Portal - Rwimi road. He gave a brief background to the project. Feasibility studies were being undertaken by ACE/Scott Wilson collaboration and it was a requirement by World Bank (the funder of the project) to carry out these public consultations.

He introduced representatives of ACE, Namely Engineer P Kalungi, Ms Lubanga Rosalind - Sociologist and Mr. Bbosa Ronald. He also introduced the local dignitaries from whom he invited the mayor of Fort Portal Municipality to officially open the Meeting.

Mayors Address

He was appreciative of the proposed project and the approach to consult the public, he noted that this was the first time he was observing people being consulted over road matters. He appealed to all members present to give the necessary information and after which he declared the meeting open.

Briefing on proposed engineering plans on the Katunguru - Kasese - Fort Portal road by Engineer Paul Kalungi.

He started by reviewing the present status of the road and the proposed interventions on the Fort Portal to Rwimi Section. He informed members that the carriageway was narrow and it lacked shoulders. The plan was to be widened the road to about 6 metres. It will follow the current alignment. This section has very many sharp corners and these will not be tempered with because of the high costs involved. The plan also involves improving drainage. Road widening may require creation of road diversions in the course of constructing and may need murrum obtainable from individual person's borrow pits.

The purpose of the meeting was to obtain people's views, on how they could facilitate the contractors work during construction, identify possible problems that may arise during and after construction and how these could be addressed.

Discussions

Ms Rosalid Lubanga led the participants into the next session of the day's activities in which they were divided into two groups of about 14 people each, to brainstorm and identify the likely positive and negative consequences of the project and devise workable solutions at the different stages of the project.

By the end of this session, ideas, views and concerns of the people that were in the groups were discussed and contentious issues debated in order to come up with a common stand.

1 a) Social and Economic problems facing the district.

Members were asked about the problems, they generated the following list.

- unemployment among the youth
- power struggles e.g. those aiming at splitting the district.
- insecurity
- low levels of literacy as a result of high school drop out rates and few institutions of higher learning
- lack of constant power supply
- low level of industrialisation, a few existing industries included maize mills, tea factories, diary factories.

b) **Problems of using the current road**

The participants were asked for the problems of using the current road.

- Accidents - because the road is narrow, this evidenced when motorists and cyclists are overtaking each other and pedestrians especially school children are the victims.

- Poor maintenance, due to busy reserves which reduce the visibility for drivers thus increasing the possibility of accidents.

- Too many corners because of the terrain.

- No road signs.

- Animals grazing on road reserves.

c) **Mode of land acquisition**

Members were asked about how land was acquired.

It was reported that land was acquired through: inheritance, purchase and government allocations such as in the case of resettlement schemes and work camps.

2 The role of the road in solving the socio-economic problems facing the district-

Members were asked the ways in which the improvement of the Fort Portal - Rwimi road would help in solving the identified socio economic problems and those specific to the road. Some problems might be solved while others may not while may be aggravated.

Problems that might be partly addressed included:

- unemployment: the unemployed may obtain work on the road works.

- improvement in agricultural production could only be attained with improved access roads.

- accident would be reduced if road safety signs and sign posters are put on the roads.

3 a) Members present were asked for the anticipated negative effect on different people living near and off the road, road users (motorists, cyclists, and pedestrians, and people of different gender and ages) during the different phases of the project.
The table below summarises the anticipated problems and mitigation measures

The anticipated problems and mitigation measures during the different phases of the renovation construction exercise

Positive and Negative Effects

<table>
<thead>
<tr>
<th>Item</th>
<th>Project Phases</th>
<th>Anticipated Problems</th>
<th>Mitigation Measures</th>
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<tbody>
<tr>
<td>1.</td>
<td>Preparatory</td>
<td>- Land take for camp sites&lt;br&gt;- Weather (heavy rains)</td>
<td>- Prompt negotiations&lt;br&gt;- Compensation agreements&lt;br&gt;- Timing of season</td>
</tr>
<tr>
<td>2.</td>
<td>Construction</td>
<td>- Accidents&lt;br&gt;- Crop destruction&lt;br&gt;- Breach of compensation agreement&lt;br&gt;- Air pollution&lt;br&gt;- Access roads blocked&lt;br&gt;- Smuggling fuel&lt;br&gt;- Land take (for diversions)&lt;br&gt;- Soil erosion&lt;br&gt;- Break up families (contractors use their money to seduce women) cases of rape and defilement.</td>
<td>- Road signs and guides&lt;br&gt;- Early warning&lt;br&gt;- Compensation timely&lt;br&gt;- Watering and proper servicing of machinery&lt;br&gt;- Reinstall access roads&lt;br&gt;- Sensitize/ intensive supervision</td>
</tr>
<tr>
<td>4.</td>
<td>After Construction</td>
<td>- Soil Erosion&lt;br&gt;- Drainage&lt;br&gt;- Open Surfaces (borrow pits)&lt;br&gt;- Accidents (over speeding)&lt;br&gt;- Diversions&lt;br&gt;- Earth quakes cracking the road</td>
<td>- Cover with grass&lt;br&gt;- Proper drainage construction&lt;br&gt;- Followed up drainage channel a distant&lt;br&gt;- Avoid pouring water in people’s houses/compounds&lt;br&gt;- Refill the borrow pits&lt;br&gt;- Road signs, traffic control&lt;br&gt;- Cover the diversions with grass&lt;br&gt;- Better engineering design.</td>
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3 b) Constraints to effective utilisation of renovated roads members were asked for factors that may constrain full and effective utilisation of the renovated roads.
Insurgencies (political instability) as a result of improved and faster move.

- low agricultural production - despite the improvement of the road, low levels of agricultural production would mean that the road may not be put to full utility.
- Transport fares would go up. This view was supported by the fact that previous experiences with improvement Fort - Portal - Kyenjojo road had lead to the deployment of more policemen. This made the transport fares to go up, because the regulation requiring taxis to carry 3 people per seat would be enforced. The result would be reduced movement of people.

4. In which way could people affect, hinder or facilitate renovation work?

The moderator wanted to get labour including women to work on the roads and the response was affirmative, participants added that women were already involved in public works like slashing and cleaning the streets of the municipality and further that information would be given to people about the availability of jobs through radio Tooro (VOT) in addition to the press.

5. a) Compensation

The secretary to the District Land Board which had been recently instituted made the following clarifications regarding permanent and temporary land take:

- The CAO is responsible for compensation issues since he is the Chief Accounting Officer and reports to the Permanent Secretary of the Ministry of Works.
- The district has got a Land Board, a Land Office, and a Town Council Land Board.
- The Land Board of each district has the power to compile compensation rates in view of non permanent aspects e.g. animals, crops, buildings-section 60 of the Land Act of June 1998.
- Compensation rates differ for different crops and materials.
- The district doesn’t have a Valuer (The service commission has re-advertised the position but has so far not been able to obtain one.
- That section 74 (I) of the Land Act holds that the Ministry can take land in the event of failure to agree with the owner of the land - in agreement with the established rates as per the district in question.

Monitoring of stakeholder compensation.

5 b) The participants pointed out that monitoring was handled by the Local Council III and the CAO’s office. Individual could also employ the service of law firms at their cost.

There was a concern that the process of handling compensation by Government machinery is slow. The procedure would normally involve sending, a technical team including, the valuer and other like the survey, the District Agricultural officer to do assessments which are sent to the District Engineer then the Permanent Secretary, Ministry of Works, who makes a budgetary allocation during the following financial year and money is sent to the CAOs office.

Participants expressed a need for the affected people to be directly compensated by the contractor.
c) Road Reserves

Extent to which people are aware of tampering with road reserves.

- It was reported that people had some knowledge about prohibitions of using road reserves.
- Road committees are supposed to sensitize people about road reserves - The chairman of the road committee is the sub county head.
- There was laxity in enforcing regulations governing road use.
- Concerning the handling of people doing farming and other activities along the road when construction work starts, members agreed that there was a need for advance warning of 3 - 6 months.
- There was also a reported need for the use of the media and seminars to sensitize the public
- Members resolved that the following would be charged with making encroachers aware.
  - LCs’
  - Road Committees
  - Technical Staff
  - media advertisement
  - Office of the District Engineer

6. Institutional arrangement and capacities to manage information, monitor mitigation measures and enforce compensation agreements.

- Members present agreed that the LCI III community liaison offices should work hand in hand with the public relations officer for the contractors to handle problems as they arise.
- Participants also agreed that LCs, chiefs and land committees would be entrusted with the responsibility of handling the views and concerns of the public at the different stages of construction.
- The District Engineer informed the participants that there were no bye laws restricting camping, but they were of the view that the following places should not be used for camping purposes.
  - cultural sites
  - near wet land
  - near trading centres
  - near public institutions.
- The moderator asked for information concerning the skills the community needed to fully participate in monitoring, mitigation measures and road maintenance after construction.
  - maintenance of drainage channels
  - road use
  - meanings of road signs
Other Issues Raised

1. The start of construction work may be influenced by:
   - Politicians
   - Contractors

2. Many road corners implied that:
   - road signs and guard rails should be installed on the road

3. Members suggested that the existing road network i.e. Fort Portal - Kazingo - Matasndai - Rubana be maintained.

4. Suggestion on Contractor - public relationship -
   - proper assessment of people's property
   - prompt assessment and compensation.

The representative for the CAO, Mr. Kaija Samuel provided a closing remark and re-emphasized the need for adequate assessment, to avoid repeating the exercise and called upon the contractors to ensure prompt compensation payment. He reiterated the need for the road and the importance of road reserves and urged the community to participate by working harmoniously with the contractors. Mr. Kaija warned the contractors of careless driving and brought it out clearly that on a number of occasions people’s vehicles have been hit by turning and over speeding trucks of the Contractors.

In a further remark he warned the contractors of breach of contract (failure to implement what the participants had agreed on) and the need for sensitization and early warning.

There being no further business the meeting was adjourned at 1.35 p.m.

These are the Schools/Trading Centres/Markets and Health Centres along Fort Portal - Rwimi Road.

Distance in Km from junction to Kampala Road

7.0 KABALORE MUNICIPALITY

Schools

Mpanga Senior Secondary School
Buungi Primary School
Kyebambe Senior Secondary and Primary School - aprox. 3.0 km
Virika Primary School
Maria Goretti Primary School
Buinha Medical School

Markets

Mpanga market
Hospitals
Kabalore hospital - 1 km

7.1 Kachwambwa

Schools
St. Peter and Paul’s Primary School
St. Leos’ Senior Secondary School - 2 Km - LHS
St. Pauls National Seminary, Kinyamasika - 1 km - LHS
St. Josephs Technical Institute - 1 km - LHS
St. Judes Primary School, Kyesobe
Kihembo Hill Memoria College Primary School and Technical School

Clinic

Kihembo Community Clinic
7.2 Kasusu

School
St Johns Junior School - 1 km off set)

8.0 BURUNYA COUNTY

8.1 Karambi Sub county starts
Schools
Karambi Primary

Hospital
Nakku Clinic

8.2 Start of Mugusu Sub-county

Schools
Burunga Primary School
Mugusu Primary School
Nyangsazi Primary School - 1km LHS

Mugusu Trading Centre
Mugusu Market
Mugusu Sub-county Headquarters

8.3 (start of Buheesi sub-county)

Schools
Bunyaagabu County
Buheesi High School - 4 km offset: sub county
Buheesi day care orphans centre

Market
Buheesi market

8.4 (Start of Kisomoro Sub-county)

Markets
Rubona Trading Center
Rubona Market
Kicuncu Trading Centre
Nyakyumba market

Kisomoro sub-county Headquarters

Schools
Kabala Primary School - 1 km LHS
Canon Apolo Core PTC
Rubona Primary School
Rubona Secondary School
Kisomoro Primary School
Nyangigumba Great Mixed Academy
Buhiita Primary School
Canon Apolo Core PTC
Hospitals
Kisomoro Health Centre
Rubona Health Centre

8.5 Start of Kibiito Sub-county

Schools
St Kizito, Yerya Nursery School
St. Johns Primary School
Canon Apollo Care PTC.
Kibiito vocational training Institute
Kibiito Secondary School
Kibiito Day and Boarding Primary School
Kibiito College of Commerce & Technical Studies
Kabale Muslim Primary School
Kibuga Primary School
Bunjjojo Primary School
Kasunganyanja Primary School
Nambi Primary School

Markets
Kibiito market
Kabale market

Trading Centres
Kabale Trading Centre
Kimbiri Trading Centre
Kasunganyanja Trading Centre
Kibiito County Headquarters

Hospitals
Yerya Health Centre
Kibiito Government Health Centre
Doroth Clinic
Kasunganyanja Health Centre

8.6 Start of Rwimi Sub-County

Schools
Rwimi Primary School
Rwimi Nursery School
Rwimi Secondary School

Hospitals
Rwimi Health Clinic

Market
Rwimi Market

Rwimi Trading Centre
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<tr>
<th>Item</th>
<th>Name</th>
<th>Position</th>
<th>Address</th>
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<tbody>
<tr>
<td>1.</td>
<td>Rusongoza Patrick K.</td>
<td>Municipal Engineer</td>
<td>Fort Portal M.C</td>
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<tr>
<td>2.</td>
<td>Mrs. Musana</td>
<td></td>
<td>Busugu Mpolo</td>
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<td>3.</td>
<td>Kasimbazi Joseph</td>
<td></td>
<td>Box 399 - Fort Portal</td>
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<tr>
<td>4.</td>
<td>Viane kagaba (Mrs)</td>
<td>Journalist</td>
<td>Box 236 F/Portal</td>
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<td>5.</td>
<td>Mijumbi David</td>
<td>Head Teacher - Mugusu P/S</td>
<td>Works Dept. 38 F/Portal</td>
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<tr>
<td>6.</td>
<td>Mugisa Threza</td>
<td>District Engineer Rep.</td>
<td>Box 54 - F/Portal</td>
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<td>7.</td>
<td>Rubombora John</td>
<td>Chairperson</td>
<td>Karambi S/C</td>
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<td>Rubaale Aapine S.</td>
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<td>9.</td>
<td>Bob Kaganda</td>
<td></td>
<td>Box 24 - F/Portal</td>
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<td>Ekel Alfred</td>
<td></td>
<td>Box 805 Fort Portal</td>
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<td>11.</td>
<td>Mugisha Lawrence</td>
<td></td>
<td>Box 10 Kibiito</td>
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<td>Magezi Deogratias</td>
<td>S/C /C</td>
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<td>C/P LC III Rwimi S/C</td>
<td>Karambi</td>
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<td>Ahimbisibwe Caleb</td>
<td>S/C/C</td>
<td>Buheesi S/County</td>
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<td>16.</td>
<td>Moses Ikaigbya</td>
<td>Chairman LC III</td>
<td>Box 38, Fort Portal</td>
</tr>
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<td>17.</td>
<td>Kajja Samuel</td>
<td>for CAO / Kabarole</td>
<td>Box 32 - F/Portal</td>
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<td>18.</td>
<td>Itorot A O</td>
<td>Senior Staff Surveyor</td>
<td>Kabarole</td>
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<td>19.</td>
<td>Mbabazi Paul</td>
<td>for RDC</td>
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<td>20.</td>
<td>Karugaba David</td>
<td>Elder</td>
<td>Kibiito S/C</td>
</tr>
<tr>
<td>21.</td>
<td>G K Mpaka</td>
<td>Secretary, District Land Board</td>
<td>Pass Office - Kampala</td>
</tr>
<tr>
<td>22.</td>
<td>Azoora David</td>
<td>Dist. Environment Officer</td>
<td>Box 284 F/Portal</td>
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<tr>
<td>23.</td>
<td>John Diisi</td>
<td>Sec. for Works</td>
<td>Fort Portal</td>
</tr>
<tr>
<td>24.</td>
<td>Mugaa Tom</td>
<td>Cadre Mobiliser</td>
<td></td>
</tr>
<tr>
<td>25.</td>
<td>Dr. Toa Gordon V</td>
<td>O/C Rubona Stock Farm</td>
<td></td>
</tr>
<tr>
<td>26.</td>
<td>Molly Nikoba</td>
<td>RDC Officer</td>
<td></td>
</tr>
<tr>
<td>27.</td>
<td>Mugenyi Irene</td>
<td>Rubona P. School</td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX E

ACCIDENT DETAILS
### Accident Details

<table>
<thead>
<tr>
<th>Location</th>
<th>Challenge</th>
<th>Issue</th>
<th>Suggested Action</th>
<th>Recommended by</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fort Portal - RWEMI Section</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Muchwa Junction</td>
<td>T-junction people drive carelessly.</td>
<td></td>
<td>• &quot;Need some form of roundabout or a big stop&quot;</td>
<td>Mr. H. Dongo - Police Office in Charge Traffic.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Need sign posts</td>
<td></td>
</tr>
<tr>
<td></td>
<td>No. of accidents:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1996 - one case (road was rough then)</td>
<td></td>
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<tr>
<td></td>
<td>1997 - four cases (fatal)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1998 - six cases (fatal)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1999 - four cases (fatal)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kasunganyanja</td>
<td>There is a school and health centre on one side, shops and weekly market</td>
<td></td>
<td>• Speed Bumps</td>
<td>Mr. H Dongo - Police Office in Charge Traffic.</td>
</tr>
<tr>
<td></td>
<td>on another. This section of road is on a slope and many people cross the road.</td>
<td></td>
<td>• Pedestrian fly over</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Sign Posts</td>
<td></td>
</tr>
<tr>
<td></td>
<td>No. of Accidents</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1996 - 2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1997 - 3</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>1998 - 3</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>All were fatal involving mostly children</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mugusu</td>
<td>Overturning in the corner due to sharp bends</td>
<td></td>
<td>(See Engineer’s Suggestions)</td>
<td></td>
</tr>
<tr>
<td><strong>Kasese - Kilembe Section</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kilembe Road Police Camp and National Water Offices</td>
<td>Fatal accidents involving mostly children. There are Primary Schools namely: Kasese Primary Rock Primary School Mother Care Primary School Kasese High School There is also a dispensary.</td>
<td>Small speed bumps</td>
<td>Traffic Police</td>
<td></td>
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<tr>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Base Camp</td>
<td>37 accidents in last 3 years (1997 - 1999)</td>
<td>Speed bumps</td>
<td>Project Engineer</td>
</tr>
<tr>
<td></td>
<td>• Road Barrier</td>
<td></td>
<td>Sign Posts</td>
<td>Works Engineer</td>
</tr>
</tbody>
</table>

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E-1

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<table>
<thead>
<tr>
<th>Location</th>
<th>Chainage</th>
<th>Issue</th>
<th>Suggested Action</th>
<th>Recommended by</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>KASESE - FORT PORTAL SECTION</strong>&lt;br&gt;  - Caltex&lt;br&gt;  - Kigoro&lt;br&gt;  - Rukoki&lt;br&gt;  - Mubuku&lt;br&gt;  Nyakasanga I at LC 2&lt;br&gt;  Chairman’s place Mr. Musoke Emmanuel&lt;br&gt;  - Ihima&lt;br&gt;  - Kihoko&lt;br&gt;  - Karungi Bati</td>
<td>1 Km - Kasese - Fort Portal Road&lt;br&gt;  Shares the 95 road accidents mentioned above is accident prone because of the playground.&lt;br&gt;  - 95 road accidents, some fatal in last 3 years (1997 - 1999)&lt;br&gt;  - Speed control measures including sign posts and speed bumps&lt;br&gt;  - Parking at the market place at Rukoki</td>
<td>Speed bumps&lt;br&gt;  - Police traffic office - Kasese&lt;br&gt;  - Road Users interviewed at Rukoki&lt;br&gt;  - Police&lt;br&gt;  - Land supervisor&lt;br&gt;  - Road users interviewed at Rukoki T.C.</td>
<td>&lt;br&gt;<strong>MBARARA - KATUNGURU - KASESE ROAD</strong>&lt;br&gt;  - Kasese&lt;br&gt;  - Cobalt Ltd&lt;br&gt;  - Mbarara Junction&lt;br&gt;  - Kikorogo Junction&lt;br&gt;  - Katunguru&lt;br&gt;  - Kasese&lt;br&gt;  - 30 road accidents in last 3 years (1997 - 1999)&lt;br&gt;  - Speed control measures e.g. speed bumps&lt;br&gt;  - Signing&lt;br&gt;  - Roundabout</td>
<td>Police Traffic Officer&lt;br&gt;  - Project Engineer</td>
</tr>
</tbody>
</table>
APPENDIX F

RESPONSE TO ISSUES RAISED BY CONSULTATION
### Issue | Reference | Response with reference to appropriate section of assessment or Management Plan where this issue has been addressed
--- | --- | ---
Need to agree scope of study with NEMA | Appendix C - Item 1 | Necessary preliminary paperwork has been submitted to NEMA. EIA will be subject to NEMA assessment procedure.
Potential for damage in QENP | Appendix C - Item 2 | Various measures to protect the Park have been specified in the EIA Tables 7.2 and 7.3 “BIOLOGICAL ENVIRONMENT” sections.
Damage to frontages of buildings | Appendix C - Item 8 | Specification of requirement to rectify any damage in SCA Table 7.3 “DIRECT EFFECTS - degradation of land value as a result of inadequate reinstatement”.
Clear definition required of road reserve and maintenance | Appendix C - Items 9 and 10 | Sensitisation of communities as to extent of road reserves specified SCA in “DIRECT EFFECTS - Loss of Land and Crops”.
Need for forewarning of communities | Appendix C - Item 9, Appendix D1 - Section 3, Appendix D2 Section 5c | Forewarning of communities specified in SCA Table 7.2 “DIRECT EFFECTS - Loss of Land and Crops and Community Disturbance”.
Disruption and risk to safety of local communities as a result of presence of workforce – threats to safety, women etc | Appendix D2 - Section 3 | Sensitisation of communities and monitoring of workforce as specified in SCA Table 7.2 “DIRECT EFFECTS - Community Disturbance as a result of presence of alien workforce”.
Damage to water supply during construction | Appendix C - Item 12 | Forewarning of utility companies and of affected communities specified in SCA Table 7.2 “DIRECT EFFECTS - Interruption of supplies and temporary access restrictions during construction”.
Damage to bikes owing to rough nature of road shoulders | Appendix C - Item 16 | As part of proposals shoulders will be sealed where there is use by cyclists.
Insufficient drainage has been identified at various locations including: | Appendix D1 - Sections 3 and 7, Appendix C - Items 8 and 16 | A comprehensive programme of improvements to drainage will be undertaken as part of the scheme is specified in EIA Table 7.2 “PHYSICAL ENVIRONMENT - Changes to water flow”.

* Katoro area (where there is a ridge)
* Bukungara Valley
* On Bwera road, there is stagnant water at many areas/points
* Pokopoka (no culvert)
* Karambi

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<table>
<thead>
<tr>
<th>Issue</th>
<th>Reference</th>
<th>Response with reference to appropriate section of assessment or Management Plan where this issues has been addressed</th>
</tr>
</thead>
<tbody>
<tr>
<td>* Nyamutsamba River at Kigoro Trading Centre</td>
<td>Appendix D1 - Sections 3 and 6 Appendix D2 - Section 3a and 5b</td>
<td>Specification for agreement of compensation prior to commencement of works in SCA Table 7.2 “DIRECT EFFECTS - Loss of land and crops” Further details of compensation requirements and mechanisms are also included in Section 7 ** Of the SCA</td>
</tr>
<tr>
<td>* Golf Club Junction</td>
<td>Appendix C - Item 16 Appendix D1 - Section 7 Appendix D2 - Section 1b Appendix E - All items</td>
<td>Specification of the need to incorporate speed control measures in SCA Table 7.3 “DIRECT EFFECTS - Increased Traffic Movements”</td>
</tr>
<tr>
<td>* Kibenge</td>
<td></td>
<td></td>
</tr>
<tr>
<td>* Road Barrier on the Kilembe Road</td>
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<tr>
<td>* Kyenjojo</td>
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<tr>
<td>* Recreation Club on the Kilembe Road</td>
<td></td>
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<tr>
<td>* Between Mubuku town and the cobalt plant</td>
<td></td>
<td></td>
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<tr>
<td>* Rukoki</td>
<td></td>
<td></td>
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<tr>
<td>Adequate compensation measures and methods of implementation. Need for sensitisation of communities and preference for direct and timely payment from MOWHC and for representation in negotiation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Need for speed control measures including Accident Blackspots</td>
<td></td>
<td></td>
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<tr>
<td>* see Appendix E</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Towns:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>* Bumps in Hima, Mukhoka annd Katanguru</td>
<td></td>
<td></td>
</tr>
<tr>
<td>* Zebra crossing approaching Kasese</td>
<td></td>
<td></td>
</tr>
<tr>
<td>* Roundabout at Bwera</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Schools</td>
<td></td>
<td></td>
</tr>
<tr>
<td>* Mpondwe Primary School (Humps, signs, ZC)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>* Mother Care Preparatory School (humps)</td>
<td></td>
<td></td>
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<tr>
<td>* School at Eucalyptus Forest on approach from Bwera signs</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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### Issue
- Other locations
- Bukangara Bridge (signs)
- Need for crossing points on ditches at Hima

<table>
<thead>
<tr>
<th>Reference</th>
<th>Response with reference to appropriate section of assessment or Management Plan where this issues has been addressed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appendix D1 - Section 7b</td>
<td>Forewarning of utility companies and of affected communities specified in SCA Table 7 2 &quot;DIRECT EFFECTS - Interruption of supplies and temporary access restrictions during construction&quot;</td>
</tr>
</tbody>
</table>
APPENDIX G
REFERENCES
REFERENCES

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IIED, 1992. Environmental Synopsis of Uganda, ODA, UK


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Nasasira, (1999) Formation of committees at sub-county levels (A Circular to all district Chair persons) Ministry of Works, Housing and Communications. Ref.MIN/PERS/12/3

NEMA, 1996. Decentralization of Environment Management in Uganda


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