PROJECT:  ROAD SECTOR SUPPORT PROJECT 4  
COUNTRY: UGANDA  
ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT  
SUMMARY  
PROJECT NUMBER: P-UG – DB0- 021  

Date: October 2012

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0.1 INTRODUCTION


Country: UGANDA

Project Number: P-UG-DBO-021

1. Introduction

Government of Uganda (GoU) through Uganda National Roads Authority (UNRA) is seeking funding from the African Development Bank (AfDB) to finance the upgrading of Kigumba - Bulima (69 km) and Bulima - Kabwoya (66 km) road section which is part of the 238 km “Kyenjojo–Hoima–Masindi–Kigumba” Road that is currently a gravel road originating from Kyenjojo Town through towns of Hoima and Masindi, ending at Kigumba. According to AfDB environmental screening guidelines, projects involving upgrading and rehabilitation of major roads, are classified “Category 1”, and these require detailed environmental and social impact assessment. Similarly, Uganda’s National Environment Act, Cap 153 requires mandatory full environmental impact assessment for “Third Schedule” projects and “major road projects” are listed in Section 3a of this schedule. This ESIA was therefore carried out in fulfilment of these requirements. The study was undertaken by Air Water Earth (AWE) on behalf of an engineering design consortium comprising Mott MacDonald and Kagga & Partners LTD.

The ESIA will be reviewed by National Environment Management Authority (NEMA) and disclosed to the general public as appropriate. This ESIA summary will be posted on AfDB website for public information as required by the Bank policy on public disclosure. As per AfDB requirements, the summary covers: i) Project Description and Justification; ii) Policy, Legal and Administrative Framework; iii) Description of the Project Environment; iv) Project Alternatives; v) Potential Impacts and Mitigation/Enhancement Measures; vi) Environmental Hazard Management; vii) Monitoring Program; viii) Public Consultations and Public Disclosure; ix) Complementary Initiatives; x) Conclusion; and xi) References.

2. Project Description and Justification

The road to be upgraded is located in Western Uganda, running through Districts of Kyenjojo, Kibale, Hoima, Masindi and end up at Kigumba Town Council in the newly created Kiryandongo District connecting to Gulu highway (Figure E1). It is subdivided into three links (Table E1) and passes through various trading centres indicated in Table E2.

Table E1: Lengths of sections along the road

<table>
<thead>
<tr>
<th>Link</th>
<th>Section</th>
<th>Length (km)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Kyenjojo to Hoima</td>
<td>150.5</td>
</tr>
<tr>
<td>II</td>
<td>Hoima to Masindi</td>
<td>54</td>
</tr>
<tr>
<td>III</td>
<td>Masindi to Kigumba</td>
<td>33</td>
</tr>
<tr>
<td>Total length</td>
<td></td>
<td>238</td>
</tr>
</tbody>
</table>
Table E2: Trading centres along by the road

<table>
<thead>
<tr>
<th>Kyenjojo to Hoima section</th>
<th>Hoima to Kigumba Section</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kagadi Town Council</td>
<td>Hoima Town Council</td>
</tr>
<tr>
<td>Kinyara Trading centre</td>
<td>Apiida trading centre</td>
</tr>
<tr>
<td>Katooke trading centre</td>
<td>Kyakapeya trading centre</td>
</tr>
<tr>
<td>Katara trading centre</td>
<td>Kakindo trading centre</td>
</tr>
<tr>
<td>Kamutunsi trading centre</td>
<td>Kyabigambire trading centre</td>
</tr>
<tr>
<td>Nyanseke trading centre</td>
<td>Bulindi trading centre</td>
</tr>
<tr>
<td>Muhurro trading centre</td>
<td>Bulima trading centre</td>
</tr>
<tr>
<td>Kyenzige trading centre</td>
<td>Bwijanga trading centre</td>
</tr>
<tr>
<td>Mabale trading centre</td>
<td>Ikoba trading centre</td>
</tr>
<tr>
<td>Paacwa trading centre</td>
<td>Bujenje trading centre</td>
</tr>
<tr>
<td>Karama trading centre</td>
<td>Nyamigisa trading centre</td>
</tr>
<tr>
<td>Kabwooya trading centre</td>
<td>Pakanyi trading centre</td>
</tr>
<tr>
<td>Kayigo trading centre</td>
<td>Nyambindo trading centre</td>
</tr>
<tr>
<td>Munteme trading centre</td>
<td>Nyakabale trading centre</td>
</tr>
<tr>
<td>Nyati trading centre</td>
<td>Kizibu trading centre</td>
</tr>
<tr>
<td>Buhimba trading centre</td>
<td>Kigumba Town Council</td>
</tr>
<tr>
<td>Buswekera trading centre</td>
<td></td>
</tr>
<tr>
<td>Kasingo trading centre</td>
<td></td>
</tr>
</tbody>
</table>

Note that the 135 km stretch (Kigumba – Bulima: 69 km and Bulima – Kabwoya: 66 km) which AfDB will fund lies in Hoima- Kigumba section.

The mainstay of the economy in districts through which the road passes is subsistence farming of upland rice, maize, beans, cassava, millet and potatoes, whilst commercial farming is also common, dominated by sugar and tobacco. Notable large scale farming includes Kinyara Sugar Works LTD near to Masindi, and British American tobacco which operates around Hoima Town and has contracts with 65,000 growers nationally.

The principal regional tourist destination is Murchison Falls National Park (MFNP), about half of whose area is found in Masindi District. Second to Queen Elizabeth National Park, QENP (53,900 visitors in 2008), MFNP is the next most popular wildlife destination in Uganda with 36800 visitors. The project road is a direct route for tourists travelling between MFNP, Kibale Forest National Park and QENP. Of local importance is Mparo Tombs, close to Hoima Town, the burial place of two of Bunyoro Kings. These will not be affected by the proposed road project.
Section where chimpanzees are seen

Figure E2: Districts through which the road passes
In above Figure E3, the road to be upgraded is shown as a dotted line from Kyenjojo Town to Kigumba Town. It should be noted that since the road already exists and is to simply be upgraded to a bitumen road, alternative route different from the existing one would be economically, socially and environmentally untenable option. A new route would require new land acquisition for a length of 238 km; hence a huge social cost of associated resettlement yet no such cost would be necessary along existing road. That option would also have new environmental impacts that are currently not found along the existing road. The proposed upgrade is premised on expected socio-economic benefits below, which may not manifest along an entirely new route:

- Improve access to markets, social and health services and employment in local governments (districts) along the road. Along the road are found numerous schools, healthcare facilities, markets and trading centres access to which would be enhanced by an improved road. It is evident that an improved road would shorten travel time to medical facilities in case of medical emergencies such as road accidents.
The road will support expected increase in traffic related to oil exploration and production in the Albertine Graben.

The existing route provides a strategic link between the Northern Corridor (specifically southwestern Uganda, Rwanda and Burundi and eastern DRC) and the Kampala-Gulu-Juba corridor.

The Northern Corridor (Figure E4), anchored by the port of Mombasa in Kenya, is a key transport route for national, regional, and international trade of the five East African Community (EAC) countries—Burundi, Kenya, Rwanda, Tanzania, and Uganda. For example, almost 5 million tons of transit cargo was moved through the port in 2009, with Uganda contributing 80%. By far the most important origin and destination of transit cargo moved through Mombasa is Uganda, followed by DRC, Tanzania, and Rwanda. Modernization of transport infrastructure along this corridor is critical for trade expansion and economic growth, which are key to the success of regional integration, creation of wealth, and poverty alleviation in these countries.

There are no negative transboundary impacts envisaged, but as indicated above, a key regional benefit of this road is enhancing connectivity between the Northern Corridor (specifically southwestern Uganda, Rwanda and Burundi and eastern DRC) and Kampala - Gulu - Juba corridor. This will improve regional trade: for example trade with Eastern DRC is indicated to be in excess of USD300 million per year (in 2009) and will improve with better road transport infrastructure. The existing road is characterised by:

- Inconsistent road alignment due to difficult terrain
- Inadequate cross-falls and super-elevations
- Poor visibility
- Inconsistent traffic speeds, costly and unreliable journey times.

The gravel road will be upgraded to Class II paved road standard with a carriageway width of 6 meters and 15 meter road reserve.

The proposed project offers enormous distance and journey time savings for traffic to Fort Portal, southwestern Uganda and eastern Democratic Republic of Congo (DRC) and in areas north of Kigumba (Gulu, Sudan and northeastern DRC). The distance between Kyenjojo and Kigumba via Kampala is approximately 485 km; via the proposed road it is 234 km, a saving of 251 km. Once the proposed project is completed, transport costs would reduce by 50%.

3. Policy, Legal and Administrative Framework

According to the AfDB’s environmental categorisation, rehabilitation or upgrading of major transportation projects (i.e. those exceeding 50 km), is classified as Category I undertaking which requires detailed ESIA studies. Similarly, according to Third Schedule of the National Environment Act, Cap. 153 (Section 3a: “all major roads”, and Section 3b: “all roads in scenic, wooded or mountainous areas”), Ugandan environmental laws and regulations, require road projects to undertake a full EIA. Furthermore, AfDB’s Involuntary Resettlement Policy requires
that a full Resettlement Action Plan (RAP) be prepared if number of project affected persons (PAP) exceeds 200 people. Besides AfDB requirements, policies and laws under which this ESIA was prepared and will be implemented are outlined below.

Box E1: Policies and regulations reviewed

Policy framework:
- The National Environment Management Policy, 1994
- Uganda Forestry Policy, 2001
- National Water Policy, 1999
- National Development Plan (NDP), 2010/11-2014/15
- Wetlands Policy, 1995
- Ministry Of Works & Transport Policies (Gender, HIV/AIDS, OHS) 2008
- National Gender Policy, 1997

Legal framework:
- Constitution of the Republic of Uganda, 1995
- Water Act, Cap 152
- Land Act, Cap 227
- Road Act, Cap 358
- Town and Country Planning Act, Cap 246
- Local Governments Act, Cap 243
- Public Health Act, Cap 281
- National Forestry and Tree Planting Act, 2003
- National Environment (Wetlands, River Banks & Lakeshores management) Regulations, 2000
- National Environment (Standards for Discharge of Effluent into Water or on Land) Regulations, 1999
- National Environment (Waste Management) Regulations, 1999
- National Environment (Noise Standards and Control) Regulations, 2003
- Draft National Air Quality Standards, 2006
- Employment Act, Cap 219
- Access to Roads Act, Cap 350
- National Environment (Hilly and Mountainous Areas Management) Regulations, 2000
- Electricity Act, Cap 145
- Petroleum Supply Act, 2003
- Historical Monuments Act, Cap 46
- The National Environment (Audit) Regulations 2006
- The National Forestry and Tree Planting Act, 2003
- International Agreements

Institutional framework:
- National Environmental Management Authority (NEMA)
- Ministry of Water and Environment (MoWE)
- National Forestry Authority (NFA)
- District Land Boards
- Town and Country Planning Board
- Local Administration Structures
- Uganda National Roads Authority (UNRA)

**Safeguard policies of multilateral lenders:**
- AfDB safeguard policies

**International conventions and agreements:**
- The Convention on Biological Diversity (CBD)
- The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)
- Stockholm Convention on Persistent Organic Pollutants (POPS)
- Strategic Approach to International Chemicals Management (SAICM)

## 4. Description of the Project Environment

Kyenjojo is located in western Uganda and borders with Kibale in the north, Mubende in the east, Kamwenge in the southeast and Kabarole in the west. The District has a total land area of 4,059.21 sq. km. Generally, topography of the road section through this district is characterised by hills and valleys. Valleys are characterised by permanent swamps and rivers like Mpanga and River Muzizi. Geology of the road project route is predominantly undifferentiated Gneisses and Bunyoro series (Shales, arkoses and quartzites) along the stretch through Hoima District.

Kyenjojo receives rainfall of between 750 mm to 1000 mm per annum. Through Kyenjojo District, the road crosses River Muzizi and several swamps. At the border of Kibale and Hoima Districts, the road crosses Nkusi River besides other wetlands which are used as sources of domestic and livestock water. Kyenjojo – Kagadi section is mainly characterized by homesteads on either side of the road with two sections of small and degraded remnant forest and two sections of degraded wetland. Wetland vegetation is largely represented by Muzizi wetland that marks the boundary of Kibaale and Kyenjojo Districts. Protected central forest reserves such as Kagombe Central Forest Reserve (which is close to a 1.43 km stretch of the road) are managed by the National Forest Authority (NFA) while development and use of private and community forests is managed by District Forest Offices as provided in *The National Forestry and Tree Planting Act, 2003.*

The prevalent land tenure in Kyenjojo District is customary where land is owned in perpetuity by inheritance. Most of the land in Kyenjojo District is used for subsistence and to an increasing extent, commercial agriculture. Kibale District located in mid-western Uganda is part of a central plateau with an altitudinal range of about 2000 – 4000 ft above sea level. The District has a bi-modal rainfall type which varies between 1000 mm and 1500 mm per annum. Rainfall comes in two peaks, one from March to May and the second from September to December.

Hoima District receives a total rainfall of about 700 to 1000 mm per annum. The rain is
associated with the northern and southern movement of the inter-tropical front. Rainfall is distributed evenly throughout the year and wetter months are April-May and September-October, with two dry spells in June-July and December-January. Western areas bordering the rift valley are the driest and hottest. The district has generally high temperatures ranging between 15 °C to 32 °C with an annual mean of 28°C. Relative humidity in the district is high during rainy seasons, reaching maximum levels in May. The lowest humidity is in the dry season with minimum levels in January. Four main habitat types identified along Masindi–Kigumba road section were: grassland savanna, wooded grassland, wetlands and cultivated/settled areas. Of the four, the dominant habitat was wooded grassland. The two areas under wetland vegetation were encountered in Masindi Town, near Nyakatojo between Pakanyi and Kizibu villages and Cyperus papyrus was the dominant species.

Specific unemployment figures per district are unavailable and such data is expected from upcoming August 2012 census but generally, 83% of young people aged 15-24 years in Uganda are unemployed with limited job prospects. This category of youths will be the most prevalent age group hired for menial road construction labour.

Land tenure is predominantly customary in all districts traversed by the road. Access to health services in the region is still low and there are problems of malnutrition and infant mortality generally attributed to lack of access to healthcare services. Agriculture is the mainstay of the Districts through which the road passes. Major crops are tea, coffee, cassava, sweet potatoes, Irish potatoes. However there is notable poverty causes of which include reliance on subsistence agriculture characterised by poor farming methods, high morbidity rate, high illiteracy rate, gender imbalances ownership and control over critical resources, HIV and AIDS and poor infrastructure. The literacy rate is relatively low averaging in the project districts in spite of universal primary and secondary education, dropout rates for both primary and secondary school. Safe water coverage in Hoima district is also relatively low (61% in Hoima and ). Main water sources are groundwater, protected springs, boreholes and shallow wells. Over 92% of the project route does not have access to electricity and the population depends on wood fuel.

5. Project Alternatives

The following Alternatives were considered:

a. **Re-gravelling the entire road**: This is a cheaper option than upgrading the road to bituminous standards. However, this alternative is rendered untenable due to a huge recurrent maintenance cost especially during or after rainy seasons; environmental cost of obtaining gravel. Additionally, this option has a host of attendant environmental and social concerns such as land uptake for borrow areas, landscape/ scenic blight due to borrow pits, erosion and siltation of water bodies, and dust nuisance to the road users and the public. Therefore, this alternative is not tenable considering its cost and recurrent negative environmental impacts due to reliance on ever increasingly scarce gravel resources.

b. **Upgrade entire road to bituminous standards**: Although initially expensive, this alternative is sustainable in that major maintenance interventions on the road will be expected to start after 12 years after upgrading. During the 12 years of the road life, the effects on the environment
which occurred during the upgrading will have recovered and more so, subsequent impacts on the environment from maintenance activities will not be significant as opposed to the re-gravelling option. This option creates a robust investment that enhances regional trade and support to the nation’s oil and gas exploration and production activities. This is the desired alternative.

c. **“No Project” Scenario:** Currently, the existing road is either in a dilapidated state or of limited capacity and therefore not able to meet current demand for service provision, latent or otherwise. A key benefit of the road is to support ongoing oil exploration and production activities. Additionally, the road provides a strategic link to the Northern Corridor which connects Uganda to regional trade partners of Rwanda, Burundi, Northern Tanzania and Eastern Democratic Republic of Congo. Without the project, these benefits will be lost.

d. **Alternative Road Alignment:** The alternative to existing route would mean developing a road in entirely new areas. This would require opening up undisturbed ecosystems, communities and a huge cost of resettlement compared to upgrading the existing route. For this reason an alternative route is not a tenable option.

6. Potential Impacts and Mitigation/Enhancement Measures

a) **Construction phase impacts**

   **Positive impacts:**

   i) Employment and income opportunities for workers during road construction.
   
   ii) Sourcing of construction materials hence income to suppliers and owners of land where quarry and borrow sites are located. Ensuring complete restoration of material source sites should be an enhancement measure for this impact.
   
   iii) Rental income for workers camp and equipment yard site owners.

   Enhance measures include:

   ▪ Enhancement of this benefit can be through ensuring equal employment opportunity for women.
   
   ▪ Ensuring that construction works at river crossings does not lead to excessive entrainment of sediment into water
   
   ▪ Conducting road safety, HIV/AIDS and gender awareness in project communities, especially targeting schools, commuter motorcycle riders and taxi drivers. Continued sensitization of road workers about environmental due diligence and responsibility
   
   ▪ Tree planting not only for beautification but also carbon sequestration hence contributing to slowing global climate change.

   **Negative impacts:**

   i) *Impacts of road alignment* entailing relocation of water and power mains. For mitigation alternative water sources (e.g. spring wells) should be constructed for communities
before damaging existing ones. Relocation of power-lines should be done as quickly as possible to avoid prolonged outages.

ii) **Social ills of construction labour:** prostitution and HIV/AIDS: prostitution and sexual fraternization of workers and communities can raise risk of HIV/AIDS. The contractor should have an AIDS Policy, provide free protection and conduct awareness for workers and project communities.

iii) **Sourcing of road construction materials** may be associated with loss of vegetation cover, excessive noise, vibrations and dust from stone blasting/crushing and fly rock. It shall a contractual obligation for the contractor to protect communities from these impacts and restore borrow sites and quarries upon closure.

iv) **Haulage of earth construction materials** may pose accident risk to road users, dust contaminating goods in roadside markets and noise at sensitive receptors (schools and health centres). The contractor shall provide safety signage, humps, banksmen and watering to suppress dust.

v) **Establishment and operation of equipment yard and workers’ camps** will require land to set up while their operation will generate domestic and hazardous waste that could contaminate environmental resources (soil, water). Additionally, there can be OHS risks and unrestored sites would cause scenic blight. For mitigation, the contractor should have a waste management plan as a contractual obligation, ensure fire safety on sites and restore sites upon closure.

vi) **Demolition of structures within reserve of proposed road:** During road upgrade, structures within the road reserve will be demolished but this will not happen until every affected person is compensated. Several structures will be affected in Kagadi Trading Centre, Muhorro, Haikoona, Bwijanga. One of the project impacts will be displacement/resettlement of project affected people and hence the need for resettlement and/or compensation for which a RAP has been prepared. Mitigation includes implementation of a RAP entailing equitable compensation, resettlement and grievance management.

vii) **Traffic diversion:** Diversions may temporary delays in transportation of goods and passengers or traffic congestions or accidents (especially for heavily laden trucks and trailers) along detour roads that may not have been constructed properly. This will be mitigated through use of warning banksmen at detours and providing information and plans of intended diversions in adequate advance time.

viii) **Impact on watercourses:** Along Kyenjojo-Hoima section there are two major rivers to be crossed and would necessitate bridges, namely: River Muzizi and Nkusi. At these rivers, increase in sediment load in would temporarily impair water. For impact mitigation the contractor shall prevent scouring using gabions, stone pitching or lining banks with concrete. Disposal of waste and overburden in swamps will not be done at any watercourse.
ix) **Impacts due to operation of the asphalt plant:** Littering due to poor housekeeping at the asphalt plant or improper disposal of unused bitumen and aggregates or bitumen spills would have the localised impact of contaminating environmental resource (soil and water). As control measures: leftover bitumen and aggregates should be collected and properly kept for use on other sections of the road and bitumen drums should be stored in designated locations and not littered along the road.

b) **Post-construction phase impacts**

**Positive impacts:**

Long-term benefits of the improved road include enormous distance and journey time savings for traffic to Fort Portal, South Western Uganda and eastern DRC and in areas north of Kigumba (Gulu, Sudan and northeastern DRC). The distance between Kyenjojo and Kigumba via Kampala is approximately 485 km; via the proposed road it is 234 km, a saving of 251 km. Once the proposed project is completed, transport costs for affected traffic would be reduced by up to 50%. The road will also provide a strategic link between the northern corridor and Kampala - Gulu - Juba corridor; improve access to markets, social and health services support on-going and future oil and gas operations in the Albertine Graben. Others are reduced vehicle wear/tear; support to the nation’s oil and gas sector; support to tourism; reduced travel time; and lower accident risk.

**Negative Impacts:**

“**New road effect**” and associated accidents: Drivers on a newly improved road may excitedly drive faster than is safe: a phenomenon referred to as “new road effect”. UNRA and respective District Local Governments shall undertake road use safety awareness campaigns and provide necessary safety features e.g. sings and humps where required.

c) **Cumulative impacts**

Induced development may be occasioned by the project especially in towns and trading centres. This impact may occur in trading centres along the road. Slums and urban sprawl due to unplanned induced development are negative and medium to long-term impacts that are costly to reverse.

d) **Climate change impacts**

Vehicle emissions containing greenhouse gasses will be generated both during road upgrade and eventual use. Quantities generated will depend on type, age and number of equipment used during construction while operation-phase emissions will depend on traffic volume. Impact mitigation will entail use of construction equipment in good mechanical condition and tree planting along the road reserve.

e) **Gender impacts**
Along the road to be upgraded, women were commonly seen selling foodstuff and consumer good in kiosks or roadside markets. If kiosks located in the road reserve are displaced this would disproportionately affect women more than men. Farming activities in rain seasons demand a lot of garden work by women, which may impede their employment in road construction. Married women may benefit less from construction employment because their spouses may dictate whether they work on road project or not. This choice being solely a responsibility of an unmarried woman means that single women might benefit from road construction jobs more than their married counterparts. A good road will ease access to healthcare and while this is a benefit for both men and women, the latter will particularly benefit from quick and safe transport to medical facilities, during medical emergencies such as labour. Mitigation actions are:

i) To the extent possible, equal employment opportunity shall be available for women for road construction jobs. To effect this, the contractor shall encourage women to apply for available jobs by indicating this in job adverts. Additionally Local council representatives working with the contractor on recruitment shall encourage women to apply for project jobs. The aim will be to have atleast 10% of workers being female.

ii) During road construction, women can be involved in a wide range of activities including traffic control, store-keeping, security, painting stone pitching, beautification/ landscaping and sweeping.

iii) The contractor should use gender-sensitive language such as: “Go Slow, Work in Progress” instead of “Go Slow, Men at Work”. This, coupled with women’s visibility in road works would, contribute to women’s empowerment as well as breaking the stereotype that road construction is a preserve of men.

iv) To avoid severance of access to private property like homes, farmlands and grazing fields, the contractor should provide temporary access routes, or “bridges” that can be safely used by especially women, children, disabled and elderly people.

v) The contractor will be selective in awarding service contracts, giving preference to women-owned entities. This, for example, is in regard to supply of foodstuffs to workers camps, housekeeping and culinary services for workers.

7. Environmental Hazard Management

Road construction could entail occupational hazards/ risks and accidents especially involving motorised road construction equipment, asphalt plant and stone quarries. The following measures are proposed to control this risk:

a) **Accidents from equipment:** Only trained/ certified operators will operate motorised equipment.

b) **Blasting explosives safety:** During road construction, the contractor will ensure the following:

   - Stone blasting is done by only licensed blasters.
   - All explosives are delivered to quarry sites (under Police escort as Uganda’s security requirements demand) on the day of blasting and any remnants returned into police custody after blasting. After each blast, site inspection will be conducted for un-detonated
explosives.

- Advance warning is given to local communities near quarry sites before a blasting episode.
- After each blasting incident, inspection is conducted in communities around quarry sites to identify any offsite damage to private property, which should be duly and equitably compensated.
- All workers should be adequately protected from risk of fly rock and blasting noise.

c) **Risk of burns/ scald at asphalt plant:** This risk will be averted by contractors using only licensed operators following stringent safety guidelines and operation procedures. Operations involving hot bitumen shall be limited to daytime in adequate natural light.

d) **Fire safety:** Fire safety equipment and personnel will be provided in workers’ camp. Warning signs will be provided at areas of potential fire source, e.g. at fuel storage areas.

e) **Medical emergency response:** The contractor will have a medical clinic and a standby vehicle to immediately transport any accident victims to a nearby hospital. *First Aid* facilities will be provided on construction sites, equipment yards and in camps.

### 8. Monitoring Program

Monitoring will verify if predicted impacts have actually occurred and check that recommended mitigation actions were implemented and are effective. Monitoring will also identify any unforeseen impacts that might arise from project implementation. Issues to monitor include: waste/ cut to spoil, soil erosion and drainage, OHS, dust, noise, road safety, gender equity, HIV/AIDS awareness; contamination at work sites. A provisional sum of $472,000 has been provided for social-environmental monitoring during project implementation.

The contractor will be required to prepare a stand-alone ESMP linking environmental and social activities road works in line with guidance issued by UNRA. The primary oversight to ensure mitigation actions are implemented will rest with UNRA’s Directorate of Projects working with Safeguards Unit under Directorate of Planning but District Environmental Officers of respective local governments through which the road passes have regulatory supervisory and monitoring roles on behalf of NEMA. UNRA shall require contractors to comply with this ESMP and assign a fulltime staff (Environmental Officer) to undertake environmental supervision during construction. UNRA confers full mandate to supervising engineering (SE) consultant to supervise the road project on a day-to-day basis. SE overseas work of the contractor through an intermittent (not full-time) environmental specialist. This specialist should guide the contractor’s fulltime Environmental Officer in undertaking own responsibilities, including reporting.

Monitoring will be undertaken by UNRA (Directorate of Projects) and Districtor Municipal Environmental Officers who represent NEMA at local government level. Monitoring by NEMA is “third party monitoring” but this is its regulatory mandate according to Sections 6 and 7 of the *National Environment Act* (Cap 135) and no funding is expected from UNRA. Another government agency that may undertake “third party monitoring” is the Occupational Health & Safety Department in Ministry of Gender, Labour & Social Development (MGLSD). This unit
has authority to inspect any facility for compliance with national requirements on safety in workplaces. It is expected that the Bank (AfDB) will periodically monitor project implementation to ascertain compliance with requirements of the ESMP.

Monitoring will be undertaken monthly throughout the construction period by site inspection, review of grievances logged by stakeholders and \textit{ad hoc} discussions with potentially affected persons. For each monitoring visit, a discussion with a chairperson of environment committee of the area’s local council (LC) could provide insight into views and grievances a given community has about the project.

Detailed monthly monitoring reports shall be compiled by the contractor’s environmental officer under oversight of the supervising engineer (SE). The reports will be based on records kept as per requirements of the General Specifications of the Road & Bridge Works, Section 77 of the \textit{National Environment Act Cap 153} and guidance issued by UNRA. These detailed reports with evidence of compliance shall be prepared and appended to summary monthly reports shared with AfDB and any interested stakeholder or lead agency.

A grievance mechanism has been proposed to provide avenues for affected persons to lodge complaints or grievances against the project or contractors during road upgrade. It also describes procedures, roles and responsibilities for managing grievances and resolving disputes. Every aggrieved person shall be able to trigger this mechanism to quickly resolve their complaints.

9. Public Consultations and Disclosure

a) Public Consultations

The ESIA process began with a Scoping Study that entailed stakeholder consultations, culminating into terms of reference submitted to UNRA for NEMA approval. During conduct of the ESIA, a total of 92 consultation meetings were conducted with local communities along the road, district local government political and technical officials and government agencies responsible for water, forests and petroleum product management at road construction sites. Working with local leaders, all consultation meetings were conducted in local languages utilising graphical illustrations discerned by participants to describe project design and possible impacts. Key findings and outcomes of public consultations are outlined in table below.

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\begin{tabular}{|l|l|}
\hline
\textbf{Issue} & \textbf{Key concerns/ suggestions} \\
\hline
1 Compensation & A common concern was whether compensation would be adequate, fair and paid in time before commencing road works. \\
\hline
2 Contractual obligations of contractor & National Forestry Authority, NFA preferred the contractors to have contractual obligations that require working together Sector Manager, to agree operational procedures and modalities associated with working though Kagombe Central Forest Reserve and other forests along the road. Restorations of quarries should be a contractual obligation of the \\
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\end{tabular}
\end{table}


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<thead>
<tr>
<th>Issue</th>
<th>Key concerns/ suggestions</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 Local labour</td>
<td>Local communities preferred to be given first priority when recruiting road construction workers.</td>
</tr>
<tr>
<td>4 Environmental contamination</td>
<td>There was expressed a need to protect drinking water sources and surface watercourses along the road from destruction or pollution during road construction. If water supplies are to be affected the contractor should provide alternative sources first.</td>
</tr>
<tr>
<td>5 Dust control</td>
<td>Control of dust during construction activities is essential especially in trading centres to avoid tainting of goods in shops such sugars, salt and grain flour.</td>
</tr>
<tr>
<td>6 Grievance Management</td>
<td>The project should have a grievance mechanism to handle complaints from affected persons dissatisfied by compensation or general project implementation.</td>
</tr>
<tr>
<td>7 Water permits</td>
<td>WRMD requires that contractors obtain:</td>
</tr>
<tr>
<td></td>
<td><code>Water abstraction permits</code> for water used in road construction and workers’ camps.</td>
</tr>
<tr>
<td></td>
<td><code>Construction permits</code> for any river diversions when constructing large culverts and brides (such as at River Muzizi and River Nkusi).</td>
</tr>
</tbody>
</table>

b) Public Disclosure

The ESIA will be submitted to NEMA for review and approval. NEMA review entails disclosure of the report in public libraries and at headquarters of district through which the road passes.

c) Public Hearings

If NEMA considers it necessary to obtain more public views about the project, it shall together with the developer, conduct public hearings on dates and locations it would publicise in the media.

10. Complementary Initiatives

A separate study on resettlement (resettlement action plan, RAP) was conducted for this road project and measures therein provided for compensation of property to be affected by the project. Preparation of the RAP has been based on socio-economic surveys, a census of PAPs undertaken from 1\textsuperscript{st} October 2010 - 9\textsuperscript{th} February 2011 and data provided by an independent surveying/valuation firm engaged by UNRA. Besides resettlement, the following initiatives are proposed for the proposed project:

i) **HIV/AIDS awareness programs:** It is recommended that the project includes HIV/AIDS awareness and prevention programs for both construction workers and communities in project areas. Use can be made of NGOs, or CBOs and agencies (e.g. AIDS Information
Center, TASO etc), which are well established in the project districts and experienced in this service. Arrangement and cost for this service is provided for in the ESMP. Long distance truck drivers should be one of the target segments for HIV/AIDS awareness training.

ii) **Gender awareness and mainstreaming:** The contractor should undertake sensitization programs to ensure that men and women equally participate and benefit from the project. Participation of women will also require ensuring provisions of facilities and amenities in workplaces (camps, equipment yard, and worksites). By working with a competent training entity, capacity building for female road workers should be considered, if feasible, by the contractor. This has been costed in the ESMP.

iii) **Road safety educational campaigns:** It is important therefore that upgrade of this road also undertakes road safety awareness and educational campaigns both during construction and operation. The first group targeted should be the schoolchildren and teachers together with District Education Offices. The schools can be provided with charts and brochures developed by the project. The project should also undertake road safety training for public transport operators. These are the most prevalent group of vehicle drivers and major traffic increases on improved roads will most likely be minibus ‘taxis’ and motorcycles (*boda-bodas*). By undertaking these road safety activities, the project will improve overall road safety. Road safety training has been provided for in the ESMP.

iv) **Climate change initiatives:** Road construction will entail loss of trees and these are carbon sinks beneficial to slowing down climate change. This justifies tree planting along the road reserve as part of road beautification. To ensure that correct species are planted, this activity should be undertaken by a professional landscaping entity through an independent bidding process that would ensure best value and conformity to specifications prescribed by UNRA. This bid should specify number of trees to be planted, cost, long-term ownership and care.

v) **Roadside amenities:** The project should also be designed to support initiatives such as establishment of rest areas for long-haul truck drivers. These places will offer social amenities, including HIV/AIDS information infoshops, personal hygiene facilities, sleeping places and parking bays. UNRA should discuss this initiative with respective district local governments who would be expected to subsequently own and operate and sustain these facilities.

11. Conclusion

Several possible negative impacts of improving the road are not significant, while others will be less severe when mitigation measures in this report are implemented. Some land and structures will be permanently lost to road widening but to the extent that road design has followed existing alignment in most cases, this impact will not be of grand scale. Temporary land take will occur when land is used for borrow pits, quarries and contractor’s camps. Land will also be required for temporary diversions (detours) during road construction. Considerable quantities of gravel, rock and embankment fill material will be required during road construction. Borrow pits and quarries might have a diversity of impacts but these will be assessed independently by the contractors when choose specific sites. Upon closure, it will be essential for the contractor to restore to
original condition all depleted borrow pits and quarry sites used during road construction. Construction activities pose a possibility of contaminating land and watercourses from bitumen, fuel or oil spillage from construction vehicles and interruption of access to certain services like water supply and power in areas where these mains will be relocated during road construction. Road construction traffic will be associated with noise and dust nuisance and possibly increased road accident risk, especially through settlements and trading centres. Women, children and elderly and disabled people will be particularly at risk.

When the road is upgraded to bituminous standard, its routine maintenance will have negligible environmental impacts: indeed less than the equivalent maintenance work required for the gravel surface road. For instance, there will be no need for borrow pits for gravel, with associated impacts, or no grading operations associated with dust and noise pollution. The proposed project offers enormous distance and journey time savings for traffic to Fort Portal, SW Uganda and eastern DRC and in areas north of Kigumba (Gulu, Sudan and northeastern DRC). The distance between Kyenjojo and Kigumba via Kampala is approximately 485 km; via the proposed road it is 234 km, a saving of 251 km. Once the proposed project is completed, transport costs would reduce by 50%. In addition, the proposed road would support on-going and planned oil and gas activities in the region.

Upgrade of the road will entail land take and impact of structures. The project will affect a total of 9005 people with a resettlement budget of Uganda Shs 19,759,033,059 (equivalent to USD 8,032,127 at Exchange rate of 1 USD=UgShs 2460).

All environmental and social concerns will be mitigated as detailed in the ESMP. A framework for the implementation and monitoring of the ESMP has been proposed and budgeted for. Compared to socio-economic benefits of the road project, many of the negative impacts will be insignificant as long as fair compensation and mitigation actions are implemented.

12. **References and Contacts**

**References:**

- NFA 2008: Functions of Forest Reserves in Uganda
- Masindi Environmental Policy, 2009
- The Energy & Biodiversity Initiative: “Integrating Biodiversity Conservation into Oil & Gas Development”
- Uganda Police 2010: Annual crime and traffic/ road safety report-2010

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