MINISTRY OF WORKS AND TRANSPORT (MOWT)
THE REPUBLIC OF UGANDA

THE PROJECT FOR RURAL ROAD NETWORK PLANNING IN NORTHERN UGANDA

FINAL REPORT

VOLUME 3: APPENDICES

FEBRUARY 2012

JAPAN INTERNATIONAL COOPERATION AGENCY

ORIENTAL CONSULTANTS CO., LTD.
EIGHT-JAPAN ENGINEERING CONSULTANTS INC.
INTERNATIONAL DEVELOPMENT CENTER OF JAPAN

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APPENDIX 1

PROJECT BRIEF FOR PILOT PROJECT

1 PILOT PROJECT BRIDGE NO.1

1.1 Title of the Project

(1) The Urgent Projects in the Project for Rural Road Network Planning in Northern Uganda

Lot No.1: Construction of the Otwee / Anaka road

1.2 Environmental Categorization

(1) Category B

(2) Reason

There are two types of activities for the project, improvement and maintenance works of the project road. The improvement works are for the construction of a reinforced concrete bridge of 35m length, the Aswa bridge of lot 1, and the reconstruction of three box culverts and 1 pipe culvert with their approaches, in total 6.2km. In the other 21.3km, maintenance works are basically for that construction vehicles can pass safely within the present road width.

In these project works, the negative impacts are mainly related to the construction works in the construction phase within very limited sites and short term. For the improvement and maintenance works within the road reserve, the district office obtained formal agreements with the roadside communities for the transfer of land rights to the District. The project will not induce any major negative impact on the local environments with the proposed mitigation measures.

Meanwhile, the positive impacts of the project will largely compensate for the few limited and mitigated negative impacts that could occur from implementation of the project. The project will be particularly important for the residents of the communities lying between Otwee and Anaka, and more generally those in Alero, since it will considerably facilitate the return and resettlement process of IDP people from the IDPs camps to their home villages, and the access to the market, school and health care services of Anaka. The positive impacts suit with what the local peoples expect.

1.3 Outline of the Location

Location of the pilot project is shown in Figure 1, together with Lot 2 of the Pilot project. The Aswa bridge n°1 is located on the district feeder road just upgraded from community access road in June 2009.

In the location of project site, the beginning point of the road is Otwee, presently lying in the Amuru district, and the ending point is Anaka, presently lying in the Nwoya district. The morphology of the area is a wide plateau with gentle slopes. The topography is uniform, with an altitude ranging between 1000 and 1200m. The relief is however more accentuated on the northern side of the Aswa river. There is no area prone to soil erosion or landslide, but the absence of

vegetation may have erosion effects in the slopes.

Annual average rainfall during the last 15 years (1994-2009) has reached 1,400mm, according to the data of the Gulu meteorological station. The monthly average during the rainy season between April and October is 171mm. The peak precipitation generally occurs during July and August.

The hydrographic system is mostly constituted of an upstream drainage oriented East – West. The main rivers are the Aswa river and the Anaka river. The project road alignment does not encroach on the river beds excepted at the crossing passages (bridges or culverts).

The vegetation cover along the project road is typical of the vegetation in Amuru, with a combination of woodland savannah, grassland savannah, and savannah modified by an intensive agricultural use. Vegetation along the Otwee – Anaka road in the north is a wood savannah, with predominance of a dense forest cover. The Aswa river valley, which is liable to regular flooding, is a swamp area with isolated palm trees.

The project area between Pabo and Cet Kana has a tradition of livestock farming, but farmers have significantly shifted to agriculture after the war. Individual farming is predominant. The main crops are maize, rice, millet, groundnut, sugarcane, and beans. The selling of rice and beans seems to be the main source of income.

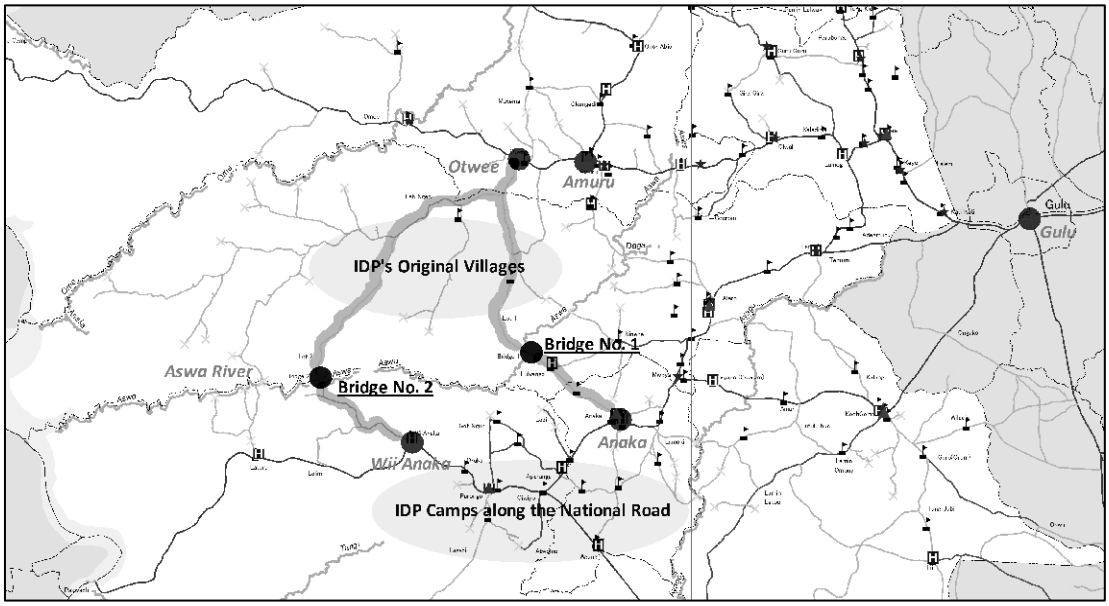

Figure 1 Location of the Project Site

1.4 Environmental Legislations and Administration

1.4.1 Environmental Requirements for Road Projects

Projects which are subject to a mandatory EIA in Uganda are listed in the Third Schedule to the Environmental Impact Assessment Regulations 1998. In the field of roads development, the list includes the following criteria, which are most relevant for the project.

- Major roads
- Roads in scenic, wooded, mountainous areas
- Activity out of character with its surroundings, with major changes in land use

District roads and national roads are regarded as major roads in Uganda. The Third schedule lacks however transparency about the conditions for EIA requirements, like length of the road project, and nature of the works. The technical guidelines developed by the Ministry of Works and Transport (MoWT) in the road sector are the basic reference for understanding the requirements for EIA of roads. The opinion of the District Environment Officer about the road projects helps to understand the environmental requirements for the project.

Bridges and borrow pits are not part of the Third Schedule document. They are in practice considered as activities out of character with its surroundings, with major changes in land use.

In coordination with the District Environment Officer, and in accordance with the existing EIA regulations and guidelines, the submission of a Project Brief report to NEMA was the most appropriate procedure for requesting the environmental authorization of the project. The Project Brief included the environmental impacts that the project is likely to generate, propose the appropriate mitigation measures, and guaranty the compliance with environmental regulations.

1.4.2 Environmental Guidelines of the MoWT

The implementation of the project needs to be in compliance with the environmental guidelines of MoWT for roads. The following guidelines have been taken into consideration:

- Environmental Impact Assessment Guidelines for Road Projects
- Environmental Guidelines for District Engineers, Volume 5B of the District Administrative and Operational Guidelines, 2003 (District Road Works Manuals series).

The Environmental Impact Assessment Guidelines for Road Projects provide detailed criteria about the EIA requirements in the road development sector. There are 4 basic criteria that guide the decisions about the EIA requirements for a project (Table 2.1), and these are:

- Case 1. Projects that certainly do not have any significant impact on the environment
- Case 2. Projects likely to have some minor impacts on the environment but for which adequate and sufficient mitigation measures have been identified
- Case 3. Projects that have some significant environmental impacts, where adequate mitigation measures are readily available
- Case 4. Projects having a number of (very) significant impacts on the environment (whether adequate mitigation measures can be identified or not)

1.4.3 Classification of the Project

Table 1 below shows that the project is not expected to belong to the cases 1 or 4, since the no-impact and the major impact scenarios cannot be upheld. Accordingly, the project is likely to fit within cases 2 or 3.

Table 1 Conditions of EIA requirements

Class of project	EIA requirement	Approval of the project	Relevance for the project
Case 1	No further EIA processing	Certificate issued	NO
Case 2	No further EIA processing but an evaluation is done in the Project Brief with presentation of the measures	Certificate issued	YES
Case 3	A limited analysis is required	Environmental impact review (EIR) is required before issuance of certificate	YES
Case 4	A full environmental impact study (EIS) is required	Full EIA or EIS is required before issuance of a certificate. The Project Brief step is not needed.	NO

Source: Summarized from the Environmental Impact Assessment Guidelines for Road Projects, 2008

1.4.4 Project Brief

The Project Brief is an official document including a description of the project, an evaluation of the potential impacts and a presentation of the mitigating measures. The purpose of the Project Brief document is to clarify the type of EIA requirement of the project.

The Amuru district prepared a Project Brief of the project in coordination with the JICA study team. The conclusion of the Project Brief was that the negative impacts would be minor while positive impacts would be significant. The important mitigation measures were identified. In case of insufficient information in the Project Brief regarding a significant issue or potential impact of the project, NEMA may require an environmental impact review (EIR) report before approval.

The Project Brief was submitted to NEMA in October 2009 and the district received a formal approval for the environmental aspects of the project without EIA requirement from NEMA in February 2010.

1.4.5 Procedure for Land Acquisition and Compensation

(1) Case of National Roads

The MoWT has not set up a land acquisition and land compensation policy for roads project. The UNRA is preparing a land acquisition management system (LAMS) document (final draft June 2009), in line with its strategy for land acquisition of road reserve, country wide. This document is the only existing guideline document for implementing land acquisition and land compensation for national roads projects. The LAMS document applies to the land acquisition managed by UNRA for the national roads network. The land acquisition specialist of UNRA has provided additional information to understand the right procedure in the case of a district road project.

(2) Case of District Roads

There is no standard procedure of land acquisition and compensation in the specific case of district roads. The legal requirements of land acquisition and compensation of a road reserve for a district road are not different from those for a national road. In practice, in the case of customary land tenure, which is the most common case, the acquisition of land within the road reserve is based on

an agreement with the local communities, in which they offer their land to the benefit of public use.

Accordingly, there is no formal acquisition of land, and therefore no full compliance with the legal requirements of the Land Act. The implicit assumption is that land will be compensated in the future. In such conditions, there is no guarantee that land claims will not occur during or after the implementation of the project. Basically, the scope of agreements with the local communities is an offer of land for the project roads, and a compensation for the improvements, with an evaluation of the latter by the District Valuer Officer.

(3) Case of the Project Road

In the specific case of the project road, the district organized public consultation meetings with the local communities, with the purpose of obtaining a written agreement with the local communities for the acquisition of the road reserve. Land ownership along the Otwee / Anaka improvement road project is community land with collective and individual rights of use. Since the project does not affect any individual and titled land property (leasehold tenure system), there was no need for the district to engage negotiations with individual land owners.

1.5 Outline of the Project

1.5.1 Background and Purpose

Northern Uganda has the largest proportion of people living in poverty in the country, estimated to account for 61 % of the region’s population, or almost twice the national level. This high level of poverty can be attributed to the Lord's Resistance Army (LRA) insurgency. During the 20 year-conflict beginning in the 1980s, much of the basic social infrastructure was destroyed or abandoned and the local government became non-functional in the region.

In particular, 90 % of the population, or two million people, were displaced (IDP: Internally Displaced Person) from Acholi Sub-region. Since the cease-fire agreement concluded between LRA and the Government of Uganda in August 2006, the Government of Uganda has emphasized and facilitated the return process of IDPs and prepared the National Peace Recovery and Development Plan (PRDP) in order to stabilize and recover Northern Uganda. The PRDP identifies the 14 priority programs such as rebuilding and empowering communities (health, education, water, livelihood support) and it emphasizes the importance of infrastructure rehabilitation and improvement of trunk road network connecting the districts and community access road network.

Under these circumstances, the ten year District, Urban and Community Access Road Investment Plan (DUCARIP) has been prepared to provide a financing framework for investments in district, urban and community access roads. Though maintenance of high priority District Roads has been progressively made in the framework, the improvements or new constructions of these roads have not been undertaken adequately. Furthermore, the budget from central government does not make allocations for maintenance, improvement and new construction of community access roads and

this leads to a difficult situation where road improvement and new construction are to be undertaken by the districts themselves.

Consequently, although the necessity of the road improvement for the IDP return process seems to be of high priority, the implementation of the projects to improve road network could not be started because of budgetary deficits.

1.5.2 Necessity and Appropriateness

The road and bridge pilot projects in Amuru district have been selected out of the various bridge requests proffered by the local personnel. The sites were chosen because they are located on Aswa River which divides the northern original village area and southern IDP camps along the national road (Alero-Anaka-Wii Anaka-Lolim road). The pilot projects of bridge construction and road improvement/maintenance works have been initiated at the starting stage of the Master Plan study in order to evaluate their impacts on the IDPs return process, and and get the lessons for improving the formulation of the Master Plan of the rural road network. The basic assumption is that the pilot projects will positively contribute to the progress of the return process of the IDPs population. The pilot projects are also expected to improve the local economic and social conditions.

1.5.3 Contents of the Project

The total length of the project alignment is 27km, in the Amuru District (and presently shared between the Amuru and the Nwoya districts). The project road is a district road of class 1. The project basically aims at the maintenance of the full section, at the exception of the bridge construction with its approach road, under improvement works. The length of the Aswa bridge of lot n°1 will be 35m.

Table 2 Specifications of the Pilot Project No.2

	Otwee Anaka section
Target road class	District Road Class 1
Road length	North of Aswa river: 17km South: 10km
Pavement	Gravel
Improvement section (km)	Aswa bridge with approach road
Maintenance* section (km)	Full section except bridge with approach road
Bridge length	35m
Bridge width	6.0m
Bridge type	RC beam
Carriageway width	Existing (2-3m)
Width of land clearance	10m, but 25m at bridge section with C/W of 6.0m
Length of filling sections	1.5km
Average height of filling	0.5m
Max height of filling	2.5m
Culvert Number	3
Culvert Type	box culverts

* Maintenance is spot maintenance work. It is basically for the works that construction vehicles can pass safely within the present road width.

1.6 Expected Environmental and Social Impacts

The likely impacts caused by the proposed project are evaluated and summarized in Table 3 below.

Table 3 Expected Environmental and Social Impacts

	No.	Likely Impacts	Design	Construction	Operation	Description of Impacts
Social Environment:	1	Involuntary Resettlement	D	D	D	**Design phase:** The project will not induce any resettlement of the population. There are no structures in the road reserve. Land along the project road is used according to the customary hold tenure rules. Since there is no procedure for the proper acquisition of land and compensation of improvements in the road reserve of district roads, the local representatives agreed the project in the public consultation meetings and signed the consent document that the local communities have accepted the transfer of land rights in the road reserve to the Districts.
	2	Local economy such as employment and livelihood, etc.	D	B+/-	A+	**Construction phase:** The maintenance and construction works will induce job opportunities. The application of the labor recruitment procedure will ensure that priority is given to the local peoples. The loss of standing crops in the road reserve due to the improvement works will be almost inexistent. **Operation phase:** The increased accessibility of the area will induce the intensification of marketing activities of local crops and products, which will strongly contribute to economic development and improvement of livelihood. Accordingly, project should strongly contribute to alleviate poverty and to reduce vulnerability.
	3	Land use and utilization of local resources	D	D	A+	**Construction phase:** No impact. **Operation phase:** The opening of new accesses to the area through the crossing of Aswa river after improvement works will induce an intensified use of land for agriculture, and certainly an intensified use of forest products. This impact is very positive in terms of economic productivity of the land.
	4	Social institutions such as social infrastructure and local decision making institutions	D	D	D	No significant adverse impacts are expected. The district office explained the project to the local representatives and they accepted the project.
	5	Existing social infrastructures and services	D	D	A+	**Operation phase:** The project will then help to facilitate access to the existing school and health services. The Pilot Project area is partly lying outside the limits of the areas covered by hospital or health centers at a distance not exceeding 5km. The project will then help to facilitate access to the existing health services. The greatest contribution will be the improved access to the Anaka hospital along the Otwee – Anaka road. The impact of the project on public health will be positive because of a better health care resulting from improved access.
	6	Traffic Congestion	D	D	D	No significant adverse impacts are expected. There is not much traffic and the existing traffic is dominated by bicycles and pedestrians.

	No.	Likely Impacts	Design	Construction	Operation	Description of Impacts
	7	Community Division	D	B+	B+	**Construction phase:** The employment of the local residents for unskilled labors in the construction works will prevent the generation of conflicts with the local communities, and mitigate the risk of social disruption. **Operation phase:** The improved rural accessibility will facilitate the return of IDPs along the Otwee Anaka road, which is a positive impact toward the social reintegration of this population.
	8	The poor, indigenous and ethnic people	D	D	A+	**Operation phase:** In terms of poverty, the return of IDPs to homeland is generally considered as contributing to reduce poverty and vulnerability, because of the access to land resources. In the case of the Otwee Anaka road and bridge 1, the project should strongly contribute to alleviate poverty and to reduce vulnerability. The majority of the people who will take benefit from a better access to services are vulnerable groups. On a whole, the project will have a positive impact in this field. No significant adverse impacts are expected on indigenous and ethnic people.
	9	Misdistribution of benefit and damage	D	D	D	No adverse impact is expected. The local representatives accepted the Project will contribute the improvement of accessibility for public benefits.
	10	Gender equity and children's rights	D	B+	A+	**Construction phase:** The full application of the labor recruitment procedure specified in the MoWT environmental guidelines will contribute to provide jobs to the women and to the persons with disabilities, in the roadside communities. **Operation phase:** The improved access to schools and health services will certainly contribute to the rights of children, and reduce the work load of women since they generally take care of the children and family health and education. This impact could be more or less important according to the local conditions. The improved access to the market places and the possibility for the women to offer their products on the markets is certainly the most important positive impact of the project towards gender equity. This impact should be a major one on the Otwee Anaka road together with the bridge 1.
	11	Cultural heritage	D	B-	D	**Construction phase:** There is no protected or important cultural or historical patrimony in the project area. Along the Otwee Anaka road, there is 1 grave in Lungulu B that will need relocation, and 1 grave in Lulyango that could need relocation. Relocation or compensation will be done in agreement with the local residents. The impact will be avoided.
	12	Local conflict of interests	D	D	D	No significant adverse impacts are expected. The local representatives accepted the Project will contribute the improvement of accessibility for public benefits.
	13	Water Usage or Water Rights and Rights of Common	D	D	D	**Construction phase:** The construction works should not affect the access to water resources, which are mainly provided by groundwater. There is no identified surface water with a possible risk on its quality for the local population close to the bridge construction site.

	No.	Likely Impacts	Design	Construction	Operation	Description of Impacts
	14	Sanitation	D	D	D	The use of local residents in the road works, the small size of the work camps, and the short period of construction are not factors that could increase the sanitation risks.
	15	Hazards (Risk) Infectious diseases such as HIV/AIDS	D	D	D	No significant adverse impacts are expected. No massive influx of workers is expected as most laborers can be supplied locally.
Natural Environment	16	Topography and Geographical features	D	B-	D	**Construction phase:** The filling sections for rehabilitation of the Otwee Anaka road are short and of very limited height (0.5m). The impact will be negligible. The restoration of the borrow pits to their initial state will prevent morphological damages. The current morphology of the Aswa river bank will be modified by works at the bridge crossing points only, for the construction of the abutments. After restoration of the working sites, this morphological modification will be a minor impact.
	17	Soil Erosion	D	B-	D	**Construction phase:** The construction works of bridges are likely to disturb the soil stability of the river banks and to induce erosion of the slopes. The area affected is restricted to the bridge construction site. This site will be restored to its initial state as required in the specific conditions of contract with the constructor. Erosion roadside is likely to occur after construction. Such risk is reduced through an appropriate design and road maintenance activities.
	18	Groundwater	D	D	D	No significant adverse impacts are expected. The foundation works of the bridge, box culverts and road require low depth.
	19	Hydrological Situation	D	B-	D	**Construction / operation phase:** The proper design of the culverts will ensure that no undesirable flood risk will be possible at the crossing points. The project will almost not change the water runoff conditions compared with the present. The construction of the bridge according to flooding control standards will not affect the surface water drainage patterns of the area. Human settlements are located outside the flood prone areas.
	20	Coastal Zone	D	D	D	No adverse impact is expected on coastal zone because the project sites are not located on coastal areas.

	No.	Likely Impacts	Design	Construction	Operation	Description of Impacts
	21	Flora, Fauna and Biodiversity	D	B-	B-	**Construction phase:** The rehabilitation of the Otwee Anaka road will affect the woodlands due to clearance for widening the road reserve. The direct effect is however limited since the road is already existing. Along the Otwee Anaka road, there are 4 specimens of Melicia Excelsia tree which are potential reserved trees. These trees will certainly need to be cut for the extension of the road reserve. The Aswa river banks have a protected buffer zone of 100m wide. This habitat will be temporarily affected during the construction of the bridge, with direct effects like the felling of trees along the river banks on a short distance of about 20m. This impact will be limited to the area of the bridge, and the site will be restored after construction. **Operation phase:** The indirect effect due to a facilitated access to the woodland resources (more specifically charcoal) and to the market places could result into the degradation of the woodland habitat. This long term effect is however uncertain and will depend on the management capacity of communities to preserve the resources. After construction, the bridge will not hinder the possible function of the river bed as a biological corridor for wildlife, along the river.
	22	Meteorology	D	D	D	No adverse impact is expected on meteorology because the project scale is small.
	23	Landscape	D	B-	D	**Construction phase:** The bridge construction works and the opening of borrow pits for supply of gravel materials can affect on the landscape along the road. After restoration of the working sites, this morphological modification will be minor.
	24	Global Warming	D	D	D	No adverse impact is expected on global warming because the project scale is small.
Pollution	25	Air Pollution and dust	D	B-	D	**Construction phase:** Exhaust gases of trucks and heavy machines during construction are sources of air pollutants. This will however not affect the ambient air quality and direct exposure of the population is almost non-existent. **Operation phase:** The traffic of motor vehicles after works will be very limited. As a district road, the traffic on the Otwee Anaka road is estimated at more than 50 vehicles / day, which is not a source of air pollution. This traffic density will generate dust compared with the present situation, but this impact is minor.
	26	Water Pollution	D	B-	D	**Construction phase:** The residual cleaning water used for the preparation of concrete will not be discharged into the Aswa river before treatment. Treatment techniques include pond sedimentation and filtration. The residual engine oils or any other dangerous water contaminants will be managed properly for elimination in adapted facility, to avoid any contamination of the surface and groundwater. Works will be completed preferably during the dry season in order to avoid siltation in and increased turbidity of the river water.

	No.	Likely Impacts	Design	Construction	Operation	Description of Impacts
	27	Soil Contamination	D	D	D	**Construction phase:** There is no known soil contaminated site in the project site. The proper management of oils during the works will prevent any risk of contamination due to discharge or accidental leakage.
	28	Waste	D	B-	D	**Construction phase:** Vegetation and land clearance along the improvement sections of the project road and around the bridge construction sites will be a source of green waste and inert waste.
	29	Noise and Vibration	D	B-	B-	**Construction phase:** Noise and vibration caused by the traffic of trucks and machines are not regarded as significant issues because of the distance between the dwellings and the construction works sites. There are few households possibly affected by the traffic noise during works in Lungulu. This impact will be minor. **Operation phase:** The traffic is anticipated to increase but still be limited. Noise and vibration will not significantly affect the local residents.
	30	Ground Subsidence	D	D	D	No adverse impact is expected in terms of ground subsidence.
	31	Offensive Odor	D	D	D	No adverse impact is expected on offensive odor because the project is small in scale and has no sources of offensive odor.
	32	Bottom sediment	D	B-	D	**Construction phase:** The soil eroded due to the construction works of bridges, box culverts and the opening of the approach road in front of the Aswa river is a process likely to disturb the bottom sediment of rivers, however in limited spaces and short term.
	33	Accidents	D	B-	B-	**Construction phase:** During construction, the risk of traffic accident is high. Walking, bicycle, and motobykes are the basic means of transportation. The secure circulation of the pedestrians and cycles will then be an important task during the works. Appropriate plans of deviation and management of the traffic will be carried out in order to reduce the risks of road accidents. The workers will be sensitized in order to adopt safe driving in the housing areas. The control of speed in sensitive zones will reduce such risk to acceptable levels. **Operation phase:** After construction, the anticipated traffic will be very low and the induced risk of traffic accidents limited. It is however a new risk compared with the present situation. The speed of vehicles must be reduced in the housing areas. The impact should be minor.

Rating:
A+/-: Significant positive/negative impact is expected.
B+/-: Positive/negative impact is expected to some extent.
C+/-: Extent of impact is unknown (Examination is needed. Impacts may become clear as study progresses.)
D: No impact is expected.

1.7 Impacts of the Project

Both positive and negative impacts by the project were evaluated in 33 likely impacts on social environment, natural environment and pollution. There are 15 items evaluated as adverse impacts and rating “B-”, including 2 items on social environment, 5 items on natural environment, and 8 items on the pollution, mostly in the construction phase. On the other hand, there are 9 items

evaluated at positive impacts, rating “B+” or “A+”, on the social environment in the construction and operation phases.

These positive impacts match the local people’s expectations expressed by the local representatives and by the residents during the field interviews and at the public consultation meetings. The most important benefits of the project as expected by the peoples are:

- Improved access and facilitated transport of crops products to Anaka,
- Opportunities for developing roadside business,
- Better access to health care services and schools,
- Contribution to the return process of IDPs
- Indirect contribution to gender equality and eradication of poverty

1.8 Mitigation Measures

The mitigation measures are summarized in Table 4 responding to the results of evaluation in Table 3.

Table 4 Mitigation Measures for Environmental and Social Impacts and Further Study

No.	Likely Impacts	Evaluation	Mitigation Measures
2	Local economy such as employment and livelihood, etc.	B-	**Design phase:** • In the public consultation meetings, the local representatives were notified and agreed that they will harvest their standing crops within the road reserves before the construction works start. • They also signed the consent documents that the local communities have accepted the loss of their standing crops within the road reserves after the construction works start.
11	Cultural heritage	B-	**Construction phase:** • The maintenance works can avoid any possible damages on the graves along the project road. • The district offices will support the relocation of graves when needed.
17	Soil Erosion	B-	**Construction phase:** • The selection of the dry season for construction, and the immediate reseeding of roadside embankments, will contribute to control the risk of erosion. • The restoration of bridge construction sites and borrow pits to their initial conditions will contribute to control the risk erosion. • Top soil will be stored and reused for the rehabilitation of damaged sites along the road.
19	Hydrological Situation	B-	**Construction phase:** • River banks and vegetation cover will be restored after construction and rehabilitation of the bridges. • Works in a river bed are subject to permitting by the Water Resources Management Department. Works will include the diversion of the watercourse during the works. The contractor will get the permit before works. The river bed morphology will be restored to its initial state.

No.	Likely Impacts	Evaluation	Mitigation Measures
21	Flora, Fauna and Biodiversity	B-	**Construction phase:** The felling of the 4 reserved trees (Melicia Excelsia) roadside will be done according to the terms of the agreement between the district and the local communities, and more specifically in close coordination between the District Forestry officer and the owner of the trees. **Operation phase:** The indirect effect of degradation of the woodland habitat during operation is an uncertain long term effect which results will mainly result of the management capacity of communities to preserve the forestry resources, in interaction with the action of the district forestry officer.
23	Landscape	B-	**Construction phase:** • The restoration of the borrow pits is a requirement and its application will be controlled in order to prevent damages on surrounding landscape.
25	Air pollution and dust	B-	**Construction phase:** • In places where people will be exposed to dust during the works, sprinkling water on the road will be done to prevent the dust.
26	Water Pollution	B-	**Construction phase:** • The residual cleaning water used for the preparation of concrete will be treated before discharged into the rivers, which means pond sedimentation or filtration. • It is necessary to preserve the water quality of river avoiding any source of pollution from the construction and rehabilitation works, for preservation of the potential uses of water downstream. • The residual engine oils and fuels or any other dangerous water contaminants will be managed properly, and they will be collected and treated by a company agreed by NEMA so that the risk of contaminating surface water and groundwater will be minimized. • The construction works will be scheduled to complete preferably during the dry season in order to avoid silting in and increased turbidity of the river water.
27	Soil Contamination	B-	**Construction phase:** • The proper management of oils and fuels in the camp sites during the works will prevent any risk of contamination due to discharge or accidental leakage.
28	Waste	B-	**Construction phase:** • The proper elimination of the inert waste materials generated by the rehabilitation and construction works will be managed in coordination with the district authorities and local communities. • Used oil substances will be collected and eliminated by a specialized company agreed by NEMA.
29	Noise and Vibration	B-	**Construction phase:** • The control of speed on the road sections will help to reduce this nuisance.

No.	Likely Impacts	Evaluation	Mitigation Measures
32	Bottom sediment	B-	**Construction phase:** • The selection of the dry season for construction, and the immediate reseeding of roadside embankments, will contribute to control the risk of erosion. • The restoration of bridge construction sites and borrow pits to their initial conditions will contribute to control the risk erosion. • Top soil will be stored and reused for the rehabilitation of damaged sites along the road.
33	Accidents	B-	**Construction phase:** • The secure circulation of the pedestrians and cycles will then be an important task during the works. A close coordination between the contractor, the supervising engineer and the police will be needed. • Appropriate plans of deviation and management of the traffic will be carried out in order to reduce the risks of road accidents. • The workers will be sensitized in order to adopt safe driving in the housing areas. The control of speed in sensitive zones will reduce such risk to acceptable levels. • Management and operation agencies will conduct inspection and maintenance of equipment and facilities, and fire prevention measures.

1.9 Consultation

1.9.1 Purposes

The Amuru district conducted public consultation meetings in October 2009, in order to get a formal agreement of implementation of the project by the local communities. The JICA study team did not participate to these official meetings, but prepared them through the implementation of preliminary consultation meetings with the local communities of Lungulu B and Lulyango, on 15 and 16 Oct. 2009. The experience got during the pilot project suggested to reinforce the formal public consultation process through the procedure of district agreement with the local communities, for the following phase of the project (urgent projects).

The objectives of the public consultations are:

- To inform and sensitize the local communities about the project and the road reserve, and to get the mobilization of the people,
- To discuss the potential issues related to implementation of the project and ensure a proper mutual understanding of the actions to be undertaken,
- To clarify the land use rights and land properties, the land improvements along the project road, and the conditions of compensation if needed, and
- To establish a formal consent document prepared by the district and signed by the local representatives.

1.9.2 Conclusions

The participants understood the purposes and contents of project, and welcomed the project with

the following suggestions in specific.

- Supervise contractor’s activities to ensure quality works
- Consider employing local peoples and purchasing local construction materials
- Respect local people’s customs

1.10 Monitoring

There is nothing in particular to be raised.

1.11 Consultation with Recipient Governments

The Amuru district prepared the Project Brief of the pilot project in coordination with the JICA study team and MoWT. They submitted the Project Brief to NEMA and the Project Brief was approved by NEMA in February 2010.

2. PILOT PROJECT BRIDGE NO.2

2.1 Title of the Project

The Pilot Projects in the Project for Rural Road Network Planning in Northern Uganda

Lot No.2: Construction of the Otwee / Wii Anaka / Lolim road

2.2 Environmental Categorization

(1) Category B

(2) Reason

There are two types of activities for the project, improvement and maintenance works of the project road. The improvement works are for the construction of a reinforced concrete bridge of 45m length, the Aswa bridge of lot 2, the reconstruction of its approach road, in total 0.66km, and the construction of a new road between Lolim and the bridge (7km). The maintenance works section (44km) is basically for that construction vehicles can pass safely within the present road width.

In these project works, the negative impacts are mainly related to the construction works in the construction phase within very limited sites and short term. For the improvement and maintenance works within the road reserve, the district office obtained formal agreements with the roadside communities and private landowners for the transfer of land rights to the Districts. The project will not induce any major negative impact on the local environments with the proposed mitigation measures.

Meanwhile, the positive impacts of the project will largely compensate for the few limited and mitigated negative impacts that could occur from implementation of the project. The project will be particularly important for the residents of the communities lying between Otwee and Anaka, and more generally those in Alero, since it will considerably facilitate the return and resettlement process of IDP people from the IDPs camps to their home villages, and the access to the market, school and health care services of Anaka. The positive impacts suit with what the local peoples expect.

2.3 Outline of the Location

Location of the pilot project is shown in Figure 1, together with Lot 1 of the Pilot project. The Aswa bridge n°2 is located on the district feeder road just upgraded from community access road in June 2009.

In the location of project site, the beginning point of the road is Otwee, presently lying in the Amuru district, and the ending point is Wii Anaka, presently lying in the Nwoya district. The morphology of the area is a wide plateau with gentle slopes. The topography is uniform, with an

altitude ranging between 1000 and 1200m. The relief is however more accentuated on the northern side of the Aswa river. There is no area prone to soil erosion or landslide, but the absence of vegetation may have erosion effects in the slopes.

Annual average rainfall during the last 15 years (1994-2009) has reached 1,400mm, according to the data of the Gulu meteorological station. The monthly average during the rainy season between April and October is 171mm. The peak precipitation generally occurs during July and August.

The hydrographic system is mostly constituted of an upstream drainage oriented East – West. The main rivers are the Aswa river and the Anaka river. The project road alignment does not encroach on the river beds excepted at the crossing passages (bridges or culverts).

The vegetation cover along the project road is typical of the vegetation in Amuru, with a combination of woodland savannah, grassland savannah, and savannah modified by an intensive agricultural use. Vegetation along the Otwee – Anaka road in the north is a wood savannah, with predominance of a dense forest cover. The Aswa river valley, which is liable to regular flooding, is a swamp area with isolated palm trees.

The project area between Pabo and Cet Kana has a tradition of livestock farming, but farmers have significantly shifted to agriculture after the war. Individual farming is predominant. The main crops are maize, rice, millet, groundnut, sugarcane, and beans. The selling of rice and beans seems to be the main source of income.

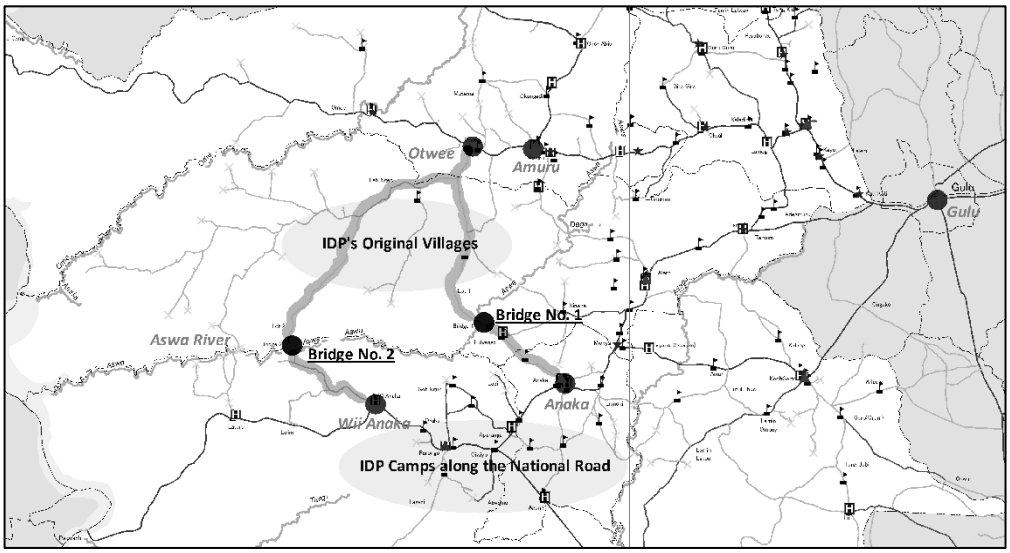

Figure 1 Location of the Project Site

2.4 Environmental Legislations and Administration

2.4.1 Environmental Requirements for Road Projects

Projects which are subject to a mandatory EIA in Uganda are listed in the Third Schedule to the Environmental Impact Assessment Regulations 1998. In the field of roads development, the list includes the following criteria, which are most relevant for the project.

- Major roads
- Roads in scenic, wooded, mountainous areas
- Activity out of character with its surroundings, with major changes in land use

District roads and national roads are regarded as major roads in Uganda. The Third schedule lacks however transparency about the conditions for EIA requirements, like length of the road project, and nature of the works. The technical guidelines developed by the Ministry of Works and Transport (MoWT) in the road sector are the basic reference for understanding the requirements for EIA of roads. The opinion of the District Environment Officer about the road projects helps to understand the environmental requirements for the project.

Bridges and borrow pits are not part of the Third Schedule document. They are in practice considered as activities out of character with its surroundings, with major changes in land use.

In coordination with the District Environment Officer, and in accordance with the existing EIA regulations and guidelines, the submission of a Project Brief report to NEMA was the most appropriate procedure for requesting the environmental authorization of the project. The Project Brief included the environmental impacts that the project is likely to generate, propose the appropriate mitigation measures, and guaranty the compliance with environmental regulations.

2.4.2 Environmental Guidelines of the MoWT

The implementation of the project needs to be in compliance with the environmental guidelines of MoWT for roads. The following guidelines have been taken into consideration:

- Environmental Impact Assessment Guidelines for Road Projects
- Environmental Guidelines for District Engineers, Volume 5B of the District Administrative and Operational Guidelines, 2003 (District Road Works Manuals series).

The Environmental Impact Assessment Guidelines for Road Projects provide detailed criteria about the EIA requirements in the road development sector. There are 4 basic criteria that guide the decisions about the EIA requirements for a project (Table 2.1), and these are:

- Case 1. Projects that certainly do not have any significant impact on the environment
- Case 2. Projects likely to have some minor impacts on the environment but for which adequate and sufficient mitigation measures have been identified
- Case 3. Projects that have some significant environmental impacts, where adequate mitigation measures are readily available
- Case 4. Projects having a number of (very) significant impacts on the environment (whether adequate mitigation measures can be identified or not)

2.4.3 Classification of the Project

Table 1 below shows that the project is not expected to belong to the cases 1 or 4, since the no-impact and the major impact scenarios cannot be upheld. Accordingly, the project is likely to fit

within cases 2 or 3.

Table 1 Conditions of EIA requirements

Class of project	EIA requirement	Approval of the project	Relevance for the project
Case 1	No further EIA processing	Certificate issued	NO
Case 2	No further EIA processing but an evaluation is done in the Project Brief with presentation of the measures	Certificate issued	YES
Case 3	A limited analysis is required	Environmental impact review (EIR) is required before issuance of certificate	YES
Case 4	A full environmental impact study (EIS) is required	Full EIA or EIS is required before issuance of a certificate. The Project Brief step is not needed.	NO

Source: Summarized from the Environmental Impact Assessment Guidelines for Road Projects, 2008

2.4.4 Project Brief

The Project Brief is an official document including a description of the project, an evaluation of the potential impacts and a presentation of the mitigating measures. The purpose of the Project Brief document is to clarify the type of EIA requirement of the project.

The Amuru district prepared a Project Brief of the project in coordination with the JICA study team. The conclusion of the Project Brief was that the negative impacts would be minor while positive impacts would be significant. The important mitigation measures were identified. In case of insufficient information in the Project Brief regarding a significant issue or potential impact of the project, NEMA may require an environmental impact review (EIR) report before approval.

The Project Brief was submitted to NEMA in October 2009 and the district received a formal approval for the environmental aspects of the project without EIA requirement from NEMA in February 2010.

2.4.5 Procedure for Land Acquisition and Compensation

(1) Case of National Roads

The MoWT has not set up a land acquisition and land compensation policy for roads project. The UNRA is preparing a land acquisition management system (LAMS) document (final draft June 2009), in line with its strategy for land acquisition of road reserve, country wide. This document is the only existing guideline document for implementing land acquisition and land compensation for national roads projects. The LAMS document applies to the land acquisition managed by UNRA for the national roads network. The land acquisition specialist of UNRA has provided additional information to understand the right procedure in the case of a district road project.

(2) Case of District Roads

There is no standard procedure of land acquisition and compensation in the specific case of district

roads. The legal requirements of land acquisition and compensation of a road reserve for a district road are not different from those for a national road. In practice, in the case of customary land tenure, which is the most common case, the acquisition of land within the road reserve is based on an agreement with the local communities, in which they offer their land to the benefit of public use.

Accordingly, there is no formal acquisition of land, and therefore no full compliance with the legal requirements of the Land Act. The implicit assumption is that land will be compensated in the future. In such conditions, there is no guarantee that land claims will not occur during or after the implementation of the project. Basically, the scope of agreements with the local communities is an offer of land for the project roads, and a compensation for the improvements, with an evaluation of the latter by the District Valuer Officer.

(3) Case of the Project Road

In the specific case of the project road, the district organized public consultation meetings with the local communities, with the purpose of obtaining a written agreement with the local communities for the acquisition of the road reserve. Land ownership along the Otwee / Wii Anaka improvement road project is however largely private and titled land property (group and individual leasehold tenure system). This situation has led the district authority to get formal agreements with each concerned land owner.

2.5 Outline of the Project

2.5.1 Background and Purpose

Northern Uganda has the largest proportion of people living in poverty in the country, estimated to account for 61 % of the region’s population, or almost twice the national level. This high level of poverty can be attributed to the Lord's Resistance Army (LRA) insurgency. During the 20 year-conflict beginning in the 1980s, much of the basic social infrastructure was destroyed or abandoned and the local government became non-functional in the region.

In particular, 90 % of the population, or two million people, were displaced (IDP: Internally Displaced Person) from Acholi Sub-region. Since the cease-fire agreement concluded between LRA and the Government of Uganda in August 2006, the Government of Uganda has emphasized and facilitated the return process of IDPs and prepared the National Peace Recovery and Development Plan (PRDP) in order to stabilize and recover Northern Uganda. The PRDP identifies the 14 priority programs such as rebuilding and empowering communities (health, education, water, livelihood support) and it emphasizes the importance of infrastructure rehabilitation and improvement of trunk road network connecting the districts and community access road network.

Under these circumstances, the ten year District, Urban and Community Access Road Investment Plan (DUCARIP) has been prepared to provide a financing framework for investments in district, urban and community access roads. Though maintenance of high priority District Roads has been

progressively made in the framework, the improvements or new constructions of these roads have not been undertaken adequately. Furthermore, the budget from central government does not make allocations for maintenance, improvement and new construction of community access roads and this leads to a difficult situation where road improvement and new construction are to be undertaken by the districts themselves.

Consequently, although the necessity of the road improvement for the IDP return process seems to be of high priority, the implementation of the projects to improve road network could not be started because of budgetary deficits.

2.5.2 Necessity and Appropriateness

The road and bridge pilot projects in Amuru district have been selected out of the various bridge requests proffered by the local personnel. The sites were chosen because they are located on Aswa River which divides the northern original village area and southern IDP camps along the national road (Alero-Anaka-Wii Anaka-Lolim road). The pilot projects of bridge construction and road improvement/maintenance works have been initiated at the starting stage of the Master Plan study in order to evaluate their impacts on the IDPs return process, and and get the lessons for improving the formulation of the Master Plan of the rural road network. The basic assumption is that the pilot projects will positively contribute to the progress of the return process of the IDPs population. The pilot projects are also expected to improve the local economic and social conditions.

2.5.3 Contents of the Project

The total length of the project alignment is 51km, in the Amuru District (and presently shared between the Amuru and the Nwoya districts). The project road is a community road, excepted the new Lolim road section which is a district road of class 1. The project aims at the maintenance of 44km and improvement of 7km. The improvement section includes the construction of the full section of the new Lolim road with culverts, and the construction of the Aswa bridge (3 spans of 15m).

Table 2 Specifications of the Pilot Project No.2

	Otwee Wii Anaka section	Lolim new road section
Target road class	Community Road	District Rd. Class I
Road length	North of Aswa river: 29km (+3) South: 12km	7km
Pavement	Gravel	Gravel
Improvement section (km)	Aswa bridge with approach road	Full section
Maintenance* section (km)	Full section except bridge with approach road	-
Bridge length	45m	-
Bridge width	6.0m	-
Bridge type	RC beam	-
Carriageway width	Existing (2-3m)	6.0m
Width of land clearance	10m	25m
Length of filling sections	0.1km	7.0km
Average height of filling	-	1.5m
Max height of filling	-	2.5m
Culvert Number	None	7+1
Culvert Type and size	-	Corrugate D900 +Bridge W-7.0

- Maintenance is spot maintenance work. It is basically for the works that construction vehicles can pass safely within the present road width.

2.6 Expected Environmental and Social Impacts

The likely impacts caused by the proposed project are evaluated and summarized in Table 2 below.

Table 2 Expected Environmental and Social Impacts

	No.	Likely Impacts	Design	Construction	Operation	Description of Impacts
Social Environment:	1	Involuntary Resettlement	D	D	D	**Design phase:** The project will not induce any resettlement of the population. There are no structures in the road reserve. Land along the project road is used according to the customary hold tenure rules. Since there is no procedure for the proper acquisition of land and compensation of improvements in the road reserve of district roads, the local representatives agreed the project in the public consultation meetings and signed the consent document that the local communities have accepted the transfer of land rights in the road reserve to the Districts.
	2	Local economy such as employment and livelihood, etc.	D	B+/-	A+	**Construction phase:** The maintenance and construction works will induce job opportunities. The application of the labor recruitment procedure will ensure that priority is given to the local peoples. The loss of standing crops in the road reserve due to the improvement works will be almost inexistent. **Operation phase:** The increased accessibility of the area will induce the intensification of marketing activities of local crops and products, which will strongly contribute to economic development and improvement of livelihood. Accordingly, project should strongly contribute to alleviate poverty and to reduce vulnerability.
	3	Land use and utilization of local resources	D	D	A+	**Construction phase:** No impact. **Operation phase:** The opening of new accesses to the area through the crossing of Aswa river after improvement works will induce an intensified use of land for agriculture, and certainly an intensified use of forest products. This impact is very positive in terms of economic productivity of the land.
	4	Social institutions such as social infrastructure and local decision making institutions	D	D	D	No significant adverse impacts are expected. The district office explained the project to the local representatives and they accepted the project.
	5	Existing social infrastructures and services	D	D	A+	**Operation phase:** The project will then help to facilitate access to the existing school and health services. The Pilot Project area is partly lying outside the limits of the areas covered by hospital or health centers at a distance not exceeding 5km. Since Lolim has a health center HC-III, the Lolim road and bridge 2 will contribute to the improvement of access to this centre. The impact of the project on public health will be positive because of a better health care resulting from improved access.
	6	Traffic Congestion	D	D	D	No significant adverse impacts are expected. There is not much traffic and the existing traffic is dominated by bicycles and pedestrians.

	No.	Likely Impacts	Design	Construction	Operation	Description of Impacts
	7	Community Division	D	B+	B+	**Construction phase:** The employment of the local residents for unskilled labors in the construction works will prevent the generation of conflicts with the local communities, and mitigate the risk of social disruption. **Operation phase:** The improved rural accessibility could facilitate the return of IDPs along the Otwee Wii Anaka road, which is a positive impact toward the social reintegration of this population.
	8	The poor, indigenous and ethnic people	D	D	A+	**Operation phase:** In terms of poverty, the return of IDPs to homeland is generally considered as contributing to reduce poverty and vulnerability, because of the access to land resources. In the case of the Otwee Wii Anaka road and bridge 2, the project could contribute to alleviate poverty and to reduce vulnerability through the remaining IDPs return process, although its scale is regarded to be limited. No significant adverse impacts are expected on indigenous and ethnic people.
	9	Misdistribution of benefit and damage	D	D	D	No adverse impact is expected. The local representatives accepted the Project will contribute the improvement of accessibility for public benefits.
	10	Gender equity and children's rights	D	B+	A+	**Construction phase:** The full application of the labor recruitment procedure specified in the MoWT environmental guidelines will contribute to provide jobs to the women and to the persons with disabilities, in the roadside communities. **Operation phase:** The improved access to schools and health services will certainly contribute to the rights of children, and reduce the work load of women since they generally take care of the children and family health and education. This impact could be more or less important according to the local conditions. The improved access to the market places and the possibility for the women to offer their products on the markets is certainly the most important positive impact of the project towards gender equity. This impact should important from the Otwee Wii Anaka road project, and more particularly from the Lolim road and the bridge 2.
	11	Cultural heritage	D	D	D	There is no protected or important cultural or historical patrimony in the project area.
	12	Local conflict of interests	D	D	D	No significant adverse impacts are expected. The local representatives accepted the Project will contribute the improvement of accessibility for public benefits.
	13	Water Usage or Water Rights and Rights of Common	D	D	D	**Construction phase:** The construction works should not affect the access to water resources, which are mainly provided by groundwater. There is no identified surface water with a possible risk on its quality for the local population close to the bridge construction site.
	14	Sanitation	D	D	D	The use of local residents in the road works, the small size of the work camps, and the short period of construction are not factors that could increase the sanitation risks.
	15	Hazards (Risk) Infectious diseases such as HIV/AIDS	D	D	D	No significant adverse impacts are expected. No massive influx of workers is expected as most laborers can be supplied locally.

	No.	Likely Impacts	Design	Construction	Operation	Description of Impacts
Natural Environment	16	Topography and Geographical features	D	D	D	**Construction phase:** In the case of the Lolim new road, the filling section height is on average of 1.5m for a total length of 7km. The impact on the morphology will remain minor. The restoration of the borrow pits to their initial state will prevent morphological damages. The current morphology of the Aswa river bank will be modified by works at the bridge crossing points only, for the construction of the abutments. After restoration of the working sites, this morphological modification will be a minor impact.
	17	Soil Erosion	D	B-	D	**Construction phase:** The construction works of bridges are likely to disturb the soil stability of the river banks and to induce erosion of the slopes. The area affected is restricted to the bridge construction site. This site will be restored to its initial state as required in the specific conditions of contract with the constructor. Erosion roadside is likely to occur after construction. Such risk is reduced through an appropriate design and road maintenance activities.
	18	Groundwater	D	D	D	No significant adverse impacts are expected. The foundation works of the bridge, box culverts and road require low depth.
	19	Hydrological Situation	D	B-	D	Construction phase: The proper design of the culverts will ensure that no undesirable flood risk will be possible at the crossing points. The project will almost not change the water runoff conditions compared with the present. The construction of the bridge according to flooding control standards will not affect the surface water drainage patterns of the area. Human settlements are located outside the flood prone areas.
	20	Coastal Zone	D	D	D	No adverse impact is expected on coastal zone because the project sites are not located on coastal areas.
	21	Flora, Fauna and Biodiversity	D	B-	D	**Construction phase:** The Otwee Wii Anaka road and the new Lolim road will have a negligeable impact on the grassland savannah habitat. The Aswa river banks have a protected buffer zone of 100m wide. This habitat will be temporarily affected during the construction of the bridge, with direct effects like the felling of trees along the river banks on a short distance of about 20m. This impact will be limited to the area of the bridge, and the site will be restored after construction. **Operation phase:** After construction, the bridge will not hinder the possible function of the river bed as a biological corridor for wildlife, along the river.
	22	Meteorology	D	D	D	No adverse impact is expected on meteorology because the project scale is small.
	23	Landscape	D	B-	D	**Construction phase:** The bridge construction works and the opening of borrow pits for supply of gravel materials can affect on the landscape along the road. After restoration of the working sites, this morphological modification will be a minor impact.
	24	Global Warming	D	D	D	No adverse impact is expected on global warming because the project scale is small.

	No.	Likely Impacts	Design	Construction	Operation	Description of Impacts
Pollution	25	Air Pollution and dust	D	B-	B-	**Construction phase:** Exhaust gases of trucks and heavy machines during construction are sources of air pollutants. This will however not affect the ambient air quality and direct exposure of the population is almost non-existent. The traffic of motor vehicles after works will be very limited, which is not a source of air pollution. This traffic density will generate dust compared with the present situation, but this impact is minor.
	26	Water Pollution	D	B-	D	**Construction phase:** The residual cleaning water used for the preparation of concrete will not be discharged into the Aswa river before treatment. Treatment techniques include pond sedimentation and filtration. The residual engine oils or any other dangerous water contaminants will be managed properly for elimination in adapted facility, to avoid any contamination of the surface and groundwater. Works will be completed preferably during the dry season in order to avoid siltation in and increased turbidity of the river water.
	27	Soil Contamination	D	D	D	**Construction phase:** There is no known soil contaminated site in the project site. The proper management of oils during the works will prevent any risk of contamination due to discharge or accidental leakage.
	28	Waste	D	B-	D	**Construction phase:** Vegetation and land clearance along the improvement sections of the project road and around the bridge construction sites will be a source of green waste and inert waste.
	29	Noise and Vibration	D	B-	B-	**Construction phase:** Noise and vibration caused by the traffic of trucks and machines are not regarded as significant issues because of the distance between the dwellings and the construction works sites. There are few households possibly affected by the traffic noise during works in Corner Lukung. This impact will be minor. **Operation phase:** The traffic is anticipated to increase but still be limited. Noise and vibration will not strongly affect the local peoples.
	30	Ground Subsidence	D	D	D	No adverse impact is expected in terms of ground subsidence.
	31	Offensive Odor	D	D	D	No adverse impact is expected on offensive odor because the project is small in scale and has no sources of offensive odor.
	32	Bottom sediment	D	B-	D	**Construction phase:** The soil eroded due to the construction works of bridges, box culverts and the opening of the approach road in front of the Aswa river is a process likely to disturb the bottom sediment of rivers, however in limited spaces and short term.

	No.	Likely Impacts	Design	Construction	Operation	Description of Impacts
	33	Accidents	D	B-	B-	**Construction phase:** During construction, the risk of traffic accident is high. Walking, bicycle, and motobykes are the basic means of transportation. The secure circulation of the pedestrians and cycles will then be an important task during the works. Appropriate plans of deviation and management of the traffic will be carried out in order to reduce the risks of road accidents. The workers will be sensitized in order to adopt safe driving in the housing areas. The control of speed in sensitive zones will reduce such risk to acceptable levels. **Operation phase:** After construction, the anticipated traffic on the district roads is expected to rise to more than 50 motor vehicles per day. Such traffic is very low and the induced risk of traffic accidents is limited. It is however a new risk compared with the present situation. The speed of vehicles must be reduced in the housing areas. The impact should be minor.

Rating:
A+/-: Significant positive/negative impact is expected.
B+/-: Positive/negative impact is expected to some extent.
C+/-: Extent of impact is unknown (Examination is needed. Impacts may become clear as study progresses.)
D: No impact is expected.

2.7 Impacts of the Project

Both positive and negative impacts by the project were evaluated in 33 likely impacts on social environment, natural environment and pollution. There are 14 items evaluated as adverse impacts and rating “B-”, including 1 item on social environment, 4 items on natural environment, and 9 items on the pollution, mostly in the construction phase. On the other hand, there are 9 items evaluated at positive impacts, rating “B+” or “A+”, on the social environment in the construction and operation phases.

These positive impacts match the local people’s expectations expressed by the local representatives and by the residents during the field interviews and at the public consultation meetings. The most important benefits of the project as expected by the peoples are:

- Improved access and facilitated transport of crops products to Anaka,
- Opportunities for developing roadside business,
- Better access to health care services and schools,
- Contribution to the return process of IDPs
- Indirect contribution to gender equality and eradication of poverty

2.8 Mitigation Measures

The mitigation measures are summarized in Table 3 responding to the results of evaluation in Table 2.

Table 3 Mitigation Measures for Environmental and Social Impacts and Further Study

No.	Likely Impacts	Evaluation	Mitigation Measures
2	Local economy such as employment and livelihood, etc.	B-	**Design phase:** • In the public consultation meetings, the local representatives were notified and agreed that they will harvest their standing crops within the road reserves before the construction works start. • They also signed the consent documents that the local communities have accepted the loss of their standing crops within the road reserves after the construction works start.
11	Cultural heritage	B-	**Construction phase:** • The maintenance works can avoid any possible damages on the graves along the project road. • The district offices will support the relocation of graves when needed.
17	Soil Erosion	B-	**Construction phase:** • The selection of the dry season for construction, and the immediate reseeding of roadside embankments, will contribute to control the risk of erosion. • The restoration of bridge construction sites and borrow pits to their initial conditions will contribute to control the risk erosion. • Top soil will be stored and reused for the rehabilitation of damaged sites along the road.
19	Hydrological Situation	B-	**Construction phase:** • River banks and vegetation cover will be restored after construction and rehabilitation of the bridges. • Works in a river bed are subject to permitting by the Water Resources Management Department. Works will include the diversion of the watercourse during the works. The contractor will get the permit before works. The river bed morphology will be restored to its initial state.
21	Flora, Fauna and Biodiversity	B-	**Construction phase:** The bridge construction site will be restored after construction. Permitting of works in the Aswa river bed will be requested by the construction company to the Water Resources Management Department.
23	Landscape	B-	**Construction phase:** • The restoration of the borrow pits is a requirement and its application will be controlled in order to prevent damages on surrounding landscape.
25	Air pollution and dust	B-	**Construction phase:** • In places where people will be exposed to dust during the works, sprinkling water on the road will be done to prevent the dust.

No.	Likely Impacts	Evaluation	Mitigation Measures
26	Water Pollution	B-	**Construction phase:** • The residual cleaning water used for the preparation of concrete will be treated before discharged into the rivers, which means pond sedimentation or filtration. • It is necessary to preserve the water quality of river avoiding any source of pollution from the construction and rehabilitation works, for preservation of the potential uses of water downstream. • The residual engine oils and fuels or any other dangerous water contaminants will be managed properly, and they will be collected and treated by a company agreed by NEMA so that the risk of contaminating surface water and groundwater will be minimized. • The construction works will be scheduled to complete preferably during the dry season in order to avoid silting in and increased turbidity of the river water.
27	Soil Contamination	B-	**Construction phase:** • The proper management of oils and fuels in the camp sites during the works will prevent any risk of contamination due to discharge or accidental leakage.
28	Waste	B-	**Construction phase:** • The proper elimination of the inert waste materials generated by the rehabilitation and construction works will be managed in coordination with the district authorities and local communities. • Used oil substances will be collected and eliminated by a specialized company agreed by NEMA.
29	Noise and Vibration	B-	**Construction phase:** • The control of speed on the road sections will help to reduce this nuisance.
32	Bottom sediment	B-	**Construction phase:** • The selection of the dry season for construction, and the immediate reseeding of roadside embankments, will contribute to control the risk of erosion. • The restoration of bridge construction sites and borrow pits to their initial conditions will contribute to control the risk erosion. • Top soil will be stored and reused for the rehabilitation of damaged sites along the road.
33	Accidents	B-	**Construction phase:** • The secure circulation of the pedestrians and cycles will then be an important task during the works. A close coordination between the contractor, the supervising engineer and the police will be needed. • Appropriate plans of deviation and management of the traffic will be carried out in order to reduce the risks of road accidents. • The workers will be sensitized in order to adopt safe driving in the housing areas. The control of speed in sensitive zones will reduce such risk to acceptable levels. • Management and operation agencies will conduct inspection and maintenance of equipment and facilities, and fire prevention measures.

2.9 Consultation

2.9.1 Purposes

The Amuru district conducted public consultation meetings in October 2009, in order to get a formal agreement of implementation of the project by the local communities. The JICA study team did not participate to these official meetings, but prepared them through the implementation of preliminary consultation meetings with the local communities of Corner Lukung on 15 Oct. 2009. The experience got during the pilot project suggested to reinforce the formal public consultation process through the procedure of district agreement with the local communities, for the following phase of the project (urgent projects).

The objectives of the public consultations are:

- To inform and sensitize the local communities about the project and the road reserve, and to get the mobilization of the people,
- To discuss the potential issues related to implementation of the project and ensure a proper mutual understanding of the actions to be undertaken,
- To clarify the land use rights and land properties, the land improvements along the project road, and the conditions of compensation if needed, and
- To establish a formal consent document prepared by the district and signed by the local representatives.

2.9.2 Conclusions

The participants understood the purposes and contents of project, and welcomed the project with the following suggestions in specific.

- Supervise contractor’s activities to ensure quality works
- Consider employing local peoples and purchasing local construction materials
- Respect local people’s customs

2.10 Monitoring

There is nothing in particular to be raised.

2.11 Consultation with Recipient Governments

The Amuru district prepared the Project Brief of the pilot project in coordination with the JICA study team and MoWT. They submitted the Project Brief to NEMA and the Project Brief was approved by NEMA in February 2010.

APPENDIX 2

RESULT OF BIDDING FOR PILOT PROJECT

3. RESULTS OF BIDDING FOR PILOT PROJECT

3.1 Result of Bidding for Lot 1 (Otwee-Anaka Road)

3.1.1 Introduction

The bid opening ceremony was held on 13th Jan. ’10 at JICA Uganda Office with the following participants.

- Mr. Tetsuo Seki — Chief Representative, JICA Uganda Office
- Ms. Yuriko Doi — Representative, JICA Uganda Office
- Ms. Akiko Namami — Representative, JICA Uganda Office
- Mr. Charles Ngeye — Senior Engineer/Coordinator, MoWT
- Mr. G. Magala — Senior Engineer, MoWT
- Mr. Okello Louis P'Abur — Senior Engineer, Amuru District
- Mr. Teruaki Mimami — Engineer, Study Team
- Mr. Tetsuro Izawa — Road Designer (2), Study Team
- Mr. Tsuyoshi Nakajima — Project Coordinator, Study Team
- Mr. Taremwa Peace — Administrator, Study Team

The Bidders who submitted the bid were as follows (in ABC order),

LOT1:4 bidders,

- Eastern Builders and Engineers Ltd.
- Mulowooza & Brothers Ltd.
- Omega Construction Ltd.
- Spencon Services Ltd.

3.1.2 Bid Opening Results

The opening result is shown in Table 3.1.1.

3.1.3 Preliminary Examination

The result of the Preliminary Evaluation is shown in Table 3.1.2. As a result of the Preliminary Examination, no bids were removed from further evaluation.

Table 3.1.1 Bid Opening Result of Lot 1

Project for Construction of Bridges over Aswa River and Access Road Improvement/Maintenance Works in Amuru District

Lot 1

	1. Bid Price (Shs.)	2.Bid Security (Amount in Shs.)	3.Remarks
Eastern Builders and Engineers Ltd.	7,839,269,534-	Enclosed (50,000,000)	Baroda
Mulowooza & Brothers Ltd.	7,759,148,926-	Enclosed (50,000,000-)	Tropical
Muyanga Investments Ltd.		()	
Nile Perch General Agency Ltd.		()	
Omega Construction Ltd.	7,878,753,437-	Enclosed (50,000,000)	Eco 5% Discount
Spencon Services Ltd.	5,862,847,578-	Enclosed (50,000,000-)	Standard Chartered
Top Care Consultants & Engineering Works Ltd.		()	

Table 3.1.2 Preliminary Examination Result of Lot 1

Preliminary Examination Project for Construction of Bridges over Aswa River and Access Road Improvement/Maintenance Works in Amuru District Lot 1

Item	Eastern Builders and Engineers Ltd.	Mulowooza & Brothers Ltd.	Onega Construction Ltd.	Spencon Services Ltd.
1. Bid Submission Sheet	X	X	X	X
2. Bid Security	X	X	X	X
3. Power of Attorney	?	X	X	X
4. Eligibility				
(1) Trading License for the Year 2009/10	X	X	X	X
(2) Certificate of Registration/Incorporation	X	X	X	X
(3) Income Tax Clearance Certificate for Trading/Accounting Year 2008/09	?	X	X	X
(4) Copy of VAT Registration	X	X	X	X
(5) Statement in Bid Submission Sheet to meet the Eligibility	X	X	X	X
(6) Declaration in the Bid Submission Sheet of Nationality of the Bidder	?	X	X	X
(7) Statement in Bid Submission Sheet of No Conflict of Interest	X	X	X	X
(8) Declaration in Bid Submission Sheet not under Suspension by PPDA	X	X	X	X
(9) Contractor's Category	A+	A	A+	A+
5. Priced BQ	X	X	X	X
6.Proposed Work Method & Schedule	X	X	X	X
7. Site Visit Certificate	X	X	X	X
8.Personnel & Equipment Schedule	X	X	X	X
9. Audit Accounts	X	X	X	X
10.Records of Previous Experience in Works of Similar Nature	X	X	X	X

3.1.4 Evaluations on Legal Aspect

3.1.4.1 Compliance and Responsiveness of Bid

The following items are evaluated on each bid,

(1) Eastern Builders and Engineers Ltd.

Requirement	Compliance	Remarks
1. Power of Attorney In general, the Power of Attorney shall be authentic.	Eastern submitted the Power of Attorney which was not registered by registrar of companies. The issuance day was 12th July 2002.	Eastern was not complainant of the requirement. Power of Attorney with date in 2002 was not evaluated as appropriate to this bid.
2. Bid Validity BDS clause ITB 17.1 requires 90 days as the bid validity days.	Eastern did not mention bid validity period.	The validity was not specified in the submission, hence it is rejected.

(2) Mulowooza & Brothers Ltd.

Requirement	Compliance	Remarks
1. Power of Attorney In general, the Power of Attorney shall be authentic.	Mulowooza submitted the Power of Attorney which was registered by registrar of companies.	Mulowooza satisfied the requirement.
2. Bid Validity BDS clause ITB 17.1 requires 90 days as the bid validity day.	Mulowooza mentioned 90 days as bid validity day.	Mulowooza satisfied the requirement.

(3) Omega Construction Ltd.

Requirement	Compliance	Remarks
1. Power of Attorney In general, the Power of Attorney shall be authentic.	Omega submitted the Power of Attorney which was registered by registrar of companies.	Omega satisfied the requirement.
2. Bid Validity BDS clause ITB 17.1 requires 90 days as the bid validity day.	Omega mentioned 90 days as bid validity day.	Omega satisfied the requirement.

(4) Spencon Services Ltd.

Requirement	Compliance	Remarks
1. Power of Attorney In general, the Power of Attorney shall be authentic.	Spencon submitted the Power of Attorney which was registered by registrar of companies.	Spencon satisfied the requirement.
2. Bid Validity BDS clause ITB 17.1 requires 90 days as the bid validity day.	Spencon mentioned 90 days as bid validity day.	Spencon satisfied the requirement.

As a result of the above evaluations, Eastern Builders and Engineers Ltd, is removed from further evaluations.

3.1.4.2 Average Annual Volume of Construction Works

(1) Eastern Builders and Engineers Ltd

Requirement	Compliance	Remarks
ITB 6.1 (a) requires that average annual volume of construction work over the past 5 years of at least to be 4 billion Ushs.	-	Eastern has been removed from this evaluation as the result of 3.1.4.1.

(2) Mulowooza & Brothers Ltd.

Requirement	Compliance	Remarks
ITB 6.1 (a) requires that average annual volume of construction work over the past 5 years of at least to be 4 billion Ushs.	Mulowooza mentioned, in the submission, the annual volume of construction work on, Year 2008: 7,045,201,494 Ushs Year 2007:.7,596,233,673 Ushs Year 2006: 15, 371,818,815 Ushs. Year 2005: 10,378, 732,315 Ushs. Year 2004: 7,154,244,400 Ushs. which becomes 9,509,246,139 Ushs on average.	Mulowooza satisfied the requirement.

(3) Omega Construction Ltd.

Requirement	Compliance	Remarks
ITB 6.1 (a) requires that average annual volume of construction work over the past 5 years of at least to be 4 billion Ushs.	Omega mentioned, in the submission, the annual volume of construction work on, Year 2008: 21,999,000,000 Ushs Year 2007: 15,120,000,000 Ushs Year 2006: 10,585,680,000 Ushs. Year 2005: 7,100,000,000 Ushs. Year 2004: 6,700,000,000 Ushs. which becomes 12,300,936,000 Ushs on average.	Omega satisfied the requirement.

(4) Spencon Services Ltd.

Requirement	Compliance	Remarks
ITB 6.1 (a) requires that average annual volume of construction work over the past 5 years of at least to be 4 billion Ushs.	Spencon mentioned, in the submission, amount of certified contract revenues, Year 2008: 67,614,886,197 Ushs Year 2007: 67,932,215,222 Ushs Year 2006: 46,185,468,224 Ushs. Year 2005: 38,028,623,984 Ushs. Year 2004: 30,332,451,934 Ushs. which becomes 50,018,729,112 Ushs on average.	Spencon satisfied the requirement.

As a result of the above evaluations, no bidders are removed from further evaluations except Eastern Builders and Engineers Ltd.

3.1.4.3 Lines of Credit

(1) Eastern Builders and Engineers Ltd

Requirement	Compliance	Remarks
ITB 6.1 (e) requires liquid assets or credit facilities to be more than 1.5 billion Ushs.	-	Eastern has been removed from this evaluation as the result of 3.1.4.1.

(2) Mulowooza & Brothers Ltd.

Requirement	Compliance	Remarks
ITB 6.1 (e) requires liquid assets or credit facilities to be more than 1.5 billion Ushs.	Mulowooza submitted a copy of letter from Tropical Bank certifying of ten digits Uganda Ushs (i.e. max 9,999,999,999.Ushs.) as the Lines of Credit.	Mulowooza satisfied the requirement.

(3) Omega Construction Ltd.

Requirement	Compliance	Remarks
ITB 6.1 (e) requires liquid assets or credit facilities to be more than 1.5 billion Ushs.	Omega submitted a copy of letter from BARCLAYS certifying of 2.5 billion Ushs as the credit facilities. Omega also submitted a copy of letter from dfcu Bank certifying of 3 billion Ushs as the lines of credit but it was issued on Sep. 08.	Omega satisfied the requirement. The copy of letter from dfcu Bank was not considered in this evaluation since the issuance date was in year of 2008.

(4) Spencon Services Ltd.

Requirement	Compliance	Remarks
ITB 6.1 (e) requires liquid assets or credit facilities to be more than 1.5 billion Ushs.	Spencon submitted a letter from Baroda certifying not less than 1.5 billion Ushs. as the Lines of Credit. Spencon submitted also a copy of letter from Standard Chartered Bank certifying 900,000 USD and 1,000,000,000 Ushs. which is equivalent to aprox. 2,710,000,000 Ushs. in total as the overdraft (Lines of Credit).	Spencon satisfied the requirement.

As a result of the above evaluations, no bidders are removed from further evaluations except Eastern Builders and Engineers Ltd who has been removed at previous evaluation.

3.1.5 Evaluations on Technical Aspect

3.1.5.1 Proposed Work Method & Schedule

(1) Eastern Builders and Engineers Ltd

Requirement	Compliance	Remarks
The following aspects are checked in Work Method & Schedule		Eastern has been removed from this evaluation as the result of 3.1.4.1.
1) Construction Time & Schedule		
• Total construction time (within in given 9 month or not)		
• Considerations for rainy season for work items		
2) Detail Statements for Work Method		
• Concrete Work		
• Form Work		
• Temporary Work on Bridge Work (River Diversion and/or any Measurements for Work in River)		
• Work Method/Sequence for Construction of Super-structure		
3) Any Statements for Safety		
4) Any Statements evaluated as good		

(2) Mulowooza & Brothers Ltd.

Requirement	Compliance	Remarks
The following aspects are checked in Work Method & Schedule		
1) Construction Time & Schedule		
• Total construction time (within in the given 9 months or not)	Total construction time was proposed to be of 9 months.	Proposed construction time was in accordance with the given 9 months.
• Considerations for rainy season for work items	No statement,	
2) Detail Statements for Work Method		
• Concrete Work	No statement,	
• Form Work	No statement,	
• Temporary Work on Bridge Work (Any Measurements for Work in River)	River diversion was mentioned.	River diversion is considered to be difficult since the soil condition at either side of river was hard rock and that information could be obtained from the boring log in the Drawing.
• Work Method/Sequence for Construction of Super-structure	There was a statement of " Construction of bridge"	It was general.
3) Any Statements for Safety	Some measurements for Road Users and Workers such as provision of sign post and diversion of road were mentioned in the submission.	They were general.
4) Any Statements evaluated as good		Nil

(3) Omega Construction Ltd.

Requirement	Compliance	Remarks
The following aspects are checked in Work Method & Schedule		
1) Construction Time & Schedule		
• Total construction time (within the given 9 months or not)	Total construction time was proposed to be 9 months.	Proposed construction time was in accordance with the given 9 months.
• Considerations for rainy season for work items	There is a statement for rainy season in " Programmes of Works".	
2) Detail Descriptions for Work Method		
• Concrete Work	No statement,	
• Form Work	No statement,	
• Temporary Work on Bridge Work (River Diversion and/or any Measurements for Work in River)	No statement,	
• Work Method/Sequence for Construction of Super-structure	No statement,	
3) Any Descriptions for Safety	Some detail safety measurement for pedestrians were mentioned.	The measurements were evaluated as good proposal.
4) Any Statements evaluated as good		Nil

(4) Spencon Services Ltd.

Requirement	Compliance	Remarks
The following aspects are checked in Work Method & Schedule		
1) Construction Time & Schedule		
• Total construction time (within the given 9 months or not)	Total construction time was proposed to be 9 months.	Proposed construction time was in accordance with the given 9 months.
• Considerations for rainy season for work items	No statement,	
2) Detail Statement for Work Method		
• Concrete Work	There was a statement for concrete work in "Concrete Works for Substructure, Beam & Deck Slab Works".	The concrete work method and its sequence for concrete were understood well.
• Form Work	No statement,	
• Temporary Work on Bridge Work (Any Measurements for Work in River)	There was a statement of the case of provision of Coffer dam.	It was understood that the statement was just in case (assumption), no detail consideration for temporary work was mentioned in the submission.
• Work Method/Sequence for Construction of Super-structure	No statement,	
3) Any Statement for Safety	Some detail measurements in terms of safety for pedestrians were mentioned in the submission.	No statement for workers was mentioned in the submission.
4) Any Statements evaluated as good		Nil

The statement of Spencon was more detailed compared to other two bidders; however no bidders are removed from further evaluation except Eastern at this stage since significant differences were not found in terms of engineering aspects.

3.1.5.2 Record of Previous Experience in Works of Similar Nature

(1) Eastern Builders and Engineers Ltd

Requirement	Compliance	Remarks
ITB 6.1 (b) requires work experiences as follows, At least 2 projects of nature and complexity equivalent to the Works over the last 5 yrs.(Concrete Bridge Work)		Eastern has been removed from this evaluation as the result of 3.1.4.1.

(2) Mulowooza & Brothers Ltd.

Requirement	Compliance	Remarks
ITB 6.1 (b) requires work experience as follows, At least 2 projects of nature and complexity equivalent to the Works over the last 5 yrs.(Concrete Bridge Work)	Mulowooza listed 39 projects in the submission as similar work experiences.	There were some road projects as experiences; however work contents were not detailed. The Engineer carried out further clarification, however the experiences mentioned in the submission was not in accordance with the requirement.

(3) Omega Construction Ltd.

Requirement	Compliance	Remarks
ITB 6.1 (b) requires work experience as follows, At least 2 projects of nature and complexity equivalent to the Works over the last 5 yrs.(Concrete Bridge Work)	Omega listed 22 projects in the submission as similar work experiences.	There was a completed bridge construction project which was "Construction of Ngusi Bridge" in 2008 with client of MoWT; however there is no mentioning of bridge type. There was also a bridge project however its status was still ongoing.

(4) Spencon Services Ltd.

Requirement	Compliance	Remarks
ITB 6.1 (b) requires work experiences as follows, At least 2 projects of nature and complexity equivalent to the Works over the last 5 yrs.(Concrete Bridge Work)	Specncon listed 33 projects in the submission as similar work experiences.	One (1) similar experience was found in the submission and that work contained 5 bridges. There were also other three (3) concrete bridge projects; however its participations were as a sub-contractor.

3.1.5.3 Personnel and Equipment Schedule

(1) Eastern Builders and Engineers Ltd

Requirement	Compliance	Remarks
1 ITB 6.1 (c) requires the essential equipments as follows, (1) 2 nos. of Excavator (0.7 cu.m) (2) 1 nos. of Bulldozer (21t) (3) 10 nos. of Dump truck (15t) (4) 1 nos. of Motor Grader (3.1m) (5) 1 nos. of Vibration Roller (10t) (6) 1 nos. of Tyre Roller (10 t) (7) 2 nos. of Concrete Mixer (0.5 m3) (8) 1 nos. of Crawler Crane (60t)		Eastern has been removed from this evaluation as the result of 3.1.4.1.
2 ITB 6.1 (d) requires the essential work experiences on personnel as follows, (1) Contract Manager (CM)with 8 yrs. for total exp. and 5 yrs for similar works and 1 cont. as Manager of similar works (2) Chief Engineer (CE)with 5 yrs. for total exp. and 5 yrs for similar works and 1 cont. as Manager of similar works (3) Concrete Works Foreman (CWF)with 5 yrs. for total exp. and 3 yrs for similar works (4) Form/ False Works Foreman (FWF)with 3 yrs. for total exp. and 3 yrs for similar works		Eastern has been removed from this evaluation as the result of 3.1.4.1.

(2) Mulowooza & Brothers Ltd.

Requirement	Compliance	Remarks
1 ITB 6.1 (c) requires the essential equipments as follows, (1) 2 nos. of Excavator (0.7 cu.m) (2) 1 nos. of Bulldozer (21t) (3) 10 nos. of Dump truck (15t) (4) 1 nos. of Motor Grader (3.1m) (5) 1 nos. of Vibration Roller (10t) (6) 1 nos. of Tyre Roller (10 t) (7) 2 nos. of Concrete Mixer (0.5 m3) (8) 1 nos. of Crawler Crane (60t)	Mulowooza listed 16 types of owned construction equipments in the submission which covered the requirement with exception of Crawler Crane. However he proposed construction equipments which contained a Crawler Crane (60t).	Mulowooza satisfied the requirement.
2 ITB 6.1 (d) requires the essential work experiences on personnel as follows,		
(1) Contract Manager (CM) with 8 yrs. for total exp. and 5 yrs for similar works and 1 cont. as Manager of similar works	Mulowooza proposed Mr. James Kibuuka M as C.M.	Mr. James Kibuuka M has long civil work experiences of 20 yrs; however he had only a bridge project experience.
(2) Chief Engineer (CE) with 5 yrs. for total exp. and 5 yrs for similar works and 1 cont. as Manager of similar works	Mulowooza proposed Mr. Ssebriumbi Ronald as C.E.	Mr. Ssebriumbi Ronald has no site experience as an engineer for contractor.
(3) Concrete Works Foreman (CWF) with 5 yrs. for total exp. and 3 yrs for similar works	Mulowooza proposed Mr. Wamboga Kenneth as CWF.	No concrete work experience was found out in the CV of Mr. Wamboga Kenneth.
(4) Form/ False Works Foreman (FWF)with 3 yrs. for total exp. and 3 yrs for similar works	Mulowooza proposed Mr. Okuna Seth as FWF.	Mr. Okuna Seth had work experiences with several contractors, no detail info. was mentioned in the CV.
		All the above candidates did not satisfy the requirement.

(3) Omega Construction Ltd.

Requirement	Compliance	Remarks
1 ITB 6.1 (c) requires the essential equipments as follows, (1) 2 nos. of Excavator (0.7 cu.m) (2) 1 nos. of Bulldozer (21t) (3) 10 nos. of Dump truck (15t) (4) 1 nos. of Motor Grader (3.1m) (5) 1 nos. of Vibration Roller (10t) (6) 1 nos. of Tyre Roller (10 t) (7) 2 nos. of Concrete Mixer (0.5 m3) (8) 1 nos. of Crawler Crane (60t)	Omega listed various types owned construction equipments in the submission which covered the requirement.	Omega satisfied the requirement.
2 ITB 6.1 (d) requires the essential work experiences on personnel as follows,		
(1) Contract Manager (CM) with 8 yrs. for total exp. and 5 yrs for similar works and 1 cont. as Manager of similar works	Omega proposed Mr. Mugerwa Mugalaasi P.as C.M.	Mr. Mugerwa Mugalaasi P. has long civil work experiences of 20 yrs; however no bridge project experience was mentioned in the CV.
(2) Chief Engineer (CE) with 5 yrs. for total exp. and 5 yrs for similar works and 1 cont. as Manager of similar works	Omega proposed Mr. Muriuki Bernard as C.E.	Mr. Muriuki Bernard has no site experience as an engineer for contractor. Moreover his carriers were all in the project related to water.
(3) Concrete Works Foreman (CWF) with 5 yrs. for total exp. and 3 yrs for similar works	Omega proposed Mr. Ariku Alfred as CWF.	Mr. Ariku Alfred has long civil engineering work as 26 yrs; however most of his participations were as a consultant, no experience as contractor was found out in the CV.
(4) Form/ False Works Foreman (FWF)with 3 yrs. for total exp. and 3 yrs for similar works	Omega proposed Mr. Ndyomuhira Herbert as FWF.	Mr. Ndyomuhira Herbert has 10 yrs work experience as a contractor foreman, however no civil work experience was found out in the CV.
		All the above candidates did not satisfy the requirement.

(4) Spencon Services Ltd.

Requirement	Compliance	Remarks
1 ITB 6.1 (c) requires the essential equipments as follows, (1) 2 nos. of Excavator (0.7 cu.m) (2) 1 nos. of Bulldozer (21t) (3) 10 nos. of Dump truck (15t) (4) 1 nos. of Motor Grader (3.1m) (5) 1 nos. of Vibration Roller (10t) (6) 1 nos. of Tyre Roller (10 t) (7) 2 nos. of Concrete Mixer (0.5 m3) (8) 1 nos. of Crawler Crane (60t)	Spencon attached the list of owned equipments with condition which covered the requirement.	Spencon satisfied the requirement.
2 ITB 6.1 (d) requires the essential work experiences on personnel as follows,		
(5) Contract Manager (CM) with 8 yrs. for total exp. and 5 yrs for similar works and 1 cont. as Manager of similar works	Spencon proposed Mr. GSN Murty as C.M.	Mr. GSN Murty has long civil work experiences both as manager and engineer. He has participated in some bridge projects. He satisfied the requirement.
(6) Chief Engineer (CE) with 5 yrs. for total exp. and 5 yrs for similar works and 1 cont. as Manager of similar works	Spencon proposed Mr. P. Srinvas as C.E.	Mr. P. Srinvas has long civil work experiences as engineer. He has participated in Northern Bypass Project which contained bridge constructions. He satisfied the requirement.
(7) Concrete Works Foreman (CWF) with 5 yrs. for total exp. and 3 yrs for similar works	Spencon proposed Mr. Mauji laxman Patel as CWF.	Mr. P. Mauji laxman Patel has long civil work experiences as foreman. He has experienced a lot of concrete works. He satisfied the requirement.
(8) Form/ False Works Foreman (FWF)with 3 yrs. for total exp. and 3 yrs for similar works	Spencon proposed Mr. Tumusingunzi Happiness as FWF.	Mr. Tumusingunzi Happiness has long work experiences under some European contractor. He has participated in Northern Bypass Project which contained bridge constructions. He satisfied the requirement.
		All the above candidates satisfied the requirement.

As a result of above evaluation, no bidders fully satisfied the requirement. However, it was realized that Spencon is capable for the Work since he had an experience of some bridge construction works although those were in one project.

Hence, Muloowoza and Omega are removed from further evaluation at this stage.

3.1.6 Evaluations on Financial Aspect

3.1.6.1 Priced BQ

(1) Eastern Builders and Engineers Ltd

Eastern has been removed from this evaluation.

(2) Mulowooza & Brothers Ltd.

Muloowoza has been removed from this evaluation.

(3) Omega Construction Ltd.

Omega has been removed from this evaluation.

(4) Spencon Services Ltd.

Spencon has passed all examination and evaluations explained above.

Priced BQ is checked at this stage and a calculation error was found out on the Day Work. Hence, the Bid Price was corrected to be of 5,880,097,578 Ushs since the result of calculation by unit price and quantity is more respected than submitted the Bid Price.

3.1.7 Evaluation Result

Evaluation results are summarized as shown below,

Table 3.1.3 Summary of Evaluation Results

		Eastern Builders& Engineers Ltd.	Mulowooza & Brothers Ltd.	Omega Construction Ltd.	Spencon Service Ltd.
Bids Opening	Bid Price (Ushs.)	7,839,269,534-	7,759,148,926-	7,878,753,437-	5,862,847,578-
	Bid Security (Ushs.)	50,000,000-	50,000,000-	50,000,000-	50,000,000-
Preliminary Examination		Passed ↓	Passed ↓	Passed ↓	Passed ↓
Legal Aspects	Compliance and Responsiveness of Bid	Not Passed	Passed ↓	Passed ↓	Passed ↓
	Average Annual Volume of Construction Work		Passed ↓	Passed ↓	Passed ↓
	Lines of Credit		Passed ↓	Passed ↓	Passed ↓
Technical Aspects	Proposed Work Method & Schedule		Passed ↓	Passed ↓	Passed ↓
	Record of Previous Experience in Works of Similar Nature		Not Passed	Not Passed	Passed ↓
	Personnel & Equipment Schedule		Not Passed	Not Passed	Passed ↓
Financial Aspect	Priced BQ				5,880,097,578-

3.2 Result of Bidding for Lot 2 (Otwee-Wii Anaka Road)

3.2.1 Introduction

The bid opening ceremony was held on 13th Jan. ’10 at JICA Uganda Office with the following participants,

- Mr. Tetsuo Seki — Chief Representative, JICA Uganda Office
- Ms. Yuriko Doi — Representative, JICA Uganda Office
- Ms. Akiko Namami — Representative, JICA Uganda Office
- Mr. Charles Ngeye — Senior Engineer/Coordinator, MoWT
- Mr. G. Magala — Senior Engineer, MoWT
- Mr. Okello Louis P'Abur — Senior Engineer, Amuru District
- Mr. Teruaki Mimami — Engineer, Study Team
- Mr. Tetsuro Izawa — Road Designer (2), Study Team
- Mr. Tsuyoshi Nakajima — Project Coordinator, Study Team
- Mr. Taremwa Peace — Administrator, Study Team

The Bidders who submitted the bid were as follows (in ABC order),

LOT2:5 bidders,

- Eastern Builders and Engineers Ltd.
- Mulowooza & Brothers Ltd.
- Nile Perch General Agency Ltd
- Spencon Services Ltd.
- Top Care Consultants & Engineering Works Ltd.

3.2.2 Bid Opening Results

The opening result is shown in Table 3.2.1.

3.2.3 Preliminary Examination

The result of the Preliminary Evaluation is shown in Table 3.2.2. As a result of the Preliminary Examination, Nile Perch General Agency Ltd, and Top Care Consultants & Engineering Works Ltd, are removed from further evaluation

Table 3.2.1 Bids Opening Result

Project for Construction of Bridges over Aswa River and Access Road Improvement/Maintenance Works in Amuru District

Lot 2

	1. Bid Price (Shs.)	2.Bid Security (Amount in Shs.)	3.Remarks
Eastern Builders and Engineers Ltd.	4,212,870,466-	Enclosed (50,000,000-)	Baroda
Mulowooza & Brothers Ltd.	3,992,647,283-	Enclosed (50,000,000-)	Tropical
Muyanga Investments Ltd.		()	
Nile Perch General Agency Ltd.	-	Not Enclosed	-
Omega Construction Ltd.		()	
Spencon Services Ltd.	3,280,818,396-	Enclosed (50,000,000-)	Standard Chartered
Top Care Consultants & Engineering Works Ltd.	1,323,985,525-	Enclosed (50,000,000-)	Global Trust

Table 3.2.2 Result of Preliminary Examination

Preliminary Examination for Project for Construction of Bridges over Aswa River and Access Road Improvement/Maintenance Works in Amuru District Lot 2

Item	Eastern Builders and Engineers Ltd.	Mulowooza & Brothers Ltd.	Nile Perch General Agency Ltd.	Spencon Services Ltd.	Top Care Consultants & Engineering Works Ltd.
1. Bid Submission Sheet	X	X	-	X	X
2. Bid Security	X	X	-	X	X
3. Power of Attorney	?	X		X	X
4. Eligibility					
(1) Trading License for the Year 2009/10	X	X		X	-
(2) Certificate of Registration/Incorporation	X	X		X	X
(3) Income tax Clearance Certificate for Trading/Accounting year 2008/09	?	X		X	X
(4) Copy of VAT Registration	X	X		X	X
(5) Statement in Bid Submission Sheet to meet the Eligibility	X			X	X
(6) Declaration in the Bid Submission Sheet of Nationality of the Bidder	?	X		X	X
(7) Statement in Bid Submission Sheet of No Conflict of Interest	X	X		X	X
(8) Declaration in Bid Submission Sheet not under Suspension by PPDA	X	X		X	X
(9) Contractor's Category	A+	A	Not Known	A+	Not Known
5. Priced BQ	X	X		X	X
6.Proposed Work Method & Schedule	X	X		X	-
7. Site Visit Certificate	X	X		X	X
8.Personnel & Equipment Schedule	X	X		X	X
9. Audit Accounts	X	X		X	X
10.Records of Previous Experience in Works of Similar Nature	X	X		X	X

3.2.4 Evaluations on Legal Aspect

3.2.4.1 Compliance and Responsiveness of Bid

The following items are evaluated on each bid.

(1) Eastern Builders and Engineers Ltd.

Requirement	Compliance	Remarks
1 Power of Attorney In general, the Power of Attorney shall be authentic.	Eastern submitted the Power of Attorney which was not registered by registrar of companies. The issuance day was 12th July 2002.	Eastern was not complainant of the requirement. Power of Attorney with date in 2002 was not evaluated as appropriate to this bid.
2 Bid Validity BDS clause ITB 17.1 requires 90 days as the bid validity days.	Eastern did not mention bid validity period.	The validity was not specified in the submission, hence it is rejected.

(2) Mulowooza & Brothers Ltd.

Requirement	Compliance	Remarks
1 Power of Attorney In general, the Power of Attorney shall be authentic.	Mulowooza submitted the Power of Attorney which was registered by registrar of companies.	Mulowooza satisfied the requirement.
2 Bid Validity BDS clause ITB 17.1 requires 90 days as the bid validity day.	Mulowooza mentioned 90 days as bid validity day.	Mulowooza satisfied the requirement.

(3) Spencon Services Ltd.

Requirement	Compliance	Remarks
1 Power of Attorney In general, the Power of Attorney shall be authentic.	Spencon submitted the Power of Attorney which was registered by registrar of companies.	Spencon satisfied the requirement.
2 Bid Validity BDS clause ITB 17.1 requires 90 days as the bid validity day.	Spencon mentioned 90 days as bid validity day.	Spencon satisfied the requirement.

As a result of the above evaluations, Eastern Builders and Engineers Ltd, is removed from further evaluations.

3.2.4.2 Average Annual Volume of Construction Works

(1) Eastern Builders and Engineers Ltd

Requirement	Compliance	Remarks
ITB 6.1 (a) requires that average annual volume of construction work over the past 5 years of at least to be 4 billion Ushs.	-	Eastern has been removed from this evaluation as the result of 3.2.4.1.

(2) Mulowooza & Brothers Ltd.

Requirement	Compliance	Remarks
ITB 6.1 (a) requires that average annual volume of construction work over the past 5 years of at least to be 4 billion Ushs.	Mulowooza mentioned, in the submission, the annual volume of construction work on, Year 2008: 7,045,201,494 Ushs Year 2007:.7,596,233,673 Ushs Year 2006: 15, 371,818,815 Ushs. Year 2005: 10,378, 732,315 Ushs. Year 2004: 7,154,244,400 Ushs. which becomes 9,509,246,139 Ushs on average.	Mulowooza satisfied the requirement.

(3) Spencon Services Ltd.

Requirement	Compliance	Remarks
ITB 6.1 (a) requires that average annual volume of construction work over the past 5 years of at least to be 4 billion Ushs.	Spencon mentioned, in the submission, amount of certified contract revenues, Year 2008: 67,614,886,197 Ushs Year 2007: 67,932,215,222 Ushs Year 2006: 46,185,468,224 Ushs. Year 2005: 38,028,623,984 Ushs. Year 2004: 30,332,451,934 Ushs. which becomes 50,018,729,112 Ushs on average.	Spencon satisfied the requirement.

As a result of the above evaluations, no bidders are removed from further evaluations except Eastern Builders and Engineers Ltd.

3.2.4.3 Lines of Credit

(1) Eastern Builders and Engineers Ltd

Requirement	Compliance	Remarks
ITB 6.1 (e) requires liquid assets or credit facilities to be more than 1.5 billion Ushs.	-	Eastern has been removed from this evaluation as the result of 3.2.4.1.

(2) Mulowooza & Brothers Ltd.

Requirement	Compliance	Remarks
ITB 6.1 (e) requires liquid assets or credit facilities to be more than 1.5 billion Ushs.	Mulowooza submitted a copy of letter from Tropical Bank certifying ten digits Uganda Ushs (i.e. max 9,999,999,999.Ushs.) as the Lines of Credit.	Mulowooza satisfied the requirement.

(3) Spencon Services Ltd.

Requirement	Compliance	Remarks
ITB 6.1 (e) requires liquid assets or credit facilities to be more than 1.5 billion Ushs.	Spencon submitted a letter from Baroda certifying no less than 1.5 billion Ushs. as the Lines of Credit. Spencon submitted also a copy of letter from Standard Chartered Bank certifying 900,000 USD and 1,000,000,000 Ushs. which is equivalent to aprox. 2,710,000,000 Ushs. in total as the overdraft (Lines of Credit) .	Spencon satisfied the requirement.

As a result of the above evaluations, no bidders are removed from further evaluations except Eastern Builders and Engineers Ltd who has been removed at previous evaluation.

3.2.5 Evaluations on Technical Aspect

3.2.5.1 Proposed Work Method & Schedule

(1) Eastern Builders and Engineers Ltd

Requirement	Compliance	Remarks
The following aspects are checked in Work Method & Schedule		Eastern has been removed from this evaluation as the result of 3.2.4.1.
1) Construction Time & Schedule		
• Total construction time (within in rhe given 9 months or not)		
• Considerations for rainy season for work items		
2) Detail Statements for Work Method		
• Concrete Work		
• Form Work		
• Temporary Work on Bridge Work (River Diversion and/or any Measurements for Work in River)		
• Work Method/Sequence for Construction of Super-structure		
3) Any Statements for Safety		
4) Any Statements evaluated as good		

(2) Mulowooza & Brothers Ltd.

Requirement	Compliance	Remarks
The following aspects are checked in Work Method & Schedule		
1) Construction Time & Schedule		
• Total construction time (within in the given 9 months or not)	Total construction time was proposed to be 9 months.	Proposed construction time was in accordance with the given 9 months.
• Considerations for rainy season for work items	No statement,	
2) Detail Statements for Work Method		
• Concrete Work	No statement,	
• Form Work	No statement,	
• Temporary Work on Bridge Work (Any Measurements for Work in River)	River diversion was mentioned.	River diversion is considered to be difficult since the soil condition at either side of river was hard rock and that information could be obtained from the boring log in the Drawing.
• Work Method/Sequence for Construction of Super-structure	There was a statement of “Construction of bridge”.	It was general.
3) Any Statements for Safety	Some measurements for Road Users and Workers such as provision of sign post and diversion of road were mentioned in the submission.	They were general.
4) Any Statements evaluated as good		Nil

(3) Spencon Services Ltd.

Requirement	Compliance	Remarks
The following aspects are checked in Work Method & Schedule		
1) Construction Time & Schedule		
• Total construction time (within in the given 9 months or not)	Total construction time was proposed to be 9 months.	Proposed construction time was in accordance with the given 9 months.
• Considerations for rainy season for work items	No statement,	
2) Detail Statement for Work Method		
• Concrete Work	There was a statement for concrete work in "Concrete Works for Substructure, Beam & Deck Slab Works".	The concrete work method and its sequence for concrete were understood well.
• Form Work	No statement,	
• Temporary Work on Bridge Work (Any Measurements for Work in River)	There was a statement of the case of provision of Coffer dam.	It was understood that the statement was just in case (assumption), no detail consideration for temporary work was mentioned in the submission.
• Work Method/Sequence for Construction of Super-structure	No statement,	
3) Any Statement for Safety	Some detail measurements in terms of safety for pedestrians were mentioned in the submission.	No statement for workers was mentioned in the submission.
4) Any Statements evaluated as good		Nil

The statement of Spencon was more detailed compared to other bidder; however no bidders are removed from further evaluation except Eastern at this stage since any significant differences were not found out in terms of engineering aspects.

3.2.5.2 Record of Previous Experience in Works of Similar Nature

(1) Eastern Builders and Engineers Ltd

Requirement	Compliance	Remarks
ITB 6.1 (b) requires work experiences as follows, At least 2 projects of nature and complexity equivalent to the Works over the last 5 yrs.(Concrete Bridge Work)		Eastern has been removed from this evaluation as the result of 3.2.4.1.

(2) Mulowooza & Brothers Ltd.

Requirement	Compliance	Remarks
ITB 6.1 (b) requires work experiences as follows, At least 2 projects of nature and complexity equivalent to the Works over the last 5 yrs.(Concrete Bridge Work)	Mulowooza listed 39 projects in the submission as similar work experiences.	There were some road projects as experiences; however work contents were not detailed. The Engineer carried out further clarification, however the experiences mentioned in the submission was not in accordance with the requirement.

(3) Spencon Services Ltd.

Requirement	Compliance	Remarks
ITB 6.1 (b) requires work experiences as follows, At least 2 projects of nature and complexity equivalent to the Works over the last 5 yrs.(Concrete Bridge Work)	Specncon listed 33 projects in the submission as similar work experiences.	One (1) similar experience was found in the submission and that work contained 5 bridges. There were also other three (3) concrete bridge projects; however its participations were as a sub-contractor.

3.2.5.3 Personnel and Equipment Schedule

(1) Eastern Builders and Engineers Ltd

Requirement	Compliance	Remarks
3 ITB 6.1 (c) requires the essential equipments as follows, (1) 2 nos. of Excavator (0.7 cu.m) (2) 1 nos. of Bulldozer (21t) (3) 10 nos. of Dump truck (15t) (4) 1 nos. of Motor Grader (3.1m) (5) 1 nos. of Vibration Roller (10t) (6) 1 nos. of Tyre Roller (10 t) (7) 2 nos. of Concrete Mixer (0.5 m3) (8) 1 nos. of Crawler Crane (60t)		Eastern has been removed from this evaluation as the result of 3.2.4.1.
4 ITB 6.1 (d) requires the essential work experiences on personnel as follows, (1) Contract Manager (CM)with 8 yrs. for total exp. and 5 yrs for similar works and 1 cont. as Manager of similar works (2) Chief Engineer (CE)with 5 yrs. for total exp. and 5 yrs for similar works and 1 cont. as Manager of similar works (3) Concrete Works Foreman (CWF)with 5 yrs. for total exp. and 3 yrs for similar works (4) Form/ False Works Foreman (FWF)with 3 yrs. for total exp. and 3 yrs for similar works		Eastern has been removed from this evaluation as the result of 3.2.4.1.

(2) Mulowooza & Brothers Ltd.

Requirement	Compliance	Remarks
3 ITB 6.1 (c) requires the essential equipments as follows, (1) 2 nos. of Excavator (0.7 cu.m) (2) 1 nos. of Bulldozer (21t) (3) 10 nos. of Dump truck (15t) (4) 1 nos. of Motor Grader (3.1m) (5) 1 nos. of Vibration Roller (10t) (6) 1 nos. of Tyre Roller (10 t) (7) 2 nos. of Concrete Mixer (0.5 m3) (8) 1 nos. of Crawler Crane (60t)	Mulowooza listed 16 types of owned construction equipments in the submission which covered the requirement with exception of Crawler Crane. However he proposed construction equipments which contained a Crawler Crane (60t).	Mulowooza satisfied the requirement.
4 ITB 6.1 (d) requires the essential work experiences on personnel as follows,		
(1) Contract Manager (CM) with 8 yrs. for total exp. and 5 yrs for similar works and 1 cont. as Manager of similar works	Mulowooza proposed Mr. James Kibuuka M as C.M.	Mr. James Kibuuka M has long civil work experiences as 20 yrs; however he had only one bridge project experience.
(2) Chief Engineer (CE) with 5 yrs. for total exp. and 5 yrs for similar works and 1 cont. as Manager of similar works	Mulowooza proposed Mr. Ssebriumbi Ronald as C.E.	Mr. Ssebriumbi Ronald has no site experience as an engineer for contractor.
(3) Concrete Works Foreman (CWF) with 5 yrs. for total exp. and 3 yrs for similar works	Mulowooza proposed Mr. Wamboga Kenneth as CWF.	No concrete work experience was found in the CV of Mr. Wamboga Kenneth.
(4) Form/ False Works Foreman (FWF)with 3 yrs. for total exp. and 3 yrs for similar works	Mulowooza proposed Mr. Okuna Seth as FWF.	Mr. Okuna Seth had work experiences with several contractors, no detail info. was mentioned in the CV.
		All the above candidates did not satisfy the requirement.

(3) Spencon Services Ltd.

Requirement	Compliance	Remarks
3 ITB 6.1 (c) requires the essential equipments as follows, (1) 2 nos. of Excavator (0.7 cu.m) (2) 1 nos. of Bulldozer (21t) (3) 10 nos. of Dump truck (15t) (4) 1 nos. of Motor Grader (3.1m) (5) 1 nos. of Vibration Roller (10t) (6) 1 nos. of Tyre Roller (10 t) (7) 2 nos. of Concrete Mixer (0.5 m3) (8) 1 nos. of Crawler Crane (60t)	Spencon attached the list of owned equipments with condition which covered the requirement.	Spencon satisfied the requirement.
4 ITB 6.1 (d) requires the essential work experiences on personnel as follows,		
(1) Contract Manager (CM) with 8 yrs. for total exp. and 5 yrs for similar works and 1 cont. as Manager of similar works	Spencon proposed Mr. Murail Krishana as C.M.	Mr. Murail Krishana has long civil work experiences both as manager and engineer. He has participated in some minor bridge works. He satisfied the requirement.
(2) Chief Engineer (CE) with 5 yrs. for total exp. and 5 yrs for similar works and 1 cont. as Manager of similar works	Spencon proposed Mr. U.Vijay Bhaskar as C.E.	Mr. U.Vijay Bhaskar has long civil work experiences as engineer. He has participated in some bridge construction project. He satisfied the requirement.
(3) Concrete Works Foreman (CWF) with 5 yrs. for total exp. and 3 yrs for similar works	Spencon proposed Mr. Opio James as CWF.	Mr. Opio James has long civil work experiences as foreman. He has experienced a lot of works of concrete facility. He satisfied the requirement.
(4) Form/ False Works Foreman (FWF)with 3 yrs. for total exp. and 3 yrs for similar works	Spencon proposed Mr. Oyet Patric as FWF.	Mr. Oyet Patric has long work experiences at Spencon. He has participated in many road project contained concrete facility such as box culvert. He satisfied the requirement.
		All the above candidates satisfied the requirement.

As the results of above evaluations, no bidders fully satisfied the requirement. However, it was realized that Spencon is capable for the Work since he had an experience of some bridge construction works although those were in one project.

Hence, Muloowoza is removed from further evaluation at this stage.

3.2.6 Evaluations on Financial Aspect

3.2.6.1 Priced BQ

(1) Eastern Builders and Engineers Ltd

Eastern has been removed from this evaluation.

(2) Mulowooza & Brothers Ltd.

Muloowoza has been removed from this evaluation.

(3) Spencon Services Ltd.

Spencon has passed all examination and evaluations explained above.

Priced BQ is checked at this stage and no calculation error found out.

3.2.7 Evaluation Result

Evaluation results are summarized as shown below,

Table 3.2.3 Summary of Evaluation Results

		Eastern Builders& Engineers Ltd.	Mulowooza & Brothers Ltd.	Nile Perch Geneal Agency Ltd.	Spencon Service Ltd.	Top Care Consultants & Engineering Works Ltd.
Bids Opening	Bid Price (Ushs.)	4,212,870,466-	3,992,647,283-	Not Mentioned	3,280,818,396-	1,323,985,525-
	Bid Security (Ushs.)	50,000,000-	50,000,000-	Not Enclosed	50,000,000-	50,000,000-
Preliminary Examination		Passed ↓	Passed ↓	Not Passed	Passed ↓	Not Passed
Legal Aspects	Compliance and Responsiveness of Bid	Not Passed	Passed ↓		Passed ↓	
	Average Annual Volume of Construction Work		Passed ↓		Passed ↓	
	Lines of Credit		Passed ↓		Passed ↓	
Technical Aspects	Proposed Work Method & Schedule		Passed ↓		Passed ↓	
	Record of Previous Experience in Works of Similar Nature		Not Passed		Passed ↓	
	Personnel & Equipment Schedule		Not Passed		Passed ↓	
Financial Aspect	Priced BQ				3,280,818,396-	

3.3 Otwee-Wii Anaka Road (Lot 2), Re-Bidding

Since the Instruction to Bidders stated that no bidders are awarded on both lots, the Spencon who passed all evaluation steps on the both lots had to select a lot for his work. Consequently, the Spencon decided to select the Lot 1 that was accepted by the Employer.

Because of no other bidders who passed all the evaluation steps of the Lot 2, the Re-bidding was planned among the restricted contractors which were listed with the recommendation of MoWT.

At same time, the condition of which the no bidders are awarded on both lots was removed; therefore the Specon could also be one of the eligible contractors for the Lot2 Re-Bidding.

Restricted Contractors were as follows,

- BCR General Limited
- Dott Services Limited
- Eastern Builders and Engineers Limited
- Mulowooza & Brothers Ltd.
- Sobetra Uganda Limited
- Specon Services Limited

Above restricted contractors is either with Class A+ or Class A

3.3.1 Introduction

The bid opening ceremony was held on 10th Mar. ’10 at JICA Uganda Office with the following participants,

- Mr. Tetsuo Seki — Chief Representative, JICA Uganda Office
- Ms. Akiko Namami — Representative, JICA Uganda Office
- Mr. G. Magala — Senior Engineer, MoWT
- Mr. Okello Louis P'Abur — Senior Engineer, Amuru District
- Dr. Hideki Yoneyama — Project Manager, Study Team
- Mr. Teruaki Mimami — Engineer, Study Team
- Mr. Tetsuro Izawa — Road Designer (2), Study Team
- Mr. Hiroyuki Morimoto — Project Coordinator, Study Team
- Mr. Taremwa Peace — Administrator, Study Team

The Bidders who submitted the bid were as follows (in ABC order),

2 bidders,

- Eastern Builders and Engineers Ltd.
- Spencon Services Ltd.

3.3.2 Bids Opening Result

The opening result is shown in Table 3.3.1.

3.3.3 Preliminary Examination

The result of the Preliminary Evaluation is shown in Table 3.3.2. As a result of the Preliminary Examination, no bidder removed from further evaluation.

Table 3.3.1 Bids Opening Result

PROJECT FOR CONSTRUCTION OF BRIDGE OVER ASWA RIVER AND ACCESS ROAD IMPROVEMENT / MAINTENANCE WORKS ALONG EXISTING OTWEE-WII ANAKA ROAD, IN AMURU DISTRICT

Detail of Bid Results

Names of Bidder	1. Financial Proposal(Ushs)	2. Bid Security (Ushs)	3.Bank issuing Bid Security	4 Discount Offer
Eastern Builders & Engineers Ltd.	3,240,543,868-	50,000,000-	Baroda	Nil
Spencon Services Ltd.	2,633,471,486-	50,000,000-	Crane	Nil

Table 3.3.2 Result of Preliminary Examination

PROJECT FOR CONSTRUCTION OF BRIDGE OVER ASWA RIVER AND ACCESS ROAD IMPROVEMENT / MAINTENANCE WORKS ALONG EXISTING OTWEE-WII ANAKA ROAD, IN AMURU DISTRICT

Preliminary Examination Results

item	Eastern Builders & Engineers Ltd.	Spencon Services Ltd.
1. Bid Submission Sheet	X	X
2. Bid Security	X	X
3. Power of Attorney	X	X
4. Eligibilities		
(1) Trading License for the Year 2009/2010	X	X
(2) Certificate of Registration/Incorporation	X	X
(3) Income Tax Clearance Certificate for Trading/Accounting Year 2008/2009	?	X
(4) Copy of VAT Registration	X	X
(5) Statement in Bid Submission Sheet to meet the Eligibility	X	X
(6) Declaration in the Bid Submission Sheet of Nationality of Bidder	X	X
(7) Statement in Bid Submission of No Conflict of Interest	X	X
(8) Declaration in Bid Submission Sheet not under the Suspension by PPDA	X	X
5. Priced BQ	X	X
6. Proposed Work Method & Schedule	X	X
7.Site Visit Certificate	X	X
8.Personnel & Equipment Schedule	X	X
9.Audit Accounts	X	X
10.Records of Previous Experience in Works of Similar Nature	X	X

3.3.4 Evaluations on Legal Aspect

3.3.4.1 Compliance and Responsiveness of Bid

The following items are evaluated on each bid,

(1) Eastern Builders and Engineers Ltd.

Requirement	Compliance	Remarks
1 Power of Attorney In general, the Power of Attorney shall be authentic.	Eastern submitted the General Power of Attorney which was registered by registrar of companies. The issuance day was 5th July 2001.	General Power of Attorney with date in 2001 was not considered as appropriate to this bid.
2 Bid Validity BDS clause ITB 17.1 requires 90 days as the bid validity days.	Eastern mention bid validity period to be 118 days.	The validity was more than the requirement. Eastern satisfied the requirement.

(2) Spencon Services Ltd.

Requirement	Compliance	Remarks
1 Power of Attorney In general, the Power of Attorney shall be authentic.	Spencon submitted General Power of Attorney which was registered by registrar of companies.	Spencon satisfied the requirement.
2 Bid Validity BDS clause ITB 17.1 requires 90 days as the bid validity day.	Spencon mentioned 90 days as bid validity day.	Spencon satisfied the requirement.

As a result of the above evaluations, no bidders are removed from further evaluations.

3.3.4.2 Average Annual Volume of Construction Works

(1) Eastern Builders and Engineers Ltd

Requirement	Compliance	Remarks
ITB 6.1 (a) requires that average annual volume of construction work over the past 5 years of at least to be 4 billion Ushs.	Eastern mentioned, in the submission, the annual volume of construction work on, Year 2008: 5,485,683,000 Ushs Year 2007:.5,671,989,000 Ushs Year 2006: 3,049,492,000 Ushs. Year 2005: 5,104,813,000 Ushs. Year 2004: 7,154,244,400 Ushs. which becomes 4,538,270,200 Ushs on average.	Eastern satisfied the requirement.

(2) Spencon Services Ltd.

Requirement	Compliance	Remarks
ITB 6.1 (a) requires that average annual volume of construction work over the past 5 years of at least to be 4 billion Ushs.	Spencon mentioned, in the submission, amount of certified contract revenues, Year 2008: 45,260,000 USD Year 2007: 46,250,000 USD Year 2006: 30,530,000 USD Year 2005: 20,780,000 USD. Year 2004: 22,040,000 USD which becomes USD 32,972,000 on average that is equivalent to 65,944,000,000 Ushs.	Spencon satisfied the requirement.

As a result of the above evaluations, no bidders are removed from further evaluations.

3.3.4.3 Lines of Credit

(1) Eastern Builders and Engineers Ltd

Requirement	Compliance	Remarks
ITB 6.1 (e) requires liquid assets or credit facilities to be more than 1.5 billion Ushs.	Eastern submitted a letter from Baroda certifying Eastern's capability which is approx. 3,000,000 USD .	Eastern satisfied the requirement.

(2) Spencon Services Ltd.

Requirement	Compliance	Remarks
ITB 6.1 (e) requires liquid assets or credit facilities to be more than 1.5 billion Ushs.	Spencon submitted a letter from Standard Chattered Bank that mentioned 1.5 billion Ushs is possible to be arranged by Bank when Spencon is appointed to this project. Spencon submitted also a copy of letter from Standard Chartered Bank certifying 1,000,000 USD and 1,000,000,000 Ushs. which is equivalent to aprox. 3,000,000,000 Ushs. in total as the overdraft (Lines of Credit). Moreover Specon submitted letters from other two banks certifying spencon's capability which are more than requirement.	Spencon satisfied the requirement.

As a result of the above evaluations, no bidders are removed from further evaluations.

3.3.5 Evaluations on Technical Aspect

3.3.5.1 Proposed Work Method & Schedule

(1) Eastern Builders and Engineers Ltd

Requirement	Compliance	Remarks
The following aspects are checked in Work Method & Schedule		
1) Construction Time & Schedule		
• Total construction time (within in rhe given 240days or not)	Total construction time was proposed to be 9 months.	Proposed construction time was 9 month which exceeds the requirement. Eastern was not complainant of the requirement.
• Considerations for rainy season for work items	No statement,	
2) Detail Statements for Work Method	There was some statements but general on each work.	
• Concrete Work		
• Form Work		
• Temporary Work on Bridge Work (River Diversion and/or any Measurements for Work in River)		
• Work Method/Sequence for Construction of Super-structure		
3) Any Statements for Safety		
4) Any Statements evaluated as good		

(2) Spencon Services Ltd.

Requirement	Compliance	Remarks
The following aspects are checked in Work Method & Schedule		
1) Construction Time & Schedule		
• Total construction time (within in the given 240days or not)	Total construction time was proposed to be 8 months.	Proposed construction time was in accordance with the given period.
• Considerations for rainy season for work items	No statement,	
2) Detail Statement for Work Method		
• Concrete Work	There was a statement for concrete work in "Concrete Works for Substructure, Beam & Deck Slab Works".	The concrete work method and its sequence for concrete were understood well.
• Form Work	No statement,	
• Temporary Work on Bridge Work (Any Measurements for Work in River)	There was a statement of the case of provision of Coffer dam.	It was understood that the statement was just in case (assumption), no detail consideration for temporary work was mentioned in the submission.
• Work Method/Sequence for Construction of Super-structure	No statement,	
3) Any Statement for Safety	Some detail measurements in terms of safety for pedestrians were mentioned in the submission.	No statement for workers was mentioned in the submission.
4) Any Statements evaluated as good		Nil

As a result of the above evaluations, Eastern is removed from further evaluations.

3.3.5.2 Record of Previous Experience in Works of Similar Nature

(1) Eastern Builders and Engineers Ltd

Requirement	Compliance	Remarks
ITB 6.1 (b) requires work experiences as follows, At least 2 projects of nature and complexity equivalent to the Works over the last 5 yrs.(Concrete Bridge Work)		Eastern has been removed from this evaluation as the result of 5-1.

(2) Spencon Services Ltd.

Requirement	Compliance	Remarks
ITB 6.1 (b) requires work experiences as follows, At least 2 projects of nature and complexity equivalent to the Works over the last 5 yrs.(Concrete Bridge Work)	Specncon listed 33 projects in the submission as similar work experiences.	Two (2) similar experiences were found in the submission. There were also other three (3) concrete bridge projects; however its participations were as a sub-contractor.

3.3.5.3 Personnel and Equipment Schedule

(1) Eastern Builders and Engineers Ltd

Requirement	Compliance	Remarks
5 ITB 6.1 (c) requires the essential equipments as follows, (1) 2 nos. of Excavator (0.7 cu.m) (2) 1 nos. of Bulldozer (21t) (3) 10 nos. of Dump truck (15t) (4) 1 nos. of Motor Grader (3.1m) (5) 1 nos. of Vibration Roller (10t) (6) 1 nos. of Tyre Roller (10 t) (7) 2 nos. of Concrete Mixer (0.5 m3) (8) 1 nos. of Crawler Crane (60t)		Eastern has been removed from this evaluation as the result of 5-1.
6 ITB 6.1 (d) requires the essential work experiences on personnel as follows, (1) Contract Manager (CM)with 8 yrs. for total exp. and 5 yrs for similar works and 1 cont. as Manager of similar works (2) Chief Engineer (CE)with 5 yrs. for total exp. and 5 yrs for similar works and 1 cont. as Manager of similar works (3) Concrete Works Foreman (CWF)with 5 yrs. for total exp. and 3 yrs for similar works (4) Form/ False Works Foreman (FWF)with 3 yrs. for total exp. and 3 yrs for similar works		Eastern has been removed from this evaluation as the result of 5-1.

(2) Spencon Services Ltd.

Requirement	Compliance	Remarks
5 ITB 6.1 (c) requires the essential equipments as follows, (1) 2 nos. of Excavator (0.7 cu.m) (2) 1 nos. of Bulldozer (21t) (3) 10 nos. of Dump truck (15t) (4) 1 nos. of Motor Grader (3.1m) (5) 1 nos. of Vibration Roller (10t) (6) 1 nos. of Tyre Roller (10 t) (7) 2 nos. of Concrete Mixer (0.5 m3) (8) 1 nos. of Crawler Crane (60t)	Spencon attached the list of owned equipments with condition which covered the requirement.	Spencon satisfied the requirement.
6 ITB 6.1 (d) requires the essential work experiences on personnel as follows,		
(1) Contract Manager (CM) with 8 yrs. for total exp. and 5 yrs for similar works and 1 cont. as Manager of similar works	Spencon proposed Mr. Murail Krishana as C.M.	Mr. Murail Krishana has long civil work experiences both as manager and engineer. He has participated in some minor bridge works. He satisfied the requirement.
(2) Chief Engineer (CE) with 5 yrs. for total exp. and 5 yrs for similar works and 1 cont. as Manager of similar works	Spencon proposed Mr. U.Vijay Bhaskar as C.E.	Mr. U.Vijay Bhaskar has long civil work experiences as engineer. He has participated in some bridge construction project. He satisfied the requirement.
(3) Concrete Works Foreman (CWF) with 5 yrs. for total exp. and 3 yrs for similar works	Spencon proposed Mr. Opio James as CWF.	Mr. Opio James has long civil work experiences as foreman. He has experienced a lot of works of concrete facility. He satisfied the requirement.
(4) Form/ False Works Foreman (FWF)with 3 yrs. for total exp. and 3 yrs for similar works	Spencon proposed Mr. Oyet Patric as FWF.	Mr. Oyet Patric has long work experiences at Spencon. He has participated in many road project contained concrete facility such as box culvert. He satisfied the requirement.
		All the above candidates satisfied the requirement.

3.3.6 Evaluations on Financial Aspect

3.3.6.1 Priced BQ

(1) Eastern Builders and Engineers Ltd

Eastern has been removed from this evaluation.

(2) Spencon Services Ltd.

Spencon has passed all examination and evaluations explained above.

Priced BQ is checked at this stage and some calculation error found out. Hence, the Bid Price was corrected to be of 2,633,321,486 Ushs since the result of calculation by unit price and quantity is more respected than submitted the Bid Price.

3.3.7 Evaluation Result

Evaluation results are summarized as shown below,

Table 3.3.3 Summary of Evaluation Results

		Eastern Builders& Engineers Ltd.	Spencon Service Ltd.
Bids Opening	Bid Price (Ushs.)	3,240,543,868-	2,633,471,486-
	Bid Security (Ushs.)	50,000,000-	50,000,000-
Preliminary Examination		Passed ↓	Passed ↓
Legal Aspects	Compliance and Responsiveness of Bid	Passed ↓	Passed ↓
	Average Annual Volume of Construction Work	Passed ↓	Passed ↓
	Lines of Credit	Passed ↓	Passed ↓
Technical Aspects	Proposed Work Method & Schedule	Not Passed	Passed ↓
	Record of Previous Experience in Works of Similar Nature		Passed ↓
	Personnel & Equipment Schedule		Passed ↓
Financial Aspect	Priced BQ		2,633,321,486-

Hence the bid by Spencon Service Limited is selected as recommendable since it satisfied all requirements.

APPENDIX 3

SUMMARY OF CONSTRUCTION SUPERVISION FOR PILOT PROJECT

4. SUMMARY OF CONSTRUCTION SUPERVISION

4.1 Lot 1 (Otwee-Anaka Road)

4.1.1 Work Progress

Summary of Work Progress for Lot 1 is shown in Figure 1.

Date	No	Cumulative Progress		Monthly Progress		Advance Payment	Retention	Liquidated Damages	Monthly Certificate	Cumulative Certificate
		UGX	%	UGX	%	UGX	UGX	UGX	UGX	UGX
Advance Payment			0.0%		0.0%				1,176,019,516	1,176,019,516
01-Apr-10	1	233,280,819	4.0%	233,280,819	4.0%	-46,656,164	-11,664,041		174,960,614	1,350,980,130
01-May-10	2	539,958,488	9.2%	306,677,669	5.2%	-61,335,534	-15,333,883		230,008,252	1,580,988,382
01-Jun-10	3	642,157,728	10.9%	102,199,240	1.7%	-20,439,848	-5,109,962		76,649,430	1,657,637,812
01-Jul-10	4	856,842,069	14.6%	214,684,341	3.7%	-42,936,868	-10,734,217		161,013,256	1,818,651,068
01-Aug-10	5	978,060,872	16.6%	121,218,803	2.1%	-24,243,761	-6,060,940		90,914,102	1,909,565,170
01-Sep-10	6	1,143,778,846	19.5%	165,717,914	2.8%	-33,143,583	-8,285,896		124,288,435	2,033,853,605
01-Oct-10	7	1,261,791,084	21.5%	118,012,238	2.0%	-23,602,448	-5,900,612		88,509,178	2,122,362,783
01-Nov-10	8	1,402,459,453	23.9%	140,668,369	2.4%	-28,133,674	-7,033,418		105,501,277	2,227,864,060
01-Dec-10	9	1,535,950,317	26.1%	133,490,864	2.3%	-26,698,173	-6,674,543		100,118,148	2,327,982,208
01-Jan-11	10	1,845,456,701	31.4%	309,506,384	5.3%	-61,901,277	-15,475,319		232,129,788	2,560,111,996
01-Feb-11	11	1,903,823,303	32.4%	58,366,602	1.0%	-11,673,320	-2,918,330		43,774,952	2,603,886,948
01-Mar-11	12	2,613,212,604	44.4%	709,389,302	12.1%	-141,877,860	-35,469,465		532,041,976	3,135,928,924
01-Apr-11	13	2,831,098,228	48.1%	217,885,624	3.7%	-43,577,125	-10,894,281	-19,609,706	143,804,512	3,279,733,436
01-May-11	14	3,459,208,453	58.8%	628,110,224	10.7%	-125,622,045	-31,405,511	-56,529,920	414,552,748	3,694,286,184
01-Jun-11	15	3,765,687,528	64.0%	306,479,075	5.2%	-61,295,815	-15,323,954	-27,583,117	202,276,189	3,896,562,373
01-Jul-11	16	4,319,541,963	73.5%	553,854,435	9.4%	-110,770,887	-27,692,722	-49,846,899	365,543,927	4,262,106,300
02-Aug-11	17	4,883,385,770	83.0%	563,843,807	9.6%	-312,111,134	93,892,450	-334,768,935	10,856,248	4,272,962,548
03-Sep-11										
01-Sep-12										
TOTAL				3,765,687,468	83.0%	-753,137,495	-188,284,372	-103,722,743	3,896,562,373	

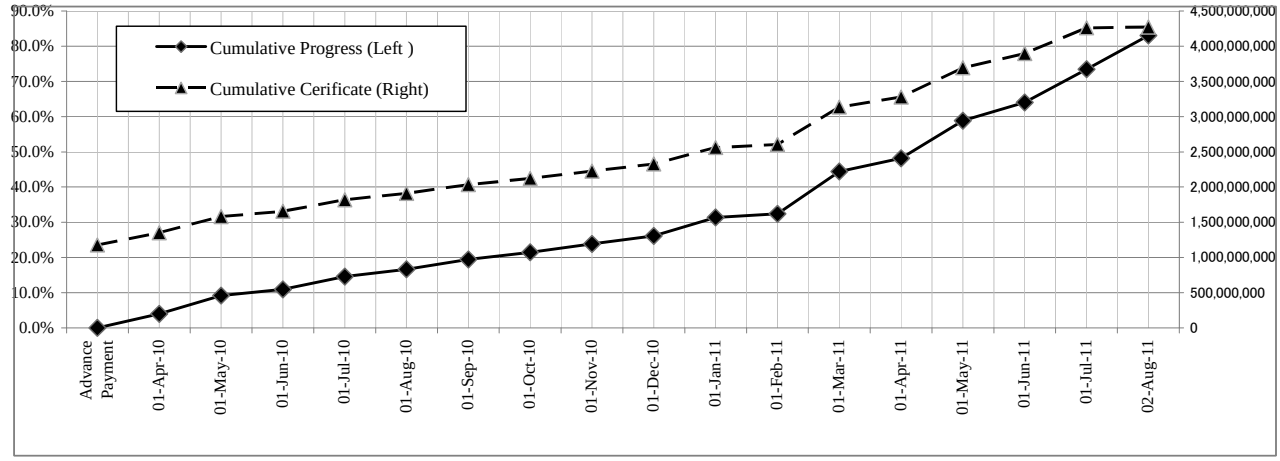

Figure 1 Summary of Work Progress for Lot 1

4.1.2 Manpower Report

Summary of Man Power Report for Lot 1 is shown in Table 1.

Table 1 Summary of Man Power Report for Lot 1

		2010									2011						
		Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Total
1	Project Manager	24	27	28	30	31	29	30	30	30	31	28	28	23	30	29	428
2	Chief Engineer	24	27	28	30	31	29	30	30	30	31	28	28	23	30	29	428
3	Administrator	24	27	28	30	31	29	30	30	30	31	28	28	28	30	29	433
4	Foremen	46	52	71	108	93	87	113	99	80	116	82	121	77	44	60	1,249
5	Headmen	21		30	60	62	0	60	60	40	58	66	62	25	51	75	670
6	Carpenter	23		60	120	227	305	338	307	200	290	226	307	153	8	0	2,564
7	Mason	43	80	84	108	93	97	119	120	80	113	115	126	161	97	578	2,014
8	Steel Fixers	23	27	73	168	96	116	120	129	80	141	141	122	67	0	0	1,303
9	Operators	95	79	84	126	130	137	191	159	120	193	174	250	231	195	161	2,325
10	Surveyors	48		30	42	62	58	60	60	40	58	45	62	50	48	60	723
11	Drivers	48	81	84			174	175	120	100	213	53	179	182	273	224	1,906
12	Labourers	281	104	352	312	908	1,192	1,383	1,216	730	1,028	859	1,098	1,150	706	1,738	13,057
13	Chain man		27	43	42	31	29	30	30	40	58				60	105	495
14	Mechanic			32	60	61	67	92	111	60	77	62	88	86	95	120	1,011
15	Turnman						145	104	115	60	151	22	0	0	133	207	937
16	Guards						348	164	30		342	264	369	342	173	360	2,392
17	Store Keeper										87	15		23	30	45	200
18	Lab Technicians											35	62	23	102	75	297
19	Cooks												7	48	0	0	55
20	Checker													38	29	30	97
21	Welder														8	0	8
	Total	700	531	1,027	1,236	1,856	2,842	3,039	2,646	1,720	3,018	2,243	2,937	2,730	2,142	3,925	32,592

4.1.3 Equipment Report

Summary of Equipment Report for Lot 1 is shown in Table 2.

Table 2 Summary of Equipment Report for Lot 1

		2010									2011						
		Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Total
1	Excavator	20	22	22	20	11	14	30	18	5	43	25	32	47	55	1	365
2	Motor grader	21	8		10	2	5	51	15	19	53	50	51	44	49	1	379
3	Bull dozer	21	6	15	15	14	7	29	4	7	26	15	21	4	25	1	210
4	Vibration Roller	21			4	5		28	8	14	52	51	51	41	40	1	316
5	Dump truck	11	19	72	68	29	27	127	100	58	174	46	115	97	200	3	1,146
6	Pick - up	4	22			1	15	28		34	58	8	12				182
7	Wheel loader			11	10			29					24				74
8	Concrete Mixer				4	5	6	32	9	2	12	14	24	4			112
9	Water bowser							1	3	14	25	16		21	30	1	111
10	Low Bed							4									4
11	Back hoe							2				27	26	13	26	1	95
12	Water Pump								37	6	3	50		26	25	1	148
13	Generator								1				14	2	8		25
14	45t Crane										3		1				4
15	Plate Compactor											25	9	2			36
16	Padestrain Roller												51	35	13		99
17	Compressor													3			3
18	Service Van															1	1
	Total	98	77	120	131	67	74	361	195	159	449	327	431	339	471	11	3,310

4.1.4 Bill of Quantities

The Final Bill of Quantities is shown in Table 3.

Table 3-(1) Final Bill of Quantities for Lot 1 (1)

Item	Description (LOT-1)	Qty Original	Unit Final	Balance	
1300	Contractor's Establishment on Site and General Obligation				
(a)	Fixed Obligations	1	1	0	Lump sum
(b)	Value-related Obligations	1	0.83	0.17	Lump sum
(c)	Time-related Obligations	9	10.1	-1.1	Month
1600	Overhaul				
(a)	Material for Fill or Improved Subgrade Layers	10,000.00	9,312.50	687.5	cu.m km
1700	Environmental Protection and Waste Disposal				
17.01	Environmental Management Plan and Reporting	1	1	0	Lump sum
1800	Occupational Health and Safety, HIV/AID Gender				
18.01	HIV/AIDS and STI Prevention and Counseling				
(a)	Information, Education and Consultation Campaigns including Regular Distribution of Condoms to the Workforce	9	17	-8	Month
(b)	Provide, Maintain and Operate STI and HIV/AIDS Clinic or Make Alternative Arrangements with Existing Local Clinic	9	17	-8	Month
18.02	Gender				
(a)	Gender Sensitisation and Awareness Raising Meetings/Workshops	3	3	0	nos.
(b)	Gender Management Plan and Gender Sensitive Monitoring and Reporting	9	15	-6	Month
2100	Drains				
21.03	Excavation for Subsoil Drainage Systems				
(i)	0.5m up to 1.5m	7,698.00	5,405.92	2292.08	cu.m
21.04	Impermeable Backfilling to Subsoil Drainage System				cu.m
21.18	Selected Backfill Material Under Concrete-Lined Side Drains Compacted to 90% BS-Heavy	4	7,880	-7876	cu.m
2200	Prefabridated Culvert				
22.01	Excavation				
(a)	Corrugato Culvert (D900)	20	0	20	m
2500	Pitching, Stonework and Protection Against Rrosion				
(b)	Ground Stone Pitching	620	5,942.56	-5322.56	sq.m
25.02	RIPRAP				
(a)	Packed Riprap	98.8	366.34	-267.54	cu.m
25.03	Stone Masorry				
(a)	Plain Packed Stone Walls	2,617.00	0	2617	cu.m
2600	Gabions				
26.01	Foundation on Trench Excavation and Backfilling				
(b)	In All Other Material than Rock stated in Clause 3603	28.8	503.2	-474.4	cu.m
26.02	Surface Preparation for Bedding the Gabions	511	514.4	-3.4	sq.m
26.03	Gabions				
(a)	Galvanised Gabion Boxes 2mx1mx1m with 80x100mm Mesh	415	734	-319	cu.m
(c)	Galvanised Gabion Boxes 6mx2mx0.3m with 60x80mm Mesh	28.8	30.36	-1.56	cu.m
26.04	Filter Fabric	511	412	99	sq.m
3100	Clearing, Grubbing and Removal of Topsoil				
31.01	Clearing,Grubbing and Removal of Topsoil				
(a)	Clearing and Grubbing	13	7,484.30	-7471.3	ha
(b)	Removal of Topsoil	37,560.00	38,171.50	-611.5	cu.m
31.02	Removal and Grubbing of Large Tree and Tree Stumps				
(a)	Girth Exceeding 1.0m up to and including 2.0m	2	0	2	nos.
3200	Removal of Existing Structures				
32.02	Removal of Existing Structures				
(a)	Removal of Existing Pipe Culvert of Any Size	30	64	-34	m
(b)	Removal of Reinforced Concrete in Bridges, Box Culverts and Slub including Headwalls , Wingwall and Apron	18	27.22	-9.22	cu.m
3600	Earthwork				
36.01	Excavations				
(a)	Common Excavation to Spoil	12,710.00	12,672.70	37.3	cu.m
36.02	Fill and Imprpved Subgarde Layers				
(a)	Improved Subgrade Layers as Specified in the Drawings to require Minimum G15 Quality	5,603.00	4,830.56	772.44	cu.m
(b)	Improved Subgrade Layers as Specified in the Drawings to require Minimum G7 Quality	58,560.00	45,699.90	12860.1	cu.m
36.03	Roadbed Preparation and Compaction of Material				
(b)	Compaction to 95% of BS Heavy Density	43,575.00	16,592.80	26982.2	cu.m
3700	Pavement Layers of Natural Gravel Materials				
37.04	Maintenance of Existing Gravel Roads				
(a)	Shaping Existing Gravel Roads without Scarification of Surface	127,860.00	138,120	-10260	sq.m
4100	Prime and Curing Membranes				
41.01	Prime Coat				
(a)	MC-30 Cut-Back Bitumen	93,375.00	63,756.00	29619	lit

Table 3-(2) Final Bill of Quantities for Lot 1 (2)

Item	Description (LOT-1)	Qty Original	Unit Final	Balance	
5400	Road Signs				
54.01	Road Sign (Standard, State Area for Each Type)	10	8	2	nos.
5600	Landscaping and Grassing				
56.04	Grassing				
(i)	Nursery Sods	38,873.00	5,741	33132	sq.m
5700	Finishing the Road and Road Reserve and Treating Old Roads				
57.01	Finishing the Road and Road Reserve				
(b)	Single Carriageway Road	21.3	27.51	-6.21	km
6100	Foundations for Structures				
61.02	Excavation				
(i)	0m up to 2m	745	3,115.61	-2370.61	cu.m
(ii)	2m up to 4m	603.4	836.28	-232.88	cu.m
(iii)	4m up tp 6m	2,650.00	155.27	2494.73	cu.m
(iv)	For River Training Works and New Water Course	300	306	-6	cu.m
(b)	Extra Over Sub-Item 61.02(a) for Excavation in Rock Irrespective of Depth	195.2	0	195.2	cu.m
61.03	Access and Drainage				
(a)	Access	1	1	0	LS
61.04	Backfill to Excavation				
(a)	Material from the Excavations	683.9	555.53	128.37	cu.m
61.05	Foundation Fill				
(b)	Crushed Stone Fill	0.3	0	0.3	cu.m
(New)	Rock Fill	0	731.54	-731.54	
61.1	Fundation Linning	17,848.20	0	17848.2	sq.m
6200	Falswork, Formwork and Concrete Finish				
62.02	Vertical Formwork				
(a)	Vertical Formwork toPprovide Class F1 Surface Finish:				
-1	Structure	595.7	1,197.96	-602.26	sq.m
(b)	Vertical Formwork to Provide Class F2 Surface Finish:				
(i)	Structure	984.7	592.97	391.73	sq.m
62.03	Horizontal Formwork to Provide Class F2 Surface Finish:				
(i)	Structure	285.2	236	49.2	sq.m
62.04	Inclined Formwork to Provide Class F2 Surface Finish:				
(i)	Structure	35.4	0	35.4	sq.m
6300	Steel Reinforcement for Structure				
63.01	Steel Reinforcement				
(i)	Mild Steel Bars	29.7	0	29.7	t
(ii)	High-Yield-Stress-Steel Bars, Hot Rolled (Yield Stress 450MPa)	40.4	104.38	-63.98	t
6400	Concrete for Structure				
64.01	Cast In-situ Concrete				
(a)	Class 30/14 in Structure (for Beams)	72.2	64.96	7.24	cu.m
(b)	Class 25/20 in Structure	377.1	376.53	0.57	cu.m
(c)	Class 30/20 in Structure (for Slab)	64.3	67.12	-2.82	cu.m
(d)	Class 30/20 in Structure (for Substructure)	298.5	331.45	-32.95	cu.m
(e)	Class 20/40 (for Blinding Concrete)	12.9	25.52	-12.62	cu.m
(f)	Class 25/20 (for Blinding Concrete)	9.3	34.11	-24.81	cu.m
(g)	Class 25/20 (for Pavement)	12.3	19.01	-6.71	cu.m
6600	No-Fines Concrete; Joints;Bearings; Parapets and Drainage for Structures				
66.08	Searing Joints				
(a)	Sealant (25x50 Polysulphide Sealant) with Compressivejoint Filler	24	24	0	M
66.11	Bearings				
(a)	Laminated Rubber Bearing Pad 270x 220x 59mm (Free)	15	15	0	nos.
(b)	Laminated Rubber Bearing Pad 270x 220x 59mm (Fix)	15	15	0	nos.
66.14	Dowels/Giodes				
(a)	32mm Diameter Stainless Steel Dowels 10350nn Long)	30	24	6	nos.
66.16	Steel Railngs	70		70	m
(a)	Stell Postes (Grade 50c) D=115mm, T=4,5m, H=0.85m	30	44	-14	nos.
(b)	Top Plate T=5mm	30	44	-14	nos.
(c)	Base Plate (Grade 43A) 250 x 250 x 25	30	44	-14	nos.
(d)	20 Dia High Yield U Bar	60	88	-28	nos.
(e)	20 Dia High Yield U Bar 1000mm Long	60	88	-28	nos.
(f)	76 Dia CHS T=4mm	90	238.2	-148.2	m
(j)	Mounting Plate (Grade 43A) 112 x 120 x 5	90	132	-42	nos.
(h)	Mounting Plate (Grade 43A) 140 x 60 x 5	90	132	-42	nos.
(i)	Nut & Bolt 20mm (Grade 8.8)	120	176	-56	nos.
(j)	Bolt-M16 x 40 Long	180	264	-84	nos.
(k)	Mortar	4.2	0.18	4.02	cu.m
66.19	Drainage Pipe and Weep Holes				
(ii)	Type PVC 100mm, Length 600mm	14	14	0	nos.
66.26	Others				
(a)	Epoxy Mortar under Bearings	0.1	4.9	-4.8	sq.m
(b)	Bridge Name plate (Marble Stone)	4	4	0	

4.2 Lot 2 (Otwee-Wii Anaka Road)

4.2.1 Work Progress

Summary of Work Progress for Lot 2 is shown in Figure 2.

Date	No	Cumulative Progress		Monthly Progress		Advance Payment	Retention	Liquidated	Monthly	Cumulative Certificate
		UGX	%	UGX	%	UGX	UGX	UGX	UGX	
Advance Payment			0.0%		0.0%				526,664,297	526,664,297
01-May-10	1	80,383,380	3.1%	80,383,380	3.1%	-16,076,676	-4,019,169		60,287,535	586,951,832
01-Jun-10	2	159,594,342	6.1%	79,210,962	3.0%	-15,842,192	-3,960,548		59,408,222	646,360,054
01-Jul-10	3	397,448,458	15.1%	237,854,116	9.0%	-47,570,823	-11,892,706		178,390,587	824,750,641
01-Aug-10	4	683,780,628	26.0%	286,332,169	10.9%	-57,266,434	-14,316,608		214,749,127	1,039,499,768
01-Sep-10	5	760,397,325	28.9%	76,616,698	2.9%	-15,323,340	-3,830,835		57,462,523	1,096,962,291
01-Oct-10	6	789,609,214	30.0%	29,211,889	1.1%	-5,842,378	-1,460,594		21,908,917	1,118,871,208
01-Nov-10	7	817,822,474	31.1%	28,213,260	1.1%	-5,642,652	-1,410,663		21,159,945	1,140,031,153
01-Dec-10	8	1,011,672,724	38.4%	193,850,249	7.4%	-38,770,050	-9,692,512		145,387,687	1,285,418,840
01-Jan-11	9	1,120,168,312	42.5%	108,495,588	4.1%	-21,699,118	-5,424,779		81,371,691	1,366,790,531
01-Feb-11	10	1,237,868,393	47.0%	117,700,080	4.5%	-23,540,016	-5,885,004		88,275,060	1,455,065,591
01-Mar-11	11	1,556,541,981	59.1%	318,673,588	12.1%	-63,734,718	-15,933,679		239,005,191	1,694,070,782
01-Apr-11	12	1,680,959,787	63.8%	124,417,806	4.7%	-24,883,561	-6,220,890	-15,178,972	78,134,383	1,772,205,165
01-May-11	13	1,792,005,808	68.1%	111,046,021	4.2%	-22,209,204	-5,552,301	-13,547,614	69,736,902	1,841,942,067
01-Jun-11	14	2,093,786,489	79.5%	301,780,681	11.5%	-60,356,136	-15,089,034	-36,817,243	189,518,268	2,031,460,335
02-Jul-11	15	2,551,915,064	96.9%	458,128,575	17.4%	-107,906,999	40,891,448	-189,647,677	201,465,347	2,232,925,682
03-Aug-11										
01-Aug-12										
TOTAL				2,551,915,062	96.9%	-526,664,297	-63,797,874	-255,191,506	2,232,925,682	

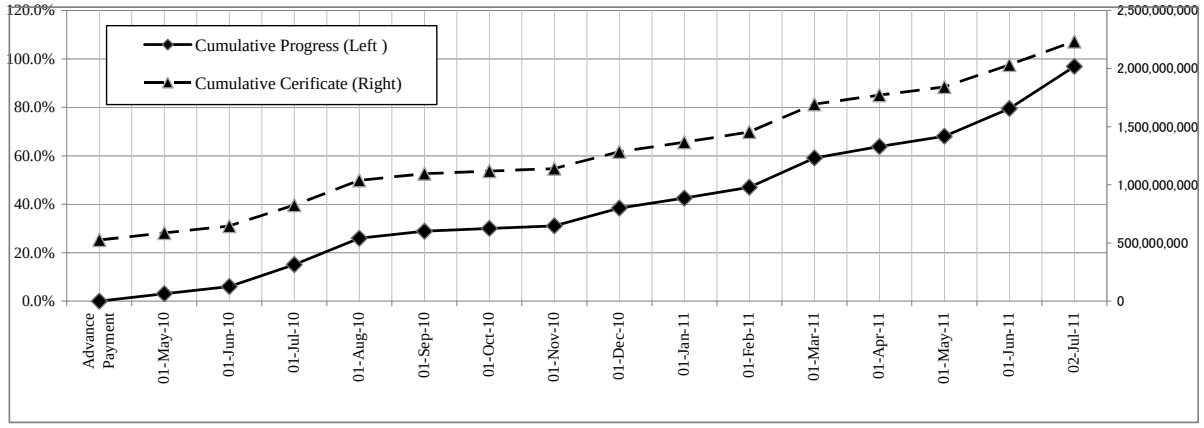

Figure 2 Summary of Work Progress for Lot 2

4.2.2 Manpower Report

Summary of Man Power Report for Lot 2 is shown in Table 4.

Table 4 Summary of Man Power Report for Lot 2

		2010								2011						Total
		May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	
1	Project Manager	13	29	30	31	29	30	30	31	31	28	31	30	31	30	404
2	Chief Engineer	13	29	30	31	29	30	30	31	31	28	31	30	31	30	404
3	Administrator	13	29	30	31	29	30	30	31	31	28	31	30	31	30	404
4	Foremen	13	29	60	93	87	87	60	44	58	27	53	42	44	48	745
5	Headmen	13	29	30	31	13	30	30	22	29	21	27	25	30	29	359
6	Carpenter	39	86	120	129	135	150	150	110	139	154	206	205	230	54	1,907
7	Mason	13	46	60	93	87	90	90	66	82	64	80	79	86	35	971
8	Steel Fixers	13	43	60	94	70	88	90	66	82	54	84	75	69	13	901
9	Operators	39	101	120	95	71	30	82	49	31	11	32	24	58	85	828
10	Surveyors	13	29	60	62	58	60	74	50	55	41	53	50	61	30	696
11	Drivers	26	28	60		112	120	120	57	85	31	55	52	55	98	899
12	Labourers	91	248	444	781	970	1,131	868	606	799	441	491	447	408	607	8,332
13	Chainman		15	30	31	16	30	30		0	0	0			12	164
14	Mechanic	13	29	30	31	30	60	60	44	44	9	41	21	40	32	484
15	Turnman					58	60	45	36	27	18	0	9	1		254
16	Guards					297	135		36	92	80	88	108	124	120	1,080
17	Store keeper									29	20	30	26	31	29	165
18	Welder															0
19	Lab Technicians														67	67
		312	770	1,164	1,533	2,091	2,161	1,789	1,279	1,645	1,055	1,333	1,253	1,330	1,349	19,064

4.2.3 Equipment Report

Summary of Equipment Report for Lot 2 is shown in Table 5.

Table 5 Summary of Equipment Report for Lot 2

		2010								2011						Total
		May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	
1	Excavator	10	12	20	11	6	6	4	5	5				12	33	124
2	Motor grader	12	24	10	0		0	6	19						6	77
3	Bull dozer			15	0		14		7		2	10	1	18	16	83
4	Vibration Roller			4	0		0		14					28	30	76
5	Dump truck	12	39	68	24	27	58	38	58	58	24	27	30	47	65	575
6	Pick - up			10	21	28	56	56	34	29	30	27	19	15	1	326
7	Wheel loader	1	8				0								0	9
8	Water tank		6													6
9	Concrete Mixer			4	5	4	30	7	2	9	41	10	4	41	29	186
10	Water Bowser				1				14						0	15
11	Compressor						23	44							0	67
12	Water Pump								6		24	5	3	32	30	100
13	Crane										2	2				4
14	Generator										23	3	9	25	24	84
15	Pedestrian roller													8	29	37
16	Service van														30	30
		35	89	131	62	65	187	155	159	101	146	84	66	226	293	1,799

4.2.4 Bill of Quantities

The Final Bill of Quantities is shown in Table 6.

Table 6-(1) Final Bill of Quantities for Lot 2 (1)

Item	Description (LOT-2)	Qty			Unit
		Original	Final	Balance	
1300	**Contractor's Establishment on Site and General Obligation**				
13.01	Contractor's General Obligations				
(a)	Fixed Obligations	1	1	0	LS
(b)	Value-related Obligations	1	0.97	0.03	LS
(c)	Time-related Obligations	9	10	-1	Month
1600	**Overhaul**				
16.01	Overhaul of Material				
(a)	Material for Fill or Improved Subgrade Layers	5,000.00	7,452.98	-2452.98	cu.m km
1700	**Environmental Protection and Waste Disposal**				
17.01	Environmental Management Plan and Reporting	1	1	0	LS
1800	**Occupational Health and Safety, HIV/AID Gender**				
18.01	HIV/AIDS and STI Prevention and Counseling				
(a)	Information, Education and Consultation Campaigns including Regular Distribution of Condoms to the Workforce	9	15	-6	Month
(b)	Provide, Maintain and Operate STI and HIV/AIDS Clinic or Make Alternative Arrangements with Existing Local Clinic	9	15	-6	Month
18.02	Gender				
(a)	Gender Sensitisation and Awareness Raising Meetings/Workshops	3	3	0	nos.
(b)	Gender Management Plan and Gender Sensitive Monitoring and Reporting	9	15	-6	Month
2100	**Drains**				
21.03	Excavation for Subsoil Drainage Systems				
(a)	Excavating Soft Material				
(i)	0.5m up to 1.5m	1,895.00	0	1895	cu.m
21.18	Selected Backfill Material Under Concrete-Lined Side Drains Compacted to 90% BS-Heavy Density	1	0	1	cu.m
2200	**Prefabridated Culvert**				
22.04	Metal Culverts				
(a)	Corrugato Culvert (D900)	20	0	20	m
2500	**Pitching, Stonework and Protection Against Rrosion**				
25.01	Stone Pitching				
(b)	Ground Stone Pitching	120	1,036.53	-916.53	sq.m
25.02	RIPRAP				
(a)	Packed Riprap	30	139.79	-109.79	cu.m
25.03	Stone Masorry				
(a)	Plain Packed Stone Walls	644	0	644	cu.m
2600	**Gabions**				
26.01	Foundation on Trench Excavation and Backfilling				
(b)	In All Other Material than Rock stated in Clause 3603	61.3	137	-75.7	cu.m
26.02	Surface Preparation for Bedding the Gabions	204.4	274	-69.6	sq.m
26.03	Gabions				
(a)	Galvanised Gabion Boxes 2mx1mx1m with 80x100mm Mesh	0	108	-108	cu.m
(c)	Galvanised Gabion Boxes 6mx2mx0.3m with 60x80mm Mesh	61.3	46	15.3	cu.m
26.04	Filter Fabric	204.4	0	204.4	sq.m
3100	**Clearing, Grubbing and Removal of Topsoil**				
31.01	Clearing,Grubbing and Removal of Topsoil				
(a)	Clearing and Grubbing	1	1.15	-0.15	ha
(b)	Removal of Topsoil	3,600.00	1,634.40	1,965.6	cu.m
31.02	Removal and Grubbing of Large Tree and Tree Stumps				
(a)	Girth Exceeding 1.0m up to and including 2.0m	2	0	2	nos.
3200	**Removal of Existing Structures**				
32.01	Removal of Existing Structures				
(a)	Removal of Existing Pipe Culvert of Any Size	0	0	0	m
(b)	Removal of Reinforced Concrete in Bridges, Box Culverts and Slub including Headwalls , Wingwall and Apron	55	0	55	cu.m
3600	**Earthwork**				
36.01	Excavations				
(a)	Common Excavation to Spoil	16,840.00	17,962.70	-1,122.7	cu.m
(b)	Rock Excavation	2,800.00	0	2,800.00	
36.02	Fill and Imprpved Subgarde Layers				
(a)	Improved Subgrade Layers as Specified in the Drawings to require Minimum G15 Quality Material	500	709.23	-209.23	cu.m
(b)	Improved Subgrade Layers as Specified in the Drawings to require Minimum G7 Quality Material	300	4,016.65	-3,716.65	cu.m
36.03	Roadbed Preparation and Compaction of Material				
(b)	Compaction to 95% of BS Heavy Density	3,885.00	1,708.59	2,176.41	cu.m
3700	**Pavement Layers of Natural Gravel Materials**				
37.04	Maintenance of Existing Gravel Roads				
(a)	Shaping Existing Gravel Roads without Scarification of Surface	132,000.00	0	132,000.00	sq.m

Table 6-(2) Final Bill of Quantities for Lot 2 (2)

Item	Description (LOT-2)	Qty			Unit
		Original	Final	Balance	
4100	**Prime and Curing Membranes**				
41.01	Prime Coat				
(a)	MC-30 Cut-Back Bitumen	8,325.00	5,000.00	3,325.00	lit
5400	Road Signs				
54.01	Road Sign (Standard, State Area for Each Type)	2	2	0	nos.
5600	**Landscaping and Grassing**				
56.04	Grassing				
(b)	Sodding				
(i)	Nursery Sods	3,400.00	612.5	2,787.50	sq.m
5700	**Finishing the Road and Road Reserve and Treating Old Roads**				
57.01	Finishing the Road and Road Reserve				
(b)	Single Carriageway Road (3m)	44	0	44	km
6100	**Foundations for Structures**				
61.02	Excavation				
(a)	Common Excavation in Soft Material				
(i)	0m up to 2m	292.1	684.96	-392.86	cu.m
(ii)	2m up to 4m	188.5	143.4	45.1	cu.m
(iii)	4m up tp 6m	66.8	0	66.8	cu.m
(iv)	For River Training Works and New Water Course	300	330	-30	cu.m
(b)	Extra Over Sub-Item 61.02(a) for Excavation in Rock Irrespective of Depth	79.8	11.25	68.55	cu.m
61.03	Access and Drainage			0	
(a)	Access	1	1	0	LS
61.04	Backfill to Excavation			0	
(a)	Material from the Excavations	363.6	266.43	97.17	cu.m
61.05	Foundation Fill			0	
(b)	Crushed Stone Fill	0		0	cu.m
61.1	Fundation Linning	4,447.00		4,447.00	sq.m
6200	**Falswork, Formwork and Concrete Finish**				
62.02	Vertical Formwork				
(a)	Vertical Formwork toPprovide Class F1 Surface Finish:				
-1	Structure	3.6	8.78	-5.18	sq.m
(b)	Vertical Formwork to Provide Class F2 Surface Finish:				
(i)	Structure	1,084.60	1,162.29	-77.69	sq.m
62.03	Horizontal Formwork to Provide Class F2 Surface Finish:				
(i)	Structure	362.6	321.82	40.78	sq.m
62.04	Inclined Formwork to Provide Class F2 Surface Finish:				
(i)	Structure	35.4	0	35.4	sq.m
6300	**Steel Reinforcement for Structure**				
63.01	Steel Reinforcement				
(a)	Steel reinforcement for the whole structure				
(i)	Mild Steel Bars	0		0	t
(ii)	High-Yield-Stress-Steel Bars, Hot Rolled (Yield Stress 450MPa)	54.9	69.19	-14.29	t
6400	**Concrete for Structure**				
64.01	Cast In-situ Concrete				
(a)	Class 30/14 in Structure (for Beams)	88.4	94.22	-5.82	cu.m
(b)	Class 25/20 in Structure	0		0	cu.m
(c)	Class 30/20 in Structure (for Slab)	82.7	69.97	12.73	cu.m
(d)	Class 30/20 in Structure (for Substructure)	415.9	381.95	33.95	cu.m
(e)	Class 20/40 (for Blinding Concrete)	0		0	cu.m
(f)	Class 25/20 (for Blinding Concrete)	11.5	42.77	-31.27	cu.m
(g)	Class 25/20 (for Pavement)	15.3	24.26	-8.96	cu.m
6600	**No-Fines Concrete; Joints;Bearings; Parapets and Drainage for Structures**				
66.08	Searing Joints				
(a)	Sealant (25x50 Polysulphide Sealant) with Compressivejoint Filler	30	30	0	M
66.11	Bearings				
(a)	Laminated Rubber Bearing Pad 270x 220x 59mm (Free)	20	20	0	nos.
(b)	Laminated Rubber Bearing Pad 270x 220x 59mm (Fix)	20	20	0	nos.
66.14	Dowels/Giodes				
(a)	32mm Diameter Stainless Steel Dowels 10350nn Long)	32	32	0	nos.
66.16	Steel Railngs (90m)	90		90	lm
(a)	Stell Postes (Grade 50c) D=115mm, T=4.5m, H=0.85m	40	54	-14	nos.
(b)	Top Plate T=5mm	40	54	-14	nos.
(c)	Base Plate (Grade 43A) 250 x 250 x 25	40	54	-14	nos.
(d)	20 Dia High Yield U Bar	80	108	-28	nos.
(e)	20 Dia High Yield U Bar 1000mm Long	80	108	-28	nos.
(f)	76 Dia CHS T=4mm	120	298.2	-178.2	m
(j)	Mounting Plate (Grade 43A) 112 x 120 x 5	120	162	-42	nos.
(h)	Mounting Plate (Grade 43A) 140 x 60 x 5	120	162	-42	nos.
(i)	Nut & Bolt 20mm (Grade 8.8)	160	216	-56	nos.
(j)	Bolt-M16 x 40 Long	240	324	-84	nos.
(k)	Mortar	5.6	0.23	5.37	cu.m
66.19	Drainage Pipe and Weep Holes				
(a)	Drainage Pipes				
(ii)	Type PVC 100mm, Length 600mm	18	18	0	nos.
66.26	Others				
(a)	Epoxy Mortar under Bearings	5.2	6.54	-1.34	sq.m
(b)	Bridge Name Plates (Marble stone)	4	4	0	nos
RM	**Labour-Based Routine Maintenance**				
RM 9	Cut Grass and Bush	129.2		129.2	km

APPENDIX 4

PROJECT BRIEF FOR URGENT PROJECT

5. URGENT PROJECT NO.1

5.1 Title of the Project

The Urgent Projects in the Project for Rural Road Network Planning in Northern Uganda

5.1.1 Section No.1: Construction of Atiabar Bridge and 3 Box culverts with Approach Road

5.2 Environmental Categorization

(1) Category B

(2) Reason

There are two types of activities for the project, improvement and maintenance works of the project road. The improvement works are for the construction of Atiabar Bridge and the reconstruction of three box culverts with their approaches in total 2.7km length. In the other 20.1km, spot maintenance works are basically for that construction vehicles can pass safely within the present road width.

In these project works, the negative impacts are mainly related to the construction works in the construction phase within very limited sites, especially in the improvement sections, and short term. For the improvement and maintenance works along the project road, the Amuru and Gulu district offices obtained formal agreements with the roadside communities for the transfer of land rights to the districts. The project will not induce any major negative impact on the local environments with the proposed mitigation measures.

Meanwhile, the positive impacts of the project will largely compensate for the limited and mitigated negative impacts that could occur from implementation of the project. The project will be particularly important for the residents of Cet Kana and Owee, since it will considerably facilitate access to the markets places and to the health care services of Pabo. The positive impacts suit with what the local peoples expect.

5.3 Outline of the Location

In the location of project site, the beginning point of the road is Kal Centre in the Pabo sub-county, and the ending point is Wii Lawking, in the Bungatira subcounty. The morphology of the area is a wide plateau with gentle slopes. The topography is uniform, with an altitude ranging between 1,020m (Kal in Pabo) and 960m (the Atiabar and Oitino rivers).

The project sites are belongs to the Acholi Kyoga climatic area, which is characterized by an annual average range of precipitations of 1,250 to 1,500mm, with a wet season between April and October, and a dry season between November and March.

The hydrographic system is constituted of an upstream drainage system oriented South - North. The main rivers are the Atiabar and Oitino rivers. The tributaries along the project road are the Wii Awaranga River, the Pamin Oceg River, the Opal River, and the Pamin Lewa River, between Pabo and

Cet kana. All are narrow and small rivers. The project road alignment does not encroach on the river beds excepted at the crossing passages (bridges or culverts).

The vegetation cover along the project road is typical of the vegetation in Amuru and Gulu districts, with a combination of woodland savannah, grassland savannah, and savannah modified by an intensive agricultural use. There is a local forest reserve in Pabo near the project area. The forest has been completely depleted and replaced by human settlements. Pabo at the end of project road (a maintenance section) is a trading center. The project road does not belong to an area classified as a scenic, wooded, mountainous area.

The project area between Pabo and Cet Kana has a tradition of livestock farming but farmers have significantly shifted to agriculture after the war. The main crops are maize, rice, millet, groundnut, sugarcane, and beans. The selling of rice and beans seems to be the main source of income.

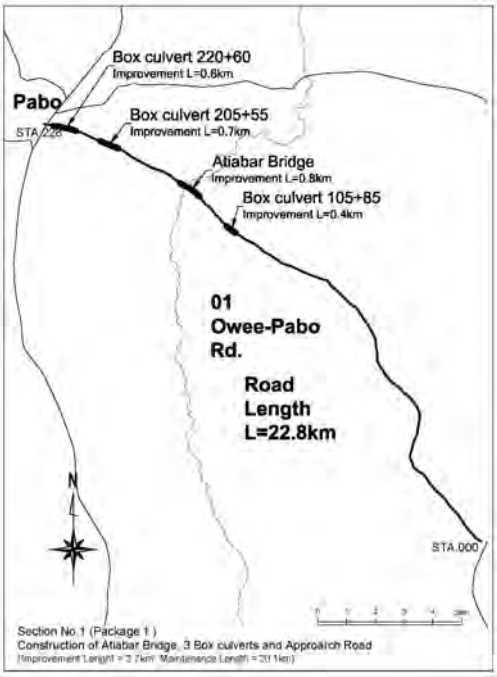

Figure 1 Location of the Project Site

5.4 Environmental Legislations and Administration

5.4.1 Environmental Requirements for Road Projects

Projects which are subject to a mandatory EIA in Uganda are listed in the Third Schedule to the Environmental Impact Assessment Regulations 1998. In the field of roads development, the list includes the following criteria, which are most relevant for the project.

- Major roads
- Roads in scenic, wooded, mountainous areas
- Activity out of character with its surroundings, with major changes in land use

District roads and national roads are regarded as major roads in Uganda. The Third schedule lacks however details about the conditions for EIA requirements, like length of the road project, and nature

of the works. The technical guidelines developed by the Ministry of Works and Transport (MoWT) in the road sector are the basic reference for understanding the requirements for EIA of roads. The opinion of the District Environment Officer about the road projects helps to understand the environmental requirements for the project. Bridges and borrow pits are not part of the Third Schedule document. They are in practice considered as activities out of character with its surroundings with major changes in land use.

In coordination with the District Environment Officer, and in accordance with the existing EIA regulations and guidelines, the submission of a Project Brief report to NEMA was the most appropriate procedure for requesting the environmental authorization of the project. The Project Brief included the environmental impacts that the project is likely to generate, propose the appropriate mitigation measures, and guaranty the compliance with environmental regulations.

5.4.2 Environmental Guidelines of the MoWT

The implementation of the project needs to be in compliance with the environmental guidelines of MoWT for roads. The following guidelines have been taken into consideration:

- Environmental Impact Assessment Guidelines for Road Projects
- Environmental Guidelines for District Engineers, Volume 5B of the District Administrative and Operational Guidelines, 2003 (District Road Works Manuals series).

The Environmental Impact Assessment Guidelines for Road Projects provide detailed criteria about the EIA requirements in the road development sector. There are 4 basic criteria that guide the decisions about the EIA requirements for a project (Table 1), and these are:

- Case 1. Projects that certainly do not have any significant impact on the environment
- Case 2. Projects likely to have some minor impacts on the environment but for which adequate and sufficient mitigation measures have been identified
- Case 3. Projects that have some significant environmental impacts, where adequate mitigation measures are readily available
- Case 4. Projects having a number of (very) significant impacts on the environment (whether adequate mitigation measures can be identified or not)

5.4.3 Classification of the Project

Table 1 below shows that the project is not expected to belong to the cases 1 or 4, since the no-impact and the major impact scenarios cannot be upheld. Accordingly, the project is likely to fit within cases 2 or 3.

Table 1 Conditions of EIA requirements

Class of project	EIA requirement	Approval of the project	Relevance for the project
Case 1	No further EIA processing	Certificate issued	NO
Case 2	No further EIA processing but an evaluation is done in the Project Brief with presentation of the measures	Certificate issued	YES
Case 3	A limited analysis is required	Environmental impact review (EIR) is required before issuance of certificate	YES
Case 4	A full environmental impact study is required	Full (EIA) or (EIS) is required before issuance of a certificate. The Project Brief step is not needed.	NO

Source: Summarized from the Environmental Impact Assessment Guidelines for Road Projects, 2008

5.4.4 Project Brief

The Project Brief is an official document including a description of the project, an evaluation of the potential impacts and a presentation of the mitigating measures. The purpose of the Project Brief document is to clarify the type of EIA requirement of the project.

The Gulu and Amuru districts prepared a Project Brief of the project in coordination with the JICA study team. The conclusion of the Project Brief was that the negative impacts would be minor while positive impacts would be significant. The important mitigation measures were identified. In case of insufficient information in the Project Brief regarding a significant issue or potential impact of the project, NEMA may require an environmental impact review (EIR) report before approval.

The Project Brief was submitted to NEMA in August 2010 and Gulu district received a formal approval for the environmental aspects of the project without EIA and EIR requirements from NEMA in November 2010.

5.4.5 Procedure for Land Acquisition and Compensation

(1) Case of National Roads

The MoWT has not set up a land acquisition and land compensation policy for roads project. The Uganda National Roads Authority (UNRA) is preparing a land acquisition management system (LAMS) document (final draft June 2009), in line with its strategy for land acquisition of road reserve, country wide. This document is the only existing guideline document for implementing land acquisition and land compensation for national roads projects. The LAMS document applies to the land acquisition managed by the UNRA for the national roads network.

(2) Case of District Roads

There is no standard procedure of land acquisition and compensation in the specific case of district roads. The legal requirements of land acquisition and compensation of a road reserve for a district road seem not to different from those for a national road. In practice, in the case of customary land tenure, which is the most common case, the acquisition of land within the road reserve is based on an agreement with the local communities, in which they offer their land to the benefit of public use.

Accordingly, there is no formal acquisition of land, and therefore no full compliance with the legal requirements of the Land Act. The implicit assumption is that land will be compensated in the future. In such conditions, there is no guarantee that land claims will not occur during or after the implementation of the project. Basically, the scope of agreements with the local communities is an offer of land for the project roads, and a compensation for the improvements with an evaluation by the District Valuer Officer.

(3) Case of the Project Road

In the specific case of the project road, the Amuru and Gulu district offices organized public consultation meetings with the local communities, with the purpose of obtaining a written agreement with the local communities for the acquisition of the road reserve. Land ownership along the Owee – Pabo improvement road project is community land with collective and individual rights of use. Since the project does not affect any individual and titled land property (leasehold tenure system).

5.5 Outline of the Project

5.5.1 Background and Purpose

Northern Uganda has the largest proportion of people living in poverty in the country, estimated to account for 61 % of the region's population, or almost twice the national level. This high level of poverty can be attributed to the Lord's Resistance Army (LRA) insurgency. During the 20 year-conflict beginning in the 1980s, much of the basic social infrastructure was destroyed or abandoned and the local government became non-functional in the region.

In particular, 90 % of the population, or two million people, were displaced (IDP: Internally Displaced Person) from Acholi Sub-region. Since the cease-fire agreement concluded between LRA and the Government of Uganda in August 2006, the Government of Uganda has emphasized and facilitated the return process of IDPs and prepared the National Peace Recovery and Development Plan (PRDP) in order to stabilize and recover Northern Uganda. The PRDP identifies the 14 priority programs such as rebuilding and empowering communities (health, education, water, livelihood support) and it emphasizes the importance of infrastructure rehabilitation and improvement of trunk road network connecting the districts and community access road network.

Under these circumstances, the ten year District, Urban and Community Access Road Investment Plan (DUCARIP) has been prepared to provide a financing framework for investments in district, urban and community access roads. Though maintenance of high priority District Roads has been progressively made in the framework, the improvements or new constructions of these roads have not been undertaken adequately. Furthermore, the budget from central government does not make allocations for maintenance, improvement and new construction of community access roads and this leads to a difficult situation where road improvement and new construction are to be undertaken by the districts themselves.

Consequently, although the necessity of the road improvement for the IDP return process seems to be of high priority, the implementation of the projects to improve road network could not be started because of budgetary deficits.

5.5.2 Necessity and Appropriateness

The alternative road and bridge rehabilitation urgent projects in Acholi sub-region have been selected according to the results of the Road and Bridge Inventory Survey, and of the Future Traffic Demand Forecast Analysis. The selection criteria are factors of urgency, necessity, and feasibility of projects. Among the 13 urgent projects requested by the Ugandan side, 6 have been retained for immediate planning and implementation within the scope of the project (Interim Report).

The Construction of Atiabar Bridge and 3 Box culverts with Approach Road project is one of the 6 urgent projects retained for planning and implementation under the Japan International Cooperation Service (JICS) fund. The main factors of selection for urgent projects are:

- The high degree of contribution for the return and resettlement of displaced people (IDPs)
- The high degree of urgency and necessity due to the lack of bridge without alternative road
- The expected positive benefits at the level of the subcounties of concern
- The good feasibility of implementation of the project due to the lack of resettlement issues

Then, it is assumed that the improvement of the road and the construction and rehabilitation of bridges will facilitate the return of the IDPs, and improve the local economic and social conditions.

5.5.3 Contents of the Project

The total length of the project alignment is 22.8km. The alignment belongs mostly to the Gulu District (17km), and partly to the Amuru District (5.8km). The project road is a district road. The project aims at the maintenance of 20.1km and improvement of 2.7km. The improvement section includes the reconstruction of three box culverts, the construction of the Atiabar bridge (one span of 15m), and the rehabilitation of the Oitino bridge (one span of 17m). Specifications of the project are summarized in Table 2.

Table 2 Specifications of the Urgent Projects of No.1

Section No.		No.1
		New Bridge & Box Culvert Construction
Site		Gulu – Amuru border
Road Class		Community Access Road (that is planned to be upgraded to a District Road)
Beginning Point		North of Coope IDP Camp
End Point		Pabo JCT
Improvement section Road Width (m)		6.0
Number of Carriageway Improvement section Road		2
Pavement		Gravel
Total Road Length (km, include bridge section)		22.8
	Improvement section (km)	2.7
	Maintenance* section (km)	20.1

Bridge Name		Atiabar Bridge
Span Length (Number of Span)		15.0 m (1)
Superstructure Type		RC Girder, Simple girder
Live Load Type		BS:HA, JPN: A type
Bridge Width (m)		6.0 m
Abutment	Abutment Type	Reversed T Type
	Foundation Type	Spread Foundation
Pier	Pier Type	None
	Foundation Type	-
River Bank Protection (Around Abutments)		Mortal Stone Masonry Retaining Wall

CAR: Community Access Road, DBST: Double Bituminous Surface Treatment (Low cost pavement)
* Maintenance is spot maintenance work. It is basically for the works that construction vehicles can pass safely within the present road width.
JPN: Japanese Bridge Speciation, A type (equivalent BS:HA) for District road, B type (equivalent BS:HB) for National road.

5.6 Expected Environmental and Social Impacts

The likely impacts caused by the proposed project are evaluated and summarized in Table 3 below.

Table 3 Expected Environmental and Social Impacts

	No.	Likely Impacts	Design	Construction	Operation	Description of Impacts
Social Environment:	1	Involuntary Resettlement	D	D	D	**Design phase:** The project will not induce any resettlement of the population. There are no structures in the road reserve.
	2	Local economy such as employment and livelihood, etc.	D	B+/-	A+	**Design phase:** Land along the project road is used according to the customary hold tenure rules. Land acquisition is also small scale since most part of the improvement sections are designed in the road reserve and the maintenance section will not affect land over the existing width with only spot works. Some parts of new alignments are designed at the improvement sections and few maintenance sections can be widened so that the construction vehicle can pass safely. **Construction phase:** The maintenance and construction works will induce job opportunities. The application of the labor recruitment procedure will ensure that priority is given to the local peoples. If the use of local stone materials from local quarries is promoted, it will provide cash opportunities to the local peoples. The loss of standing crops in the road reserve due to the improvement works will be important between the Paomo and the Atiabar rivers if the works are implemented before the harvest. **Operation phase:** The increased accessibility of the area will induce the intensification of marketing activities of local crops and products, which will strongly contribute to economic development and improvement of livelihood. Accordingly, the project should strongly contribute to alleviate poverty and to reduce vulnerability.

	No.	Likely Impacts	Design	Construction	Operation	Description of Impacts
	3	Land use and utilization of local resources	D	D	A+	**Operation phase:** The opening of new accesses to the area through the crossing of Atiabar River and Oitino River after improvement works will induce an intensified use of land for agriculture, and possibly an intensified use of forest products in the section between Cet Kana and Wii lawking. This impact is very positive in terms of economic productivity of the land.
	4	Social institutions such as social infrastructure and local decision making institutions	D	D	D	No significant adverse impacts are expected. The district offices explained the project to the local representatives and they accepted the project.
	5	Existing social infrastructures and services	D	D	A+	**Operation phase:** The project will help to facilitate access to the existing health services. The greatest contribution will be the improved access to the health centre in Pabo. The impact of the project on public health will be positive because of a better health care resulting from improved access.
	6	Traffic Congestion	D	D	D	No significant adverse impacts are expected. There is not much traffic and the existing traffic is dominated by bicycles and pedestrians.
	7	Community Division	D	B+	A+	**Construction phase:** The employment of the local residents for unskilled labors in the construction works will prevent the generation of conflicts with the local communities, and mitigate the risk of social disruption. **Operation phase:** The improved rural accessibility after construction could facilitate the return of IDPs in the project area, which is a positive impact toward the social reintegration of this population.
	8	The poor, indigenous and ethnic people	D	D	D	No significant adverse impacts are expected on indigenous and ethnic people. They do not live around the project site.
	9	Misdistribution of benefit and damage	D	D	D	No adverse impact is expected. The local representatives accepted the Project will contribute the improvement of accessibility for the public benefits.
	10	Gender equity and children's rights	D	B+	A+	**Construction phase:** The full application of the labor recruitment procedure specified in the MoWT environmental guidelines will contribute to provide jobs to the women and to the persons with disabilities, in the roadside communities. **Operation phase:** The improved accessibility to markets, health care services, and schools are the most positive effects of the project and will contribute to alleviate the tasks or the work load of the women and children. The improved access to the market places, particularly Pabo, and the possibility for the women to offer their products on the markets and roadside is certainly the most important positive impact of the project towards gender equity.
	11	Cultural heritage	D	B-	D	**Construction phase:** There are several graves located roadside between the Atiabar River and Owee. The maintenance work could encroach on these graves.

	No.	Likely Impacts	Design	Construction	Operation	Description of Impacts
	12	Local conflict of interests	D	D	D	No significant adverse impacts are expected. The local representatives accepted the Project will contribute the improvement of accessibility for public benefits.
	13	Water Usage or Water Rights and Rights of Common	D	B-	D	**Construction phase:** The construction works can affect on access to river water resources. The project is likely to have an impact on the existing accesses to river water uses particularly at the Oitino bridge.
	14	Sanitation	D	D	D	The use of local residents in the road works, the small size of the work camps, and the short period of construction are not factors that could increase the sanitation risks.
	15	Hazards (Risk) Infectious diseases such as HIV/AIDS	D	D	D	No significant adverse impacts are expected. No massive influx of workers is expected as most laborers can be supplied locally.
Natural Environment	16	Topography and Geographical features	D	D	D	No significant adverse impacts are expected. The scale of Atiabar bridge of 15m span with 6m width will not change topography and geology very much. The other three box culverts are also small in scale.
	17	Soil Erosion	D	B-	D	**Construction phase:** The construction works of bridges, box culverts and the opening of the approach road in front of the Atiabar River are likely to disturb the soil stability and induce erosion of the slopes.
	18	Groundwater	D	D	D	No significant adverse impacts are expected. The foundation works of the bridge, box culverts and road require low depth.
	19	Hydrological Situation	D	B-	D	**Construction phase:** The rivers banks have a protected buffer zone of 30m width. The project will temporarily affect this protected zone in the Atiabar River during construction.
	20	Coastal Zone	D	D	D	No adverse impact is expected on coastal zone because the project sites are not located on coastal areas.
	21	Flora, Fauna and Biodiversity	D	D	B-	**Construction phase:** The Palmyra palm tree is the reserved trees that are common around Owee in the project area but not in the improvement sections. The maintenance work will not induce the loss of the reserved trees. The Palm trees lying inside the road reserve will not be cut. No other significant adverse impacts are expected. There are no protected areas and precious species are reported around the project sites. It is assumed that the riparian forest of Atiabar River could be a refuge for wildlife and habitat for birds. However, the possible function of the river as biological corridors for wildlife will not be affected by the project since the construction site is only at the bridge crossing points **Operation phase:** The main impact of the project on forest resources will be induced by the intensification of agricultural use of land, and the increased marketing of wood products like charcoal, in the project area.
	22	Meteorology	D	D	D	No adverse impact is expected on meteorology because the project scale is small.
	23	Landscape	D	B-	D	**Construction phase:** The borrow pits for supply of gravel materials can affect on the landscape along the project road.

	No.	Likely Impacts	Design	Construction	Operation	Description of Impacts
	24	Global Warming	D	D	D	No adverse impact is expected on global warming because the project scale is small.
Pollution	25	Air Pollution and dust	D	B-	D	**Construction phase:** Limited adverse impact is expected in the short term. Exhaust gases of trucks and heavy machines during construction are sources of air pollutants. The dust generated by running vehicle will affect more people along the road. Given the local conditions, they will not affect the ambient air quality.
	26	Water Pollution	D	B-	D	**Construction phase:** The construction works of bridges can affect the river water quality. The water supply sources for drinking uses of the local communities are located upstream the improvement works sites. The construction during the dry season is a factor of increased risk on the availability of supplies. During construction of the bridges, the withdrawal of water from the rivers for the preparation of concrete will directly affect the availability of water downstream, and the water users.
	27	Soil Contamination	D	B-	D	**Construction phase:** Leakage of oils, fuels from the machineries and asphalt emulsion from the construction sites can contaminate surrounding soil, however in the slimited spaces and short term.
	28	Waste	D	B-	D	**Construction phase:** Vegetation and land clearance along the improvement sections of the project road and around the bridge construction sites will be a source of green waste and inert waste.
	29	Noise and Vibration	D	B-	B-	**Construction phase:** Noise and vibration caused by the traffic of trucks and machines can be issues in Kal Centre and Cet Kana, where dwellings are located roadside, but it is limited in the short term. **Operation phase:** Vehicle traffic is anticipated to increase but still be limited. Noise and vibration will not strongly affect the local peoples.
	30	Ground Subsidence	D	D	D	No adverse impact is expected on ground subsidence because the project scale is small.
	31	Offensive Odor	D	D	D	No adverse impact is expected on offensive odor because the project is small in scale and has no sources of offensive odor.
	32	Bottom sediment	D	B-	D	**Construction phase:** The soil eroded due to the construction works of bridges, box culverts and the opening of the approach road in front of the Atiabar River are likely to disturb the bottom sediment of rivers, however in limited spaces and short term.
	33	Accidents	D	B-	B-	**Construction phase:** The risk of traffic accident will be higher by the construction vehicles. They can affect on pedestrians, bicycles and motorbikes, which are the basic means of transportation. The working conditions of the rural roads can induce worker's accidents. **Operation phase:** The anticipated traffic on the project road will increase, consequently the risk of traffic accidents will be a new risk compared with the present situation.

Rating:
A+/-: Significant positive/negative impact is expected.
B+/-: Positive/negative impact is expected to some extent.
C+/-: Extent of impact is unknown (Examination is needed. Impacts may become clear as study progresses.)
D: No impact is expected.

5.7 Impacts of the Project

The overall rating is evaluated at the category “B”. Both positive and negative impacts by the project are evaluated in 33 likely impacts on social environment, natural environment and pollution. Meanwhile 14 items are evaluated at that adverse impacts are expected to some extent as rating “B-”, which are 3 items on social environment, 4 items on natural environment and 7 items on the pollution in the construction phase. 5 items are evaluated at positive impacts as rating “B+” or “A+” on the social environment in the construction and operation phases.

These positive impacts match the local people’s expectations expressed by the local representatives and by the residents during the field interviews and at the public consultation meetings. The most important benefits of the project as expected by the local peoples are:

- Improved access and facilitated transport of crops products to Pabo,
- Opportunities for developing roadside business ,
- Better access to health care services and schools,
- Improved access to Gulu, and
- Improved linkage between the administrative leaders across the Atiabar River.

5.8 Mitigation Measures

The mitigation measures are summarized in Table 4 responding to the results of evaluation in Table 3.

Table 4 Mitigation Measures for Environmental and Social Impacts and Further Study

No.	Likely Impacts	Evaluation	Mitigation Measures
2	Local economy such as employment and livelihood, etc.	B-	**Design phase:** • Gulu and Amuru districts plan to upgrade the community access road to a district road but there is no procedure for the proper acquisition of land and compensation of improvements of district roads. • Since there is no procedure for the proper acquisition of land and compensation of improvements in the road reserve of district roads, the Gulu and Amuru districts held the public consultation meetings, the local representatives agreed the project in the meeting and signed the consent document that the local communities have accepted the transfer of land rights in the road reserve to the districts. • In the public consultation meetings, the local representatives were notified and agreed that they will harvest their standing crops within the road reserves before the construction works start. • They also signed the consent documents that the local communities have accepted the loss of their standing crops within the road reserves after the construction works start. • Contractors will inform the local communities clear schedule of the works with sufficient duration to the harvest.

No.	Likely Impacts	Evaluation	Mitigation Measures
11	Cultural heritage	B-	**Construction phase:** • The maintenance works within the existing width can avoid any possible damages on the graves along the project road. • The district offices will support the relocation of graves when needed.
13	Water Usage or Water Rights and Rights of Common	B-	**Design phase:** • The proposed design of Atiabar and Oitino bridges with access to river will help improve the existing conditions of access to the river water. **Construction phase:** • It should be avoided to use the local water sources for water supply for the construction works and for the workers and those are preferably depend on outside water sources. • The supply of drinking water will help the local population.
17	Soil Erosion	B-	**Construction phase:** • The selection of the dry season for construction, and the immediate reseeding of roadside embankments, will contribute to control the risk of erosion. • The restoration of bridge construction sites and borrow pits to their initial conditions will contribute to control the risk of erosion. • Top soil will be stored and reused for the rehabilitation of damaged sites along the road.
19	Hydrological Situation	B-	**Construction phase:** • River banks and vegetation cover will be restored after construction and rehabilitation of the bridges. • Works in a river bed are subject to permitting by the Water Resources Management Department. The works will include the diversion of the watercourse during the works (probably by pipe culvert). The contractor will get the permit before works. The river bed morphology will be restored to its initial state.
21	Flora, Fauna and Biodiversity	B-	**Operation phase:** • The proper management of forest and forest products by the local communities themselves should be supported by the district forest officer through sensitization and information of the people.
23	Landscape	B-	**Construction phase:** • The restoration of the borrow pits is a requirement and its application will be controlled in order to prevent damages on surrounding landscape.
25	Air pollution and dust	B-	**Construction phase:** • In places where people will be exposed to dust during the works like Kal and Cet Kana, sprinkling water on the road will be done to prevent the dust.

No.	Likely Impacts	Evaluation	Mitigation Measures
26	Water Pollution	B-	**Construction phase:** • The residual cleaning water used for the preparation of concrete will be treated before discharged into the rivers, which means pond sedimentation or filtration. • It is necessary to preserve the water quality of river avoiding any source of pollution from the construction and rehabilitation works, for preservation of the potential uses of water downstream. • The residual engine oils and fuels or any other dangerous water contaminants will be managed properly, and they will be collected and treated by a company agreed by NEMA so that the risk of contaminating surface water and groundwater will be minimized.
27	Soil Contamination	B-	**Construction phase:** • The proper management of oils and fuels in the camp sites during the works will prevent any risk of contamination due to discharge or accidental leakage.
28	Waste	B-	**Construction phase:** • The proper elimination of the inert waste materials generated by the rehabilitation and construction works will be managed in coordination with the district authorities and local communities. • Used oil substances will be collected and eliminated by a specialized company agreed by NEMA.
29	Noise and Vibration	B-	**Construction phase:** • The control of vehicle speed carrying material in Kal Centre and Cet Kana will help to reduce this nuisance.
32	Bottom sediment	B-	**Construction phase:** • The selection of the dry season for construction, and the immediate reseeding of roadside embankments, will contribute to control the risk of erosion. • The restoration of bridge construction sites to their initial conditions will contribute to control the risk erosion.
33	Accidents	B-	**Design phase:** • Traffic safety campaigns were organized by the JICA study team in order to sensitize the roadside communities to the risk of traffic accidents and to the basic rules of safety. **Construction phase:** • The secure circulation of the pedestrians and bicycles will then be an important task during the works. • Appropriate plans of traffic management will be carried out through close coordination between the contractor, the supervising engineer and the police. • The workers will be sensitized in order to adopt safe driving in the housing areas. • The protection of workers will be implemented according to the standard rules included in the contract procurement to avoid accidents. • Management and operation agencies will conduct inspection and maintenance of equipment and facilities, and fire prevention measures.

5.9 Consultation

5.9.1 Purposes

The Gulu and Amuru district offices conducted public consultation meetings in order to get a formal agreement of implementation of the project by the local communities. Two public consultation meetings were organized by the district authorities in the project area. The meeting between the Gulu district and the local communities was held on July 16th in Adak (Owee). The meeting between the Amuru district and the local communities was held on July 27th in Paomo. The objectives of the public consultations are:

- To inform and sensitize the local communities about the project and the road reserve, and to get the mobilization of the people,
- To discuss the potential issues related to implementation of the project and ensure a proper mutual understanding of the actions to be undertaken,
- To clarify the land use rights and land properties, the land improvements along the project road, and the conditions of compensation if needed, and
- To establish a formal consent document prepared by the district and signed by the local representatives.

5.9.2 Organizers and Participants

The Gulu and Amuru district offices organized the public consultation meetings supported by JICA Study Team. The participants of meetings were:

- District Officers (Environment Officer, District Engineer),
- Sub-county chief,
- Chairpersons of respective Local Councils,
- Representative of Area Land Committee, and
- Local residents.

5.9.3 Contents

The district officers explained the participants the outline of the project and the followings.

- JICA, Japan International Cooperation Agency has been working in the northern region to contribute the IDP return process and improve their livelihood, hence enhancing the regional development in the northern region.
- From the study of Rural Road Network Planning in Northern Uganda, JICA Study team selected 6 urgent projects to contribute to the IDP return process by bridge constructions and road improvements.
- It is sure that the improvements also can enhance the accessibility for hospitals, schools and markets and contribute developing economy and living environment, however, it has to be aware of negative impacts also are expected like increase of traffic accidents, noise, exhaust gas from traffic increase.

- However, it is important for the community to understand that road reserves belong to the road authorities which could be the district (local governments), central governments (MoWT) or UNRA, therefore, the road reserves are not for farming or any other private activities.
- Even though the improvement and maintenance works will be done within the road reserves, the district offices requested the land owners (most of them are customary owners) the agreements for the acquisition of the road reserve to implement the project.

5.9.4 Conclusions

The participants understood the purposes and contents of project, and welcomed the project with the following suggestions in specific.

- Supervise contractor's activities to ensure quality works
- Consider employing local peoples and purchasing local construction materials
- Respect local people's customs

5.10 Monitoring

There is nothing in particular to be raised.

5.11 Consultation with Recipient Governments

The Gulu and Amuru districts prepared the Project Brief of the project in coordination with the JICA study team and the MoWT. They submitted the Project Brief to NEMA and the Project Brief was approved by NEMA in November 2010.

6. URGENT PROJECT NO.2

6.1 Title of the Project

The Urgent Projects in the Project for Rural Road Network Planning in Northern Uganda

Section No.2: Reconstruction of Arainga Bridge with Approach Road

6.2 Environmental Categorization

(1) Category B

(2) Reason

There are two types of activities for the project, improvement and maintenance works of the project road. The improvement works are for the construction of Arainga Bridge with the approach road in total 0.7km length. In the other 19.1km, spot maintenance works are basically for that construction vehicles can pass safely within the present road width.

In these project works, the negative impacts are mainly related to the construction works in the construction phase within very limited sites, especially in the improvement sections, and short term. For the improvement and maintenance works along the project road, the Lamwo district office obtained formal agreements with the roadside communities for the transfer of land rights to the district. The project will not induce any major negative impact on the local environments with the proposed mitigation measures.

Meanwhile, the positive impacts of the project will largely compensate for the limited and mitigated negative impacts that could occur from implementation of the project. The project will be important for the residents living along the road between Paloga, Potika, and Palacam, since it will considerably facilitate access to the markets between the project area and Kitgum, and contribute to develop the agricultural potential of the area. The increased accessibility to health care services and schools will be a great benefit for residents of Palacam and Kongole. Accordingly, the project will also contribute to gender equality, with improvements for the way of life of the women. The project will not induce any major negative impact on the local environment assuming that the proposed mitigating measures will be properly implemented.

6.3 Outline of the Location

In the location of project site, the beginning point of the road is Paloga in the Paloga subcounty, and the ending points are Potika and Palacam, in the Agoro subcounty. The project site lies in the upper stream area of the Arainga River, between the isolated Lamwo mountain (1,926m) on the western side, and the Agoro mountains (Lomwaka 2,631m), on the north and north-eastern side. The morphology of the area is a flat land of recent and pleistocen fluviatile sediments. Mountains are constituted by the Precambrian basement, which is composed of gneisses together with granulite facies rocks. Soil along the project road is generally clay.

The project area belongs to the Acholi Kyoga climatic area, which is characterized by an annual average range of precipitations of 1,250 to 1,500mm, with a wet season between April and October, and a dry season between November and March.

The Aringa River is the main water body of the project area. The river is a small water course taking its source in the Agoro Mountains near the project site. The project area is located in the upper stream area of the Aringa watershed. The Aringa River is an affluent of the Pager River, which flows through Kitgum city. The river bed of the Aringa River is very confined and hemmed in by steep banks.

The lowland vegetation along the Aringa River is a savannah with shrubs, tall grass and woody cover, where the dominant grass species are Hyperrhenia, Brachiaria, and Pennisetum species. *Combretum* are the dominant tree species. The flat land of the project area is a grassland savannah with bush constituted of medium or small size trees, modified by the opening of agricultural fields. There is no any type of protected natural areas along the project road. The project road does not belong to an area classified as a scenic, wooded, mountainous area.

In Loyo Ayelo, Latuturu, and Yweyo Pee (Palacam), most of the families are gardeners who sell vegetables to Kitgum and secondarily to Lamwo. Vegetables are mainly cabbages, onions, Irish potatoes, green peppers, and tomatoes. Products like maize, wheat, and beans are also cultivated. The main season for marketing vegetables is from July to September, and in then from December to January. In the area between Simba and Pitber (Potika), gardening is more restricted to cabbages, onions, eggplants. Main agricultural products are sesame, cotton, maize, beans, sorghum, millet, cassava, and wheat. A store shed was constructed in 2009 in Simba by the IRC (International Rescue Committee), where the farmers store their products before selling them to a wholesale dealer. Wholesale traders come from Kitgum and Sudan to buy the products.

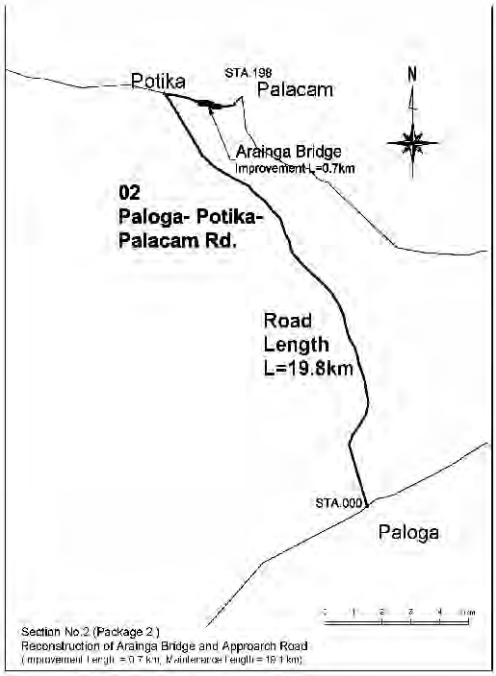

Figure 1 Location of the Project Site

6.4 Environmental Legislations and Administration

6.4.1 Environmental Requirements for Road Projects

Projects which are subject to a mandatory EIA in Uganda are listed in the Third Schedule to the Environmental Impact Assessment Regulations 1998. In the field of roads development, the list includes the following criteria, which are most relevant for the project.

- Major roads
- Roads in scenic, wooded, mountainous areas
- Activity out of character with its surroundings, with major changes in land use

District roads and national roads are regarded as major roads in Uganda. The Third schedule lacks however details about the conditions for EIA requirements, like length of the road project, and nature of the works. The technical guidelines developed by the Ministry of Works and Transport (MoWT) in the road sector are the basic reference for understanding the requirements for EIA of roads. The opinion of the District Environment Officer about the road projects helps to understand the environmental requirements for the project. Bridges and borrow pits are not part of the Third Schedule document. They are in practice considered as activities out of character with its surroundings with major changes in land use.

In coordination with the District Environment Officer, and in accordance with the existing EIA regulations and guidelines, the submission of a Project Brief report to NEMA was the most appropriate procedure for requesting the environmental authorization of the project. The Project Brief included the environmental impacts that the project is likely to generate, propose the appropriate mitigation measures, and guaranty the compliance with environmental regulations.

6.4.2 Environmental Guidelines of the MoWT

The implementation of the project needs to be in compliance with the environmental guidelines of MoWT for roads. The following guidelines have been taken into consideration:

- Environmental Impact Assessment Guidelines for Road Projects
- Environmental Guidelines for District Engineers, Volume 5B of the District Administrative and Operational Guidelines, 2003 (District Road Works Manuals series).

The Environmental Impact Assessment Guidelines for Road Projects provide detailed criteria about the EIA requirements in the road development sector. There are 4 basic criteria that guide the decisions about the EIA requirements for a project (Table 2.1), and these are:

- Case 1. Projects that certainly do not have any significant impact on the environment
- Case 2. Projects likely to have some minor impacts on the environment but for which adequate and sufficient mitigation measures have been identified
- Case 3. Projects that have some significant environmental impacts, where adequate mitigation measures are readily available
- Case 4. Projects having a number of (very) significant impacts on the environment (whether

adequate mitigation measures can be identified or not)

6.4.3 Classification of the Project

Table 1 below shows that the project is not expected to belong to the cases 1 or 4, since the no-impact and the major impact scenarios cannot be upheld. Accordingly, the project is likely to fit within cases 2 or 3.

Table 1 Conditions of EIA requirements

Class of project	EIA requirement	Approval of the project	Relevance for the project
Case 1	No further EIA processing	Certificate issued	NO
Case 2	No further EIA processing but an evaluation is done in the Project Brief with presentation of the measures	Certificate issued	YES
Case 3	A limited analysis is required	Environmental impact review (EIR) is required before issuance of certificate	YES
Case 4	A full environmental impact study is required	Full (EIA) or (EIS) is required before issuance of a certificate. The Project Brief step is not needed.	NO

Source: Summarized from the Environmental Impact Assessment Guidelines for Road Projects, 2008

6.4.4 Project Brief

The Project Brief is an official document including a description of the project, an evaluation of the potential impacts and a presentation of the mitigating measures. The purpose of the Project Brief document is to clarify the type of EIA requirement of the project.

The Lamwo district prepared a Project Brief of the project in coordination with the JICA study team. The conclusion of the Project Brief was that the negative impacts would be minor while positive impacts would be significant. The important mitigation measures were identified. In case of insufficient information in the Project Brief regarding a significant issue or potential impact of the project, NEMA may require an environmental impact review (EIR) report before approval.

The Project Brief was submitted to NEMA in August 2010 and the Lamwo district received a formal approval for the environmental aspects of the project without EIA and EIR requirements from NEMA in December 2010.

6.4.5 Procedure for Land Acquisition and Compensation

(1) Case of National Roads

The MoWT has not set up a land acquisition and land compensation policy for roads project. The UNRA is preparing a land acquisition management system (LAMS) document (final draft June 2009), in line with its strategy for land acquisition of road reserve, country wide. This document is the only existing guideline document for implementing land acquisition and land compensation for national roads projects. The LAMS document applies to the land acquisition managed by UNRA for the national roads network. The land acquisition specialist of UNRA has provided additional information to understand the right procedure in the case of a district road project.

(2) Case of District Roads

There is no standard procedure of land acquisition and compensation in the specific case of district roads. The legal requirements of land acquisition and compensation of a road reserve for a district road seem not to different from those for a national road. In practice, in the case of customary land tenure, which is the most common case, the acquisition of land within the road reserve is based on an agreement with the local communities, in which they offer their land to the benefit of public use.

Accordingly, there is no formal acquisition of land, and therefore no full compliance with the legal requirements of the Land Act. The implicit assumption is that land will be compensated in the future. In such conditions, there is no guarantee that land claims will not occur during or after the implementation of the project. Basically, the scope of agreements with the local communities is an offer of land for the project roads, and a compensation for the improvements, with an evaluation by the District Valuer Officer.

(3) Case of the Project Road

Paloga – Potika - Palacam road was taken over into a national road in 2009. Accordingly, the land acquisition and compensation procedure of UNRA is required. MoWT formally requested the land acquisition to UNRA especially for the urgent projects of concern in July 2010. In order to fit with the short delays of implementation of the urgent project, the Lamwo district office organized a public consultation meeting with the local communities in coordination with the UNRA to obtain a consent document regarding the implementation of the project. The district consent document is intended to facilitate the implementation of the project, which is certified by UNRA with their investigations.

6.5 Outline of the Project

6.5.1 Background and Purpose

Northern Uganda has the largest proportion of people living in poverty in the country, estimated to account for 61 % of the region’s population, or almost twice the national level. This high level of poverty can be attributed to the Lord's Resistance Army (LRA) insurgency. During the 20 year-conflict beginning in the 1980s, much of the basic social infrastructure was destroyed or abandoned and the local government became non-functional in the region.

In particular, 90 % of the population, or two million people, were displaced (IDP: Internally Displaced Person) from Acholi Sub-region. Since the cease-fire agreement concluded between LRA and the Government of Uganda in August 2006, the Government of Uganda has emphasized and facilitated the return process of IDPs and prepared the National Peace Recovery and Development Plan (PRDP) in order to stabilize and recover Northern Uganda. The PRDP identifies the 14 priority programs such as rebuilding and empowering communities (health, education, water, livelihood support) and it emphasizes the importance of infrastructure rehabilitation and improvement of trunk road network connecting the districts and community access road network.

Under these circumstances, the ten year District, Urban and Community Access Road Investment Plan

(DUCARIP) has been prepared to provide a financing framework for investments in district, urban and community access roads. Though maintenance of high priority District Roads has been progressively made in the framework, the improvements or new constructions of these roads have not been undertaken adequately. Furthermore, the budget from central government does not make allocations for maintenance, improvement and new construction of community access roads and this leads to a difficult situation where road improvement and new construction are to be undertaken by the districts themselves.

Consequently, although the necessity of the road improvement for the IDP return process seems to be of high priority, the implementation of the projects to improve road network could not be started because of budgetary deficits.

6.5.2 Necessity and Appropriateness

The alternative road and bridge rehabilitation urgent projects in Acholi sub-region have been selected according to the results of the Road and Bridge Inventory Survey, and of the Future Traffic Demand Forecast Analysis. The selection criteria are factors of urgency, necessity, and feasibility of projects. Among the 13 urgent projects requested by the Ugandan side, 6 have been retained for immediate planning and implementation within the scope of the project (Interim Report).

The Reconstruction of Arainga Bridge with Approach Road project including Paloga – Potika - Palacam road maintenance works is one of the 6 urgent projects retained for planning and implementation under the Japan International Cooperation Service (JICS) fund. The main factors of selection for urgent projects are:

- The high degree of contribution for the return and resettlement of displaced people (IDPs)
- The high degree of urgency and necessity due to the lack of bridge without alternative road
- The expected positive benefits at the level of the sub-counties of concern
- The good feasibility of implementation of the project due to the lack of resettlement issues

Then, it is assumed that the improvement of the road and the construction and rehabilitation of bridges will facilitate the return of the IDPs, and improve the local economic and social conditions.

6.5.3 Contents of the Project

The total length of the project alignment is 19.8km. The full length of the alignment belongs to the Lamwo District. The project road is a national road. The project aims at the maintenance of 19.1km and improvement of 0.7km. The improvement section includes the construction of the Arainga Bridge with one span of 15m length. Specifications of the project are summarized in Table 2.

Table 2 Specifications of the Urgent Projects of No.2

Section No.		No.2
		Bridge Re-construction
Site		Lamwo
Road Class		District Road**
Beginning Point		Palonga
End Point		Palacam
Improvement section Road Width (m)		6.0
Number of Carriageway Improvement section Road		2
Pavement		Gravel
Total Road Length (km, include bridge section)		19.8
	Improvement section (km)	0.7
	Maintenance* section (km)	19.1
Bridge Name		Arainga Bridge
Span Length (Number of Span)		15.0 m (1)
Superstructure Type		RC Girder, Simple girder
Live Load Type		BS:HA, JPN: A type
Bridge Width (m)		6.0 m
Abutment	Abutment Type	Reversed T Type
	Foundation Type	Spread Foundation
Pier	Pier Type	None
	Foundation Type	-
River Bank Protection (Around Abutments)		Mortal Stone Masonry Retaining Wall

CAR: Community Access Road, DBST: Double Bituminous Surface Treatment (Low cost pavement)
* Maintenance is spot maintenance work. It is basically for the works that construction vehicles can pass safely within the present road width.
** It is planned to be upgraded to a National Road.
JPN: Japanese Bridge Speciation, A type (equivalent BS:HA) for District road, B type (equivalent BS:HB) for National road.

6.6 Expected Environmental and Social Impacts

The likely impacts caused by the proposed project are evaluated and summarized in Table 3 below.

Table 3 Expected Environmental and Social Impacts

	No.	Likely Impacts	Design	Construction	Operation	Description of Impacts
Social Environment:	1	Involuntary Resettlement	D	D	D	The project will not induce any resettlement of the population. There are no structures in the road reserve.
	2	Local economy such as employment and livelihood, etc.	D	B+/-	A+	**Design phase:** Land along the project road is used according to the customary hold tenure rules. Land acquisition is also small scale since only 0.7km will induce land requirement on the road side. The maintenance section will not affect land over the existing width with only spot works so that the construction vehicle can pass safely. **Construction phase:** The maintenance and construction works will induce job opportunities. The application of the labor recruitment procedure will ensure that priority is given to the local peoples. If the use of local stone materials from local quarries is promoted, it will provide cash opportunities to the local peoples. The loss of standing crops in the road reserve due to the improvement works would be negligible since the improvement section is only 0.7km including public domain of the Arainga River. **Operation phase:** The increased accessibility of the area will induce the intensification of marketing activities of local crops and products, which will strongly contribute to economic development and improvement of livelihood. Accordingly, the project should strongly contribute to alleviate poverty and to reduce vulnerability.
	3	Land use and utilization of local resources	D	D	A+	**Operation phase:** The opening of new accesses to the area through the crossing of Arainga River after improvement works will induce an intensified use of land for agriculture, and possibly an intensified use of forest products in the section between Palacam, Potika and Paloga. This impact is very positive in terms of economic productivity of the land.
	4	Social institutions such as social infrastructure and local decision making institutions	D	D	D	No significant adverse impacts are expected. The district offices explained the project to the local representatives and they accepted the project.
	5	Existing social infrastructures and services	D	D	A+	**Operation phase:** The project will help to facilitate access to the existing health services. The greatest contribution will be the improved access to the health centre in Potika for the resident of Palacam. The impact of the project on public health will be positive because of a better health care resulting from improved access.
	6	Traffic Congestion	D	D	D	No significant adverse impacts are expected. There is not much traffic and the existing traffic is dominated by bicycles and pedestrians.

	No.	Likely Impacts	Design	Construction	Operation	Description of Impacts
	7	Community Division	D	B+	A+	**Construction phase:** The employment of the local residents for unskilled labors in the construction works will prevent the generation of conflicts with the local communities, and mitigate the risk of social disruption. **Operation phase:** The improved rural accessibility after construction could facilitate the return of IDPs in the project area, which is a positive impact toward the social reintegration of this population.
	8	The poor, indigenous and ethnic people	D	D	D	No significant adverse impacts are expected on indigenous and ethnic people. They do not live around the project site.
	9	Misdistribution of benefit and damage	D	D	D	No adverse impact is expected. The local representatives accepted the Project will contribute the improvement of accessibility for the public benefits.
	10	Gender equity and children's rights	D	B+	A+	**Construction phase:** The full application of the labor recruitment procedure specified in the MoWT environmental guidelines will contribute to provide jobs to the women and to the persons with disabilities, in the roadside communities. **Operation phase:** The improved accessibility to markets, health care services, and schools are the most positive effects of the project and will contribute to alleviate the tasks or the work load of the women and children. The improved access to the market places, particularly Paloga, and the possibility for the women to offer their products on the markets and roadside is certainly the most important positive impact of the project towards gender equity.
	11	Cultural heritage	D	B-	D	**Construction phase:** There are 4 Shea Butter Nut trees with special cultural value by the roadside. The maintenance and improvement works between Palacam and the Arainga River are likely to affect them. In Pitber, there are 11 graves identified roadside. The maintenance works will not necessitate their relocation, but in case of risk of damage during the works, relocation will be needed.
	12	Local conflict of interests	D	D	D	No significant adverse impacts are expected. The local representatives accepted the Project will contribute the improvement of accessibility for public benefits.
	13	Water Usage or Water Rights and Rights of Common	D	B-	D	**Construction phase:** The construction works can affect on access to river water resources. The project is likely to have an impact on the existing accesses to river water uses at the Arainga Bridge.
	14	Sanitation	D	D	D	The use of local residents in the road works, the small size of the work camps, and the short period of construction are not factors that could increase the sanitation risks.
	15	Hazards (Risk) Infectious diseases such as HIV/AIDS	D	D	D	No significant adverse impacts are expected. No massive influx of workers is expected as most laborers can be supplied locally.
Envir	16	Topography and Geographical features	D	D	D	No significant adverse impacts are expected. The scale of Arainga Bridge of 15m span with 6m width will not change topography and geology very much.

	No.	Likely Impacts	Design	Construction	Operation	Description of Impacts
	17	Soil Erosion	D	B-	D	**Construction phase:** The construction works of bridge and the opening of the approach road in front of the Arainga River are likely to disturb the soil stability and induce erosion of the slopes.
	18	Groundwater	D	D	D	No significant adverse impacts are expected. The foundation works of the bridge and road require low depth.
	19	Hydrological Situation	D	B-	D	**Construction phase:** The rivers banks have a protected buffer zone of 30m width. The project will temporarily affect this protected zone in the Arainga River during construction.
	20	Coastal Zone	D	D	D	No adverse impact is expected on coastal zone because the project sites are not located on coastal areas.
	21	Flora, Fauna and Biodiversity	D	B-	B-	**Construction phase:** The Shea Butter Nut tree is the reserved tree that is present in the project area. The maintenance and improvement works between Palacam and the Arainga River are likely to affect 4 Shea Butter Nut trees standing roadside. No other significant adverse impacts are expected. There are no protected areas and precious species are reported around the project sites. It is assumed that the riparian forest of Arainga River could be a refuge for wildlife and habitat for birds. However, the possible function of the river as biological corridors for wildlife will not be affected by the project since the construction site is only at the bridge crossing point. **Operation phase:** The main impact of the project on forest resources will be induced by the intensification of agricultural use of land, and the increased marketing of wood products like charcoal in the project area.
	22	Meteorology	D	D	D	No adverse impact is expected on meteorology because the project scale is small.
	23	Landscape	D	B-	D	**Construction phase:** The borrow pits for supply of gravel materials can affect on the landscape along the project road.
	24	Global Warming	D	D	D	No adverse impact is expected on global warming because the project scale is small.
Pollution	25	Air Pollution and dust	D	B-	D	**Construction phase:** Limited adverse impact is expected in the short term. Exhaust gases of trucks and heavy machines during construction are sources of air pollutants. The dust generated by running vehicle will affect more people along the road of Paloga, Potika and Palacam. Given the local conditions, they will not affect the ambient air quality.
	26	Water Pollution	D	B-	D	**Construction phase:** The construction works of bridges can affect the river water quality. The water supply sources for drinking uses of the local communities are located upstream the improvement works sites. The construction during the dry season is a factor of increased risk on the availability of supplies. During construction of the bridges, the withdrawal of water from the rivers for the preparation of concrete will directly affect the availability of water downstream, and the water users.

	No.	Likely Impacts	Design	Construction	Operation	Description of Impacts
	27	Soil Contamination	D	B-	D	**Construction phase:** Leakage of oils, fuels and asphalt emulsion from the machineries and construction sites can contaminate surrounding soil, however in limited spaces and short term.
	28	Waste	D	B-	D	**Construction phase:** Vegetation and land clearance along the improvement sections of the project road and around the bridge construction sites will be a source of green waste and inert waste.
	29	Noise and Vibration	D	B-	B-	**Construction phase:** Noise and vibration caused by the traffic of trucks and machines can be issues in Paloga, Pitber and Potika, where dwellings are located roadside, but it is limited in the short term. **Operation phase:** Vehicle traffic is anticipated to increase but still be limited. Noise and vibration will not strongly affect the local peoples.
	30	Ground Subsidence	D	D	D	No adverse impact is expected on ground subsidence because the project scale is small.
	31	Offensive Odor	D	D	D	No adverse impact is expected on offensive odor because the project is small in scale and has no sources of offensive odor.
	32	Bottom sediment	D	B-	D	**Construction phase:** The soil eroded due to the construction works of bridges and the opening of the approach road in front of the Arainga River are likely to disturb the bottom sediment of Arainga River, however in limited spaces and short term.
	33	Accidents	D	B-	B-	**Construction phase:** The risk of traffic accident will be higher by the construction vehicles. They can affect on pedestrians, bicycles and motorbikes, which are the basic means of transportation. The working conditions of the rural roads can induce worker's accidents. **Operation phase:** The anticipated traffic on the project road will increase, consequently the risk of traffic accidents will be a new risk compared with the present situation.

Rating:
A+/-: Significant positive/negative impact is expected.
B+/-: Positive/negative impact is expected to some extent.
C+/-: Extent of impact is unknown (Examination is needed. Impacts may become clear as study progresses.)
D: No impact is expected.

6.7 Impacts of the Project

The overall rating is evaluated at the category "B". Both positive and negative impacts by the project are evaluated in 33 likely impacts on social environment, natural environment and pollution. Meanwhile 14 items are evaluated at that adverse impacts are expected to some extent as rating "B-", which are 3 items on social environment, 4 items on natural environment and 7 items on the pollution in the construction phase. 5 items are evaluated at positive impacts as rating "B+" or "A+" on the social environment in the construction and operation phases.

These positive impacts match the local people's expectations expressed by the local representatives and by the residents during the field interviews and at the public consultation meeting. The most important benefits of the project as expected by the local peoples are:

- Development the economy due to the increased production and marketing of agricultural products,
- Revive the market of Palacam and contribute to higher living standards
- Improve education of the children,
- Improve relationships with the communities across the river,
- Improve the accessibility to health centers.

6.8 Mitigation Measures

The mitigation measures are summarized in Table 4 responding to the results of evaluation in Table 3.

Table 4 Mitigation Measures for Environmental and Social Impacts and Further Study

No.	Likely Impacts	Evaluation	Mitigation Measures
2	Local economy such as employment and livelihood, etc.	B-	**Design phase:** • Since the road is a national road, the procedure for the proper acquisition of land and compensation of improvements in the road reserve is the UNRA procedure. • The Lamwo district held the public consultation meeting in coordination with UNRA, the local representatives agreed the project in the meeting and signed the consent document that the local communities have accepted the transfer of land rights in the road reserve to the districts. • The consent document is intended to facilitate the implementation of the project, which is certified by UNRA with their investigations. • In the public consultation meetings, the local representatives were notified and agreed that they will harvest their standing crops within the project site before the construction works start. • They also signed the consent documents that the local communities have accepted the loss of their standing crops within the project site after the construction works start. • Contractors will inform the local communities clear schedule of the works with sufficient duration to the harvest.
11	Cultural heritage	B-	**Construction phase:** • The maintenance works within the existing width can avoid any possible damages on the cultural trees and graves along the project road. • If the cultural trees have to be felled, cleansing rituals will be performed. • The Lamwo district office will support the relocation of graves when needed.
13	Water Usage or Water Rights and Rights of Common	B-	**Design phase:** • The proposed design of Arainga Bridges with access to river will help improve the existing conditions of access to the river water. **Construction phase:** • It should be avoided to use the local water sources for the water supply for the construction works and for the workers and those are preferably depend on outside water sources. • The supply of drinking water will help the local population.

No.	Likely Impacts	Evaluation	Mitigation Measures
17	Soil Erosion	B-	**Construction phase:** • The selection of the dry season for construction, and the immediate reseeding of roadside embankments, will contribute to control the risk of erosion. • The restoration of bridge construction sites and borrow pits to their initial conditions will contribute to control the risk of erosion. • Top soil will be stored and reused for the rehabilitation of damaged sites along the road.
19	Hydrological Situation	B-	**Construction phase:** • River banks and vegetation cover will be restored after the reconstruction of the bridge. • Works in a river bed are subject to permitting by the Water Resources Management Department. The works will include the diversion of the watercourse during the works (probably by pipe culvert). The contractor will get the permit before works. The river bed morphology will be restored to its initial state.
21	Flora, Fauna and Biodiversity	B-	**Construction phase:** • The contractor will take care of this condition in coordination with the Forestry Officer so that the reserved trees lying inside the road reserve but outside the carriageway will be preserved as much as possible. • If the reserved trees have to be felled, they will be compensated by the district office. **Operation phase:** • The proper management of forest and forest products by the local communities themselves should be supported by the district forest officer through sensitization and information of the people.
23	Landscape	B-	**Construction phase:** • The restoration of the borrow pits is a requirement and its application will be controlled in order to prevent damages on surrounding landscape.
25	Air pollution and dust	B-	**Construction phase:** • In places where people will be exposed to dust during the works like Paloga, Pitber and Potika, sprinkling water on the road will be done to prevent the dust.
26	Water Pollution	B-	**Construction phase:** • The residual cleaning water used for the preparation of concrete will be treated before discharged into the rivers, which means pond sedimentation or filtration. • It is necessary to preserve the water quality of river avoiding any source of pollution from the construction and rehabilitation works, for preservation of the potential uses of water downstream. • The residual engine oils and fuels or any other dangerous water contaminants will be managed properly, and they will be collected and treated by a company agreed by NEMA so that the risk of contaminating surface water and groundwater will be minimized.
27	Soil Contamination	B-	**Construction phase:** • The proper management of oils and fuels in the camp sites during the works will prevent any risk of contamination due to discharge or accidental leakage.

No.	Likely Impacts	Evaluation	Mitigation Measures
28	Waste	B-	**Construction phase:** • The proper elimination of the inert waste materials generated by the rehabilitation and construction works will be managed in coordination with the district authorities and local communities. • Used oil substances will be collected and eliminated by a specialized company agreed by NEMA.
29	Noise and Vibration	B-	**Construction phase:** • The control of vehicle speed carrying material in Paloga, Pitber and Potika will help to reduce this nuisance.
32	Bottom sediment	B-	**Construction phase:** • The selection of the dry season for construction, and the immediate reseeding of roadside embankments, will contribute to control the risk of erosion. • The restoration of bridge construction sites to their initial conditions will contribute to control the risk erosion.
33	Accidents	B-	**Design phase:** • Traffic safety campaigns were organized by the JICA study team in order to sensitize the roadside communities to the risk of traffic accidents and to the basic rules of safety. **Construction phase:** • The secure circulation of the pedestrians and bicycles will then be an important task during the works. • Appropriate plans of traffic management will be carried out through close coordination between the contractor, the supervising engineer and the police. • The workers will be sensitized in order to adopt safe driving in the housing areas. • The protection of workers will be implemented according to the standard rules included in the contract procurement to avoid accidents. • Management and operation agencies will conduct inspection and maintenance of equipment and facilities, and fire prevention measures.

6.9 Consultation

6.9.1 Purposes

As the first step and for practical reasons of the urgency, the Lamwo district organized the public consultation meeting in order to get a formal agreement of implementation of the project with the local communities on July 8th. Its purpose was to get the written agreement of the local representatives for implementation of the project. The process for getting such agreement was implemented under the responsibility of the district engineer of Lamwo, in coordination and with the support of the JICA study team. The public consultation meeting was held in coordination with UNRA, in order to ensure the full compatibility between the district consent document and the UNRA formal procedure of land acquisition and compensation.

The objectives of the public consultations are:

- To inform and sensitize the local communities about the project and the road reserve, and to get the mobilization of the people,
- To discuss the potential issues related to implementation of the project and ensure a proper mutual understanding of the actions to be undertaken,
- To clarify the land use rights and land properties, the land improvements along the project road, and the conditions of compensation if needed, and
- To establish a formal consent document prepared by the district and signed by the local representatives.

6.9.2 Organizers and Participants

The Lamwo district office organized the public consultation meetings supported by JICA Study Team. The participants of meetings were:

- District Officers (Environment Officer, District Engineer),
- UNRA Kitgum Officer
- Sub-county chief,
- Chairpersons of respective Local Councils,
- Representative of Area Land Committee, and
- Local residents.

6.9.3 Contents

The Lamwo district officer explained the participants the outline of the project and the followings.

- JICA, Japan International Cooperation Agency has been working in the northern region to contribute the IDP return process and improve their livelihood, hence enhancing the regional development in the northern region.
- From the study of Rural Road Network Planning in Northern Uganda, JICA Study team selected 6 urgent projects to contribute to the IDP return process by bridge constructions and road improvements.
- It is sure that the improvements also can enhance the accessibility for hospitals, schools and markets and contribute developing economy and living environment, however, it has to be aware of negative impacts also are expected like increase of traffic accidents, noise, exhaust gas from traffic increase.
- However, it is important for the community to understand that road reserves belong to the road authorities which could be the district (local governments), central governments (MoWT) or UNRA, therefore, the road reserves are not for farming or any other private activities.
- Even though the improvement and maintenance works will be done within the road reserves, the district offices requested the land owners (most of them are customary owners) the agreements for the acquisition of the road reserve to implement the project.

6.9.4 Conclusions

The participants understood the purposes and contents of project, and welcomed the project to anticipate a lot of social and economic developments for the local communities with the following suggestions in specific.

- Select credible contractors and supervise contractor's activities to ensure quality works
- Consider employing local peoples and purchasing local construction materials
- Communicate with the local communities

6.10 Monitoring

There is nothing in particular to be raised.

6.11 Consultation with Recipient Governments

The Lamwo district prepared the Project Brief of the project in coordination with the JICA study team and the UNRA. They submitted the Project Brief to NEMA and the Project Brief was approved by NEMA in December 2010.

7. URGENT PROJECT NO.3

7.1 Title of the Project

The Urgent Projects in the Project for Rural Road Network Planning in Northern Uganda

Section No.3: Construction of Ayago Bridge with Approach Road

7.2 Environmental Categorization

(1) Category B

(2) Reason

There are two types of activities for the project, improvement and maintenance works of the project road. The improvement works are for the construction of Ayago bridge with the approach road in total 0.8km. In the other 7.1km length, spot maintenance works are basically for that construction vehicles can pass safely within the present road width.

In these project works, the negative impacts are mainly related to the construction works in the construction phase within very limited sites, especially in the improvement sections, and short term. For the improvement and maintenance works along the project road, the Nwoya district office obtained formal agreements with the roadside communities for the transfer of land rights to the district. The project will not induce any major negative impact on the local environments with the proposed mitigation measures.

Meanwhile, the positive impacts of the project will largely compensate for the limited and mitigate negative impacts that could occur from implementation of the project. The project will be particularly important for the people of Agonga (Laminato) for the easier access to the markets, schools and health centers of Anaka, through the new bridge. The improved accessibility will also contribute to develop the agricultural potential of the area and the marketing possibilities for crops. Women and children will get significant benefits from the improved access to health care services and schools. In Agonga, there is a potential for significant return of the IDPs. The impact of the project for facilitating the return process could be very important.

7.3 Outline of the Location

The beginning point of the road is the junction at Koch Goma – Anaka road, near Patira in Anaka sub-county, and the ending point is Agonga (Laminlato) in Koch Goma sub-county. The community road is an earth fill road of 1.5 to 2.5m width, which looks like a foot path at the approach of the Ayago River, on both sides of the approaches to the river. The crossing passage of the Ayago River is difficult and dangerous, and totally impracticable during overflow. Crossing is possible by foot and no major accident has been recorded but incidents are frequent.

The project area lies on both sides of the Ayago River oriented north - South. The altitude is comprised between 940 (Ayago River) and 980m. The morphology of the area is flat and undulated with higher

places where the substratum shows on the surface. The basement is made of Precambrian gneisses rocks.

The project area belongs to the Acholi Kyoga climatic area, which is characterized by an annual average range of precipitations of 1,250 to 1,500mm, with a wet season between April and October, and a dry season between November and March.

The Ayago River is the main water body of the project area. The vegetation in Nwoya district is extensively represented by a savannah in association with a mosaic of woodlands. Grassland savannah is a tall grass species i.e Hyperrhenia rufa, Imperata cylindrical. The canopy is composed of Acacia and Setaria tree species. The woodland savannah is dominated by groups of species like Albezia, Terminalia, Combretum, Acacia, Erythrina, Annona, Grewia, and Vitex. The natural vegetation has changed greatly as a result of agricultural activities, civil war and present return of the people to their homelands. The Laminlato – Lamoki road is crossing bushy grassland and subsistence farmland. The Ayago River banks are occupied by a riparian forest with dense vegetation. There is no protected area in the project area. The project road does not belong to an area classified as a scenic, wooded, mountainous area.

The most important source of income comes from the production of groundnuts and rice. The other important crops are peas, beans, millet, maize, cassava, and sesame.

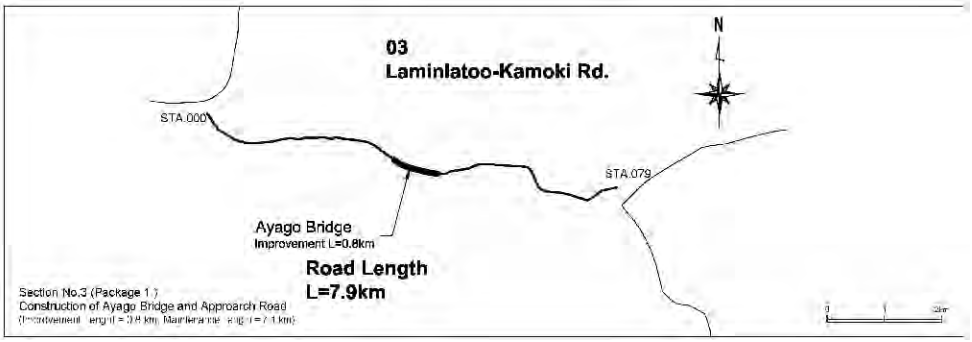

Figure 1 Location of the Project Site

7.4 Environmental Legislations and Administration

7.4.1 Environmental Requirements for Road Projects

Projects which are subject to a mandatory EIA in Uganda are listed in the Third Schedule to the Environmental Impact Assessment Regulations 1998. In the field of roads development, the list includes the following criteria, which are most relevant for the project.

- Major roads
- Roads in scenic, wooded, mountainous areas
- Activity out of character with its surroundings, with major changes in land use

District roads and national roads are regarded as major roads in Uganda. The Third schedule lacks however details about the conditions for EIA requirements, like length of the road project, and nature

of the works. The technical guidelines developed by the Ministry of Works and Transport (MoWT) in the road sector are the basic reference for understanding the requirements for EIA of roads. The opinion of the District Environment Officer about the road projects helps to understand the environmental requirements for the project. Bridges and borrow pits are not part of the Third Schedule document. They are in practice considered as activities out of character with its surroundings with major changes in land use.

In coordination with the District Environment Officer, and in accordance with the existing EIA regulations and guidelines, the submission of a Project Brief report to NEMA was the most appropriate procedure for requesting the environmental authorization of the project. The Project Brief included the environmental impacts that the project is likely to generate, propose the appropriate mitigation measures, and guaranty the compliance with environmental regulations.

7.4.2 Environmental Guidelines of the MoWT

The implementation of the project needs to be in compliance with the environmental guidelines of MoWT for roads. The following guidelines have been taken into consideration:

- Environmental Impact Assessment Guidelines for Road Projects
- Environmental Guidelines for District Engineers, Volume 5B of the District Administrative and Operational Guidelines, 2003 (District Road Works Manuals series).

The Environmental Impact Assessment Guidelines for Road Projects provide detailed criteria about the EIA requirements in the road development sector. There are 4 basic criteria that guide the decisions about the EIA requirements for a project (Table 1), and these are:

- Case 1. Projects that certainly do not have any significant impact on the environment
- Case 2. Projects likely to have some minor impacts on the environment but for which adequate and sufficient mitigation measures have been identified
- Case 3. Projects that have some significant environmental impacts, where adequate mitigation measures are readily available
- Case 4. Projects having a number of (very) significant impacts on the environment (whether adequate mitigation measures can be identified or not)

7.4.3 Classification of the Project

Table 1 below shows that the project is not expected to belong to the cases 1 or 4, since the no-impact and the major impact scenarios cannot be upheld. Accordingly, the project is likely to fit within cases 2 or 3.

Table 1 Conditions of EIA requirements

Class of project	EIA requirement	Approval of the project	Relevance for the project
Case 1	No further EIA processing	Certificate issued	NO
Case 2	No further EIA processing but an evaluation is done in the Project Brief with presentation of the measures	Certificate issued	YES
Case 3	A limited analysis is required	Environmental impact review (EIR) is required before issuance of certificate	YES
Case 4	A full environmental impact study is required	Full (EIA) or (EIS) is required before issuance of a certificate. The Project Brief step is not needed.	NO

Source: Summarized from the Environmental Impact Assessment Guidelines for Road Projects, 2008

7.4.4 Project Brief

The Project Brief is an official document including a description of the project, an evaluation of the potential impacts and a presentation of the mitigating measures. The purpose of the Project Brief document is to clarify the type of EIA requirement of the project.

The Nwoya and Amuru districts prepared a Project Brief of the project in coordination with the JICA study team. The conclusion of the Project Brief was that the negative impacts would be minor while positive impacts would be significant. The important mitigation measures were identified. In case of insufficient information in the Project Brief regarding a significant issue or potential impact of the project, NEMA may require an environmental impact review (EIR) report before approval.

The Project Brief was submitted to NEMA in August 2010 and the Nwoya district received a formal approval for the environmental aspects of the project without EIA and EIR requirements from NEMA in November 2010.

7.4.5 Procedure for Land Acquisition and Compensation

(1) Case of National Roads

The MoWT has not set up a land acquisition and land compensation policy for roads project. The Uganda National Roads Authority (UNRA) is preparing a land acquisition management system (LAMS) document (final draft June 2009), in line with its strategy for land acquisition of road reserve, country wide. This document is the only existing guideline document for implementing land acquisition and land compensation for national roads projects. The LAMS document applies to the land acquisition managed by the UNRA for the national roads network.

(2) Case of District Roads

There is no standard procedure of land acquisition and compensation in the specific case of district roads. The legal requirements of land acquisition and compensation of a road reserve for a district road seem not to different from those for a national road. In practice, in the case of customary land tenure, which is the most common case, the acquisition of land within the road reserve is based on an agreement with the local communities, in which they offer their land to the benefit of public use.

Accordingly, there is no formal acquisition of land, and therefore no full compliance with the legal requirements of the Land Act. The implicit assumption is that land will be compensated in the future. In such conditions, there is no guarantee that land claims will not occur during or after the implementation of the project. Basically, the scope of agreements with the local communities is an offer of land for the project roads, and a compensation for the improvements, with an evaluation by the District Valuer Officer.

(3) Case of the Project Road

Most project road is the maintenance section. Maintenance works are necessary in order to improve the accessibility of the road for construction vehicles to the bridge construction site. Land ownership along both improvement and maintenance sections are community land with collective and individual rights of use. Since the project does not affect any individual and titled land property (leasehold tenure system). In the specific case of the project road, the Nwoya district office organized the public consultation meeting with the local communities, with the purpose of obtaining a written agreement with the local communities for the acquisition of the road reserve.

7.5 Outline of the Project

7.5.1 Background and Purpose

Northern Uganda has the largest proportion of people living in poverty in the country, estimated to account for 61 % of the region’s population, or almost twice the national level. This high level of poverty can be attributed to the Lord's Resistance Army (LRA) insurgency. During the 20 year-conflict beginning in the 1980s, much of the basic social infrastructure was destroyed or abandoned and the local government became non-functional in the region.

In particular, 90 % of the population, or two million people, were displaced (IDP: Internally Displaced Person) from Acholi Sub-region. Since the cease-fire agreement concluded between LRA and the Government of Uganda in August 2006, the Government of Uganda has emphasized and facilitated the return process of IDPs and prepared the National Peace Recovery and Development Plan (PRDP) in order to stabilize and recover Northern Uganda. The PRDP identifies the 14 priority programs such as rebuilding and empowering communities (health, education, water, livelihood support) and it emphasizes the importance of infrastructure rehabilitation and improvement of trunk road network connecting the districts and community access road network.

Under these circumstances, the ten year District, Urban and Community Access Road Investment Plan (DUCARIP) has been prepared to provide a financing framework for investments in district, urban and community access roads. Though maintenance of high priority District Roads has been progressively made in the framework, the improvements or new constructions of these roads have not been undertaken adequately. Furthermore, the budget from central government does not make allocations for maintenance, improvement and new construction of community access roads and this leads to a difficult situation where road improvement and new construction are to be

undertaken by the districts themselves.

Consequently, although the necessity of the road improvement for the IDP return process seems to be of high priority, the implementation of the projects to improve road network could not be started because of budgetary deficits.

7.5.2 Necessity and Appropriateness

The alternative road and bridge rehabilitation urgent projects in Acholi sub-region have been selected according to the results of the Road and Bridge Inventory Survey, and of the Future Traffic Demand Forecast Analysis. The selection criteria are factors of urgency, necessity, and feasibility of projects. Among the 13 urgent projects requested by the Ugandan side, 6 have been retained for immediate planning and implementation within the scope of the project (Interim Report).

The Construction of Ayago Bridge with Approach Road project is one of the 6 urgent projects retained for planning and implementation under the Japan International Cooperation Service (JICS) fund. The main factors of selection for urgent projects are:

- The high degree of contribution for the return and resettlement of displaced people (IDPs)
- The high degree of urgency and necessity due to the lack of bridge without alternative road
- The expected positive benefits at the level of the parishes of concern
- The good feasibility of implementation of the project due to the lack of resettlement issues.

Then, it is assumed that the improvement of the road and the construction and rehabilitation of bridges will facilitate the return of the IDPs, and improve the local economic and social conditions.

7.5.3 Contents of the Project

The total length of the project alignment is 7.9 km that is in Nwoya District. The project road is a community access road. The project aims at the maintenance of 7.1 km and improvement of 0.8 km. The improvement section includes the construction of Ayago Bridge with one span of 15m length. Specifications of the project are summarized in Table 2.

Table 2 Specifications of the Urgent Projects of No.3

Section No.		No.3
		New Bridge Construction
Site		Nwoya
Road Class		Community Access Road
Beginning Point		Lamoki JCT
End Point		Lutuk Satellite
Improvement section Road Width (m)		3.0
Number of Carriageway Improvement section Road		1
Pavement		Gravel
Total Road Length (km, include bridge section)		7.9
	Improvement section (km)	0.8
	Maintenance* section (km)	7.1
Bridge Name		Ayago Bridge

Span Length (Number of Span)		15 m (1)
Superstructure Type		RC Girder, Simple girder
Live Load Type		BS:HA, JPN: A type
Bridge Width (m)		6.0 m
Abutment	Abutment Type	Reversed T Type
	Foundation Type	Spread Foundation
Pier	Pier Type	None
	Foundation Type	-
River Bank Protection (Around Abutments)		

CAR: Community Access Road, DBST: Double Bituminous Surface Treatment (Low cost pavement)
* Maintenance is spot maintenance work. It is basically for the works that construction vehicles can pass safely within the present road width.
JPN: Japanese Bridge Speciation, A type (equivalent BS:HA) for District road, B type (equivalent BS:HB) for National road.

7.6 Expected Environmental and Social Impacts

The likely impacts caused by the proposed project are evaluated and summarized in Table 3 below.

Table 3 Expected Environmental and Social Impacts

	No.	Likely Impacts	Design	Construction	Operation	Description of Impacts
Social Environment:	1	Involuntary Resettlement	D	D	D	**Design phase:** The project will not induce any resettlement of the population. There are no structures along the project road (community access road).
	2	Local economy such as employment and livelihood, etc.	D	B+/-	A+	**Design phase:** Land along the project road is used according to the customary hold tenure rules. Land acquisition is also small scale since the improvement section is only 0.8km. The maintenance section will not affect land over the existing width with only spot works although some maintenance sections can be widened so that the construction vehicle can pass safely. **Construction phase:** The maintenance and construction works will induce job opportunities. The application of the labor recruitment procedure will ensure that priority is given to the local peoples. If the use of local stone materials from local quarries is promoted, it will provide cash opportunities to the local peoples. The loss of standing crops in the road reserve due to the improvement works will be important in the project road if the works are implemented before the harvest. **Operation phase:** The increased accessibility of the area will induce the intensification of marketing activities of local crops and products, which will strongly contribute to economic development and improvement of livelihood. Accordingly, the project should strongly contribute to alleviate poverty and to reduce vulnerability.
	3	Land use and utilization of local resources	D	D	A+	**Operation phase:** The opening of new accesses after improvement and maintenance works will induce an intensified use of land for agriculture and for the use of forest products. This impact is very positive in terms of economic productivity of the land.

	No.	Likely Impacts	Design	Construction	Operation	Description of Impacts
	4	Social institutions such as social infrastructure and local decision making institutions	D	D	D	No significant adverse impacts are expected. The district offices explained the project to the local representatives and they accepted the project.
	5	Existing social infrastructures and services	D	D	A+	**Operation phase:** The project area is outside the limits of the areas covered by hospital or health centers. The project will help to facilitate access to the existing health services. The greatest contribution will be the improved access to Anaka health centre.
	6	Traffic Congestion	D	D	D	No significant adverse impacts are expected. There is not much traffic and the existing traffic is dominated by bicycles and pedestrians.
	7	Community Division	D	B+	A+	**Construction phase:** The employment of the local residents for unskilled labors in the construction works will prevent the generation of conflicts with the local communities, and mitigate the risk of social disruption. **Operation phase:** The improved rural accessibility after construction could facilitate the return of IDPs in the project area, which is a positive impact toward the social reintegration of this population.
	8	The poor, indigenous and ethnic people	D	D	D	No significant adverse impacts are expected on indigenous and ethnic people. They do not live around the project site.
	9	Misdistribution of benefit and damage	D	D	D	No adverse impact is expected. The local representatives accepted the Project will contribute the improvement of accessibility for the public benefits.
	10	Gender equity and children's rights	D	B+	A+	**Construction phase:** The full application of the labor recruitment procedure specified in the MoWT environmental guidelines will contribute to provide jobs to the women and to the persons with disabilities, in the roadside communities. **Operation phase:** The improved accessibility to markets, health care services, and schools are the most positive effects of the project and will contribute to alleviate the tasks or the work load of the women and children. The improved access to the market places and the possibility for the women to offer their products on the markets and roadside is certainly the most important positive impact of the project towards gender equity.
	11	Cultural heritage	D	D	D	**Construction phase:** There is no protected, important cultural or historical patrimony in the project area along the project road. Graves are also not found.
	12	Local conflict of interests	D	D	D	No significant adverse impacts are expected. The local representatives accepted the Project will contribute the improvement of accessibility for public benefits.
	13	Water Usage or Water Rights and Rights of Common	D	B-	D	**Construction phase:** The construction works of bridges can affect on access to the river water resources for a few households of Onymtil and Amoyo Koma during the period of works.

	No.	Likely Impacts	Design	Construction	Operation	Description of Impacts
	14	Sanitation	D	D	D	The use of local residents in the road works, the small size of the work camps, and the short period of construction are not factors that could increase the sanitation risks.
	15	Hazards (Risk) Infectious diseases such as HIV/AIDS	D	D	D	No significant adverse impacts are expected. No massive influx of workers is expected as most laborers can be supplied locally.
Natural Environment	16	Topography and Geographical features	D	D	D	No significant adverse impacts are expected. The scale of Ayago bridge of 15m span with 6m width will not change topography and geology very much.
	17	Soil Erosion	D	B-	D	**Construction phase:** The construction works of the Ayago bridge and the opening of the road are likely to disturb the soil stability and induce erosion of the slopes.
	18	Groundwater	D	D	D	No significant adverse impacts are expected. The foundation works of the bridge require low depth.
	19	Hydrological Situation	D	B-	D	**Construction phase:** The river banks have a protected buffer zone of 30m width. The project will temporarily affect this protected zone of the Ayago River during construction.
	20	Coastal Zone	D	D	D	No adverse impact is expected on coastal zone because the project sites are not located on coastal areas.
	21	Flora, Fauna and Biodiversity	D	D	B-	**Construction phase:** There are no protected areas and specious species in the project site. It is assumed that the riparian forest of Ayago River could be a refuge for wildlife and habitat for birds. However, the possible function of the river as biological corridors for wildlife will not be affected by the project since the construction site is only at the bridge crossing points **Operation phase:** The main impact of the project on forest resources will be induced by the intensification of agricultural use of land, and the increased marketing of wood products like charcoal, in the project area.
	22	Meteorology	D	D	D	No adverse impact is expected on meteorology because the project scale is small.
	23	Landscape	D	B-	D	**Construction phase:** The borrow pits for supply of gravel materials can affect on the landscape along the project road.
	24	Global Warming	D	D	D	No adverse impact is expected on global warming because the project scale is small.
Pollution	25	Air Pollution and dust	D	D	D	No significant adverse impact is expected in the short term since the works will be implemented away from the housing settlements. Exhaust gases of trucks and heavy machines during construction are sources of air pollutants. The dust generated by running vehicle will affect more people along the road. However, given the local conditions, they will not affect the ambient air quality.

	No.	Likely Impacts	Design	Construction	Operation	Description of Impacts
	26	Water Pollution	D	B-	D	**Construction phase:** Since the Ayago River is water supply sources for drinking uses of the local communities, the construction of Ayago Bridge is likely to affect on the water resources during the period of works. The construction during the dry season is a factor of increased risk on the availability of water supplies. During construction of the bridges, the withdrawal of water from the rivers for the preparation of concrete will directly affect the availability of water downstream and the water users.
	27	Soil Contamination	D	B-	D	**Construction phase:** Leakage of oils, fuels from the machineries and asphalt emulsion from the construction sites can contaminate surrounding soil, however in limited spaces and short term.
	28	Waste	D	B-	D	**Construction phase:** Vegetation and land clearance along the improvement sections of the project road and around the bridge construction sites will be a source of green waste and inert waste. Residual engine oils also are waste which can affect on the water quality and soil.
	29	Noise and Vibration	D	D	D	Noise and vibration will not be a significant issue since the works will be implemented far away from the housing settlements. The traffic of trucks and machines will not significantly affect the residents. The impact of the project during and after construction on the ambient noise level will be negative, since ambient noise is almost non-existent, but still minor. The population exposed is very small.
	30	Ground Subsidence	D	D	D	No adverse impact is expected on ground subsidence because the project scale is small.
	31	Offensive Odor	D	D	D	No adverse impact is expected on offensive odor because the project is small in scale and has no sources of offensive odor.
	32	Bottom sediment	D	B-	D	**Construction phase:** The soil eroded due to the construction works of Ayago Bridge and the opening of the approach road in front of the Ayago River is likely to disturb the bottom sediment of rivers, however in limited spaces and short term.
	33	Accidents	D	B-	B-	**Construction phase:** The risk of traffic accident will be higher by the construction vehicles. They can affect on pedestrians, bicycles and motorbikes, which are the basic means of transportation. The working conditions of the rural roads can induce worker's accidents. **Operation phase:** The anticipated traffic on the project road will increase, consequently the risk of traffic accidents will be a new risk compared with the present situation.

Rating:
A+/-: Significant positive/negative impact is expected.
B+/-: Positive/negative impact is expected to some extent.
C+/-: Extent of impact is unknown (Examination is needed. Impacts may become clear as study progresses.)
D: No impact is expected.

7.7 Impacts of the Project

The overall rating is evaluated at the category “B”. Both positive and negative impacts by the project are evaluated in 33 likely impacts on social environment, natural environment and pollution. Meanwhile 11 items are evaluated at that adverse impacts are expected to some extent as rating “B-”, which are 2 items on social environment, 4 items on natural environment and 5 items on the pollution in the construction phase. 5 items are evaluated at positive impacts as rating “B+” or “A+” on the social environment in the construction and operation phases.

These positive impacts match the local people’s expectations expressed by the local representatives and by the residents during the field interviews and at the public consultation meetings. The most important benefits of the project as expected by the local peoples are:

- Improved communications between the both sides of the Ayago River,
- New possibilities of mobilizing the people for the interest of the communities,
- Facilitated access to the district offices for the local representatives,
- Better access to the Anaka hospital,
- Better transport of goods, and
- Job opportunities created by the project during works.

7.8 Mitigation Measures

The mitigation measures are summarized in Table 4 responding to the results of evaluation in Table 3.

Table 4 Mitigation Measures for Environmental and Social Impacts and Further Study

No.	Likely Impacts	Evaluation	Mitigation Measures
2	Local economy such as employment and livelihood, etc.	B-	**Design phase:** • Nwoya district plans to upgrade the community access road to a district road but there is no procedure for the proper acquisition of land and compensation of improvements of district roads. • The district held the public consultation meeting, local representatives agreed the project in the meeting and the land owners signed the consent document that the local communities have accepted the transfer of land rights along the project road to the district. • In the public consultation meetings, the local representatives were notified and agreed that they will harvest their standing crops within the road reserves before the construction works start. • They also signed the consent documents that the local communities have accepted the loss of their standing crops within the road reserves after the construction works start. • Contractors will inform the local communities clear schedule of the works with sufficient duration to the harvest.

No.	Likely Impacts	Evaluation	Mitigation Measures
13	Water Usage or Water Rights and Rights of Common	B-	**Design phase:** • The proposed design of Ayago Bridge with access to river will help improve the existing conditions of access to the river water. **Construction phase:** • It should be avoided to use the local water sources for water supply for the construction works and for the workers and those are preferably depend on outside water sources. • The supply of drinking water will help the local population.
17	Soil Erosion	B-	**Construction phase:** • The selection of the dry season for construction, and the immediate reseeding of roadside embankments, will contribute to control the risk of erosion. • The restoration of bridge construction sites and borrow pits to their initial conditions will contribute to control the risk of erosion. • Top soil will be stored and reused for the rehabilitation of damaged sites along the road.
19	Hydrological Situation	B-	**Construction phase:** • The river banks and vegetation cover will be restored after construction. • Works in a river bed are subject to permitting by the Water Resources Management Department. The works will include the diversion of the watercourse during the works (probably by pipe culvert). The contractor will get the permit before works. The river bed morphology will be restored to its initial state.
21	Flora, Fauna and Biodiversity	B-	**Operation phase:** • The proper management of forest and forest products by the local communities themselves should be supported by the district forest officer through sensitization and information of the people.
23	Landscape	B-	**Construction phase:** • The restoration of the borrow pits is a requirement and its application will be controlled in order to prevent damages on surrounding landscape.
26	Water Pollution	B-	**Construction phase:** • The residual cleaning water used for the preparation of concrete will be treated before discharged into the rivers, which means pond sedimentation or filtration. • It is necessary to preserve the water quality of river avoiding any source of pollution from the construction and rehabilitation works, for preservation of the potential uses of water downstream. • The residual engine oils and fuels or any other dangerous water contaminants will be managed properly, and they will be collected and treated by a company agreed by NEMA so that the risk of contaminating surface water and groundwater will be minimized.
27	Soil Contamination	B-	**Construction phase:** • The proper management of oils and fuels in the camp sites during the works will prevent any risk of contamination due to discharge or accidental leakage.

No.	Likely Impacts	Evaluation	Mitigation Measures
28	Waste	B-	**Construction phase:** • The proper elimination of the inert waste materials generated by the rehabilitation and construction works will be managed in coordination with the district authorities and local communities. • Used oil substances will be collected and eliminated by a specialized company agreed by NEMA.
32	Bottom sediment	B-	**Construction phase:** • The selection of the dry season for construction, and the immediate reseeding of roadside embankments, will contribute to control the risk of erosion. • The restoration of bridge construction sites to their initial conditions will contribute to control the risk erosion.
33	Accidents	B-	**Design phase:** • Traffic safety campaigns were organized by the JICA study team in order to sensitize the roadside communities to the risk of traffic accidents and to the basic rules of safety. **Construction phase:** • The secure circulation of the pedestrians and bicycles will then be an important task during the works. • Appropriate plans of traffic management will be carried out through close coordination between the contractor, the supervising engineer and the police. • The workers will be sensitized in order to adopt safe driving in the housing areas. • The protection of workers will be implemented according to the standard rules included in the contract procurement to avoid accidents. • Management and operation agencies will conduct inspection and maintenance of equipment and facilities, and fire prevention measures.

7.9 Consultation

7.9.1 Purposes

The Nwoya and Amuru district offices conducted the public consultation meeting on August 18th in Onyomtil to sensitize the local peoples and obtain a formal agreement of implementation of the project by the local communities. The objectives of the public consultations are:

- To inform and sensitize the local communities about the project and the road reserve, and to get the mobilization of the people,
- To discuss the potential issues related to implementation of the project and ensure a proper mutual understanding of the actions to be undertaken,
- To clarify the land use rights and land properties, the land improvements along the project road, and the conditions of compensation if needed, and
- To establish a formal consent document prepared by the district and signed by the local representatives.

7.9.2 Organizers and Participants

The Nwoya and Amuru district offices organized the public consultation meetings supported by JICA Study Team. The participants of meetings were:

- District Officers (Environment Officer, District Engineer),
- Sub-county chief,
- Chairpersons of respective Local Councils,
- Representative of Area Land Committee, and
- Local residents.

7.9.3 Contents

The district officers explained the participants the outline of the project and the followings.

- JICA, Japan International Cooperation Agency has been working in the northern region to contribute the IDP return process and improve their livelihood, hence enhancing the regional development in the northern region.
- From the study of Rural Road Network Planning in Northern Uganda, JICA Study team selected 6 urgent projects to contribute to the IDP return process by bridge constructions and road improvements.
- It is sure that the improvements also can enhance the accessibility for hospitals, schools and markets and contribute developing economy and living environment, however, it has to be aware of negative impacts also are expected like increase of traffic accidents, noise, exhaust gas from traffic increase.
- However, it is important for the community to understand that road reserves belong to the road authorities which could be the district (local governments), central governments (MoWT) or UNRA, therefore, the road reserves are not for farming or any other private activities.
- Even though the improvement and maintenance works will be done within the road reserves, the district offices requested the land owners (most of them are customary owners) the agreements for the acquisition of the road reserve to implement the project.

7.9.4 Conclusions

The participants understood the purposes and contents of project, and welcomed the project with the following suggestions in specific.

- Supervise contractor’s activities to ensure quality works
- Consider employing local peoples and purchasing local construction materials
- Respect local people’s customs, values and properties of the communities
- Perform a traditional ceremony for respecting the spirit of the Ayago River
- Contractors should behave decently, respect family privacy and life of the local people
- Compensations if applicable

7.10 Monitoring

There is nothing in particular to be raised.

7.11 Consultation with Recipient Governments

The Nwoya and Amuru districts prepared the Project Brief of the project in coordination with the JICA study team and the MoWT. They submitted the Project Brief to NEMA and the Project Brief was approved by NEMA in November 2010.

8. URGENT PROJECT NO.4

8.1 Title of the Project

The Urgent Projects in the Project for Rural Road Network Planning in Northern Uganda

Section No.4: Reconstruction of Otaka Bridge with Approach Road

8.2 Environmental Categorization

(1) Category B

(2) Reason

The project has improvement works for the construction of Otaka Bridge with the approach road in total 0.6km length. In these project works, the negative impacts are mainly related to the construction works in the construction phase within very limited area and the short term. For the improvement works along the project road within the road reserve, the Agago district office obtained formal agreements with the roadside communities for the transfer of land rights to the district. The project will not induce any major negative impact on the local environments with the proposed mitigation measures.

The positive impacts of the project will largely compensate for the limited and mitigated negative impacts that could occur from implementation of the project. The improved conditions of crossing of the Otaka River after construction will eradicate the potential bottleneck for the traffic of trucks, and ensure the permanent road connection between Gulu, Pader and Agago. The increased accessibility to markets, to the health centre of Pader, and to the school of Lamiyo, will be a great benefit for residents around the project site, particularly during the rainy season. Women and children will get significant benefits from the improved accessibility. The project will not induce any major negative impact on the local environment assuming that the proposed mitigating measures will be properly implemented.

8.3 Outline of the Location

The Otaka Bridge is located in the Lamiyo sub-county in the new district of Agago. The total length of the improvement is 0.6km, which includes the bridge itself (45m), and the approach road. Currently, the bridge is a RC structure of 6m long and 4m width, which does not fit with the existing traffic and generates a bottleneck for trucks. Embankment behind the abutment of the bridge is collapsed and is a potential danger for heavy trucks. During heavy rains and rain season, the bridge is overflowed, which may close this important passage for 1 to 3 days.

The project area lies on a plateau at an altitude ranging between 1,020 and 1,040m. The morphology of the area is a flat land on the Precambrian basement, which is composed of gneisses together with granulite facies rocks.

The district has rainy and dry seasons. The project area belongs to the Acholi Kyoga climatic area, which is characterized by an annual average range of precipitations of 1,250 to 1,500mm, with a wet

season between April and October, and a dry season between November and March.

The Otaka River flows to the North-West, and drains into the Agago River. This river is perennial and occupies a large morphological depression with wetlands in the river bed. The Otaka wetland is recorded in the Pader District Inventory Report of Wetlands (2008) as a seasonal grassland wetland.

The vegetation around the project area is the vegetation of the seasonally flooded herbaceous wetland, which is characterized by predominant species like Cynodon, Seteria, Hyparrhenia, and Brachiaria, species. The Pader inventory report mentions the common occurrence of the Cyperus Papyrus species during the peak rain season. On the border of the wetland, the species are those of a typical bushy savannah with shrubs, tall grass and woody cover, where the dominant grass species are Hyperrhenia, Brachiaria, and Pennisetum species, and the tree species are dominated by Combretum.

There is no any type of protected natural area around the project site. The project site does not belong to an area classified as a scenic, wooded, mountainous area. According to the Pader District Inventory Report of Wetlands (2008), the fauna of the wetlands is generally constituted of cane rats, squirrels, warthogs, monkeys, baboons, antelopes, wildcats, and various reptiles. The avifauna includes doves, the Yellow Billed Egret, The Weaver bird, the Goliath Heron, the Guinea Fowl, and the Sand Piper. Fishes are Tilapia, Cat fishes, Mud fishes, and Lung fishes.

In the villages around the project site, the gardening of sorghum, simsim, groundnut, cassava, maize, and potatoes provides the main source of income. These crops are sold on the Lamiyo market by women.

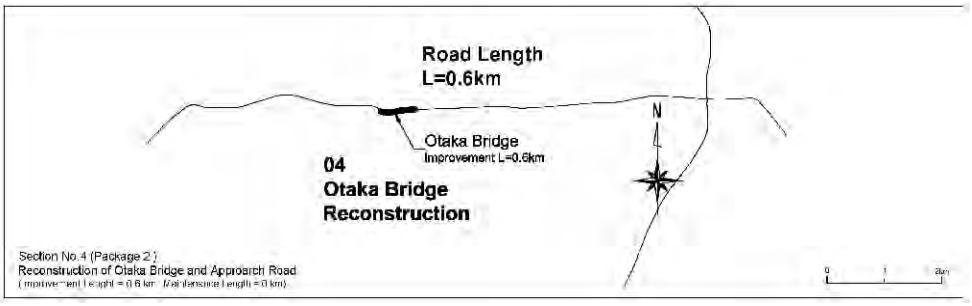

Figure 1 Location of the Project Site

8.4 Environmental Legislations and Administration

8.4.1 Environmental Requirements for Road Projects

Projects which are subject to a mandatory EIA in Uganda are listed in the Third Schedule to the Environmental Impact Assessment Regulations 1998. In the field of roads development, the list includes the following criteria, which are most relevant for the project.

- Major roads
- Roads in scenic, wooded, mountainous areas
- Activity out of character with its surroundings, with major changes in land use

District roads and national roads are regarded as major roads in Uganda. The Third schedule lacks however details about the conditions for EIA requirements, like length of the road project, and nature of the works. The technical guidelines developed by the Ministry of Works and Transport (MoWT) in the road sector are the basic reference for understanding the requirements for EIA of roads. The opinion of the District Environment Officer about the road projects helps to understand the environmental requirements for the project. Bridges and borrow pits are not part of the Third Schedule document. They are in practice considered as activities out of character with its surroundings with major changes in land use.

In coordination with the District Environment Officer, and in accordance with the existing EIA regulations and guidelines, the submission of a Project Brief report to NEMA was the most appropriate procedure for requesting the environmental authorization of the project. The Project Brief included the environmental impacts that the project is likely to generate, propose the appropriate mitigation measures, and guaranty the compliance with environmental regulations.

8.4.2 Environmental Guidelines of the MoWT

The implementation of the project needs to be in compliance with the environmental guidelines of MoWT for roads. The following guidelines have been taken into consideration:

- Environmental Impact Assessment Guidelines for Road Projects
- Environmental Guidelines for District Engineers, Volume 5B of the District Administrative and Operational Guidelines, 2003 (District Road Works Manuals series).

The Environmental Impact Assessment Guidelines for Road Projects provide detailed criteria about the EIA requirements in the road development sector. There are 4 basic criteria that guide the decisions about the EIA requirements for a project (Table 2.1), and these are:

- Case 1. Projects that certainly do not have any significant impact on the environment
- Case 2. Projects likely to have some minor impacts on the environment but for which adequate and sufficient mitigation measures have been identified
- Case 3. Projects that have some significant environmental impacts, where adequate mitigation measures are readily available
- Case 4. Projects having a number of (very) significant impacts on the environment (whether adequate mitigation measures can be identified or not)

8.4.3 Classification of the Project

Table 1 below shows that the project is not expected to belong to the cases 1 or 4, since the no-impact and the major impact scenarios cannot be upheld. Accordingly, the project is likely to fit within cases 2 or 3.

Table 1 Conditions of EIA requirements

Class of project	EIA requirement	Approval of the project	Relevance for the project
Case 1	No further EIA processing	Certificate issued	NO
Case 2	No further EIA processing but an evaluation is done in the Project Brief with presentation of the measures	Certificate issued	YES
Case 3	A limited analysis is required	Environmental impact review (EIR) is required before issuance of certificate	YES
Case 4	A full environmental impact study is required	Full (EIA) or (EIS) is required before issuance of a certificate. The Project Brief step is not needed.	NO

Source: Summarized from the Environmental Impact Assessment Guidelines for Road Projects, 2008

8.4.4 Project Brief

The Project Brief is an official document including a description of the project, an evaluation of the potential impacts and a presentation of the mitigating measures. The purpose of the Project Brief document is to clarify the type of EIA requirement of the project.

The Pader and Agago districts prepared a Project Brief of the project in coordination with the JICA study team. The conclusion of the Project Brief was that the negative impacts would be minor while positive impacts would be significant. The important mitigation measures were identified. In case of insufficient information in the Project Brief regarding a significant issue or potential impact of the project, NEMA may require an environmental impact review (EIR) report before approval.

The Project Brief was submitted to NEMA in September 2010 and the Agago district received a formal approval for the environmental aspects of the project without EIA and EIR requirements from NEMA in December 2010.

8.4.5 Procedure for Land Acquisition and Compensation

(1) Case of National Roads

The MoWT has not set up a land acquisition and land compensation policy for roads project. The UNRA is preparing a land acquisition management system (LAMS) document (final draft June 2009), in line with its strategy for land acquisition of road reserve, country wide. This document is the only existing guideline document for implementing land acquisition and land compensation for national roads projects. The LAMS document applies to the land acquisition managed by UNRA for the national roads network. The land acquisition specialist of UNRA has provided additional information to understand the right procedure in the case of a district road project.

(2) Case of District Roads

There is no standard procedure of land acquisition and compensation in the specific case of district roads. The legal requirements of land acquisition and compensation of a road reserve for a district road seem not to different from those for a national road. In practice, in the case of customary land tenure, which is the most common case, the acquisition of land within the road reserve is based on an agreement with the local communities, in which they offer their land to the benefit of public use.

Accordingly, there is no formal acquisition of land, and therefore no full compliance with the legal requirements of the Land Act. The implicit assumption is that land will be compensated in the future. In such conditions, there is no guarantee that land claims will not occur during or after the implementation of the project. Basically, the scope of agreements with the local communities is an offer of land for the project roads, and a compensation for the improvements, with an evaluation by the District Valuer Officer.

(3) Case of the Project Road

The Otaka Bridge improvement project belongs to a national road. Accordingly, the land acquisition and compensation procedure of UNRA is required for the approach road improvement section. MoWT has formally requested such procedure to UNRA for the urgent projects of concern in July 2010. In order to fit with the short delays of implementation of the urgent project, the Agago district office organized a public consultation meeting with the local communities, in coordination with Pader district and UNRA, to obtain a consent document regarding the implementation of the project. The District consent document is intended to facilitate the implementation of the project, which is certified by UNRA with their investigations.

8.4.6 Legal Requirements for the Protection of Swamps and Wetlands

Under the National Environment (Wetlands, River Banks and Lake Shores Management) Regulations 2000, a wetland can be declared by the Ministry of Water and Environment as a fully or partially protected wetland of national or international importance. The Third Schedule to the regulations provides a list of 11 wetlands of international importance in Uganda. However, none of them are in the project area. There is no wetland managed under the Ramsar convention in the project area. There is no legally defined important wetland in the project area.

8.5 Outline of the Project

8.5.1 Background and Purpose

Northern Uganda has the largest proportion of people living in poverty in the country, estimated to account for 61 % of the region’s population, or almost twice the national level. This high level of poverty can be attributed to the Lord's Resistance Army (LRA) insurgency. During the 20 year-conflict beginning in the 1980s, much of the basic social infrastructure was destroyed or abandoned and the local government became non-functional in the region.

In particular, 90 % of the population, or two million people, were displaced (IDP: Internally Displaced Person) from Acholi Sub-region. Since the cease-fire agreement concluded between LRA and the Government of Uganda in August 2006, the Government of Uganda has emphasized and facilitated the return process of IDPs and prepared the National Peace Recovery and Development Plan (PRDP) in order to stabilize and recover Northern Uganda. The PRDP identifies the 14 priority programs such as rebuilding and empowering communities (health, education, water, livelihood support) and it emphasizes the importance of infrastructure rehabilitation and improvement of trunk road network connecting the districts and community access road network.

Under these circumstances, the ten year District, Urban and Community Access Road Investment Plan (DUCARIP) has been prepared to provide a financing framework for investments in district, urban and community access roads. Though maintenance of high priority District Roads has been progressively made in the framework, the improvements or new constructions of these roads have not been undertaken adequately. Furthermore, the budget from central government does not make allocations for maintenance, improvement and new construction of community access roads and this leads to a difficult situation where road improvement and new construction are to be undertaken by the districts themselves.

Consequently, although the necessity of the road improvement for the IDP return process seems to be of high priority, the implementation of the projects to improve road network could not be started because of budgetary deficits.

8.5.2 Necessity and Appropriateness

The alternative road and bridge rehabilitation urgent projects in Acholi sub-region have been selected according to the results of the Road and Bridge Inventory Survey, and of the Future Traffic Demand Forecast Analysis. The selection criteria are factors of urgency, necessity, and feasibility of projects. Among the 13 urgent projects requested by the Ugandan side, 6 have been retained for immediate planning and implementation within the scope of the project (Interim Report).

The Reconstruction of Otaka Bridge with Approach Road project is one of the 6 urgent projects retained for planning and implementation under the Japan International Cooperation Service (JICS) fund. The main factors of selection for urgent projects are:

- The degree of contribution for the return and resettlement of displaced people (IDPs)
- The high degree of urgency and necessity due to the lack of bridge without alternative road (in the case of the Otaka Bridge, this factor is regarded as the presence of a bridge but with deficiency of width)
- The expected positive benefits at the level of the district
- The good feasibility of implementation of the project due to the lack of resettlement issues

Then, it is assumed that the improvement of the road and the construction and rehabilitation of bridges will facilitate the return of the IDPs, and improve the local economic and social conditions.

8.5.3 Contents of the Project

The total length of the project alignment is 0.6km. The project aims at the reconstruction of the Otaka Bridge and the new bridge will be 45m long at 9m wide with 3 spans of 15m each. The carriageway of the approach road will be 9m wide with DBST pavement within the limits of the ROW in a width of 30m. Specifications of the project are summarized in Table 2.

Table 2 Specifications of the Urgent Projects of No.4

Section No.		No. 4
		Bridge Improvement
Site		Agago
Road Class		National Road (Design Class Road II)
Beginning Point		Approach Road only
End Point		Approach Road only
Improvement section Road Width (m)		9.0
Number of Carriageway Improvement section Road		2
Pavement		DBST
Total Road Length (km, include bridge section)		0.6
	Improvement section (km)	0.6
	Maintenance* section (km)	-
Bridge Name		Otaka Bridge
Span Length (Number of Span)		15 m (3) total 45m
Superstructure Type		RC Girder continuous girder
Live Load Type		BS:HB JPN: B type
Bridge Width (m)		9.0 m***
Abutment	Abutment Type	Reversed T Type
	Foundation Type	Spread Foundation
Pier	Pier Type	Wall Type
	Foundation Type	Spread Foundation
River Bank Protection (Around Abutments)		Mortal Stone Masonry Retaining Wall

CAR: Community Access Road, DBST: Double Bituminous Surface Treatment (Low cost pavement)
* Maintenance is spot maintenance work. It is basically for the works that construction vehicles can pass safely within the present road width.
** It is planned to be upgraded to a National Road.
*** The standard width of Design Class Road II should be 9.0m.
JPN: Japanese Bridge Speciation, A type (equivalent BS:HA) for District road, B type (equivalent BS:HB) for National road.

8.6 Expected Environmental and Social Impacts

The likely impacts caused by the proposed project are evaluated and summarized in Table 3 below.

Table 3 Expected Environmental and Social Impacts

	No.	Likely Impacts	Design	Construction	Operation	Description of Impacts
Social Environment:	1	Involuntary Resettlement	D	D	D	**Design phase:** The project will not induce any resettlement of the population. There are no structures in the road reserve.
	2	Local economy such as employment and livelihood, etc.	D	B+/-	A+	**Design phase:** Land along the project road is used according to the customary hold tenure rules. Land acquisition is also small scale since only 0.6km length will induce requirement on road side lands. **Construction phase:** The construction works will induce job opportunities. The application of the labor recruitment procedure will ensure that priority is given to the local peoples. If the use of local stone materials from local quarries is promoted, it will provide cash opportunities to the local peoples. The loss of standing crops in the road reserve due to the improvement works would be negligible since the improvement section is only 0.6km including public domain of the Otaka River and few crops are found. **Operation phase:** The increased accessibility of the area will induce the intensification of marketing activities of local crops and products, which will strongly contribute to economic development and improvement of livelihood. Accordingly, the project should strongly contribute to alleviate poverty and to reduce vulnerability.
	3	Land use and utilization of local resources	D	D	D	No adverse impact is expected on land use and local resources because the project is only reconstruction of the Otaka Bridge with the approach road at total 0.6km length.
	4	Social institutions such as social infrastructure and local decision making institutions	D	D	D	No significant adverse impacts are expected. The district offices explained the project to the local representatives and they accepted the project.
	5	Existing social infrastructures and services	D	D	A+	**Operation phase:** The project will help to facilitate access to the existing health services especially during rainy season. The impact of the project on public health will be positive because of a better health care resulting from improved access.
	6	Traffic Congestion	D	D	D	No significant adverse impacts are expected. There is not much traffic and the existing traffic is dominated by bicycles and pedestrians.
	7	Community Division	D	B+	A+	**Construction phase:** The employment of the local residents for unskilled labors in the construction works will prevent the generation of conflicts with the local communities, and mitigate the risk of social disruption. **Operation phase:** The improved rural accessibility after construction could facilitate the return of IDPs in the project area, which is a positive impact toward the social reintegration of this population.
	8	The poor, indigenous and ethnic people	D	D	D	No significant adverse impacts are expected on indigenous and ethnic people. They do not live around the project site.

	No.	Likely Impacts	Design	Construction	Operation	Description of Impacts
	9	Misdistribution of benefit and damage	D	D	D	No adverse impact is expected. The local representatives accepted the Project will contribute the improvement of accessibility for the public benefits.
	10	Gender equity and children's rights	D	B+	A+	**Construction phase:** The full application of the labor recruitment procedure specified in the MoWT environmental guidelines will contribute to provide jobs to the women and to the persons with disabilities, in the roadside communities. **Operation phase:** The improved accessibility to markets, health care services, and schools are the most positive effects of the project and will contribute to alleviate the tasks or the work load of the women and children especially during rainy season. The improved access to the market places, and the possibility for the women to offer their products on the markets and roadside is certainly the most important positive impact of the project towards gender equity.
	11	Cultural heritage	D	D	D	No adverse impact is expected on cultural heritages because there are no specific ones around the project sites.
	12	Local conflict of interests	D	D	D	No significant adverse impacts are expected. The local representatives accepted the Project will contribute the improvement of accessibility for public benefits.
	13	Water Usage or Water Rights and Rights of Common	D	B-	D	**Construction phase:** The construction works can affect on access to river water resources. The project is likely to have an impact on the existing accesses to river water uses at the Otaka Bridge during the construction.
	14	Sanitation	D	D	D	The use of local residents in the road works, the small size of the work camps, and the short period of construction are not factors that could increase the sanitation risks.
	15	Hazards (Risk) Infectious diseases such as HIV/AIDS	D	D	D	No significant adverse impacts are expected. No massive influx of workers is expected as most laborers can be supplied locally.
Natural Environment	16	Topography and Geographical features	D	D	D	No significant adverse impacts are expected. The scale of Otaka Bridge of 15m span with 9m width in total 45m length will not change topography and geology very much.
	17	Soil Erosion	D	B-	D	**Construction phase:** The construction works of bridge and the opening of the approach road in front of the Otaka River are likely to disturb the soil stability and induce erosion of the slopes.
	18	Groundwater	D	D	D	No significant adverse impacts are expected. The foundation works of the bridge and road require low depth.
	19	Hydrological Situation	D	B-	D	**Construction phase:** The Otaka River banks have a protected buffer zone of 30m width. The project will temporarily affect this protected zone in the Otaka River during construction. The diversion of the watercourse will be included temporally during the bridge construction.
	20	Coastal Zone	D	D	D	No adverse impact is expected on coastal zone because the project sites are not located on coastal areas.

	No.	Likely Impacts	Design	Construction	Operation	Description of Impacts
	21	Flora, Fauna and Biodiversity	D	B-	D	**Construction phase:** There are no protected areas and precious species are reported around the project sites. However, the project site lies in a wetland. The immediate surroundings of the bridge construction site will be affected during the construction works. Since the project is concentrated in a very limited space and short term, the adverse impact is limited.
	22	Meteorology	D	D	D	No adverse impact is expected on meteorology because the project scale is small.
	23	Landscape	D	B-	D	**Construction phase:** The borrow pits for supply of gravel materials can affect on the landscape along the project road.
	24	Global Warming	D	D	D	No adverse impact is expected on global warming because the project scale is small.
Pollution	25	Air Pollution and dust	D	B-	D	**Construction phase:** Limited adverse impact is expected in the short term. Exhaust gases of trucks and heavy machines during construction are sources of air pollutants. The dust generated by running vehicle will affect more people along the road of Omwoodlum. Given the local conditions, they will not affect the ambient air quality.
	26	Water Pollution	D	B-	D	**Construction phase:** The construction works of Otaka Bridge can affect the river water quality. The water supply sources for drinking uses of the local communities are located upstream the construction site. The construction during the dry season is a factor of increased risk on the availability of supplies. During construction of the bridges, the withdrawal of water from the rivers for the preparation of concrete will directly affect the availability of water downstream, and the water users.
	27	Soil Contamination	D	B-	D	**Construction phase:** Leakage of oils, fuels and asphalt emulsion from the machineries and construction sites can contaminate surrounding soil, however in limited spaces and short term.
	28	Waste	D	D	D	No adverse impact is expected. There are little sources of green and inert waste since the improvement section is only 0.6km including the bridge section and follows the present road alignment.
	29	Noise and Vibration	D	B-	B-	**Construction phase:** Noise and vibration caused by the traffic of trucks and machines can be issues in Omwoodlum, where dwellings are located roadside, but it is limited in the short term. **Operation phase:** Vehicle traffic is anticipated to increase but still be limited. Noise and vibration will not strongly affect the local peoples.
	30	Ground Subsidence	D	D	D	No adverse impact is expected on ground subsidence because the project scale is small.
	31	Offensive Odor	D	D	D	No adverse impact is expected on offensive odor because the project is small in scale and has no sources of offensive odor.
	32	Bottom sediment	D	B-	D	**Construction phase:** The soil eroded due to the construction works of bridge and the opening of the approach road in front of the Otaka River are likely to disturb the bottom sediment of Otaka River and wetland, however in limited spaces and short term.

	No.	Likely Impacts	Design	Construction	Operation	Description of Impacts
	33	Accidents	D	B-	B-	**Construction phase:** The risk of traffic accident will be higher by the construction vehicles. They can affect on pedestrians, bicycles and motorbikes, which are the basic means of transportation. The working conditions of the rural roads can induce worker's accidents. **Operation phase:** The anticipated traffic on the project road will increase, consequently the risk of traffic accidents will be a new risk compared with the present situation.

Rating:
A+/-: Significant positive/negative impact is expected.
B+/-: Positive/negative impact is expected to some extent.
C+/-: Extent of impact is unknown (Examination is needed. Impacts may become clear as study progresses.)
D: No impact is expected.

8.7 Impacts of the Project

The overall rating is evaluated at the category "B". Both positive and negative impacts by the project are evaluated in 33 likely impacts on social environment, natural environment and pollution. Meanwhile 12 items are evaluated at that adverse impacts are expected to some extent as rating "B-", which are 2 items on social environment, 4 items on natural environment and 6 items on the pollution in the construction phase. 4 items are evaluated at positive impacts as rating "B+" or "A+" on the social environment in the construction and operation phases.

These positive impacts match the local people's expectations expressed by the local representatives and by the residents during the field interviews and at the public consultation meeting. The most important benefits of the project as expected by the local peoples are:

- Increased production and marketing of agricultural products,
- Improved transport possibilities along the road,
- Reduced risk of accidents,
- Facilitation of transportation of crops,
- Improved access to the hospital in Pader, and
- Employment opportunities during the works.

8.8 Mitigation Measures

The mitigation measures are summarized in Table 4 responding to the results of evaluation in Table 3.

Table 4 Mitigation Measures for Environmental and Social Impacts and Further Study

No.	Likely Impacts	Evaluation	Mitigation Measures
2	Local economy such as employment and livelihood, etc.	B-	**Design phase:** • Since the road is a national road, the procedure for the proper acquisition of land and compensation of improvements in the road reserve is the UNRA procedure. • The Pader and Agago districts held the public consultation meeting in coordination with UNRA, the local representatives agreed the project in the meeting and signed the consent document that the local communities have accepted the transfer of land rights in the road reserve to the districts. • The consent document is intended to facilitate the implementation of the project, which is certified by UNRA with their investigations. • In the public consultation meetings, the local representatives were notified and agreed that they will harvest their standing crops within the project site before the construction works start. • They also signed the consent documents that the local communities have accepted the loss of their standing crops within the project site after the construction works start. • Contractors will inform the local communities clear schedule of the works with sufficient duration to the harvest.
13	Water Usage or Water Rights and Rights of Common	B-	**Design phase:** • The proposed design of Otaka Bridge with access to the Otaka River will help improve the existing conditions of access to the river water. **Construction phase:** • It should be avoided to use the local water sources for water supply for the construction works and for the workers and those are preferably depend on outside water sources. • The supply of drinking water will help the local population.
17	Soil Erosion	B-	**Construction phase:** • The selection of the dry season for construction, and the immediate reseeding of roadside embankments, will contribute to control the risk of erosion. • The restoration of bridge construction sites and borrow pits to their initial conditions will contribute to control the risk of erosion. • Top soil will be stored and reused for the rehabilitation of damaged sites along the road.
19	Hydrological Situation	B-	**Construction phase:** • The river banks and vegetation cover will be restored after reconstruction of the bridge. • Works in a river bed are subject to permitting by the Water Resources Management Department. The works will include the diversion of the watercourse during the works (probably by pipe culvert). The contractor will get the permit before works. The river bed morphology will be restored to its initial state.
21	Flora, Fauna and Biodiversity	B-	**Construction phase:** • Recovery of the initial conditions will be necessary for the long term preservation of the wetland. Recovery will be based on the proper management of earthworks for the morphological restoration of the wetland.

No.	Likely Impacts	Evaluation	Mitigation Measures
23	Landscape	B-	**Construction phase:** • The restoration of the borrow pits is a requirement and its application will be controlled in order to prevent damages on surrounding landscape.
25	Air pollution and dust	B-	**Construction phase:** • In places where people will be exposed to dust during the works in Omwoodlum, sprinkling water on the road will be done to prevent the dust.
26	Water Pollution	B-	**Construction phase:** • The residual cleaning water used for the preparation of concrete will be treated before discharged into the rivers, which means pond sedimentation or filtration. • It is necessary to preserve the water quality of river avoiding any source of pollution from the construction works for preservation of the potential uses of water downstream. • The residual engine oils and fuels or any other dangerous water contaminants will be managed properly, and they will be collected and treated by a company agreed by NEMA so that the risk of contaminating surface water and groundwater will be minimized.
27	Soil Contamination	B-	**Construction phase:** • The proper management of oils and fuels in the camp sites during the works will prevent any risk of contamination due to discharge or accidental leakage.
29	Noise and Vibration	B-	**Construction phase:** • The control of vehicle speed carrying material in Omwoodlum will help to reduce this nuisance.
32	Bottom sediment	B-	**Construction phase:** • The selection of the dry season for construction, and the immediate reseeding of roadside embankments, will contribute to control the risk of erosion. • The restoration of bridge construction sites to their initial conditions will contribute to control the risk erosion.
33	Accidents	B-	**Design phase:** • Traffic safety campaigns were organized by the JICA study team in order to sensitize the roadside communities to the risk of traffic accidents and to the basic rules of safety. **Construction phase:** • The secure circulation of the pedestrians and cycles will then be an important task during the works. • Appropriate plans of traffic management will be carried out through close coordination between the contractor, the supervising engineer and the police. • The workers will be sensitized in order to adopt safe driving in the housing areas. • The protection of workers will be implemented according to the standard rules included in the contract procurement to avoid accidents. • Management and operation agencies will conduct inspection and maintenance of equipment and facilities, and fire prevention measures.

8.9 Consultation

8.9.1 Purposes

As the first step and for practical reasons of the urgency, the Pader and Agago districts organized the public consultation meeting in order to get a formal agreement of implementation of the project with the local communities on September 16th. Its purpose was to get the written agreement of the local representatives for implementation of the project. The process for getting such agreement was implemented under the responsibility of the district engineers of Pader and Agago, in coordination and with the support of the JICA study team. The public consultation meeting was held in coordination with UNRA Kitgum, in order to ensure the full compatibility between the district consent document and the UNRA formal procedure of land acquisition and compensation.

The objectives of the public consultations are:

- To inform and sensitize the local communities about the project and the road reserve, and to get the mobilization of the people,
- To discuss the potential issues related to implementation of the project and ensure a proper mutual understanding of the actions to be undertaken,
- To clarify the land use rights and land properties, the land improvements along the project road, and the conditions of compensation if needed, and
- To establish a formal consent document prepared by the district and signed by the local representatives.

8.9.2 Organizers and Participants

The Pader and Agago district offices organized the public consultation meeting supported by JICA Study Team. The participants of meetings were:

- UNRA Kitgum Officer,
- Sub-county chief,
- Chairpersons of respective Local Councils,
- Representative of Area Land Committee, and
- Local residents.

8.9.3 Contents

The JICA Study Team explained the participants the outline of the project and the followings.

- JICA, Japan International Cooperation Agency has been working in the northern region to contribute the IDP return process and improve their livelihood, hence enhancing the regional development in the northern region.
- From the study of Rural Road Network Planning in Northern Uganda, JICA Study team selected 6 urgent projects to contribute to the IDP return process by bridge constructions and road improvements.

- It is sure that the improvements also can enhance the accessibility for hospitals, schools and markets and contribute developing economy and living environment, however, it has to be aware of negative impacts also are expected like increase of traffic accidents, noise, exhaust gas from traffic increase.
- However, it is important for the community to understand that road reserves belong to the road authorities which could be the district (local governments), central governments (MoWT) or UNRA, therefore, the road reserves are not for farming or any other private activities.
- Even though the improvement and maintenance works will be done within the road reserves, the district offices requested the land owners (most of them are customary owners) the agreements for the acquisition of the road reserve to implement the project.

8.9.4 Conclusions

The participants understood the purposes and contents of project, and welcomed the project to anticipate a lot of social and economic developments for the local communities with the following suggestions in specific.

- Select credible contractors and supervise contractor's activities to ensure quality works
- Consider employing local peoples (youths) and purchasing local construction materials
- Communicate with the local communities
- The local community promised maximum cooperation towards the project especially regarding the land issues
- The local community also hopes more helps for the Agago district because it's still new and has many challenges

8.10 Monitoring

There is nothing in particular to be raised.

8.11 Consultation with Recipient Governments

The Pader and Agago districts prepared the Project Brief of the project in coordination with the JICA study team and the UNRA. They submitted the Project Brief to NEMA and the Project Brief was approved by NEMA in December 2010.

9. URGENT PROJECT NO.5

9.1 Title of the Project

The Urgent Projects in the Project for Rural Road Network Planning in Northern Uganda

Section No.5: Construction of Chome and Dawa Bridges with Approach Road

9.2 Environmental Categorization

(1) Category B

(2) Reason

There are two types of activities for the project, improvement and maintenance works of the project road. The improvement works are for the constructions of Chome and Dawa bridges with their approach roads in total 5.9km length. In the other 17.1km, spot maintenance works are basically for that construction vehicles can pass safely within the present road width.

In these project works, the negative impacts are mainly related to the construction works in the construction phase within limited sites, especially in the improvement sections, and the short term. For the improvement and maintenance works along the project road, the Gulu district office obtained formal agreements with the roadside communities for the transfer of land rights to the district. The project will not induce any major negative impact on the local environments with the proposed mitigation measures.

Meanwhile, the positive impacts of the project will largely compensate for the limited and mitigated negative impacts that could occur from implementation of the project. The project will be particularly important for the residents between the Chome and Dawa rivers, since it will considerably facilitate access to the markets places and to the health care services of Acet. The project will not induce any major negative impact on the local environment assuming that the proposed mitigating measures will be properly implemented.

9.3 Outline of the Location

The beginning point of the road is Acet in the Odek sub-county and the ending point is Kitino Tima in the Paicho sub-county. Between Kitino Tima and the Chome River, the carriage way is about 6m wide without pavement. Between the Chome River and the Dawa River, the carriage way is inexistent. The alignment is along an existing foot path. Between the Dawa River and Acet, the carriage way is about 6m wide without pavement. Near the Dawa River, it is reduced to a foot path.

Along the Lawodo – Binya improvement road project, there are 2 rivers of the Chome River and the Dawa River. Between these rivers, the carriage way is inexistent and there is no bridge to cross the rivers. People use foot paths and cross the rivers by foot when the water level is low. During the rainy season, crossing becomes impossible on both sides at a rate of once per month during 1 to 2 days. Residents may stay up to 3 continued days without access. The communities lying between the Dawa

and Chome rivers are the most affected due to the loss of accessibility on both sides.

The project area belongs to the Acholi Kyoga climatic area, which is characterized by an annual average range of precipitations of 1,250 to 1,500mm, with a wet season between April and October, and a dry season between November and March.

The morphology of the area is a wide plateau with gentle slopes. The topography is uniform, with an altitude ranging between 1,000 and 1020m. The relief is mainly represented by few small depressions, river beds hemmed in by steep banks, and hills between them. The morphological depressions are swampy zones. There is no area prone to soil erosion or landslide.

The hydrographic system is mostly constituted of an upstream drainage oriented from SW to NE. The main rivers are the Chome and the Dawa rivers. During the dry season, the stream flow may stop leaving stagnant water in the river bed. The project road alignment is oriented SE - NW and does not encroach on the river beds excepted at the crossing passages (bridges). The river beds of the Chome River and Dawa River are very confined and hemmed in by steep banks.

In Gulu, the woodland savannah is dominated by species like Albezzia, Terminalia, Combretum, Acacia, Erythrina, Annona, Grewia, and Vitex. Others are Militragyna stipulosa and Khaya Senegalensis along the rivers. The vegetation cover of the project area is representative of this vegetation. Between the Chome and Dawa rivers, vegetation is a woodland savannah with tree species dominated by Terminalia, Combretum, and Albizia species. Other species like Erythrina Abyssiniae, Ficus Natalensis, Khaya Grandifolia, and Shea Butter Nut trees have been observed.

There is no any protected natural area along or near the project road. The project road does not belong to an area classified as a scenic, wooded, mountainous area.

In Kitino Tima and Layoko (Oyana), the marketing of agricultural products (rice, maize, cassava, sesame, sorghum, beans, and groundnuts) is the main source of income for the inhabitants. Gardening for the production of vegetables (okra, egg plants) is a significant occupation of the inhabitants of Layoko. The main season for marketing the crops is from July to September, and then from December to January. In Layoko Oralela, wholesale buyers come from Gulu during the dry season to get the crops products. During the rainy season, crops products are carried in small quantities to the Acet market for earning cash money.

Figure 1 Location of the Project Site

9.4 Environmental Legislations and Administration

9.4.1 Environmental Requirements for Road Projects

Projects which are subject to a mandatory EIA in Uganda are listed in the Third Schedule to the Environmental Impact Assessment Regulations 1998. In the field of roads development, the list includes the following criteria, which are most relevant for the project.

- Major roads
- Roads in scenic, wooded, mountainous areas
- Activity out of character with its surroundings, with major changes in land use

District roads and national roads are regarded as major roads in Uganda. The Third schedule lacks however details about the conditions for EIA requirements, like length of the road project, and nature of the works. The technical guidelines developed by the Ministry of Works and Transport (MoWT) in the road sector are the basic reference for understanding the requirements for EIA of roads. The opinion of the District Environment Officer about the road projects helps to understand the environmental requirements for the project. Bridges and borrow pits are not part of the Third Schedule document. They are in practice considered as activities out of character with its surroundings with major changes in land use.

In coordination with the District Environment Officer, and in accordance with the existing EIA regulations and guidelines, the submission of a Project Brief report to NEMA was the most appropriate procedure for requesting the environmental authorization of the project. The Project Brief included the environmental impacts that the project is likely to generate, propose the appropriate mitigation measures, and guaranty the compliance with environmental regulations.

9.4.2 Environmental Guidelines of the MoWT

The implementation of the project needs to be in compliance with the environmental guidelines of MoWT for roads. The following guidelines have been taken into consideration:

- Environmental Impact Assessment Guidelines for Road Projects
- Environmental Guidelines for District Engineers, Volume 5B of the District Administrative and Operational Guidelines, 2003 (District Road Works Manuals series).

The Environmental Impact Assessment Guidelines for Road Projects provide detailed criteria about the EIA requirements in the road development sector. There are 4 basic criteria that guide the decisions about the EIA requirements for a project (Table 1), and these are:

- Case 1. Projects that certainly do not have any significant impact on the environment
- Case 2. Projects likely to have some minor impacts on the environment but for which adequate and sufficient mitigation measures have been identified
- Case 3. Projects that have some significant environmental impacts, where adequate mitigation measures are readily available
- Case 4. Projects having a number of (very) significant impacts on the environment (whether adequate mitigation measures can be identified or not)

9.4.3 Classification of the Project

Table 1 below shows that the project is not expected to belong to the cases 1 or 4, since the no-impact and the major impact scenarios cannot be upheld. Accordingly, the project is likely to fit within cases 2 or 3.

Table 1 Conditions of EIA requirements

Class of project	EIA requirement	Approval of the project	Relevance for the project
Case 1	No further EIA processing	Certificate issued	NO
Case 2	No further EIA processing but an evaluation is done in the Project Brief with presentation of the measures	Certificate issued	YES
Case 3	A limited analysis is required	Environmental impact review (EIR) is required before issuance of certificate	YES
Case 4	A full environmental impact study is required	Full (EIA) or (EIS) is required before issuance of a certificate. The Project Brief step is not needed.	NO

Source: Summarized from the Environmental Impact Assessment Guidelines for Road Projects, 2008

9.4.4 Project Brief

The Project Brief is an official document including a description of the project, an evaluation of the potential impacts and a presentation of the mitigating measures. The purpose of the Project Brief document is to clarify the type of EIA requirement of the project.

The Gulu district prepared a Project Brief of the project in coordination with the JICA study team. The

conclusion of the Project Brief was that the negative impacts would be minor while positive impacts would be significant. The important mitigation measures were identified. In case of insufficient information in the Project Brief regarding a significant issue or potential impact of the project, NEMA may require an environmental impact review (EIR) report before approval.

The Project Brief was submitted to NEMA in August 2010 and Gulu district received a formal approval for the environmental aspects of the project without EIA and EIR requirements from NEMA in November 2010.

9.4.5 Procedure for Land Acquisition and Compensation

(1) Case of National Roads

The MoWT has not set up a land acquisition and land compensation policy for roads project. The Uganda National Roads Authority (UNRA) is preparing a land acquisition management system (LAMS) document (final draft June 2009), in line with its strategy for land acquisition of road reserve, country wide. This document is the only existing guideline document for implementing land acquisition and land compensation for national roads projects. The LAMS document applies to the land acquisition managed by the UNRA for the national roads network.

(2) Case of District Roads

There is no standard procedure of land acquisition and compensation in the specific case of district roads. The legal requirements of land acquisition and compensation of a road reserve for a district road seem not to different from those for a national road. In practice, in the case of customary land tenure, which is the most common case, the acquisition of land within the road reserve is based on an agreement with the local communities, in which they offer their land to the benefit of public use.

Accordingly, there is no formal acquisition of land, and therefore no full compliance with the legal requirements of the Land Act. The implicit assumption is that land will be compensated in the future. In such conditions, there is no guarantee that land claims will not occur during or after the implementation of the project. Basically, the scope of agreements with the local communities is an offer of land for the project roads, and a compensation for the improvements, with an evaluation by the District Valuer Officer.

(3) Case of the Project Road

In the specific case of the project road, the Gulu district office organized a public consultation meeting with the local communities, with the purpose of obtaining a written agreement with the local communities for the acquisition of the road reserve. Land ownership along the Lawodo – Binya improvement road project is community land with collective and individual rights of use. Since the project does not affect any individual and titled land property (leasehold tenure system).

9.5 Outline of the Project

9.5.1 Background and Purpose

Northern Uganda has the largest proportion of people living in poverty in the country, estimated to account for 61 % of the region's population, or almost twice the national level. This high level of poverty can be attributed to the Lord's Resistance Army (LRA) insurgency. During the 20 year-conflict beginning in the 1980s, much of the basic social infrastructure was destroyed or abandoned and the local government became non-functional in the region.

In particular, 90 % of the population, or two million people, were displaced (IDP: Internally Displaced Person) from Acholi Sub-region. Since the cease-fire agreement concluded between LRA and the Government of Uganda in August 2006, the Government of Uganda has emphasized and facilitated the return process of IDPs and prepared the National Peace Recovery and Development Plan (PRDP) in order to stabilize and recover Northern Uganda. The PRDP identifies the 14 priority programs such as rebuilding and empowering communities (health, education, water, livelihood support) and it emphasizes the importance of infrastructure rehabilitation and improvement of trunk road network connecting the districts and community access road network.

Under these circumstances, the ten year District, Urban and Community Access Road Investment Plan (DUCARIP) has been prepared to provide a financing framework for investments in district, urban and community access roads. Though maintenance of high priority District Roads has been progressively made in the framework, the improvements or new constructions of these roads have not been undertaken adequately. Furthermore, the budget from central government does not make allocations for maintenance, improvement and new construction of community access roads and this leads to a difficult situation where road improvement and new construction are to be undertaken by the districts themselves.

Consequently, although the necessity of the road improvement for the IDP return process seems to be of high priority, the implementation of the projects to improve road network could not be started because of budgetary deficits.

9.5.2 Necessity and Appropriateness

The alternative road and bridge rehabilitation urgent projects in Acholi sub-region have been selected according to the results of the Road and Bridge Inventory Survey, and of the Future Traffic Demand Forecast Analysis. The selection criteria are factors of urgency, necessity, and feasibility of projects. Among the 13 urgent projects requested by the Ugandan side, 6 have been retained for immediate planning and implementation within the scope of the project (Interim Report).

The Construction of Chome and Dawa Bridges with Approach Road project is one of the 6 urgent projects retained for planning and implementation under the Japan International Cooperation Service (JICS) fund. The main factors of selection for urgent projects are:

- The high degree of contribution for the return and resettlement of displaced people (IDPs),
- The high degree of urgency and necessity due to the lack of bridge without alternative road,
- The expected positive benefits at the level of the subcounties of concern, and
- The good feasibility of implementation of the project due to the lack of resettlement issues.

Then, it is assumed that the improvement of the road and the construction and rehabilitation of bridges will facilitate the return of the IDPs, and improve the local economic and social conditions.

9.5.3 Contents of the Project

The total length of the project alignment is 23.0km. The full length of the alignment belongs to the Gulu District. The project road is a district road. The project aims at the maintenance of 17.1km and improvement of 5.9km. The improvement section includes the construction of 2 bridges with one span of 15m length each, crossing the Chome River and the Dawa River, respectively. Specifications of the project are summarized in Table 2.

Table 2 Specifications of the Urgent Projects of No.5

Section No.		No.5
		New Bridge Construction
Site		Gulu
Road Class		District Road (Partly CAR to be upgraded to District Road)
Beginning Point		District Road side JCT
End Point		Acet JCT
Improvement section Road Width (m)		6.0
Number of Carriageway Improvement section Road		2
Pavement		Gravel
Total Road Length (km, include bridge section)		23.0
	Improvement section (km)	5.9
	Maintenance* section (km)	17.1
Bridge Name		Chome Bridge, Dawa Bridge
Span Length (Number of Span)		15.0 m (1), 15.0 m (1)
Superstructure Type		RC Girder, Simple girder
Live Load Type		BS:HA, JPN: A type
Bridge Width (m)		6.0 m
Abutment	Abutment Type	Reversed T type
	Foundation Type	Spread Foundation
Pier	Pier Type	None
	Foundation Type	-
River Bank Protection (Around Abutments)		Mortal Stone Masonry Retaining Wall

CAR: Community Access Road, DBST: Double Bituminous Surface Treatment (Low cost pavement)
* Maintenance is spot maintenance work. It is basically for the works that construction vehicles can pass safely within the present road width.
JPN: Japanese Bridge Speciation, A type (equivalent BS:HA) for District road, B type (equivalent BS:HB) for National road.

9.6 Expected Environmental and Social Impacts

The likely impacts caused by the proposed project are evaluated and summarized in Table 3 below.

Table 3 Expected Environmental and Social Impacts

	No.	Likely Impacts	Design	Construction	Operation	Description of Impacts
Social Environment:	1	Involuntary Resettlement	D	D	D	**Design phase:** The project will not induce any resettlement of the population. There are no structures along the project road (district road and community access road).
	2	Local economy such as employment and livelihood, etc.	D	B+/-	A+	**Design phase:** Land along the project road is used according to the customary hold tenure rules. Land acquisition is only for the improvement section. The maintenance section will not affect land over the existing width with only spot works although some maintenance sections can be widened so that the construction vehicle can pass safely. **Construction phase:** The maintenance and construction works will induce job opportunities. The application of the labor recruitment procedure will ensure that priority is given to the local peoples. If the use of local stone materials from local quarries is promoted, it will provide cash opportunities to the local peoples. The loss of standing crops in the road reserve due to the improvement works will be important between the Chome and the Dawa rivers if the works are implemented before the harvest. **Operation phase:** The increased accessibility of the area will induce the intensification of marketing activities of local crops and products, which will strongly contribute to economic development and improvement of livelihood. Accordingly, the project should strongly contribute to alleviate poverty and to reduce vulnerability.
	3	Land use and utilization of local resources	D	D	A+	**Operation phase:** The opening of new accesses to the area between the Chome and Dawa rivers after improvement works will induce an intensified use of land for agriculture and for the use of forest products. This impact is very positive in terms of economic productivity of the land.
	4	Social institutions such as social infrastructure and local decision making institutions	D	D	D	No significant adverse impacts are expected. The district offices explained the project to the local representatives and they accepted the project.
	5	Existing social infrastructures and services	D	D	A+	**Operation phase:** The project area is outside the limits of the areas covered by hospital or health centers. The project will help to facilitate access to the existing health services. The greatest contribution will be the improved access to Acet health centre and to the Binya hospital (not yet in function).
	6	Traffic Congestion	D	D	D	No significant adverse impacts are expected. There is not much traffic and the existing traffic is dominated by bicycles and pedestrians.

	No.	Likely Impacts	Design	Construction	Operation	Description of Impacts
	7	Community Division	D	B+	A+	**Construction phase:** The employment of the local residents for unskilled labors in the construction works will prevent the generation of conflicts with the local communities, and mitigate the risk of social disruption. **Operation phase:** The improved rural accessibility after construction could facilitate the return of IDPs in the project area, which is a positive impact toward the social reintegration of this population.
	8	The poor, indigenous and ethnic people	D	D	D	No significant adverse impacts are expected on indigenous and ethnic people. They do not live around the project site.
	9	Misdistribution of benefit and damage	D	D	D	No adverse impact is expected. The local representatives accepted the Project will contribute the improvement of accessibility for the public benefits.
	10	Gender equity and children's rights	D	B+	A+	**Construction phase:** The full application of the labor recruitment procedure specified in the MoWT environmental guidelines will contribute to provide jobs to the women and to the persons with disabilities, in the roadside communities. **Operation phase:** The improved accessibility to markets, health care services, and schools are the most positive effects of the project and will contribute to alleviate the tasks or the work load of the women and children. The improved access to the market places and the possibility for the women to offer their products on the markets and roadside is certainly the most important positive impact of the project towards gender equity.
	11	Cultural heritage	D	D	D	**Construction phase:** There is no protected, important cultural or historical patrimony in the project area along the project road. Graves are also not found.
	12	Local conflict of interests	D	D	D	No significant adverse impacts are expected. The local representatives accepted the Project will contribute the improvement of accessibility for public benefits.
	13	Water Usage or Water Rights and Rights of Common	D	B-	D	**Construction phase:** The construction works of two bridges can affect on access to the river water resources.
	14	Sanitation	D	D	D	The use of local residents in the road works, the small size of the work camps, and the short period of construction are not factors that could increase the sanitation risks.
	15	Hazards (Risk) Infectious diseases such as HIV/AIDS	D	D	D	No significant adverse impacts are expected. No massive influx of workers is expected as most laborers can be supplied locally.
Natural Environment	16	Topography and Geographical features	D	D	D	No significant adverse impacts are expected. The scale of Chome and Dawa bridges of 15m span with 6m width will not change topography and geology very much..
	17	Soil Erosion	D	B-	D	**Construction phase:** The construction works of two bridges and the opening of the road between the Chome and Dawa rivers are likely to disturb the soil stability and induce erosion of the slopes.
	18	Groundwater	D	D	D	No significant adverse impacts are expected. The foundation works of the bridge require low depth.

	No.	Likely Impacts	Design	Construction	Operation	Description of Impacts
	19	Hydrological Situation	D	B-	D	**Construction phase:** The river banks have a protected buffer zone of 30m width. The project will temporarily affect this protected zone in the Chome and Dawa rivers during the construction.
	20	Coastal Zone	D	D	D	No adverse impact is expected on coastal zone because the project sites are not located on coastal areas.
	21	Flora, Fauna and Biodiversity	D	B-	B-	**Construction phase:** There are no protected areas and specious species in the project site. It is assumed that the riparian forest of Chome and Dawa rivers could be refuges for wildlife and habitat for birds. However, the possible function of the river as biological corridors for wildlife will not be affected by the project since the construction site is only at the bridge crossing points **Construction phase:** The Shea Butter Nut tree and the Khaya Grandifolia tree are the reserved trees that are found in the project area. The later will not be affected by the project. There are few Mahoganies near the road reserve or at its limits that can be preserved. The Shea Butter Nut is more common in the road reserve and will be affected, particularly near the Dawa River. **Operation phase:** The main impact of the project on forest resources will be induced by the intensification of agricultural use of land, and the increased marketing of wood products like charcoal, in the project area.
	22	Meteorology	D	D	D	No adverse impact is expected on meteorology because the project scale is small.
	23	Landscape	D	B-	D	**Construction phase:** The borrow pits for supply of gravel materials can affect on the landscape along the project road.
	24	Global Warming	D	D	D	No adverse impact is expected on global warming because the project scale is small.
Pollution	25	Air Pollution and dust	D	D	D	No significant adverse impact is expected in the short term since the works will be implemented away from the housing settlements.
Pollution	26	Water Pollution	D	B-	D	**Construction phase:** The construction works of two bridges can affect the river water quality. Since the Chome and Dawa rivers are water supply sources for drinking uses of the local communities, the construction of bridges is likely to affect on the water resources during the period of works. The construction during the dry season is a factor of increased risk on the availability of water supplies. During construction of the bridges, the withdrawal of water from the rivers for the preparation of concrete will directly affect the availability of water downstream and the water users.
Pollution	27	Soil Contamination	D	B-	D	**Construction phase:** Leakage of oils, fuels from the machineries and asphalt emulsion from the construction sites can contaminate surrounding soil, however in limited spaces and short term.

	No.	Likely Impacts	Design	Construction	Operation	Description of Impacts
	28	Waste	D	B-	D	**Construction phase:** Vegetation and land clearance along the improvement sections of the project road and around the bridge construction sites will be a source of green waste and inert waste. Residual engine oils also are waste which can affect on the water quality and soil.
	29	Noise and Vibration	D	D	D	Noise and vibration will not be a significant issue since the works will be implemented far away from the housing settlements. The traffic of trucks and machines will not significantly affect the residents. The impact of the project during and after construction on the ambient noise level will be negative, since ambient noise is almost non-existent, but still minor. The population exposed is very small.
	30	Ground Subsidence	D	D	D	No adverse impact is expected on ground subsidence because the project scale is small.
	31	Offensive Odor	D	D	D	No adverse impact is expected on offensive odor because the project is small in scale and has no sources of offensive odor.
	32	Bottom sediment	D	B-	D	**Construction phase:** The soil eroded due to the construction works of bridges and the opening of the approach road in front of the Chome and Dawa rivers are likely to disturb the bottom sediment of rivers, however in limited spaces and short term.
	33	Accidents	D	B-	B-	**Construction phase:** The risk of traffic accident will be higher by the construction vehicles. They can affect on pedestrians, bicycles and motorbikes, which are the basic means of transportation. The working conditions of the rural roads can induce worker's accidents. **Operation phase:** The anticipated traffic on the project road will increase, consequently the risk of traffic accidents will be a new risk compared with the present situation.

Rating:
A+/-: Significant positive/negative impact is expected.
B+/-: Positive/negative impact is expected to some extent.
C+/-: Extent of impact is unknown (Examination is needed. Impacts may become clear as study progresses.)
D: No impact is expected.

9.7 Impacts of the Project

The overall rating is evaluated at the category "B". Both positive and negative impacts by the project are evaluated in 33 likely impacts on social environment, natural environment and pollution. Meanwhile 11 items are evaluated at that adverse impacts are expected to some extent as rating "B-", which are 2 items on social environment, 4 items on natural environment and 5 items on the pollution in the construction phase. 5 items are evaluated at positive impacts as rating "B+" or "A+" on the social environment in the construction and operation phases.

These positive impacts match the local people's expectations expressed by the local representatives and by the residents during the field interviews and at the public consultation meetings. The most important benefits of the project as expected by the local peoples are:

- Job opportunities generated by the rehabilitation and construction works,

- Access to health care services and schools, and
- Facility to transport crop products and forest products to the market places.

9.8 Mitigation Measures

The mitigation measures are summarized in Table 4 responding to the results of evaluation in Table 3.

Table 4 Mitigation Measures for Environmental and Social Impacts and Further Study

No.	Likely Impacts	Evaluation	Mitigation Measures
2	Local economy such as employment and livelihood, etc.	B-	**Design phase:** • Gulu district plans to upgrade the community access road to a district road but there is no procedure for the proper acquisition of land and compensation of improvements of district roads. • The Gulu district held the public consultation meeting, local representatives agreed the project in the meeting and the land owners signed the consent document that the local communities have accepted the transfer of land rights along the project road to the district. • In the public consultation meetings, the local representatives were notified and agreed that they will harvest their standing crops within the road reserves before the construction works start. • They also signed the consent documents that the local communities have accepted the loss of their standing crops within the road reserves after the construction works start. • Contractors will inform the local communities clear schedule of the works with sufficient duration to the harvest.
13	Water Usage or Water Rights and Rights of Common	B-	**Design phase:** • The proposed design of Chome and Dawa bridges with access to the rivers will help improve the existing conditions of access to the river water. **Construction phase:** • It should be avoided to use the local water sources for water supply for the construction works and for the workers and those are preferably depend on outside water sources. • The supply of drinking water will help the local population.
17	Soil Erosion	B-	**Construction phase:** • The selection of the dry season for construction, and the immediate reseeding of roadside embankments, will contribute to control the risk of erosion. • The restoration of bridge construction sites and borrow pits to their initial conditions will contribute to control the risk of erosion. • Top soil will be stored and reused for the rehabilitation of damaged sites along the road.

No.	Likely Impacts	Evaluation	Mitigation Measures
19	Hydrological Situation	B-	**Construction phase:** • River banks and vegetation cover will be restored after construction and rehabilitation of the bridges. • Works in a river bed are subject to permitting by the Water Resources Management Department. Works will include the diversion of the watercourse during the works (probably by pipe culvert). The contractor will get the permit before works. The river bed morphology will be restored to its initial state.
21	Flora, Fauna and Biodiversity	B-	**Construction phase:** • The contractor will take care of this condition in coordination with the Forestry Officer so that the reserved trees lying inside the road reserve but outside the carriageway will be preserved as much as possible. • If the reserved trees have to be felled, they will be compensated by the district office. • Traditional ceremonies should be facilitated for them in case of felling a timber tree or a big tree with communication and mutual understanding reached before felling such trees. **Operation phase:** • The proper management of forest and forest products by the local communities themselves should be supported by the district forest officer through sensitization and information of the people.
23	Landscape	B-	**Construction phase:** • The restoration of the borrow pits is a requirement and its application will be controlled in order to prevent damages on surrounding landscape.
26	Water Pollution	B-	**Construction phase:** • The residual cleaning water used for the preparation of concrete will be treated before discharged into the rivers, which means pond sedimentation or filtration. • It is necessary to preserve the water quality of river avoiding any source of pollution from the construction and rehabilitation works, for preservation of the potential uses of water downstream. • The residual engine oils and fuels or any other dangerous water contaminants will be managed properly, and they will be collected and treated by a company agreed by NEMA so that the risk of contaminating surface water and groundwater will be minimized.
27	Soil Contamination	B-	**Construction phase:** • The proper management of oils and fuels in the camp sites during the works will prevent any risk of contamination due to discharge or accidental leakage.
28	Waste	B-	**Construction phase:** • The proper elimination of the inert waste materials generated by the rehabilitation and construction works will be managed in coordination with the district authorities and local communities. • Used oil substances will be collected and eliminated by a specialized company agreed by NEMA.

No.	Likely Impacts	Evaluation	Mitigation Measures
32	Bottom sediment	B-	**Construction phase:** • The selection of the dry season for construction, and the immediate reseeding of roadside embankments, will contribute to control the risk of erosion. • The restoration of bridge construction sites to their initial conditions will contribute to control the risk erosion.
33	Accidents	B-	**Design phase:** • Traffic safety campaigns were organized by the JICA study team in order to sensitize the roadside communities to the risk of traffic accidents and to the basic rules of safety. **Construction phase:** • The secure circulation of the pedestrians and bicycles will then be an important task during the works. • Appropriate plans of traffic management will be carried out through close coordination between the contractor, the supervising engineer and the police. • The workers will be sensitized in order to adopt safe driving in the housing areas. • The protection of workers will be implemented according to the standard rules included in the contract procurement to avoid accidents. • Management and operation agencies will conduct inspection and maintenance of equipment and facilities, and fire prevention measures.

9.9 Consultation

9.9.1 Purposes

The Gulu district office conducted the public consultation meeting July 16th in Layoko to get a formal agreement of implementation of the project by the local communities. The objectives of the public consultations are:

- To inform and sensitize the local communities about the project and the road reserve, and to get the mobilization of the people,
- To discuss the potential issues related to implementation of the project and ensure a proper mutual understanding of the actions to be undertaken,
- To clarify the land use rights and land properties, the land improvements along the project road, and the conditions of compensation if needed, and
- To establish a formal consent document prepared by the district and signed by the local representatives.

9.9.2 Organizers and Participants

The Gulu district office organized the public consultation meetings supported by JICA Study Team. The participants of meetings were:

- District Officers (Environment Officer, District Engineer),
- Sub-county chief,

- Chairpersons of respective Local Councils,
- Representative of Area Land Committee, and
- Local residents.

9.9.3 Contents

The district officers explained the participants the outline of the project and the followings.

- JICA, Japan International Cooperation Agency has been working in the northern region to contribute the IDP return process and improve their livelihood, hence enhancing the regional development in the northern region.
- From the study of Rural Road Network Planning in Northern Uganda, JICA Study team selected 6 urgent projects to contribute to the IDP return process by bridge constructions and road improvements.
- It is sure that the improvements also can enhance the accessibility for hospitals, schools and markets and contribute developing economy and living environment, however, it has to be aware of negative impacts also are expected like increase of traffic accidents, noise, exhaust gas from traffic increase.
- However, it is important for the community to understand that road reserves belong to the road authorities which could be the district (local governments), central governments (MoWT) or UNRA, therefore, the road reserves are not for farming or any other private activities.
- Even though the improvement and maintenance works will be done within the road reserves, the district offices requested the land owners (most of them are customary owners) the agreements for the acquisition of the road reserve to implement the project.

9.9.4 Conclusions

The participants understood the purposes and contents of project, and welcomed the project with the following suggestions in specific.

- Support relocation of graves if they will be affected
- Care for extremely vulnerable individuals if they will be affected
- Give the local peoples the information when the project will start
- Perform a ceremony for timber trees or big trees if they will be felled

9.10 Monitoring

There is nothing in particular to be raised.

9.11 Consultation with Recipient Governments

The Gulu district prepared the Project Brief of the project in coordination with the JICA study team and the MoWT. They submitted the Project Brief to NEMA and the Project Brief was approved by NEMA in November 2010.

10. URGENT PROJECT NO.6

10.1 Title of the Project

The Urgent Projects in the Project for Rural Road Network Planning in Northern Uganda

Section No.6: Improvement of Olwiyo - Anaka Road

10.2 Environmental Categorization

(1) Category B

(2) Reason

The project has improvement works of Olwiyo - Anaka road in total 11km length. In the project works, the negative impacts are mainly related to the construction works in the construction phase within limited sites, especially in the improvement sections, and the short term. For the improvement works along the project road, the Nwoya district office obtained formal agreements with the roadside communities for the transfer of land rights to the district. The project will not induce any major negative impact on the local environments with the proposed mitigation measures.

Meanwhile, the positive impacts of the project will largely compensate for the mitigated negative impacts that could occur from implementation of the project. The project will be important for the residents living along the road between Anaka and Olwiyo, since it will facilitate access to the markets and business services, and to schools and health care services. Women and children will get significant benefits from these accessibility conditions. The project will not induce any major negative impact on the local environment assuming that the proposed mitigating measures will be properly implemented.

10.3 Outline of the Location

The beginning point of the road is Pawatomero (Olwiyo), in the Purongo sub-county, and the ending point is Kal Centre (Anaka), in the Anaka sub-county. The full section of the project road is unpaved, with gravel loss, potholes, and poor drainage system. The road is passable throughout the year but becomes muddy in the rainy season.

The project area lies in the upstream watershed of the Akago Bridge, which is flowing toward the North-West. The altitude is generally comprised between 940 and 980m. The Akago Bridge is the lowest topographic level along the project road, at about 940 to 945m. The Aparanga hill with antenna is the highest level at about 1,010m. It lies on the drainage dividing line between the Akago catchment area on the Northern side, and the Kinaga catchment area on the Southern side. The morphology of the area is flat and undulating. The basement is made of Precambrian gneisses rocks, sometimes with granulite facies.

The project area belongs to the Acholi Kyoga climatic area, which is characterized by an annual average range of precipitations of 1,250 to 1,500mm, with a wet season between April and October, and a dry season between November and March.

The Akago River is the main water body of the project area. The river is a small water course affluent of the Ceke River on the North - West side, which drains into the Aswa River.

The vegetation in Nwoya district is extensively represented by a savannah in association with a mosaic of woodlands. Grassland savannah is a tall grass savannah with Hyperrhenia species, or short grass savannah with Imperata cylindrical species. The canopy is composed of Acacia and Setaria tree species. The natural vegetation has changed greatly as a result of agricultural activities, civil war, and present return of the people to their homelands. The woodland savannah is dominated by groups of species like Albezia, Terminalia, Combretum, Acacia, Erythrina, Annona, Grewia, and Vitex. The Olwiyo - Anaka road is crossing bushy grassland intensively used for subsistence farmland.

There is one site registered as a local forest reserve in Anaka (3ha of surface area). The forest has been depleted and replaced by human settlements (IDP camp). The project road is outside this registered area. The project road does not belong to an area classified as a scenic, wooded, mountainous area. There are no data about wildlife in this area. According to the field interviews, wildlife is very poor, and the area is not a corridor for the passage of major mammals.

The trading center of Anaka (Kal Centre) is at the beginning point of the project road and the other trading center is Olwiyo at the ending point. On both sides of the road, the housing compounds are used for housing and business or trade. Backside the alignments of the buildings, there are traditional dwellings (huts). The business activities are mainly restaurants, shops, and bars. In the farmlands, the production of rice, simsim, and groundnuts, are the main crops bringing cash to the families. Maize and cotton are also a source of income.

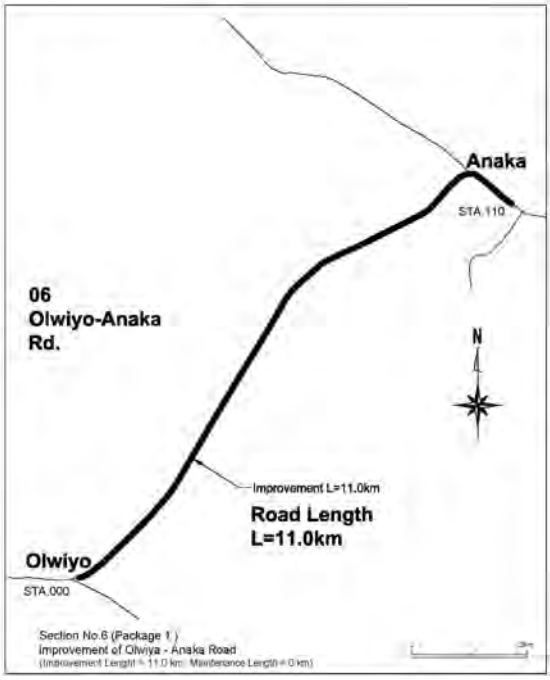

Figure 1 Location of the Project Site

10.4 Environmental Legislations and Administration

10.4.1 Environmental Requirements for Road Projects

Projects which are subject to a mandatory EIA in Uganda are listed in the Third Schedule to the Environmental Impact Assessment Regulations 1998. In the field of roads development, the list includes the following criteria, which are most relevant for the project.

- Major roads
- Roads in scenic, wooded, mountainous areas
- Activity out of character with its surroundings, with major changes in land use

District roads and national roads are regarded as major roads in Uganda. The Third schedule lacks however details about the conditions for EIA requirements, like length of the road project, and nature of the works. The technical guidelines developed by the Ministry of Works and Transport (MoWT) in the road sector are the basic reference for understanding the requirements for EIA of roads. The opinion of the District Environment Officer about the road projects helps to understand the environmental requirements for the project. Bridges and borrow pits are not part of the Third Schedule document. They are in practice considered as activities out of character with its surroundings with major changes in land use.

In coordination with the District Environment Officer, and in accordance with the existing EIA regulations and guidelines, the submission of a Project Brief report to NEMA was the most appropriate procedure for requesting the environmental authorization of the project. The Project Brief included the environmental impacts that the project is likely to generate, propose the appropriate mitigation measures, and guaranty the compliance with environmental regulations.

10.4.2 Environmental Guidelines of the MoWT

The implementation of the project needs to be in compliance with the environmental guidelines of MoWT for roads. The following guidelines have been taken into consideration:

- Environmental Impact Assessment Guidelines for Road Projects
- Environmental Guidelines for District Engineers, Volume 5B of the District Administrative and Operational Guidelines, 2003 (District Road Works Manuals series).

The Environmental Impact Assessment Guidelines for Road Projects provide detailed criteria about the EIA requirements in the road development sector. There are 4 basic criteria that guide the decisions about the EIA requirements for a project (Table 2.1), and these are:

- Case 1. Projects that certainly do not have any significant impact on the environment
- Case 2. Projects likely to have some minor impacts on the environment but for which adequate and sufficient mitigation measures have been identified
- Case 3. Projects that have some significant environmental impacts, where adequate mitigation measures are readily available
- Case 4. Projects having a number of (very) significant impacts on the environment (whether

adequate mitigation measures can be identified or not)

10.4.3 Classification of the Project

Table 1 below shows that the project is not expected to belong to the cases 1 or 4, since the no-impact and the major impact scenarios cannot be upheld. Accordingly, the project is likely to fit within cases 2 or 3.

Table 1 Conditions of EIA requirements

Class of project	EIA requirement	Approval of the project	Relevance for the project
Case 1	No further EIA processing	Certificate issued	NO
Case 2	No further EIA processing but an evaluation is done in the Project Brief with presentation of the measures	Certificate issued	YES
Case 3	A limited analysis is required	Environmental impact review (EIR) is required before issuance of certificate	YES
Case 4	A full environmental impact study is required	Full (EIA) or (EIS) is required before issuance of a certificate. The Project Brief step is not needed.	NO

Source: Summarized from the Environmental Impact Assessment Guidelines for Road Projects, 2008

10.4.4 Project Brief

The Project Brief is an official document including a description of the project, an evaluation of the potential impacts and a presentation of the mitigating measures. The purpose of the Project Brief document is to clarify the type of EIA requirement of the project.

The Amuru and Nwoya districts prepared a Project Brief of the project in coordination with the JICA study team. The conclusion of the Project Brief was that the negative impacts would be minor while positive impacts would be significant. The important mitigation measures were identified. In case of insufficient information in the Project Brief regarding a significant issue or potential impact of the project, NEMA may require an environmental impact review (EIR) report before approval.

The Project Brief was submitted to NEMA in August 2010 and the Nwoya district received a formal approval for the environmental aspects of the project without EIA and EIR requirements from NEMA in December 2010.

10.4.5 Procedure for Land Acquisition and Compensation

(1) Case of National Roads

The MoWT has not set up a land acquisition and land compensation policy for roads project. The UNRA is preparing a land acquisition management system (LAMS) document (final draft June 2009), in line with its strategy for land acquisition of road reserve, country wide. This document is the only existing guideline document for implementing land acquisition and land compensation for national roads projects. The LAMS document applies to the land acquisition managed by UNRA for the national roads network. The land acquisition specialist of UNRA has provided additional information to understand the right procedure in the case of a district road project.

(2) Case of District Roads

There is no standard procedure of land acquisition and compensation in the specific case of district roads. The legal requirements of land acquisition and compensation of a road reserve for a district road seem not to different from those for a national road. In practice, in the case of customary land tenure, which is the most common case, the acquisition of land within the road reserve is based on an agreement with the local communities, in which they offer their land to the benefit of public use.

Accordingly, there is no formal acquisition of land, and therefore no full compliance with the legal requirements of the Land Act. The implicit assumption is that land will be compensated in the future. In such conditions, there is no guarantee that land claims will not occur during or after the implementation of the project. Basically, the scope of agreements with the local communities is an offer of land for the project roads, and a compensation for the improvements, with an evaluation by the District Valuer Officer.

(3) Case of the Project Road

The Olwiyo - Anaka road improvement project belongs to a national road. Accordingly, the land acquisition and compensation procedure of UNRA is required for the road improvement section. MoWT formally requested such procedure to UNRA for the urgent projects of concern in July 2010. In order to fit with the short delays of implementation of the urgent project, the Amuru and Nwoya district offices organized public consultation meetings with the local communities, in coordination with UNRA Gulu, to obtain a consent document regarding the implementation of the project. The District consent document is intended to facilitate the implementation of the project, which is certified by UNRA with their investigations.

10.5 Outline of the Project

10.5.1 Background and Purpose

Northern Uganda has the largest proportion of people living in poverty in the country, estimated to account for 61 % of the region’s population, or almost twice the national level. This high level of poverty can be attributed to the Lord's Resistance Army (LRA) insurgency. During the 20 year-conflict beginning in the 1980s, much of the basic social infrastructure was destroyed or abandoned and the local government became non-functional in the region.

In particular, 90 % of the population, or two million people, were displaced (IDP: Internally Displaced Person) from Acholi Sub-region. Since the cease-fire agreement concluded between LRA and the Government of Uganda in August 2006, the Government of Uganda has emphasized and facilitated the return process of IDPs and prepared the National Peace Recovery and Development Plan (PRDP) in order to stabilize and recover Northern Uganda. The PRDP identifies the 14 priority programs such as rebuilding and empowering communities (health, education, water, livelihood support) and it emphasizes the importance of infrastructure rehabilitation and improvement of trunk road network connecting the districts and community access road network.

Under these circumstances, the ten year District, Urban and Community Access Road Investment Plan (DUCARIP) has been prepared to provide a financing framework for investments in district, urban and community access roads. Though maintenance of high priority District Roads has been progressively made in the framework, the improvements or new constructions of these roads have not been undertaken adequately. Furthermore, the budget from central government does not make allocations for maintenance, improvement and new construction of community access roads and this leads to a difficult situation where road improvement and new construction are to be undertaken by the districts themselves.

Consequently, although the necessity of the road improvement for the IDP return process seems to be of high priority, the implementation of the projects to improve road network could not be started because of budgetary deficits.

10.5.2 Necessity and Appropriateness

The alternative road and bridge rehabilitation urgent projects in Acholi sub-region have been selected according to the results of the Road and Bridge Inventory Survey, and of the Future Traffic Demand Forecast Analysis. The selection criteria are factors of urgency, necessity, and feasibility of projects. Among the 13 urgent projects requested by the Ugandan side, 6 have been retained for immediate planning and implementation within the scope of the project (Interim Report).

The Improvement of Olwiyo - Anaka Road project is one of the 6 urgent projects retained for planning and implementation under the Japan International Cooperation Service (JICS) fund. The main factors of selection for urgent projects are:

- The degree of contribution for the return and resettlement of displaced people (IDPs)
- The high degree of urgency and necessity due to the lack of bridge without alternative road (in the case of the Olwiyo – Anaka road, this factor is regarded as the presence of a bridge but with deficiency of width)
- The expected positive benefits at the level of the district
- The good feasibility of implementation of the project due to the lack of resettlement issues

Then, it is assumed that the improvement of the road will facilitate the return of the IDPs, and improve the local economic and social conditions.

10.5.3 Contents of the Project

The total length of the project alignment is 11.0km. The full length of the alignment belongs to the Nwoya District. The project road is a national road, which belongs to the Olwiyo - Kitgum road. The project aims at the improvement of the full length of the Olwiyo - Anaka into a DSTB standard road. The full section of the road project will be improved, which includes the widening of the carriageway to 9m, and the upgrading to bituminous pavement within the limits of the ROW in a width of 30m. Specifications of the project are summarized in Table 2.

Table 2 Specifications of the Urgent Projects of No.6

Section No.		No.6
		Road Improvement
Site		Nwoya
Road Class		National Road (Design Class Road II)
Beginning Point		Anaka Border (Gulu Side)
End Point		Olwiyo JCT
Improvement section Road Width (m)		9.0
Number of Carriageway Improvement section Road		2
Pavement		DBST
Total Road Length (km, include bridge section)		11.0
	Improvement section (km)	11.0
	Maintenance* section (km)	-
Bridge Name		-
Span Length (Number of Span)		-
Superstructure Type		-
Live Load Type		-
Bridge Width (m)		-
Abutment	Abutment Type	-
	Foundation Type	-
Pier	Pier Type	-
	Foundation Type	-
River Bank Protection (Around Abutments)		-

CAR: Community Access Road, DBST: Double Bituminous Surface Treatment (Low cost pavement)
* Maintenance is spot maintenance work. It is basically for the works that construction vehicles can pass safely within the present road width.
JPN: Japanese Bridge Speciation, A type (equivalent BS:HA) for District road, B type (equivalent BS:HB) for National road.

10.6 Expected Environmental and Social Impacts

The likely impacts caused by the proposed project are evaluated and summarized in Table 3 below.

Table 3 Expected Environmental and Social Impacts

	No.	Likely Impacts	Design	Construction	Operation	Description of Impacts
Social Environment:	1	Involuntary Resettlement	B-	D	D	**Design phase:** The project will not induce any resettlement of the population. However, several structures are located in the road reserve but the project carriageway will not affect them. Major structures in the road reserve are: Anaka: remaining thatched huts of former camp, which will be demolished by ARC (American Refugee Committee), Belkech: small shops made of bricks, and Other road side: thatched huts, temporary shops (stalls).

	No.	Likely Impacts	Design	Construction	Operation	Description of Impacts
	2	Local economy such as employment and livelihood, etc.	D	B+/-	A+	**Design phase:** Land along the project road is used according to the customary hold tenure rules. Land acquisition will be required in the road reserve. **Construction phase:** The construction works will induce job opportunities. The application of the labor recruitment procedure will ensure that priority is given to the local peoples. If the use of local stone materials from local quarries is promoted, it will provide cash opportunities to the local peoples. The road improvement works will induce the loss of standing crops (mostly cassava and pigeon peas) in the road reserve, if the construction works will be started before harvest. Plantation trees (mostly eucalyptus and pine trees) are also along the project road and they can be felled for the construction activities although they are not in the planned carriageway. **Operation phase:** The increased accessibility of the area will induce the intensification of marketing activities of local crops and products, which will strongly contribute to economic development and improvement of livelihood. Accordingly, project should strongly contribute to alleviate poverty and to reduce vulnerability.
	3	Land use and utilization of local resources	D	D	B+	**Operation phase:** The project will not induce a drastic change in land use since the road already exists. However, improved accessibility can induce an intensified use of land for agriculture, and possibly an intensified use of forest products in the section between Olwiyo and Anaka. This impact is very positive in terms of economic productivity of the land.
	4	Social institutions such as social infrastructure and local decision making institutions	D	D	D	No significant adverse impacts are expected. The district offices explained the project to the local representatives and they accepted the project.
	5	Existing social infrastructures and services	D	D	B+	**Operation phase:** The project will help to facilitate access to the existing health services. The greatest contribution will be the improved access to the health centre in Anaka. The impact of the project on public health will be positive because of a better health care resulting from improved access.
	6	Traffic Congestion	D	D	D	No significant adverse impacts are expected. There is not much traffic and the existing traffic is dominated by bicycles and pedestrians.
	7	Community Division	D	B+	A+	**Construction phase:** The employment of the local residents for unskilled labors in the construction works will prevent the generation of conflicts with the local communities, and mitigate the risk of social disruption. **Operation phase:** The improved rural accessibility after construction could facilitate the return of IDPs in the project area, which is a positive impact toward the social reintegration of this population.
	8	The poor, indigenous and ethnic people	D	D	D	No significant adverse impacts are expected on indigenous and ethnic people. They do not live around the project site.

	No.	Likely Impacts	Design	Construction	Operation	Description of Impacts
	9	Misdistribution of benefit and damage	D	D	D	No adverse impact is expected. The local representatives accepted the Project will contribute the improvement of accessibility for the public benefits.
	10	Gender equity and children's rights	D	B+	A+	**Construction phase:** The full application of the labor recruitment procedure specified in the MoWT environmental guidelines will contribute to provide jobs to the women and to the persons with disabilities, in the roadside communities. **Operation phase:** The improved accessibility to markets, health care services, and schools are the most positive effects of the project and will contribute to alleviate the tasks or the work load of the women and children. The improved access to the market places, the possibility for the women to offer their products on the markets and roadside are certainly the most important positive impact of the project towards gender equity.
	11	Cultural heritage	D	B-	D	**Construction phase:** There are several graves along the project road especially in Anaka. They are not located within the width of new carriageway but construction works can affect them. In case of risk of damage during the works, relocation will be needed.
	12	Local conflict of interests	D	D	D	No significant adverse impacts are expected. The local representatives accepted the Project will contribute the improvement of accessibility for public benefits.
	13	Water Usage or Water Rights and Rights of Common	D	B-	D	**Construction phase:** The Lolkuach river in Belkec is a water source used for bathing, washing and secondarily for drinking water, mainly by the residents of Dombee. The construction works can affect the source but in limited area and the short term.
	14	Sanitation	D	D	D	The use of local residents in the road works, the small size of the work camps, and the short period of construction are not factors that could increase the sanitation risks.
	15	Hazards (Risk) Infectious diseases such as HIV/AIDS	D	D	D	No significant adverse impacts are expected. No massive influx of workers is expected as most laborers can be supplied locally.
Natural Environment	16	Topography and Geographical features	D	D	D	No significant adverse impacts are expected. The project alignment is mostly designed following the existing road.
	17	Soil Erosion	D	B-	D	**Construction phase:** The construction works of project road improvement is likely to disturb the soil stability and induce erosion of the road side slopes.
	18	Groundwater	D	D	D	No significant adverse impacts are expected. The foundation works of the road improvement require low depth.
	19	Hydrological Situation	D	D	D	No significant adverse impact is expected on hydrological situation because there are no bridge reconstruction in the project although the existing road passing a few streams.
	20	Coastal Zone	D	D	D	No adverse impact is expected on coastal zone because the project sites are not located on coastal areas.

	No.	Likely Impacts	Design	Construction	Operation	Description of Impacts
	21	Flora, Fauna and Biodiversity	D	B-	D	**Construction phase:** There are several big trees along the project road especially in Anaka. They are not located within the width of new carriageway but construction works can affect them. Especially, tall trees of Milicia Excelsa should be preserved at the beginning point of project in Anaka. No other significant adverse impacts are expected. There are no protected areas and precious species are reported around the project site.
	22	Meteorology	D	D	D	No adverse impact is expected on meteorology because the project scale is not large only for improvement of the existing road.
	23	Landscape	D	B-	D	**Construction phase:** The borrow pits for supply of gravel materials can affect on the landscape along the project road.
	24	Global Warming	D	D	D	No adverse impact is expected on global warming because the project scale is not large only for improvement of the existing road.
Pollution	25	Air Pollution and dust	D	B-	B+	**Construction phase:** Limited adverse impact is expected in the short term. Exhaust gases of trucks and heavy machines during construction are sources of air pollutants. The dust generated by running vehicle will affect more people along the road and they can be a source of nuisance especially in Anaka. **Operation phase:** The DBST pavement will eradicate the dust during the dry season along the project road and in Anaka. The air quality will improve.
	26	Water Pollution	D	B-	D	**Construction phase:** The construction works can affect water source but in limited area and the short term. The road improvement works can affect the river water quality. The Lolkuach river in Belkec is a water source used for bathing, washing and secondarily for drinking water, mainly by the residents of Dombee.
	27	Soil Contamination	D	B-	D	**Construction phase:** Leakage of oils, fuels and asphalt emulsion from the machineries and construction sites can contaminate surrounding soil, however in limited spaces and short term.
	28	Waste	D	B-	D	**Construction phase:** Vegetation and land clearance along the project road will be a source of green waste and inert waste.
	29	Noise and Vibration	D	B-	D	**Construction phase:** Noise and vibration caused by the traffic of trucks and machines can be issues in Anaka, where dwellings are located roadside, but it is limited in the short term. **Operation phase:** Vehicle traffic is anticipated to increase but still be limited. Noise and vibration will not strongly affect the local peoples.
	30	Ground Subsidence	D	D	D	No adverse impact is expected on ground subsidence because the project scale is not large only for improvement of the existing road.
	31	Offensive Odor	D	D	D	No adverse impact is expected on offensive odor because the project is not large only for improvement of the existing road and has no sources of offensive odor.

	No.	Likely Impacts	Design	Construction	Operation	Description of Impacts
	32	Bottom sediment	D	D	D	**Construction phase:** The soil eroded due to the improvement works is likely to disturb the bottom sediment of a few streams, however in limited spaces and short term.
	33	Accidents	D	B-	B-	**Construction phase:** The risk of traffic accident will be higher by the construction vehicles. They can affect on pedestrians, bicycles and motorbikes, which are the basic means of transportation. The working conditions of the rural roads can induce worker's accidents. **Operation phase:** The anticipated traffic on the project road will increase, consequently the risk of traffic accidents will be a new risk compared with the present situation.

Rating:
A+/-: Significant positive/negative impact is expected.
B+/-: Positive/negative impact is expected to some extent.
C+/-: Extent of impact is unknown (Examination is needed. Impacts may become clear as study progresses.)
D: No impact is expected.

10.7 Impacts of the Project

The overall rating is evaluated at the category "B". Both positive and negative impacts by the project are evaluated in 33 likely impacts on social environment, natural environment and pollution. Meanwhile 13 items are evaluated at that adverse impacts are expected to some extent as rating "B-", which are 4 items on social environment, 3 items on natural environment and 6 items on the pollution in the construction phase. 6 items are evaluated at positive impacts as rating "B+" or "A+" on the social environment in the construction and operation phases.

These positive impacts match the local people's expectations expressed by the local representatives and by the residents during the field interviews and at the public consultation meeting. The most important benefits of the project as expected by the local peoples are:

- Increase of small business opportunities along the road
- Facilitated access to Anaka,
- Easier access to Nwoya and Gulu,
- Better access to the Anaka hospital,
- Easier access to school for the children going to Anaka secondary school,
- Easier access to the district offices of Nwoya, and
- Eradication of the dust nuisance during the dry season in the Anaka trading centre.

10.8 Mitigation Measures

The mitigation measures are summarized in Table 4 responding to the results of evaluation in Table 3.

Table 4 Mitigation Measures for Environmental and Social Impacts and Further Study

No.	Likely Impacts	Evaluation	Mitigation Measures
1	Involuntary Resettlement	B-	**Design phase:** • Since the road is a national road, the procedure for the proper acquisition of land and compensation of improvements in the road reserve is the UNRA procedure. • The Nwoya district held the public consultation meetings in coordination with UNRA, the local representatives agreed the project in the meeting and signed the consent document that the local communities have accepted the transfer of land rights in the road reserve to the districts. • The consent document is intended to facilitate the implementation of the project, which is certified by UNRA with their investigations. • If the compensation is necessary, UNRA will survey and valuate the affected properties.
2	Local economy such as employment and livelihood, etc.	B-	**Design phase:** • In the public consultation meetings, the local representatives were notified and agreed that they will harvest their standing crops within the project site before the construction works start. • They also signed the consent documents that the local communities have accepted the loss of their standing crops within the project site after the construction works start. • In case that the plantation trees have to be felled, UNRA will compensate them after their survey and valuation.
11	Cultural heritage	B-	**Design phase:** • The new carriageway is designed not to affect on the cultural trees and graves along the project road. **Construction phase:** • The improvement activities can avoid any possible damages on the cultural trees and graves along the project road. • The Nwoya district office will support the relocation of graves when it is needed.
13	Water Usage or Water Rights and Rights of Common	B-	**Construction phase:** • It should be avoided to use the local water sources for water supply for the construction works and for the workers and those are preferably depend on outside water sources. • The supply of drinking water will help the local population.
17	Soil Erosion	B-	**Construction phase:** • The selection of the dry season for construction, and the immediate reseeding of roadside embankments, will contribute to control the risk of erosion. • The restoration of borrow pits to their initial conditions will contribute to control the risk of erosion. • Top soil will be stored and reused for the rehabilitation of damaged sites along the road.

No.	Likely Impacts	Evaluation	Mitigation Measures
21	Flora, Fauna and Biodiversity	B-	**Construction phase:** • The contractor will take care of the reserved trees lying inside the road reserve but outside the carriageway in coordination with the Forestry Officer so that they will be preserved as much as possible. • If the reserved trees have to be felled, they will be compensated by the district office. **Operation phase:** • The proper management of forest and forest products by the local communities themselves should be supported by the district forest officer through sensitization and information of the people.
23	Landscape	B-	**Construction phase:** • The restoration of the borrow pits is a requirement and its application will be controlled in order to prevent damages on surrounding landscape.
25	Air pollution and dust	B-	**Construction phase:** • In places where people will be exposed to dust during the works in Anaka, sprinkling water on the road will be done to prevent the dust.
26	Water Pollution	B-	**Construction phase:** • The residual cleaning water used for the preparation of concrete will be treated before discharged into the rivers, which means pond sedimentation or filtration. • It is necessary to preserve the water quality of streams avoiding any source of pollution from the construction and rehabilitation works, for preservation of the potential uses of water downstream. • The residual engine oils and fuels or any other dangerous water contaminants will be managed properly, and they will be collected and treated by a company agreed by NEMA so that the risk of contaminating surface water and groundwater will be minimized.
27	Soil Contamination	B-	**Construction phase:** • The proper management of oils and fuels in the camp sites during the works will prevent any risk of contamination due to discharge or accidental leakage.
28	Waste	B-	**Construction phase:** • The proper elimination of the inert waste materials generated by the rehabilitation and construction works will be managed in coordination with the district authorities and local communities. • Used oil substances will be collected and eliminated by a specialized company agreed by NEMA.
29	Noise and Vibration	B-	**Construction phase:** • The control of vehicle speed carrying material mainly in Anaka and settlement areas will help to reduce the nuisance noise and vibration. • Construction of temporary fence to segregate the project site from residential areas can noise and vibration disturbance.

No.	Likely Impacts	Evaluation	Mitigation Measures
33	Accidents	B-	**Design phase:** • Traffic safety campaigns were organized by the JICA study team in order to sensitize the roadside communities to the risk of traffic accidents and to the basic rules of safety. **Construction phase:** • The secure circulation of the pedestrians and cycles will then be an important task during the works. • Appropriate plans of traffic management will be carried out through close coordination between the contractor, the supervising engineer and the police. • The workers will be sensitized in order to adopt safe driving in the housing areas. • The protection of workers will be implemented according to the standard rules included in the contract procurement to avoid accidents. • Management and operation agencies will conduct inspection and maintenance of equipment and facilities, and fire prevention measures.

10.9 Consultation

10.9.1 Purposes

As the first step and for practical reasons of the urgency, the Amuru and Nwoya districts organized the public consultation meetings in order to get a formal agreement of implementation of the project with the local communities on September 28th and 29th.

Its purpose was to get the written agreement of the local representatives for implementation of the project. The process for getting such agreement was implemented under the responsibility of the district engineers of Amuru and Nwoya, in coordination and with the support of the JICA study team. The public consultation meeting was held in coordination with UNRA, in order to ensure the full compatibility between the district consent document and the UNRA formal procedure of land acquisition and compensation.

The objectives of the public consultations are:

- To inform and sensitize the local communities about the project and the road reserve, and to get the mobilization of the people,
- To discuss the potential issues related to implementation of the project and ensure a proper mutual understanding of the actions to be undertaken,
- To clarify the land use rights and land properties, the land improvements along the project road, and the conditions of compensation if needed, and
- To establish a formal consent document prepared by the district and signed by the local representatives.

10.9.2 Organizers and Participants

The Amuru and Nwoya district offices organized the public consultation meetings supported by JICA Study Team. The participants of meetings were:

- District Officers (Environment Officer, District Engineer),
- UNRA Gulu Officers
- Sub-county chief,
- Chairpersons of respective Local Councils,
- Representative of Area Land Committee, and
- Local residents.

10.9.3 Contents

The Nwoya district officer explained the participants the outline of the project and the followings.

- JICA, Japan International Cooperation Agency has been working in the northern region to contribute the IDP return process and improve their livelihood, hence enhancing the regional development in the northern region.
- From the study of Rural Road Network Planning in Northern Uganda, JICA Study team selected 6 urgent projects to contribute to the IDP return process by bridge constructions and road improvements.
- It is sure that the improvements also can enhance the accessibility for hospitals, schools and markets and contribute developing economy and living environment, however, it has to be aware of negative impacts also are expected like increase of traffic accidents, noise, exhaust gas from traffic increase.
- However, it is important for the community to understand that road reserves belong to the road authorities which could be the district (local governments), central governments (MoWT) or UNRA, therefore, the road reserves are not for farming or any other private activities.
- Even though the improvement and maintenance works will be done within the road reserves, the district offices requested the land owners (most of them are customary owners) the agreements for the acquisition of the road reserve to implement the project.

10.9.4 Conclusions

The participants understood the purposes and contents of project, and welcomed the project to anticipate a lot of social and economic developments for the local communities with the following suggestions in specific.

- Select credible contractors and supervise contractor’s activities to ensure quality works
- Consider employing local peoples (youths) and purchasing local construction materials
- Compensation for affected item in the road reserve where if it is necessary

10.10 Monitoring

There is nothing in particular to be raised.

10.11 Consultation with Recipient Governments

The Amuru and Nwoya districts prepared the Project Brief of the project in coordination with the JICA study team and the UNRA. They submitted the Project Brief to NEMA and the Project Brief was approved by NEMA in December 2010.

APPENDIX 5

BASELINE SURVEY FOR URGENT PROJECT

11. BASELINE SURVEY FOR URGENT PROJECT

In order to evaluate the outcome and impact from the Urgent Projects, Origin-Destination (OD) survey and community interview survey were conducted prior to the commencement of the construction (October and November 2010). The same kind of survey will be done after the completion of the project. The changes in the number of traffic, including the pedestrian, trip purpose and distance would be expected to show the outcome effectively.

11.1 Origin-Destination survey

11.1.1 Objective and methodology

The OD survey was carried out by local staffs at the location of Urgent projects sites (Section 1 to 6) based on the contents of survey as shown in Tables 11.1.1 and 11.1.2. The first survey as before the construction was conducted at the beginning of October 2010. The survey form is shown in Figure 11.1.1.

Table 11.1.1 Contents of OD survey

	Owoo-Pabbo (Sec 1)	Paloga-Palacam (Sec 2)	Lamoki-Laminlatoo (Sec 3)	Otaka (Sec 4)	Lawodo-Binya (Sec 5)	Olwiyo-Anaka (Sec 6)
Location	Near bridge	Near bridge	Near bridge	Near bridge	Near bridges	Along the road
Date	20101019	20101110	20101011	20101103	20101026	20101123
Time	7 a.m. – 7 p.m. (12hours)					
Interviewee	All passers-by					
Method	Interview to passer-by by interview form					
Interview Items	See Table 11.1.2					

Table 11.1.2 Interview items

Interview Items	Choices	
Direction	(1) From South to North (2) From North to South	
Age	(1) Adult (>20yrs) (2) Children (<20yrs)	
Transportation Type	(1) Vehicle (2) Motorcycle (3) Bicycle	(4) Walk (5) Others
Trip Purpose	(1) To work (including farming) (2) To school (3) Business (sales, meeting, etc)	(4) Private (shopping, Social, etc) (5) To go home (6) To go hospital
Trip Frequency	(1) Everyday (2) A few days a week (3) Once a week	(4) A few days a month (5) Once a month (6) A few days a year
Commodity Type	(1) Animal & Animal Products (2) Vegetable Products (3) Foodstuffs (4) Petrol and Mineral Products (5) Chemicals & Allied Industries (6) Plastics / Rubbers (7) Animal Skins, Leather & Furs (8) Wood & Wood Products (9) Textiles	(10) Footwear / Headgear (11) Metals incl. hoe (12) Machinery / Electrical (13) Vehicles and Other Transportation (14) Miscellaneous (15) Unknown (16) Grass (17) People (carry)

Survey Month/Day/Year | | | 2010 | Survey Location | Bridge on Lot | Surveyor |

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(1) Vehicle
(2) Motorcycle
(3) Bicycle
(4) Walk
(5) Others

(1) To work (including farming)
(2) To school
(3) Business (sales, meeting, etc)
(4) Private (shopping, Social, etc)
(5) To go home
(6) To go hospital

(1) Everyday
(2) A few days a week
(3) Once a week
(4) A few days a month
(5) Once a month
(6) A few days a year

(1) Animal & Animal Products
(2) Vegetable Products
(3) Foodstuffs
(4) Petrol and Mineral Products
(5) Chemicals & Allied Industries
(6) Plastics / Rubbers
(7) Animal Skins, Leather & Furs
(8) Wood & Wood Products
(9) Textiles
(10) Footwear / Headgear
(11) Metals Incl. hoe
(12) Machinery / Electrical
(13) Vehicles and Other Transportation
(14) Miscellaneous
(15) Unknown
(16) Grass
(17) People (carry)

(1) To North
(2) To South

(1) Adult
(2) Children<20yrs

No	Interview Time	Direction	No of people	Age	Transportation Type	Trip Purpose	Trip Frequency	Trip Origin		Trip Destination		Commodity Type	Travel Time
								Sub-country	Parish or Village	Sub-country	Parish or Village		
	:												
	:												
	:												
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Figure 11.1.1 Interview form

Figure 11.1.2 Photos of Owoo-Pabbo and Laminlatoo-Lamoki OD survey

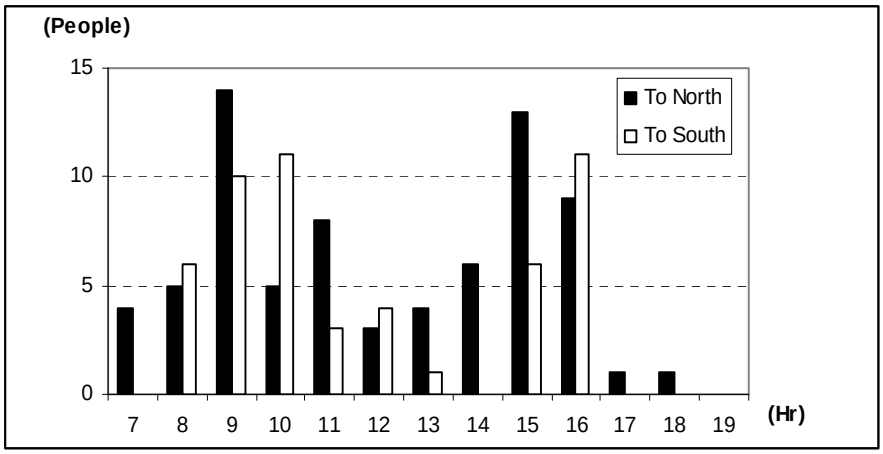
Figure 11.1.3 Photos of Otaka bridge and Paloga- Palacam road

11.1.2 Result of Origin-Destination survey

(1) Section 1 (Owoo-Pabbo Road)

1) Number of passers-by

- Total number of the passers-by was 126 people on both ways in 12 hours.
- The number of the passers-by going to the North is more than that heading to the South, which means that the bridge is used most by the people living in the South side of the river.
- There are more people going to both North and South in the morning and in the evening.



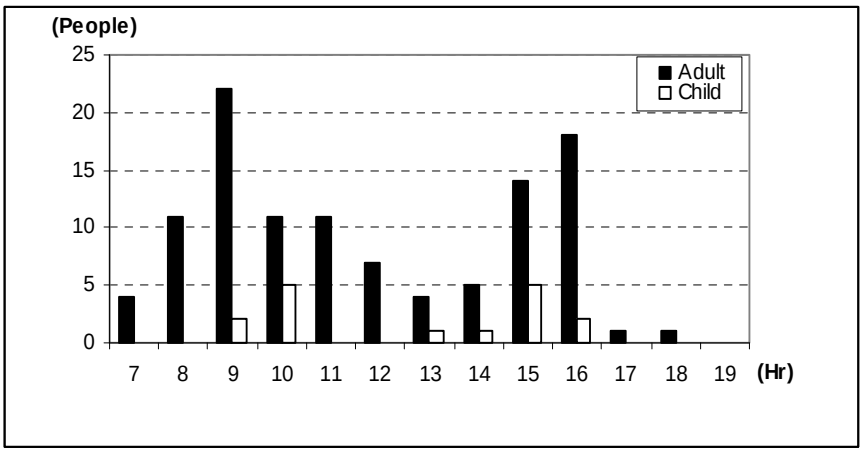
	To North	To South
7	4	
8	5	6
9	14	11
10	4	11
11	7	4
12	3	4
13	4	1
14	6	
15	13	6
16	9	12
17	1	
18	1	
19		
Total	71	55

Source: JICA Study Team

Figure 11.1.4 Number of passer-by per direction

2) Age

- Majority of total passers-by is over 20 years old (Adult)
- The few children go across the river in the morning and evening but none was recorded as going to school.
- Adults pass over the bridge mostly in the morning, and evening.



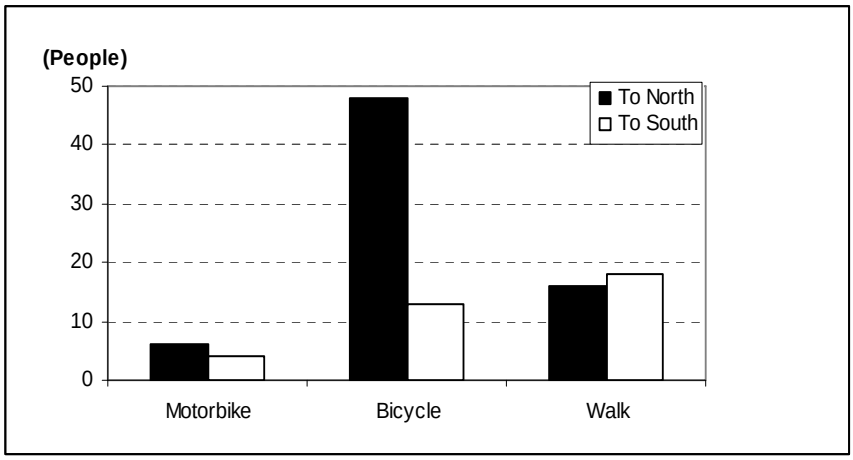
	Adult	Child
7	4	
8	11	
9	22	2
10	11	5
11	11	
12	7	
13	4	1
14	5	1
15	14	5
16	18	3
17	1	
18	1	
19		
Total	109	17

Source: JICA Study Team

Figure 11.1.5 Number of passer-by per age

3) Transportation type

- Most of the people go across the bridge by bicycle and about one third walk.
- 7 people on 6 motorbikes were counted on the bridge. Half of the number of motorbikes going to North is going to South.
- No vehicle passing the bridge is seen during the survey.



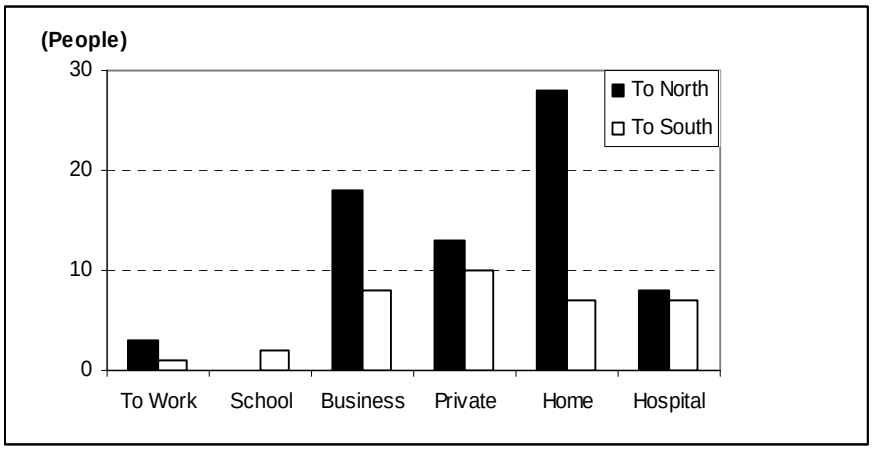
	To North	To South
Motorbike	6	4
Bicycle	48	13
Walk	16	18
Total	70	35

Source: JICA Study Team

Figure 11.1.6 Number of passer-by per transportation type

4) Trip purpose

- Over 20 people go to north on purpose of going back to home which means that the most of people passing the river live in the north side of river.
- There are several trip purposes to south. Private trips have the largest number, 10 people in 12 hours, followed by going for business, home and hospital.
- The other purpose to north except going home is for business.



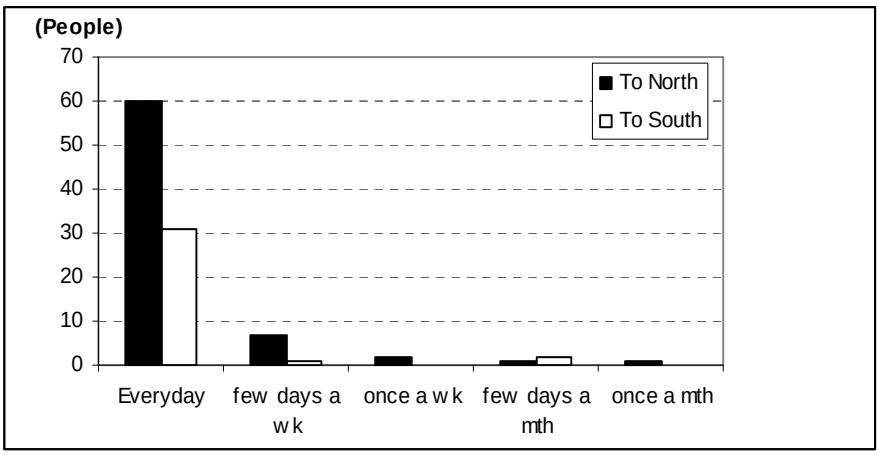
	To North	To South
To Work	3	1
School		2
Business	18	8
Private	13	10
Home	28	7
Hospital	8	7
Total	70	35

Source: JICA Study Team

Figure 11.1.7 Number of passer-by per trip purpose

5) Trip frequency

- 86.6% of passers-by go across the river everyday.
- 7.6% of passers-by use the bridge a few days per week and only one person was recorded as using the route once a month.



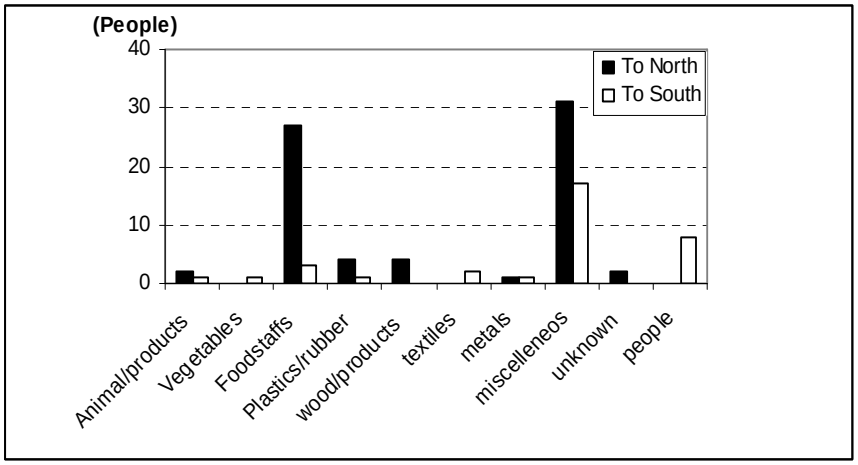
	To North	To South
Everyday	60	31
few days a wk	7	1
once a wk	2	
few days a mth	1	2
once a mth	1	
Total	71	34

Source: JICA Study Team

Figure 11.1.8 Number of passer-by per trip frequency

6) Commodity type conveyed

- Most of the passers-by convey miscellaneous (none listed items or nothing at all) when passing through the bridge.
- The other things most conveyed by passer-by to south are people and to the North, foodstuffs.
- Some motorbikes are used for commuting passengers



	To North	To South
Animal/products	2	1
Vegetables		1
Foodstuffs	27	3
Plastics/rubber	4	1
wood/products	4	
textiles		2
metals	1	1
miscellaneous	31	17
unknown	2	
people		8
Total	71	34

Source: JICA Study Team

Figure 11.1.9 Commodity type conveyed by passer-by

7) Origin-Destination and travel time

- OD table below shows the number of passers-by within the sub-village with over 4 trips.
- The OD pair which has the largest number of trip is between Owoo and Kal/Centre at 43 passers-by, followed by between Laroo (Gulu Municipality) and Kal at 11 passers-bys.
- Kal (Pabbo centre) is where there is the biggest trading centre around this area.

Table 11.1.3 OD table

Unit: Person

		Destination						
		Biira	Kal	Laroo	Lukome	Owoo	Paomo	Pece
Origin	Biira			1				1
	Kal			1		17		
	Laroo		11					
	Lukome		3					
	Owoo		43					
	Paomo		1			13		
	Pece		2					

Source: JICA Study Team

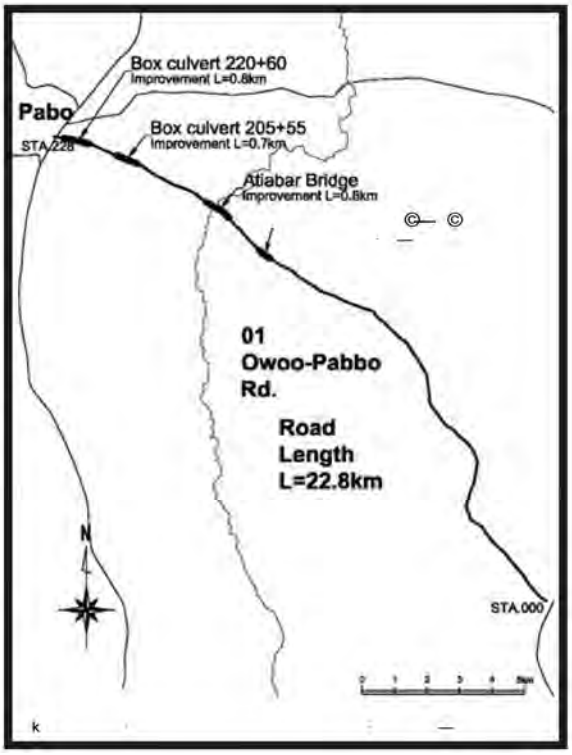
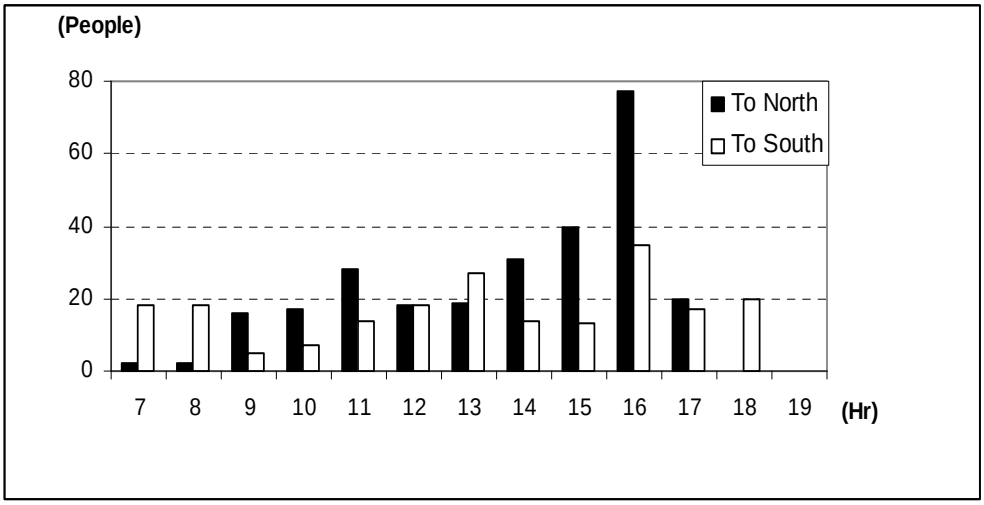


Figure 11.1.10 Map for Origin and Destination (Section 1)

(2) Section 2 (Paloga-Potika-Palacam)

1) Number of passers-by

- Total number of the passers-by is 476 people on the both way per 12 hours.
- The number of the passers-by to the North is more than to the south.
- There are many people going to both North and south in the evening.



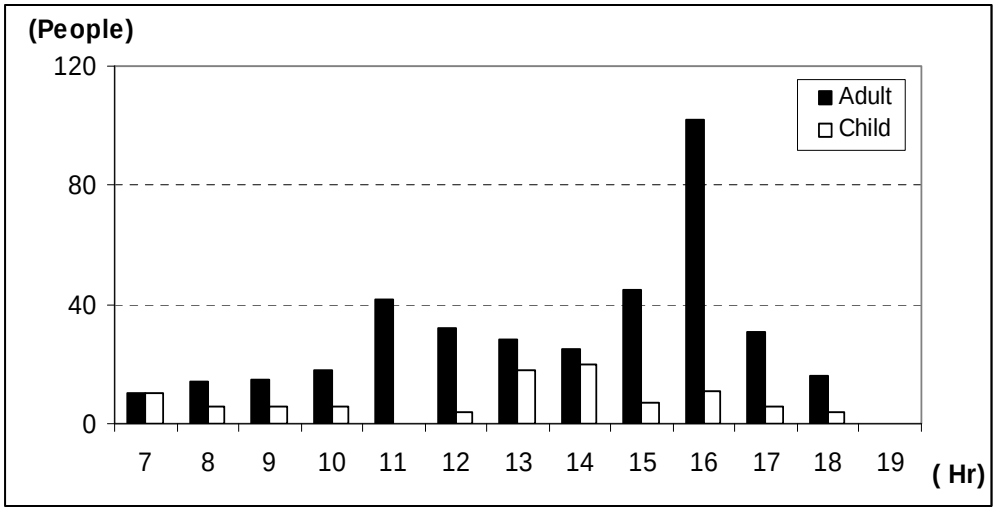
Hour	To North	To South
7	2	18
8	2	18
9	16	5
10	17	7
11	28	14
12	18	18
13	19	27
14	31	14
15	40	13
16	77	35
17	20	17
18		20
19		
Total	270	206

Source: JICA Study Team

Figure 11.1.11 Number of passers-by per direction

2) Age

- Over 60% of total passer-by is over 20 years old. Only a few children are seen in the morning and evening.



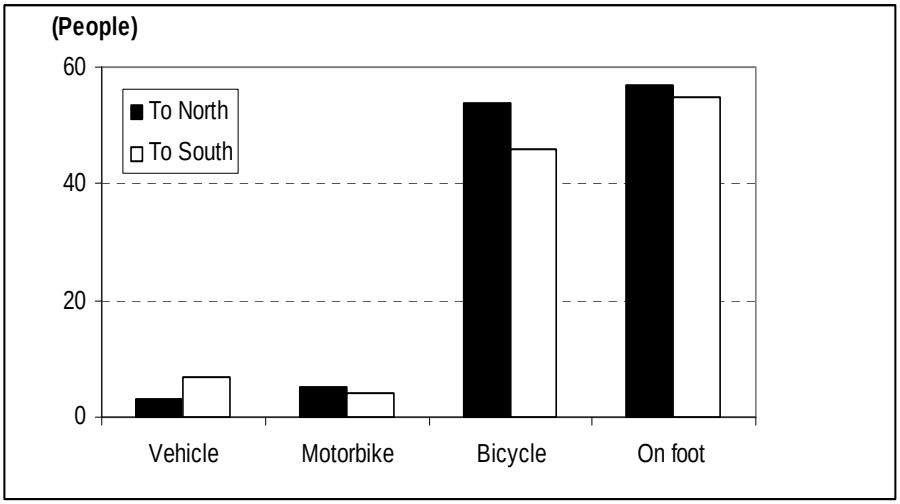
Hour	Adult	Child
7	10	10
8	14	6
9	15	6
10	18	6
11	42	
12	32	4
13	28	18
14	25	20
15	45	7
16	102	11
17	31	6
18	16	4
19		
Total	378	98

Source: JICA Study Team

Figure 11.1.12 Number of passer-by per age

3) Transportation type

- 10 vehicles were recorded going across the bridge
- Almost the same number of bicycles and people walking on foot cross the bridge.



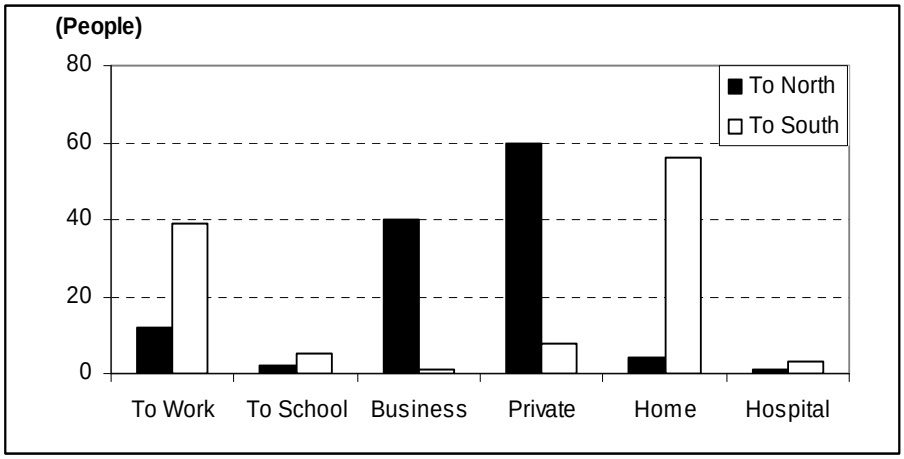
	To North	To South
Vehicle	3	7
Motorbike	5	4
Bicycle	54	46
On foot	57	55
Total	119	112

Source: JICA Study Team

Figure 11.1.13 Number of passer-by per transportation type

4) Trip purpose

- It is clear that this bridge is normally used for commercial purpose such as farming and business trips as well as social use like private visits and for going back home.



	To North	To South
To Work	12	39
To School	2	5
Business	40	1
Private	60	8
Home	4	56
Hospital	1	3
Total	119	112

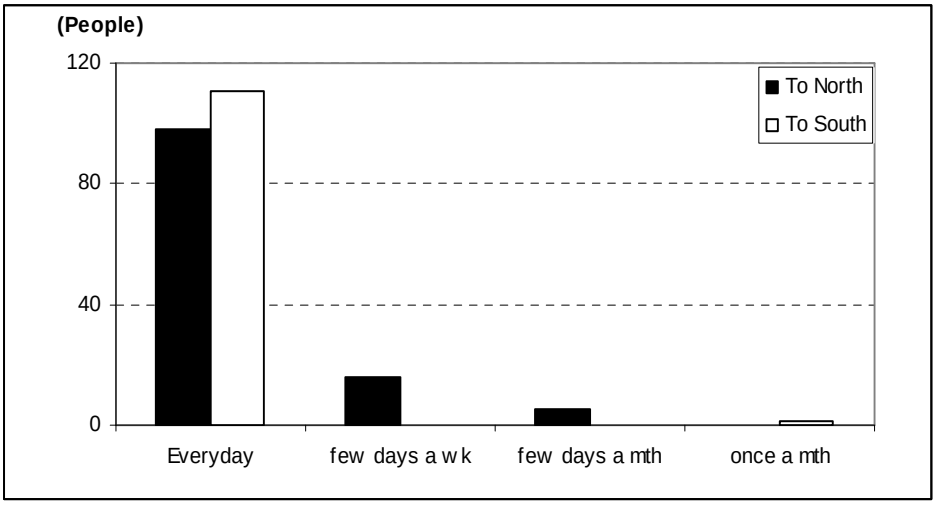
- Most people live on the Southern side of the bridge.

Source: JICA Study Team

Figure 11.1.14 Number of passer-by per trip purpose

5) Trip frequency

- Most passers-by responded that they use this route everyday.
- This route and bridge is used by the people who pass this route regularly.



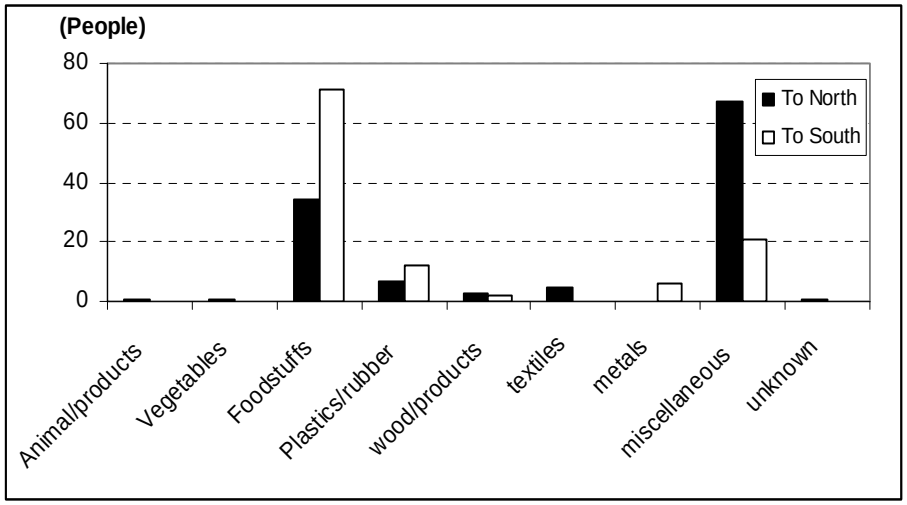
	To North	To South
Everyday	98	111
few days a wk	16	
few days a mth	5	
once a mth		1
Total	119	112

Source: JICA Study Team

Figure 11.1.15 Number of passer-by per trip frequency

6) Commodity type conveyed

- 45.5% of passers-by carried food products across the bridge.
- Many passers-by also convey many other kinds of commodities which mean that this route is used for business purpose.



	To North	To South
Animal/products	1	
Vegetables	1	
Foodstuffs	34	71
Plastics/rubber	7	12
wood/products	3	2
textiles	5	
metals		6
miscellaneous	67	21
unknown	1	
Total	119	112

Figure 11.1.16 Commodity type conveyed by passer-by

7) Origin-Destination and travel time

- OD table below shows the number of passers-by within the sub-village with over 3 trips.
- The OD pair which has the largest number of trips is between Palacam and Potika at 147 passers-by, followed by between Potika and Palacam 147 passers-by.

Table 11.1.4 OD table

Unit: Person

		Detsination				
		Kitgum TC	Madi opei	Palacam	Pawach	Potika
Origin	Kitgum TC			8		
	Madi Opei					20
	Palacam					147
	Pawach					70
	Potika			147	28	

Source: JICA Study Team

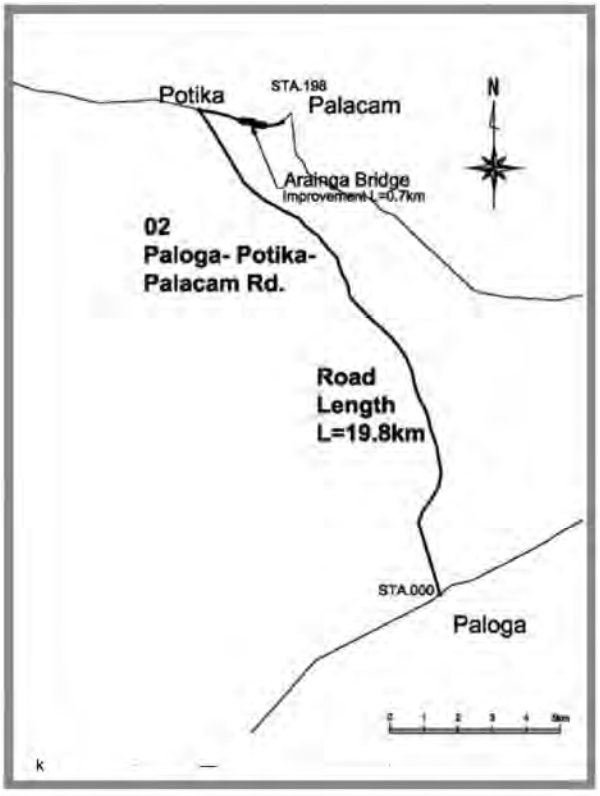
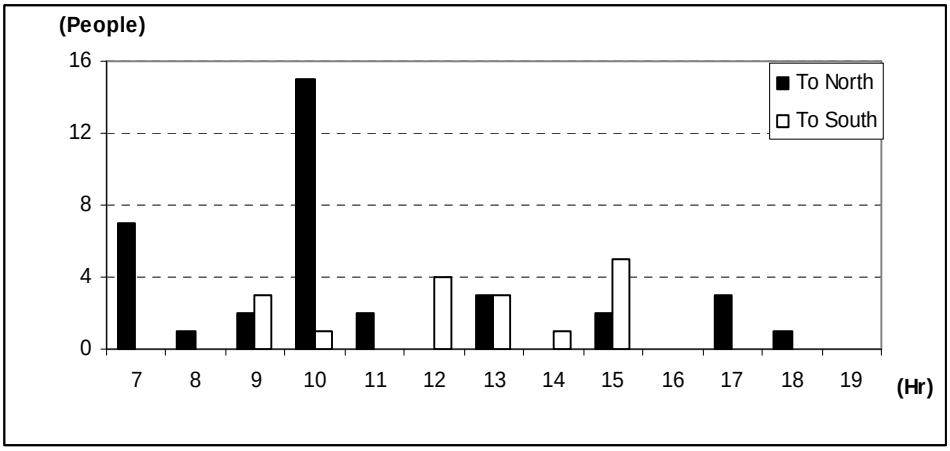


Figure 11.1.15 Map for Origin and Destination (Section 2)

(3) Section 3 (Lamoki - Laminlatoo Road)

1) Number of passers-by

- Total number of the passers-by was 53 people on both ways in 12 hours.
- The number of the passers-by going to the North is more than that heading to the South.
- There are more people going to the North in the morning hours.



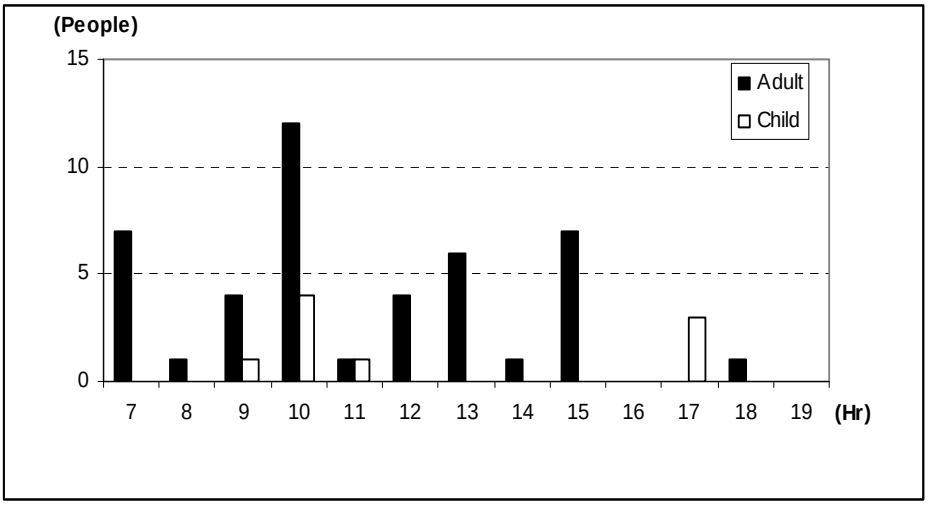
Hour	To North	To South
7	7	
8	1	
9	2	3
10	15	1
11	2	
12		4
13	3	3
14		1
15	2	5
16		
17	3	
18	1	
19		
Total	36	17

Source: JICA Study Team

Figure 11.1.16 Number of passer-by per direction

2) Age

- Majority of total passers-by are over 20 years old(Adults)
- The few children go across the river in the morning and evening but none was recorded as going to school.
- Adults pass over the river mostly in the morning, and evening.



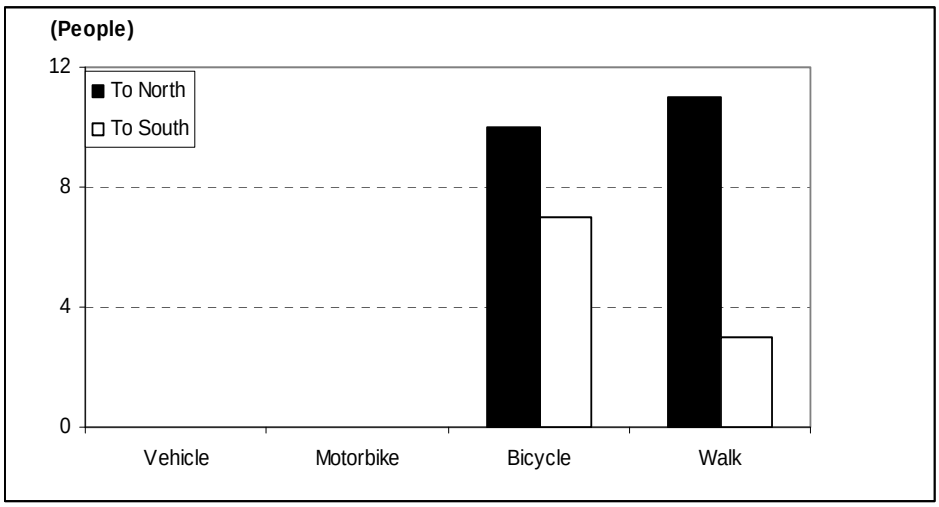
Hour	Adult	Child
7	7	
8	1	
9	4	1
10	12	4
11	1	1
12	4	
13	6	
14	1	
15	7	
16		
17		3
18	1	
19		
Total	44	9

Source: JICA Study Team

Figure 11.1.17 Number of passer-by per age

3) Transportation type

- All the people going across the bridge use either bicycle or on foot.
- 21 bicycles were counted on the bridge. Most going to North.
- No vehicle or motorbikes crossing the bridge were seen during the survey.(Bridge is inaccessible for motorcycle and vehicles)



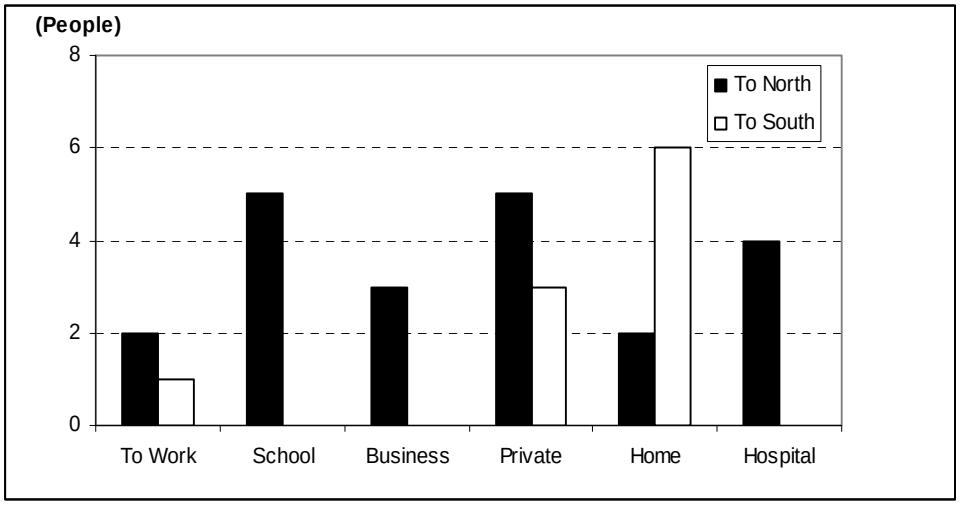
	To North	To South
Vehicle		
Motorbike		
Bicycle	10	7
Walk	11	3
Total	21	10

Source: JICA Study Team

Figure 11.1.18 Number of passer-by per transportation type

4) Trip purpose

- Most people go to north on purpose of going to school and private trips. However most people reside on the South of the river.
- There are several other trip purposes to the North. Private and School after hospital trips have the largest number, 10 people in 12 hours, followed by going for business, work and home.



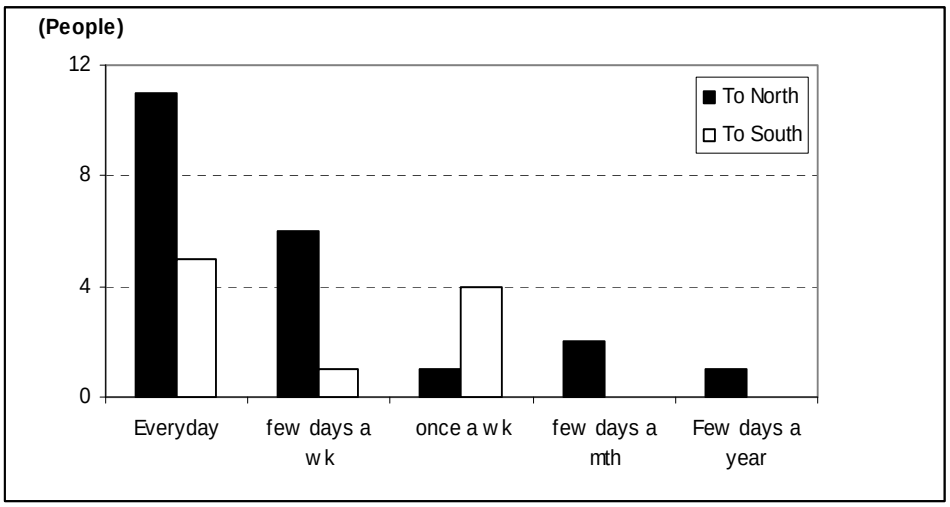
	To North	To South
To Work	2	1
School	5	
Business	3	
Private	5	3
Home	2	6
Hospital	4	
Total	21	10

Source: JICA Study Team

Figure 11.1.19 Number of passer-by per trip purpose

5) Trip frequency

- 51.61% of passers-by go across the river everyday.
- 22.5% of passers-by use the bridge a few days per week and only 1 person pass once a month.



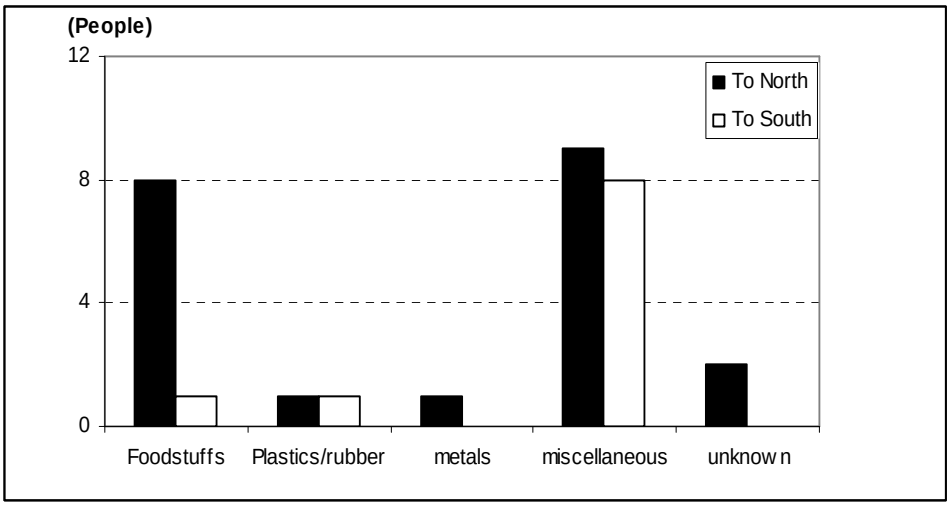
	To North	To South
Everyday	11	5
few days a wk	6	1
once a wk	1	4
few days a mth	2	
Few days a year	1	
Total	21	10

Source: JICA Study Team

Figure 11.1.20 Number of passer-by per trip frequency

6) Commodity type conveyed

- Most of the passers-by convey miscellaneous (none listed items or nothing at all) when they pass through the bridge.
- The other things most conveyed by passers-by to the North are foodstuffs.



	To North	To South
Foodstuffs	8	1
Plastics/rubber	1	1
metals	1	
miscellaneous	9	8
unknown	2	
Total	21	10

Source: JICA Study Team

Figure 11.1.21 Commodity type conveyed by passer-by

7) Origin-Destination and travel time

- OD table below shows the number of passer-by on the sub-village which has over 2 trips.
- The OD pair which has the largest number of trip is between Agonga and Kal/Anaka at 22 passers-by, then followed by trip between Laminlatoo and Kal at 12 passers-by,.
- The trip distance is much shorter other project roads. Most of the passers-by have the origin or destination from within the two sub counties of Anaka and Koch-goma

Table 11.1.5 OD table

Unit: Person

Origin		Destination		
		Anaka	Kal/Anaka	Laminlatoo
	Agonga		22	
	Kal/Anaka	6		5
	Laminlatoo		12	

Source: JICA Study Team

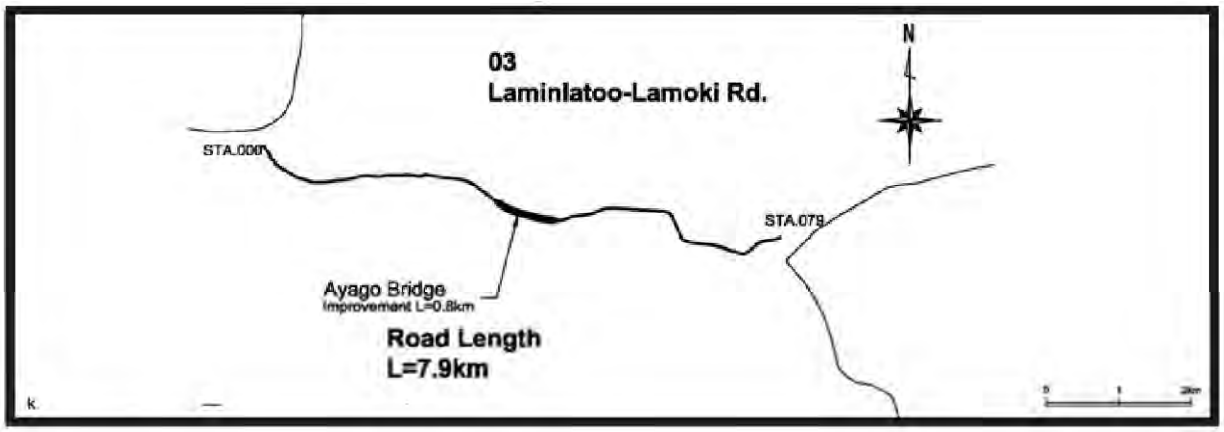
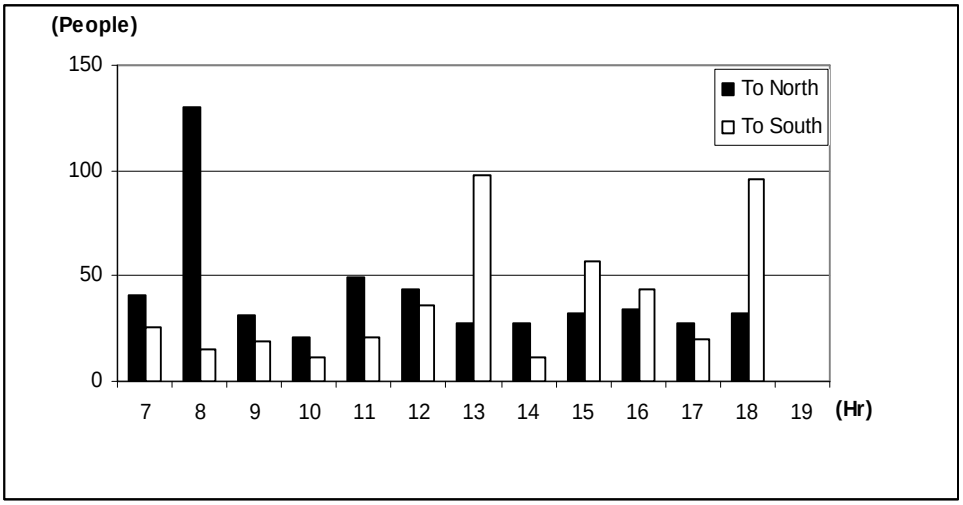


Figure 11.1.22 Map for Origin and Destination (Section 3)

(4) Section 4 (Otaka Bridge)

1) Number of passers-by

- Total number of the passers-by is 952 people on the both way per 12 hours.
- The number of the passers-by to North is more than to South.
- There are many people going to both North and south in the morning and evening.



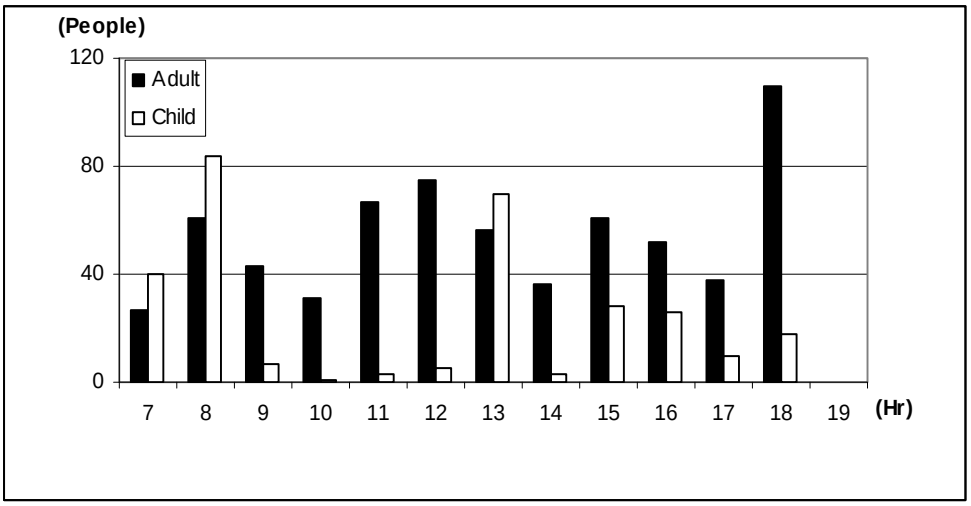
	To North	To South
7	41	26
8	130	15
9	31	19
10	21	11
11	49	21
12	44	36
13	28	98
14	28	11
15	32	57
16	34	44
17	28	20
18	32	96
19		
Total	498	454

Source: JICA Study Team

Figure 11.1.23 Number of passers-by per direction

2) Age

- Over 69% of total passers-by is over 20 years old (Adults)
- Most children used the route in the morning and the afternoon hours, meaning they used the route for going to and fro school.



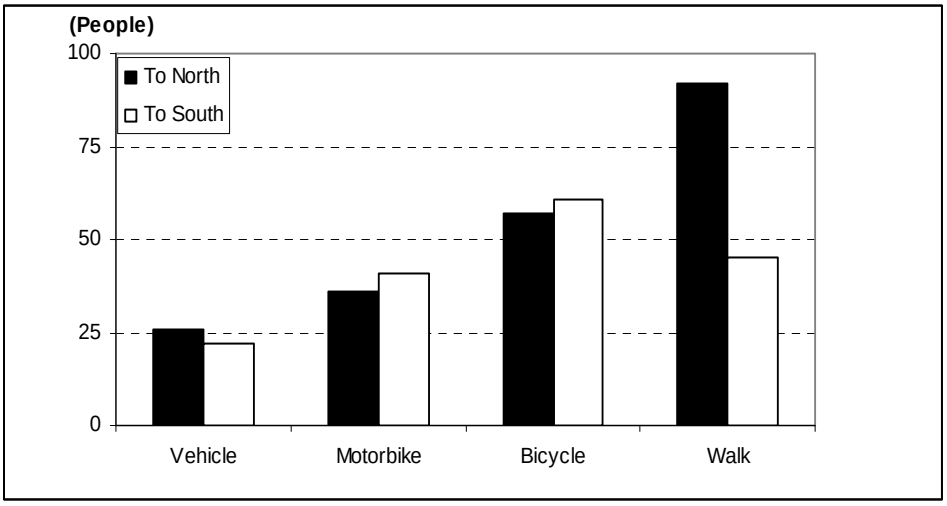
Hour	Adult	Child
7	27	40
8	61	84
9	43	7
10	31	1
11	67	3
12	75	5
13	56	70
14	36	3
15	61	28
16	52	26
17	38	10
18	110	18
19		
Total	657	295

Source: JICA Study Team

Figure 11.1.24 Number of passers-by per age

3) Transportation type

- 48 vehicles crossed the bridge during the survey
- Almost the same number of bicycles and people walking on foot go through the bridge.



	To North	To South
Vehicle	26	22
Motorbike	36	41
Bicycle	57	61
Walk	92	45
Total	211	169

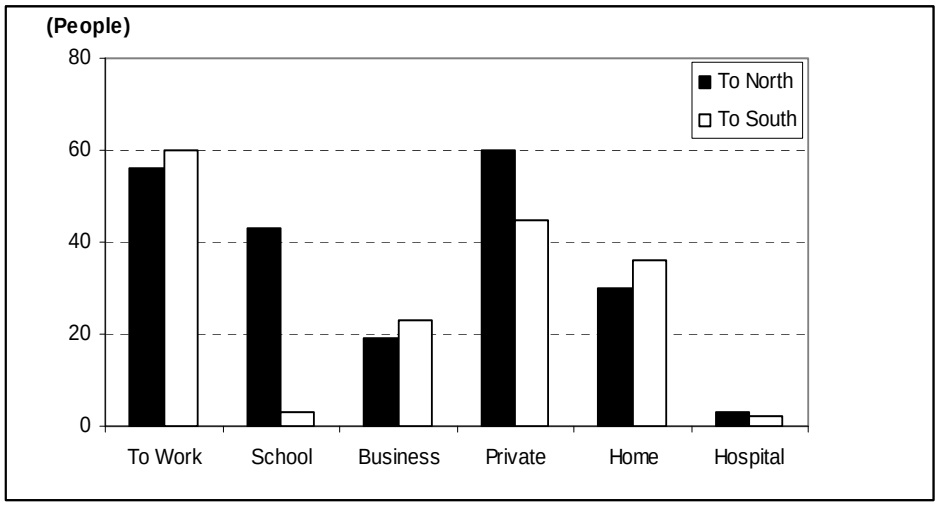
Source: JICA Study Team

Figure 11.1.25 Number of passers-by per transportation type

4) Trip purpose

- It is clear that this bridge is normally used for commercial purpose such as business trips, field staffs reporting for work, as well as social use like private visits, school and home.

- Most people using the route come from the on the Southern side of the bridge.



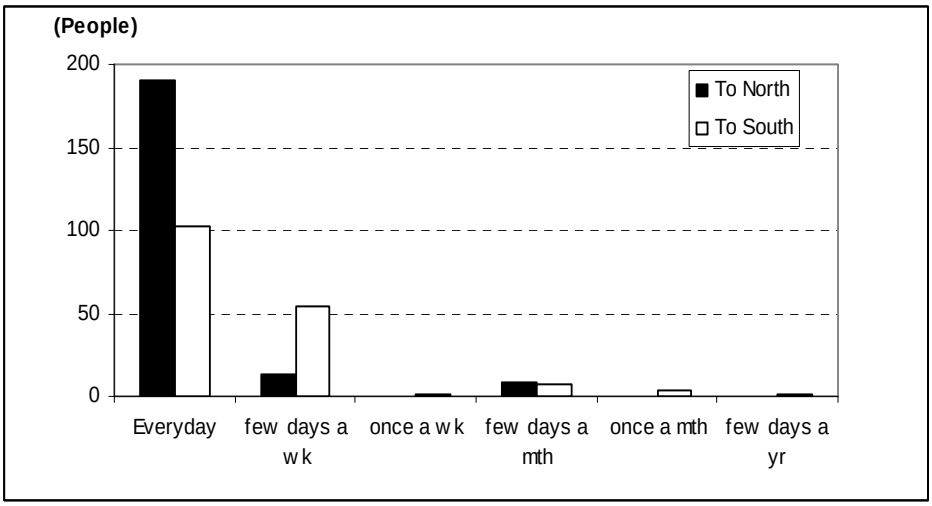
	To North	To South
To Work	56	60
School	43	3
Business	19	23
Private	60	45
Home	30	36
Hospital	3	2
Total	211	169

Source: JICA Study Team

Figure 11.1.26 Number of passer-by per trip purpose

5) Trip frequency

- Most passers-by responded that they use this route everyday.
- This route and bridge is used by the people who pass this route regularly.



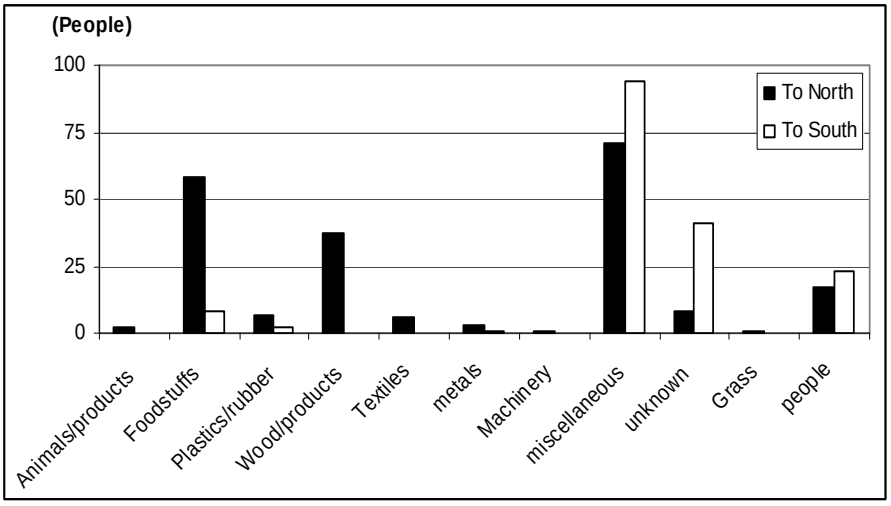
	To North	To South
Everyday	190	102
few days a wk	13	54
once a wk		1
few days a mth	8	7
once a mth		4
few days a yr		1
Total	211	169

Source: JICA Study Team

Figure 11.1.27 Number of passer-by per trip frequency

6) Commodity type conveyed

- Many of the passers-by carry foodstuffs and people across the bridge since commuter vehicles also use this route frequently.
- Many passers-by also convey many other kinds of commodities which mean that this route is used for business purpose.



	To North	To South
Animals/products	2	
Foodstuffs	58	8
Plastics/rubber	7	2
Wood/products	37	
Textiles	6	
metals	3	1
Machinery	1	
miscellaneous	71	94
unknown	8	41
Grass	1	
people	17	23
Total	211	169

Figure 11.1.28 Commodity type conveyed by passer-by

7) Origin-Destination and travel time

- OD table below shows the number of passer-by on the sub-village which has over 10 passers-by.
- The OD pair which has the largest number of trip is between Ajere and Lamiyo at 147 passers-by, followed by between Achol Pii and Pader TC at 67 passers-by.
- Pader Town is where there is the biggest trading centre around this area.

Table 11.1.6 OD table

Unit: Person

		Destination								
		Achol Pii	Ajere	Awere	Kilak	Kwon Kic	Lamiyo	Ojur	Pader TC	Rackoko
Origin	Achol Pii								46	
	Ajere						147		2	
	Kilak								37	
	Kwon Kic				10		6			
	Lamiyo		22			6	3		7	
	Ojur		10			5			5	
	Pader TC	4			44		29			5
	Rackoko								20	

Source: JICA Study Team

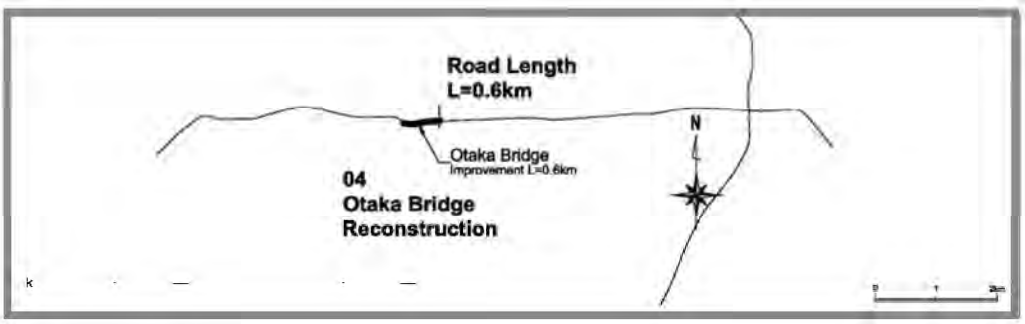
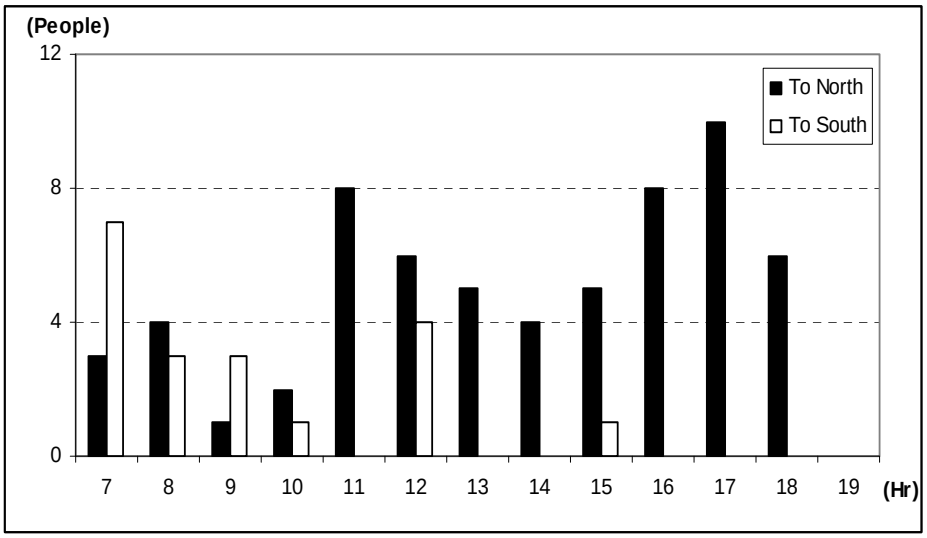


Figure 11.1.29 Map for Origin and Destination (Section 4)

(5) Section 5 (Dawa Bridge)

1) Number of passers-by

- Total number of the passer-by is 81 people on the both way per 12 hours.
- The number of the passer-by to North is more than to South.
- There are many people going to both North and south in the evening.



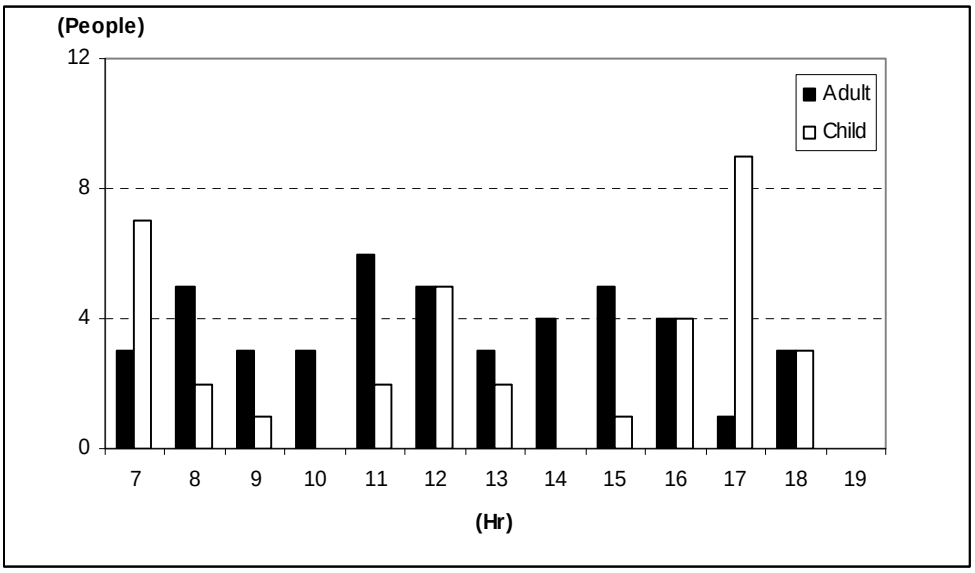
	To North	To South
7	3	7
8	4	3
9	1	3
10	2	1
11	8	
12	6	4
13	5	
14	4	
15	5	1
16	8	
17	10	
18	6	
19		
Total	62	19

Source: JICA Study Team

Figure 11.1.30 Number of passers-by per direction

2) Age

- Over 60% of total passers-by are over 20 years old. Only a few children are seen in the morning and evening.



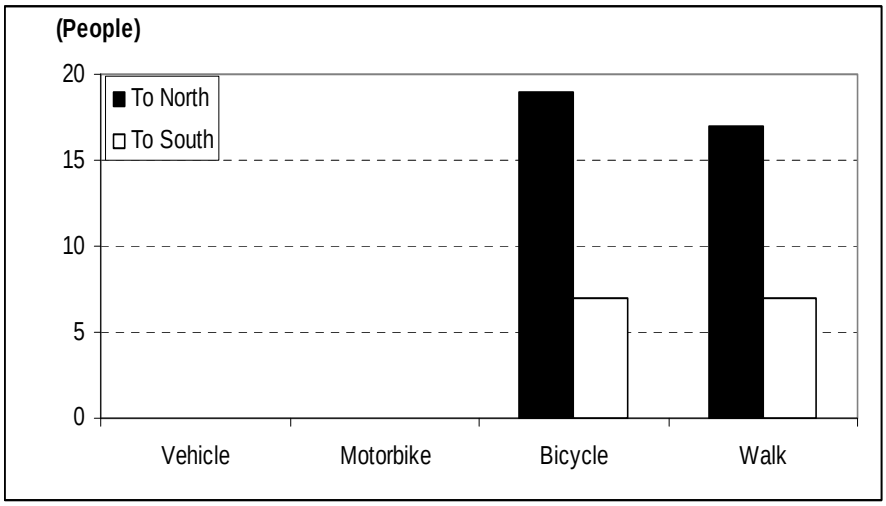
	Adult	Child
7	3	7
8	5	2
9	3	1
10	3	
11	6	2
12	5	5
13	3	2
14	4	
15	5	1
16	4	4
17	1	9
18	3	3
19		
Total	45	36

Source: JICA Study Team

Figure 11.1.31 Number of passer-by per age

3) Transportation type

- No vehicles or motorbikes can go across the bridge.(Bridge inaccessible)
- Almost the same number of bicycles and people walking on foot cross the bridge.

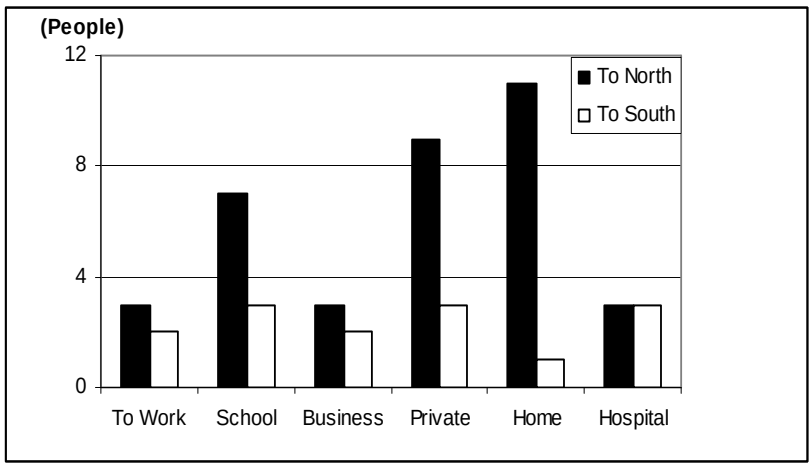


	To North	To South
Vehicle		
Motorbike		
Bicycle	19	7
Walk	17	7
Total	36	14

Figure 11.1.32 Number of passer-by per transportation type

4) Trip purpose

- This bridge is mostly used for social purposes such as going home, private trips and school as well as other use like going to the hospital, work and business trips.
- Most people live on the Northern side of the bridge.



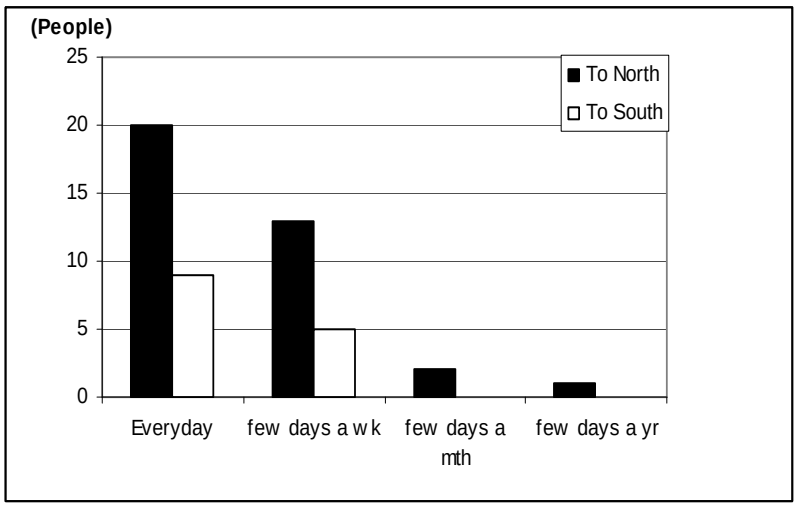
	To North	To South
To Work	3	2
School	7	3
Business	3	2
Private	9	3
Home	11	1
Hospital	3	3
Total	36	14

Source: JICA Study Team

Figure 11.1.33 Number of passer-by per trip purpose

5) Trip frequency

- Most passers-by responded that they use this route everyday.
- This route and bridge is used by the people who pass this route regularly.



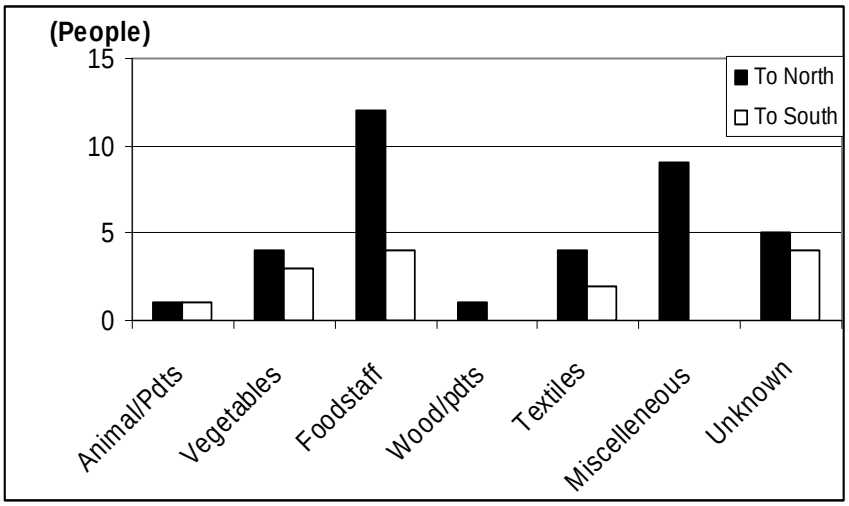
	To North	To South
Everyday	20	9
few days a wk	13	5
few days a mth	2	
few days a yr	1	
Total	36	14

Source: JICA Study Team

Figure 11.1.34 Number of passer-by per trip frequency

6) Commodity type conveyed

- 32% of passers-by carry food products across the bridge.
- Many passers-by also convey many kinds of commodities which mean that this route is used for business purpose.



	To North	To South
Animal/Pdts	1	1
Vegetables	4	3
Foodstuffs	12	4
Wood/Pdts	1	
Textiles	4	2
Miscellaneous	9	
Unknown	5	4
Total	36	14

Figure 11.1.35 Commodity type conveyed by passers-by

7) Origin-Destination and travel time

- OD table below shows the number of passer-by on the sub-village which has over 3 trips.
- The OD pair which has the largest number of trip is between Binya and Acet at 21 people and Te Aceng and Layoko at 21 people also.
- The trip distance is much shorter other project roads. Most of the passers-by have the origin or destination from within the sub-county.

Table 11.1.7 OD table

Unit: Person

		Destination			
		Acet	Binya	Layoko	Te Aceng
Origin	Acet			6	
	Binya	21	1	13	13
	Layoko	2			
	Te Aceng			21	

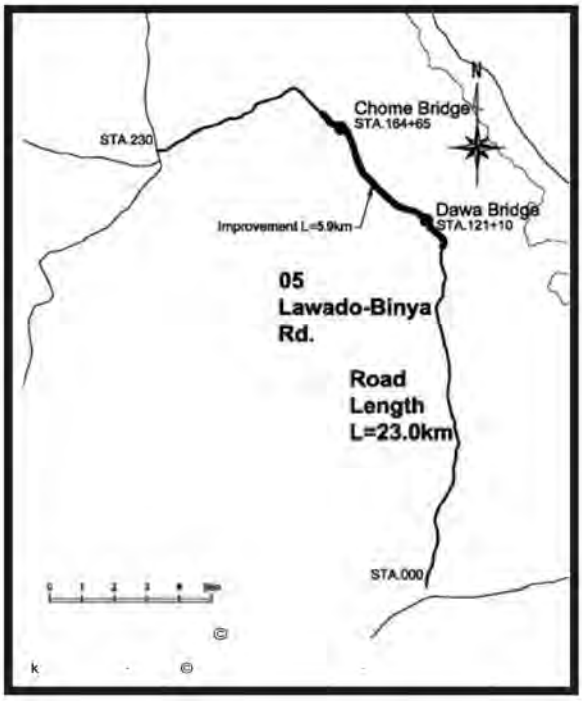
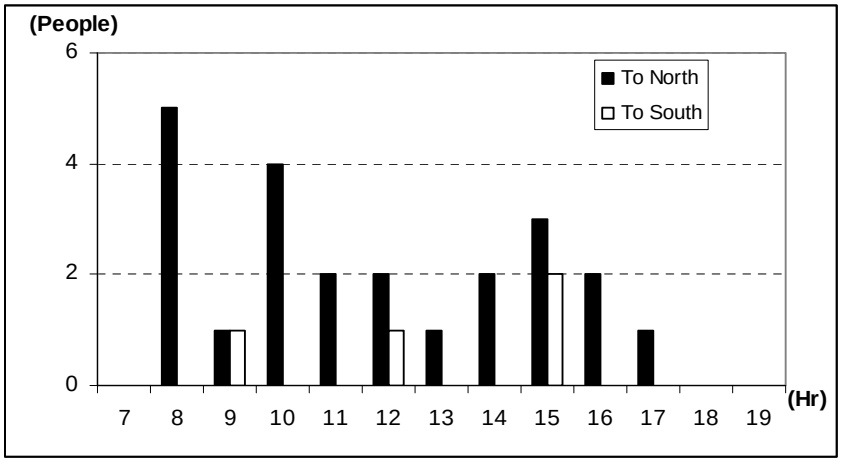


Figure 11.1.36 Map for Origin and Destination (Section 5)

(6) Section 5 (Chome Bridge)

1) Number of passers-by

- Total number of the passer-by is 27 people on the both way per 12 hours.
- The number of the passer-by to North is more than to South.



Hour	To North	To South
7		
8	5	
9	1	1
10	4	
11	2	
12	2	1
13	1	
14	2	
15	3	2
16	2	
17	1	
18		
19		
Total	23	4

Source: JICA Study Team

Figure 11.1.37 Number of passers-by per direction

2) Age

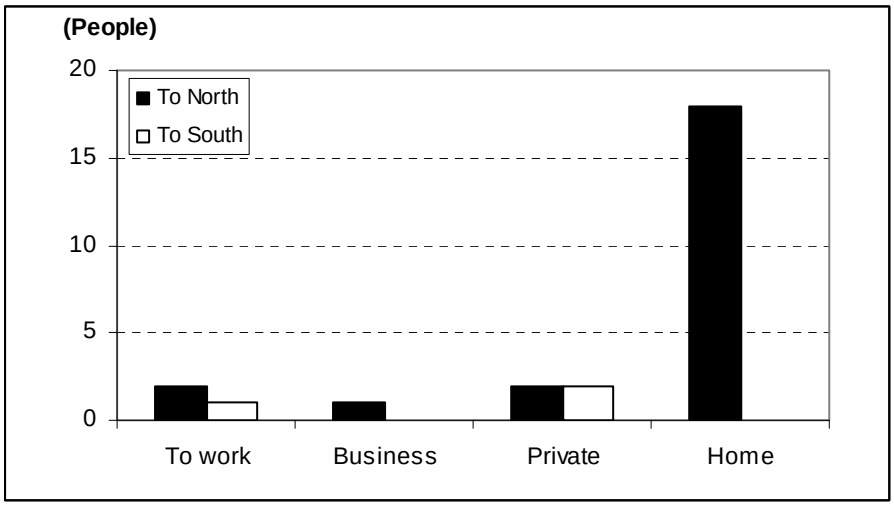
- All passers-by recorded on the survey day were above 20 years, no child was recorded.
- This may imply that this road is only used by adults since children can not cross the bridge because of its dangerous state.

3) Transportation type

- All except one passer-by accessed the bridge on foot.
- The 1 out of 26 passers-by used a bicycle but did not cross the bridge with it.

4) Trip purpose

- This bridge is mostly crossed by people going back home and people going for work. Private trips are also made across but for school as well as other uses like going to the hospital and business trips, the bridge is not accessible.
- Most people live on the Northern side of the bridge.



	To North	To South
To work	2	1
Business	1	
Private	2	2
Home	18	
Total	23	3

Source: JICA Study Team

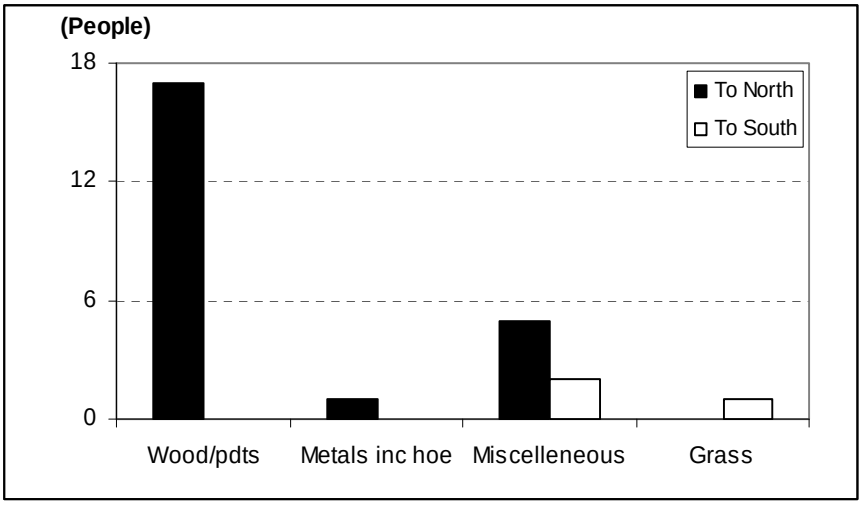
Figure 11.1.38 Number of passer-by per trip purpose

5) Trip frequency

- All passers-by were recorded as people who cross this bridge on a daily basis.
- This route and bridge is used by the people who pass this route regularly.

6) Commodity type conveyed

- 65.3% of commodities conveyed by passers-by across the bridge is firewood
- 29.9% passers-by convey nothing (miscellaneous) which means that this route is used for social purpose probably because the bridge is almost impassable and most people preferably use a longer alternative road.



	To North	To South
Wood/pdts	17	
Metals inc hoe	1	
Miscelleneous	5	2
Grass		1
Total	23	3

Figure 11.1.39 Number of pas

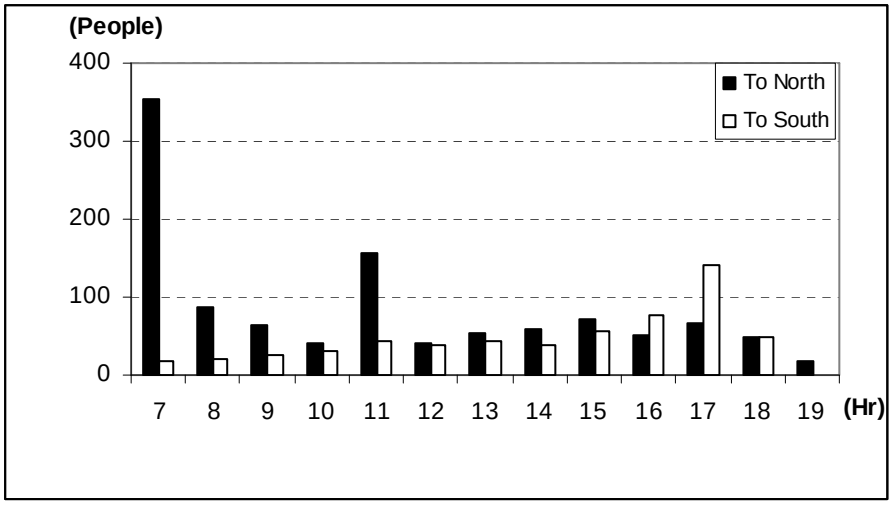
7) Origin-Destination

- The OD pair which has the largest number of trip is between Omel A and Layoko at 22 passers-by.
- The trip distance is much shorter other project roads. Most of the passers-by have the origin or destination from within the two sub counties of Paicho and Odek sub-counties.

(7) Section 6 (Olwiyo-Anaka Road)

1) Number of passers-by

- Total number of the passers-by was 1698 people on both ways in 12 hours.
- The number of the passers-by going to the North is more than that heading to the South, which means that the bridge is used most by the people living in the Southern side of the road.
- There are more passers-by (mostly school going pupils) going to the North in the morning.



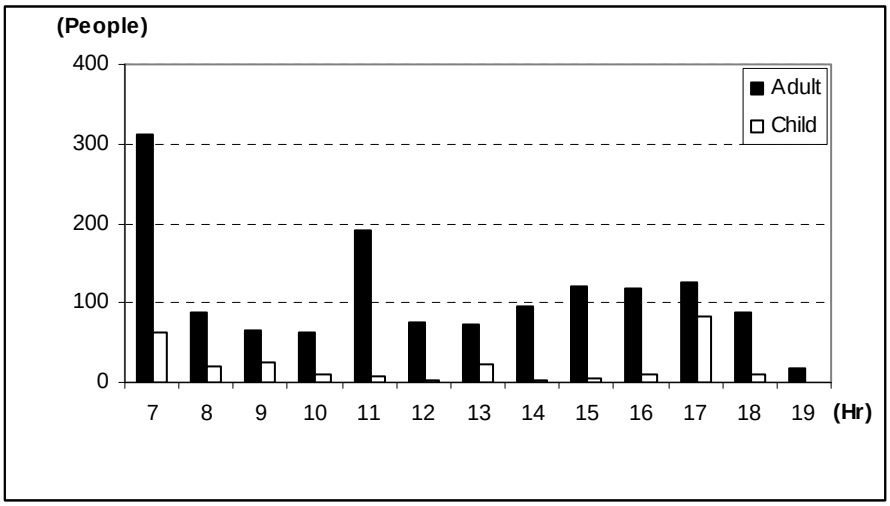
	To North	To South
7	355	19
8	87	21
9	65	26
10	40	32
11	156	43
12	41	38
13	53	43
14	60	39
15	72	56
16	52	76
17	67	142
18	50	48
19	17	
Total	1115	583

Source: JICA Study Team

Figure 11.1.40 Number of passer-by per direction

2) Age

- Majority of total passer-by is over 20 years old(Adult)
- Many children go across the river in the morning and evening



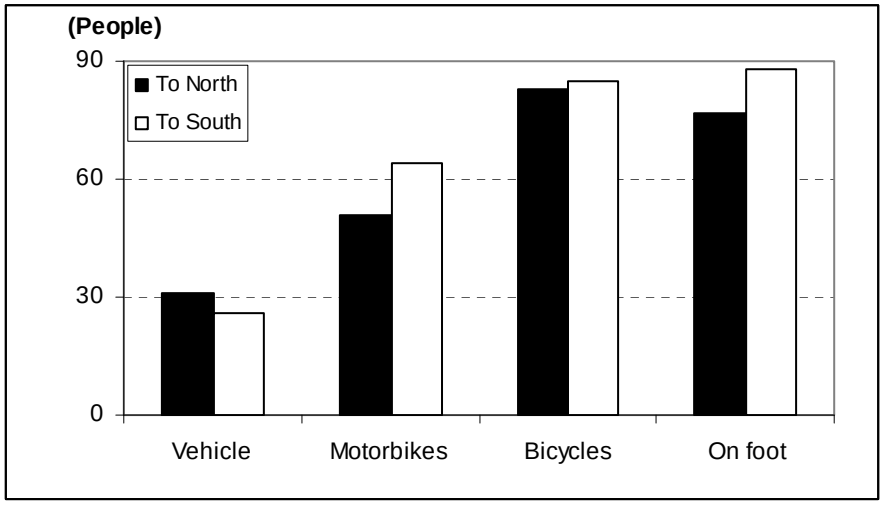
	Adult	Child
7	311	63
8	87	21
9	65	26
10	62	10
11	192	7
12	76	3
13	73	23
14	96	3
15	122	6
16	117	11
17	125	84
18	88	10
19	17	
Total	1431	267

Source: JICA Study Team

Figure 11.1.41 Number of passer-by per age

3) Transportation type

- Most of the people travel along this road by bicycle and on foot.
- 57 vehicles were recorded along the road and 115 motorbikes (mostly being used to carry passengers)
- Olwiyo- Anaka has been recorded as one of the busiest roads for the whole project as well as project 4 (Ottaka Bridge)



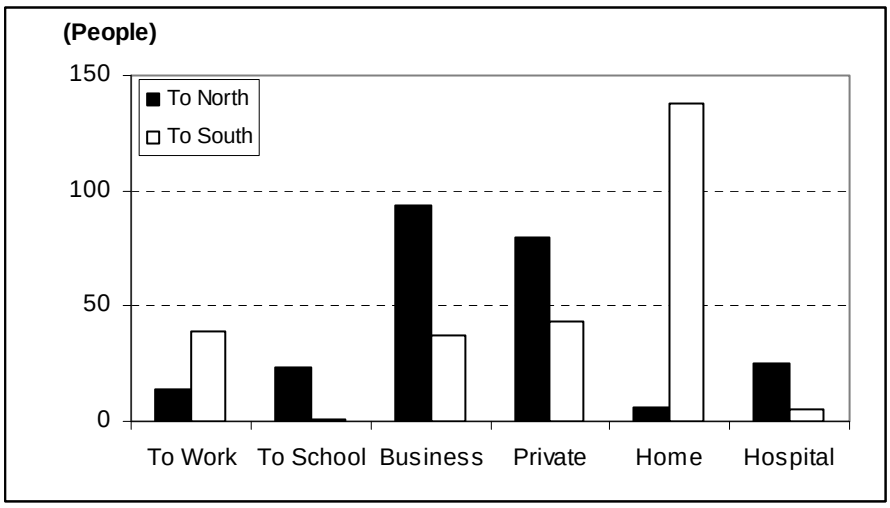
	To North	To South
Vehicle	31	26
Motorbikes	51	64
Bicycles	83	85
On foot	77	88
Total	242	263

Source: JICA Study Team

Figure 11.1.40 Number of passer-by per transportation type

4) Trip purpose

- Over 130 people go to the south on purpose of going back home, which means that most of people passing the river live in the South side of the road.
- To the North, business and private trips take the largest number.
- Also, most schools are located on the Northern side of the road.



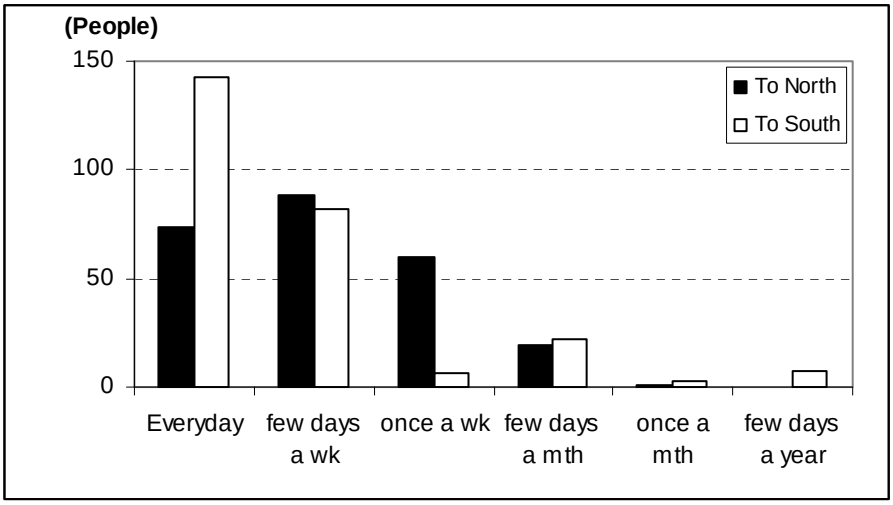
	To North	To South
To Work	14	39
To School	23	1
Business	94	37
Private	80	43
Home	6	138
Hospital	25	5
Total	242	263

Source: JICA Study Team

Figure 11.1.41 Number of passer-by per trip purpose

5) Trip frequency

- 42.9% of passers-by(trips) go across the road everyday.
- 33.8% of passer-by (trips) use the road a few days 6 week and only a few use the road once a month and a few days a year.



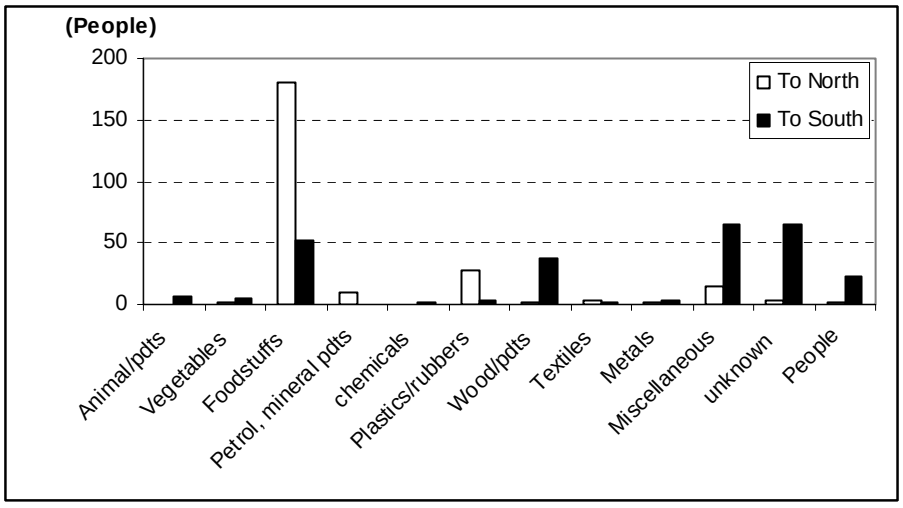
	To North	To South
Everyday	74	143
few days a wk	88	82
once a wk	60	6
few days a mth	19	22
once a mth	1	3
few days a year		7
Total	242	263

Source: JICA Study Team

Figure 11.1.42 Number of passer-by per trip frequency

6) Commodity type conveyed

- Most of the passers-by convey foodstuffs while moving across the road.
- Many motorbikes and vehicles are used to carry passengers along the road.



	To North	To South
Animal/pdts		6
Vegetables	1	5
Foodstuffs	180	52
Petrol, mineral pdts	10	
chemicals		1
Plastics/rubbers	28	4
Wood/pdts	1	37
Textiles	3	1
Metals	1	4
Miscellaneous	14	65
unknown	3	65
People	1	23
Total	242	263

Source: JICA Study Team

Figure 11.1.43 Commodity type conveyed by passer-by

7) Origin-Destination and travel time

- OD table below shows the number of passer-by on the sub-village which has over 8 trips.
- The OD pair which has the largest number of trip is between Aparanga and Paduny at 239 passers-by, followed by between and Gulu at 89 passers-by.
- Kal (Anaka centre) is where there is the biggest trading centre around this area.

Table 11.1.8 OD table

Unit: Person

		Destination						
		Aparanga	Gulu Town	Kal / Puorngo	Kibar	Latoro	Paduny	Pakwach
Origin	Aparanga		22				239	
	Gulu Town	12	8			7		75
	Kal / Purongo		41				92	
	Kibar		7					
	Latoro		61				36	
	Paduny	42	3	3		7		
	Pakwach		89				2	

Source: JICA Study Team

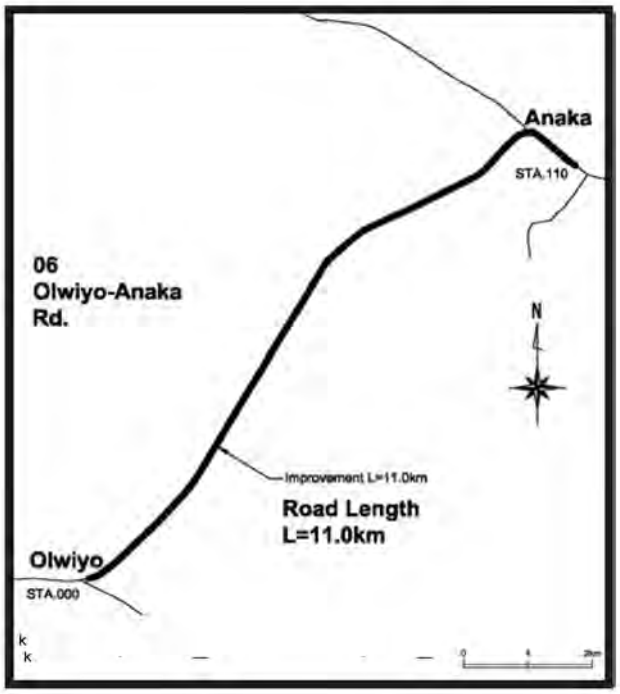


Figure 11.1.46 Map for Origin and Destination (Section 6)

11.2 Community Interview Survey

11.2.1 Methodology

It is expected that the urgent projects will bring a change of lives to people who live near the bridges and roads, in terms of accessibilities in particular. Therefore, in addition to the origin-destination survey, interview surveys at several communities on the roads were conducted.

Three sub-villages (Tee Rwot Kweri[1]) were selected along the bridges and roads. So, eighteen sub-villages were selected for the interview survey in total. At the selected sub-villages, sub-village leaders were asked about their current lives there; such as population, accessibility to major trading centres, agriculture, and accessibility to social services.

[1] A LCI (village) is composed of several sub-villages called Tee Rwot Kweri. It can be said that Tee Rwot Kweri is the smallest unit of community in the region although it is not an administration unit.

The outline of the community interview survey is shown in the tables below. The questionnaire is attached to the report as an appendix.

Table 11.2.1 Outline of the Survey

	Sec 1 (Owoo-Pabbo)	Sec 2 (Paloga-palacam)	Sec 3 (Laminlatoo-Lamoki)	Sec 4 (Ottaka bridge)	Sec 5 (Lawodo-Binya)	Sec 6 (Olwiyo-Anaka)
Target Sub-village (Village)	Baubi A Olet B Adak A	Labedo oceti Cwinymuribe B Yweyo pe	Lacen otinga Gogo Onyomtill	Omwodlum Buluzi Ajer	Oarlalur Ading Akamdyang	Olong Dog akago Aria East
Survey Date	20th Oct 2010	11th Nov 2010	12th Oct 2010	4th Nov 2010	29th Oct 2010	23rd Nov 2010
Methodology	Interview survey by prepared questionnaire					
Interviewee	Sub-village Leader					
Interview Items	See Table 16.2.2					

Source: JICA Study Team

Figure 11.2.1 Photos of Community Interview Survey

Table 11.2.2 Interview Items

	All sections (1-6) of the Urgent Projects	
Interview Information	1. Date 2. Interviewee 3. Occupation	
Address of the Site	1. Sub-county 2. Parish 3. Village 4. Sub-village (Tee Rwot Kweri)	
Outline of the Site	1. Population 2. Number of household 3. Population by type (Returned villagers, villagers in transition, villagers outside the village)	
Transportation	1. Access from the village to Anaka (on foot, by bicycle, by motorcycle, by car) 2. Access from the village to Amuru (on foot, by bicycle, by motorcycle, by car)	1. Access from the village to Purongo (on foot, by bicycle, by motorcycle, by car) 2. Access from the village to Packwach (on foot, by bicycle, by motorcycle, by car) 3. Access from the village to Amuru (on foot, by bicycle, by motorcycle, by car)
Agriculture	1. Information of agriculture (major crops, major cash crops) 2. Amount and selling prices of major cash crops (planted area, produced amount per acre, selling amount per acre, selling prices per bag, number of sole bag) 3. Information of agricultural marketing (where to sell, how to sell, how to bring) 4. Cost of goods transportation (destination, origin, way of transportation, cost of goods transport per amount)	
Education	<u>Access to Primary School</u> 1. % of children going to primary school 2. Name of primary schools children go 3. Access to the first school (on foot, by bicycle, by motorcycle, by car) 4. Access to the second school (on foot, by bicycle, by motorcycle, by car) <u>Access to Secondary School</u> 5. % of children going to secondary school 6. % of children residing outside the village 7. Name of secondary schools children go 8. Access to the first school (on foot, by bicycle, by motorcycle, by car) 9. Access to the second school (on foot, by bicycle, by motorcycle, by car)	
Health	1. Name of health centres people go 2. Access to the first health centre (on foot, by bicycle, by motorcycle, by car) 3. Access to the second health centre (on foot, by bicycle, by motorcycle, by car)	
Water	1. Number of water sources people use 2. Access to the first nearest water source (on foot, by bicycle, by motorcycle, by car) 3. Type of the first nearest water source 4. Condition of the first nearest water source 5. Access to the second nearest water source (on foot, by bicycle, by motorcycle, by car) 6. Type of the second nearest water source 7. Condition of the second nearest water source 8. Access to the third nearest water source (on foot, by bicycle, by motorcycle, by car) 9. Type of the third nearest water source 10. Condition of the third nearest water source	
Expected changes the bridge construction brings	Open end	

Source: JICA Study Team

11.2.2 Result of Community Interview Survey

Results of selected items are described below by Section. Whole results are attached to the report as an appendix.

(1) Section 1 (Owoo- Pabbo road)

1) Northern Side

Baubi A sub-village was selected as survey sites for the northern side the bridge. Summary of the interview survey is shown in Table 11.2.4. At these sub-villages, people sell their agricultural products to middlemen at the major trading centre (Pabbo) and also to middlemen in Gulu. The most popular secondary in Pabbo is Pabbo secondary school and the most popular health unit among people in this sub-village is Lacor (Pabbo) Hospital and it takes about 2 hours on foot to reach the hospital from there. Looking at these results, connection between these sub-village to Pabbo is stronger than connection between the sub-village to Owoo .

The survey also asked what kinds of changes people on the target road expect by the bridge construction. Table 11.2.3 shows answers from the sub-villages. They answer that the bridge construction will make distance to Gulu and Pabbo be shortened giving easy access to market and easy transportation of agricultural products to centres.

Table 11.2.3 Expected Changes (Section 1, Northern Side)

Survey Item	Baubi A	
Expected Changes	• Distance to Gulu and Pabbo will be shortened giving easy access to market • Transportation of agricultural products to centres will be made easy • Easy access to schools by school going pupils • Centres will be created within the villages • Development in the area may result when facilities like water points and hospitals are brought into the villages as a result of access • Lives will be saved m ore easily incase of emergencies to the hospitals since vehicles will easily access the villages • Incase of another rebellion, people living along the roadside and the village at large will be easily accessed.	•

Source: JICA Study Team

Table 11.2.4 Summary of Results (Section 1, Northern Side)

Survey Item		Baubi A	
Sub-county, Parish		Pabbo, Paomo	
Access to Pabbo			
	On foot	3 hrs	
	By bicycle	1.5hrs	
	By motorcycle	20mins	
	By car	30mins	
Access to Gulu			
	On foot	6hrs	
	By bicycle	4hrs	
	By motorcycle	1.5hrs	
	By car	2hrs	
Marketing Information			
	Cash crop	Rice	
	Selling place	• Sell to middlemen at the major trading centre (Pabbo) • Sell to middlemen in Gulu	
	Transportation	By bicycle	
	Cost of transportation		
	Route	Baubi A- Pabbo	
	Way of transportation	Bicycle	
	Cost in Ushs	-	
Education			
	Popular primary school	Pabbo primary school	
	Access to the school		
	On foot	2hrs	
	By bicycle	1.5hrs	
	By motorcycle	20mins	
	By car	30mins	
	Nearest secondary school	Pabbo Senior Secondary school	
	% of secondary school students living outside	40%	
Health			
	Popular health unit	Pabbo- Lacor hospital	
	Access to the health unit		
	On foot	2hrs	
	By bicycle	1.5hrs	
	By motorcycle	20mins	
	By car	30mins	

Source: JICA Study Team

2) Southern Side

In the southern side of urgent project section 1 bridge, Adak A sub-village and Olet B sub-village were the survey sites. Since they are close to Pabbo major trading centre in Amuru, it seems that their connection with Pabbo is very strong. They Sell to middlemen in Gulu and also to middlemen at the major trading centre (Pabbo). Besides, they mostly use Pugwinyi HC2 and Kulu Opal HC2 as their main health facility. It should be noted that all secondary school students live outside the sub-villages.

As shown in Table 11.2.5, they consider the bridge construction will improve education level in the area since pupils will easily access school especially during the rainy season. They also consider that the bridge construction will reduce the rate of accidents on the bridge. Furthermore, they expect economic expansion in their own sub-villages.

Table 11.2.5 Expected Changes (Section 1, Southern Side)

Survey Item	Olet B	Adak A
Expected Changes	• .Development in the area will be registered due to increase in market for agricultural products • Education level will improve among pupils since they'll be able to access school • Easy access to Pabbo (Lacor) hospital hence, better improved health • Route to Gulu will be shortened • Reduction of accidents on the bridge • Employment opportunities to the youth during construction • Influx of thugs	• Easy access to hospital incase of emergencies • Easy transportation of agricultural products • Less accidents will be recorded along the river • Movements within and between the villages will improve • Social interaction within villages will improve • Development in the village will result since business will boom • Poverty reduction among villagers

Source: JICA Study Team

Table 11.2.6 Summary of Results (Section 1, Southern Side)

Survey Item		Olet B	Adak A
Sub-county, Parish		Patiko Pugwinyi	Patiko Pugwinyi
Access to Pabbo			
	On foot	3 hrs	4 hrs
	By bicycle	1.5 hrs	2.5hrs
	By motorcycle	50 mins	1.5hrs
	By car	1hr	2hrs
Access to Gulu			
	On foot	5 hrs	6hrs
	By bicycle	3 hrs	3hrs
	By motorcycle	50 mins	1.5hrs
	By car	1 hr	2hrs
Marketing Information			
	Cash crop	Rice	Rice
	Selling place	• Sell to middlemen in Gulu • Sell to middlemen at the major trading centre (Pabbo)	• Sell to middle men in Gulu • Sell to middlemen at the major trading centre
	Transportation	-Bicycle and car/public transport	By bicycle and car/ public transport
	Cash crop	Simsim	Groundnuts
	Selling place	• Sell to middlemen in Gulu • Sell to middlemen at the major trading centre (Pabbo)	• Sell to middlemen in Gulu • Sell to middlemen at the major trading centre (Pabbo)
	Transportation	By bicycle and car/public transport	By bicycle and car/public transport
	Cost of transportation		
	Route	-Olet B -Gulu	Owoo to Gulu
	Way of transportation	-As a passenger of a private truck	As a passenger of a private truck
	Cost in Ushs	-5,000 per person, 3,000 per bag	5,000 per person (one way) and 4,000 per bag
Education			
	Popular primary school	Kulu Opal P/S	Kulu Opal P/S
	Access to the school		
	On foot	School within the sub-village	School within the sub-village
	By bicycle	-	-
	By motorcycle	-	-
	By car	-	-
	Nearest secondary school	Pabbo Senior Secondary School	Pabbo Senior Secondary School
	% of secondary school students living outside	100%	100%
Health			
	Popular health unit	Pugwinyi HC2	Kulu Opal HC2
	Access to the health unit		
	On foot	Health Centre the sub village	Health Centre within the sub-village
	By bicycle	-	
	By motorcycle	-	
	By car	-	

Source: JICA Study Team

(2) Section 2 (Paloga-Palacam)

1) Northern Side

In the northern side of Section 2 bridge, the survey was conducted in Labedo Oceti and Cwiny muribbe A sub-villages in Potika, Agoro Sub-county. Villagers in these sub-villages mainly sell their products in Potika and also to middlemen who come to the villages. For a health facility, they mostly use Potika Health centre 2.

Regarding the expectations towards the bridge construction, people in the sub-villages expect better connection within the villagers, thus improving trade and income. Also, they expect fewer accidents on the bridge making movements easier.

Table 11.2.7 Expected Changes (Section 2, Northern Side)

Survey Item	Labedo Oceti	Cwinymuribe B
Expected Changes	• Trade will be made easier due to easy transportation • Villages will be connected • Easy access to marketability • No accident on the bridge since it will be in good condition • Easy access to hospital	• Improved health within the village since access to proper health will be granted • School access will increase • Trade will improve •

Source: JICA Study Team

Table 11.2.8 Summary of Results (Section 2, Northern Side)

Survey Item		Labedo Oceti	Cwinymuribe A
Sub-county, Parish		Potika	Potika
Access to Paloga			
	On foot	2hrs	3hrs
	By bicycle	50mins	1hr
	By motorcycle	30mins	15mins
	By car	30mins	13mins
Access to Lamwo			
	On foot	6hrs	5hrs
	By bicycle	2.5hrs	3hrs
	By motorcycle	1hr	1hr
	By car	1.5hrs	45mins
Access to Kitgum			
	On foot	12hrs	10hrs
	By bicycle	6hrs	4hrs
	By motorcycle	2hrs	1.5hrs
	By car	1.5hrs	1hr
Marketing Information			
	Cash crop	Simsim	cotton
	Selling place	• Sell to middlemen at the near trading centre (Potika)	• Sell to middlemen at a near trading centre • Sell to middlemen who come to the village
	Transportation	By bicycle	By bicycle
	Cash crop	Beans	Simsim
	Selling place	• Sell to middlemen at the near trading centre (Potika)	• Sell to middlemen at the near trading centre • Sell to middlemen who come to the village
	Transportation	By Bicycle	By bicycle and car/public transport
	Cost of transportation		
	Route	Paloga- Potika	Potika centre- Lamwo
	Way of transportation	Bicycle	As a passenger of a private truck
	Cost in Ushs	-	5,000 per person (one way) and 3,000 per bag
Education			
	Popular primary school	Potika P/S	Potika P/S
	Access to the school		
	On foot	School within the sub-village	School within the sub-village
	By bicycle	-	-
	By motorcycle	-	-
	By car	-	-
	Nearest secondary school	Kitgum High School	Integrated High School
	% of secondary school students living outside	40%	100%
Health			
	Popular health unit	Potika Health Centre	Potika HC2
	Access to the health unit		
	On foot	Health centre within the sub-village	Health Centre within sub-village
	By bicycle	-	-
	By motorcycle	-	-
	By car	-	-

Source: JICA Study Team

2) Southern Side

Yweyo pee sub-village was targeted for the survey. People in these sub-village sell their agricultural products mostly to middlemen who come to the village and also to the near trading centre (Potika) . From this sub-village the most popular primary school is Palacam Primary school and Potika HC2 for the most popular health service provision.

People in the sub-villages expect that they can increase agricultural productivity since easy transportation will be guaranteed. Also, the road will be more easily accessible and less muddy during the rainy season checking on the accident rates on the road.

Table 11.2.9 Expected Changes (Section 2, Southern Side)

Survey Item	Yweyo pee	
Expected Changes	• Easy transportation of agricultural products to the markets • Reduced cost of transport • Increase in agricultural production since transportation is assured • easy access to schools • reduction in accidents on the road • easy access to hospital • Linking villages.	•

Source: JICA Study Team

Table 11.2.10 Summary of Results (Section 2, Southern Side)

Survey Item		Yweyo pee	
Sub-county, Parish		Pawach	
Access to Paloga			
	On foot	3hrs	
	By bicycle	2hrs	
	By motorcycle	30mins	
	By car	30mins	
Access to Lamwo			
	On foot	6hrs	
	By bicycle	3hrs	
	By motorcycle	2hrs	
	By car	2hrs	
Access Kitgum			
	On foot		
	By bicycle		
	By motorcycle		
	By car		
Marketing Information			
	Cash crop	Cotton	
	Selling place	• Sell to middlemen at the major trading centre	•
	Transportation	By bicycle and Car	
	Cash crop	Beans	
	Selling place	• Sell to middlemen who come to the village • Sell to middlemen at a major trading centre	•
	Transportation	By bicycle and Car	
	Cost of transportation		
	Route	Potika -Kitgum	
	Way of transportation	As a passenger of a private truck	
	Cost in Ushs	5,000 per person (one way) and 3,000 per bag	
Education			
	Popular primary school	Palacam P7	
	Access to the school		
	On foot	School within the sub-village	
	By bicycle		
	By motorcycle		
	By car		
	Nearest secondary school	Comprehensive	
	% of secondary school students living outside	100%	
Health			
	Popular health unit	Potika HCII	
	Access to the health unit		
	On foot	1.5hrs	
	By bicycle	40mins	
	By motorcycle	20 mins	
	By car	N/A	

Source: JICA Study Team

(3) Section 3 (Lamoki- Laminlatoo road)

1) Northern Side

Lacen otinga and Gogo sub-villages were selected as survey sites for the northern side the bridge. Summary of the interview survey is shown in Table 11.2.12. At these sub-villages, people sell their agricultural products to middlemen who come to the villages from near trading centres (Anaka and Koch goma) and also from major towns like Gulu and Lira. The most popular secondary is Anaka Pope Paul IV and the most popular health unit among people in this sub-village is Anaka Hospital and it takes about 3.5 hours on foot to reach the hospital from there.

The survey also asked what kinds of changes people on the target road expect by the bridge construction. Table 11.2.11 shows answers from the sub-villages. They answer that the bridge construction will make access to Anaka hospital much easier. In addition, transportation of agricultural products to major trading centres would be much easier and cheaper since vehicles will be accessing the villages.

Table 11.2.11 Expected Changes (Section 3, Northern Side)

Survey Item	Lacen Otinga	Gogo
Expected Changes	• Business will boom between Anaka and Koch Goma • Hospital (Anaka) will be easily accessible especially to Koch Goma community • The surrounding communities will attain centre status since it will become busy • Education standard will improve • The road will also grant access to the other stakeholders who may input new skills to the villagers • Increase to productivity due to better transportation means • Better health may be realised as a result of better standard of living. • Accident rates within the villages may increase since more vehicles will gain access through the villages • Theft may increase	• Transportation of agricultural products will increase • Markets will be readily available for products • More productivity through access to equipments • New centres may come up • Easy access to hospital, improving health • Accidents will greatly reduce especially on the bridge • Accidents may also increase due to increase in vehicles using the road.

Source: JICA Study Team

Table 11.2.12 Summary of Results (Section 3, Northern Side)

Survey Item		Lacen Otinga	Gogo
Sub-county, Parish			
Access to Gulu			
	On foot	8hrs	8hrs
	By bicycle	4hrs	4hrs
	By motorcycle	1.5hrs	1hr
	By car	3hrs	2.5hrs
Access to Anaka			
	On foot	4hrs	3hrs
	By bicycle	2hrs	2hrs
	By motorcycle	2hrs	2hrs
	By car	3hrs	4hrs
Koch goma			
	On foot	4hrs	5hrs
	By bicycle	2hrs	2hrs
	By motorcycle	40mins	30mins
	By car	1hr	1hr
Marketing Information			
	Cash crop	Rice	Rice
	Selling place	• Sell to middlemen who come to the village(from Gulu and Lira) • sell to middlemen at the major trading centre(Gulu) • Sell to middlemen at the near trading centre (Koch goma, Anaka)	• Sell to middlemen who come to the village (Koch goma and Anaka)
	Cash crop	Groundnuts	Groundnuts
	Selling place	• Sell to middlemen who come to the village(from Gulu and Lira) • sell to middlemen at the major trading centre(Gulu) Sell to middlemen at the near trading centre (Koch goma, Anaka	• Sell to middlemen who come to the village (Koch goma and Anaka) •
	Cash Crop	simsim	
	Selling place	• Sell to middlemen who come to the village(from Gulu and Lira) • sell to middlemen at the major trading centre(Gulu) Sell to middlemen at the near trading centre (Koch goma, Anaka	
	Transportation	By bicycle, Car	
	Cost of transportation		
	Route	Agonga B –Anaka and Koch Goma and Amar to Gulu	Agonga B to Anaka and Koch goma
	Way of transportation	Bicycle and car	
	Cost in Ushs	5,000Ush per bag, 6,000Ush per person	
Education			
	Popular primary school	Laminlatoo P/S	Laminlatoo P/S
	Access to the school		
	On foot	School within the sun-village	1hr
	By bicycle		30mins
	By motorcycle		10mins
	By car		20mins
	Nearest secondary school	Anaka Pope Paul	Koch Goma
	% of secondary school students living outside	80%	90%

Survey Item		Lacen Otinga	Gogo
Health			
	Popular health unit	Anaka Hospital	Anaka Hospital
	Access to the health unit		
	On foot	4hrs	3hrs
	By bicycle	2hrs	2hrs
	By motorcycle	2hrs	1hr
	By car	2.5hrs	1.5hrs

Source: JICA Study Team

2) Southern Side

In the southern side of urgent project Section 3, Onyomtil sub-village in Anaka subcounty, Ywaya parish was the survey site. They sell their agricultural products to middlemen who come from Anaka and Gulu as well as they take them to Anaka and Gulu for selling. Besides, they mostly use Anaka hospital as their main health facility. It should be noted that few secondary school students live outside the sub-village compared to other surveyed sub-villages.

As shown in Table 11.2.13, they consider the bridge construction will improve accessibility to Gulu and Koch goma. Also, the bridge and road construction will enable the sub village to attain centre status since it may become a busy route.

Table 11.2.13 Expected Changes (Section 3, Southern Side)

Survey Item	Onyomtill	
Expected Changes	• .Transportation will be made easy to Koch goma and Gulu • School going children will easily access school • Easy access to hospital(Anaka hospital and Gulu hospitals) • Social interaction within the villages will increase • Development of centres along the road may occur • Markets will be readily available for agricultural products since many people will be able to access the villages • Accident rates within the villages may increase • Elephants may invade the villages and cause damages since they will also be able to use the bridge.	•

Source: JICA Study Team

Table 11.2.14 Summary of Results (Section 3, Southern Side)

Survey Item		Onyomtill	
Sub-county, Parish			
Access to Gulu			
	On foot	10hrs	
	By bicycle	4hrs	
	By motorcycle	2hrs	
	By car	2.5hrs	
Access to Anaka/Nwoya			
	On foot	2hrs	
	By bicycle	1hr	
	By motorcycle	30mins	
	By car	20mins	
Access to Koch goma			
	On foot	4hrs	
	By bicycle	3hrs	
	By motorcycle	1.5hrs	
	By car	2hrs	
Marketing Information			
	Cash crop	Rice	
	Selling place	• Sell to middlemen at the near trading centre (Anak) • Sell to middlemen at the major trading centre (Gulu)	•
	Transportation	-Bicycle and car/public transport	
	Cash crop	Groundnuts	
	Selling place	• Sell to middlemen at the near trading centre (Anak) • Sell to middlemen at the major trading centre (Gulu)	
	Transportation	By bicycle and car/public transport	
	Cost of transportation		
	Route	-Onyomtill- Anaka, Anaka-Gulu/Pakwach	
	Way of transportation	-As a passenger of a private truck, Bicycle	
	Cost in Ushs	-5,000 per bag, 6,000 per person	
Education			
	Popular primary school	Patira P/S	
	Access to the school		
	On foot	School within the sub-village	
	By bicycle	-	-
	By motorcycle	-	-
	By car	-	-
	Nearest secondary school	Anaka Pope Paul	
	% of secondary school students living outside	40%	
Health			
	Popular health unit	Anaka hospital	Kulu Opal HC2
	Access to the health unit		
	On foot	2hrs	Health Centre within the sub-village
	By bicycle	1hr	
	By motorcycle	30mins	
	By car	-	

Source: JICA Study Team

(4) Section 4 (Otaka bridge)

1) Northern Side

In the northern side of Section 4 of the urgent projects, the survey was conducted in Omwodlum and Ajer subvillages in Ojur Parish, Lamiyo subcounty.. Unlike villagers in the sub-villages surveyed for other sections, the villagers in these sub-villages have the liberty to trade their agricultural products to Gulu, Lira, Pader, Moroto district. As for a health facility, they mostly use Lamiyo Health Centre 2.

Regarding the expectations towards the bridge construction, people in the sub-villages expect to improve on the traffic flow on the bridge especially during the rainy season. Another expectation is that school going children will no longer suffer from the risk of crossing over a submerged bridge during the rainy season.

Table 11.2.15 Expected Changes (Section 4, Northern Side)

Survey Item	Omwod lum	Ajer
Expected Changes	• Easier transportation of goods especially during the rainy season • Heavy vehicles will have access to the villages giving markets and business to the villagers • Business will boom • Accidents and delays on the bridge will reduce • School going children will move easily during the rainy season • Employment opportunities to the youth during the construction will be availed • Accident rates may also increase since the road will be in perfect condition and vehicle will tend to over speed • During construction, traffic flow will be disorganised	• Traffic flow shall increase since the road provides a more direct route linkages to Pader, Agago, Lira and Gulu • Education ill be greatly supported since school going children will be able to access school even during heavy rainy seasons • The bridge if well constructed will facilitate easy transportation of produce

Source: JICA Study Team

Table 11.2.16 Summary of Results (Section 4, Northern Side)

Survey Item		Omwod-lum	Ajere
Sub-county, Parish		Ojur	Ojur
Access to Lira			
	On foot	24hrs	13hrs
	By bicycle	12hrs	6hrs
	By motorcycle	4hrs	4hrs
	By car	1.5hrs	5hrs
Access to Patongo			
	On foot	4hrs	6hrs
	By bicycle	2hrs	3.5hrs
	By motorcycle	1hr	2hrs
	By car	45mins	1.5hrs
Access to Pader			
	On foot	2hrs	3hrs
	By bicycle	1hr	1.5hrs
	By motorcycle	45mins	30mins
	By car	30mins	40mins
Marketing Information			
	Cash crop	Rice	Rice
	Selling place	• Sell to middlemen in Lira • Sell to the middlemen at the near trading centre (Lamiyo) • Sell to middlemen who come to the village (Lira and Gulu)	• Sell to middlemen in Lira
	Transportation	by Bicycle and car	By car
	Cash crop	Cotton	Beans
	Selling place	• Sell to a company who come to the village(Patongo) • Sell to middlemen at the near trading centre (Kwon kic)	• Sell to middlemen in Lira
	Transportation	By Bicycle and car(as a passenger)	By car
	Cost of transportation		
	Route	Lamiyo to Lira/Gulu, Omwodlum to Patongo	Lamiyo to Lira town
	Way of transportation	As a passenger and bicycle	As a passenger
	Cost in Ushs	3,000 per bag and 6,000 per person	4,000 per person, 3,000 per bag
Education			
	Popular primary school	Lamiyo	Lamiyo P/S
	Access to the school		
	On foot	1.5hrs	45mins
	By bicycle	30mins	10mins
	By motorcycle	15mins	5mins
	By car	2mins	7mins
	Nearest secondary school	Lagwai seed Secondary school	Lira Palwo S S
	% of secondary school students living outside	80%	70%
Health			
	Popular health unit	Lamiyo HC2	Lamiyo HC 2
	Access to the health unit		
	On foot	1.5hrs	45mins
	By bicycle	20mins	10mins
	By motorcycle	10mins	3mins
	By car	N/A	5mins

Source: JICA Study Team

2) Southern Side

Buluzi sub-village was targeted for the survey on the Southern side of the bridge. People in this sub-village take their agricultural products to near trading centre in Lamiyo. From this sub-village, the most popular schools are Lamiyo Primary School and Lira Palwo for secondary education. Lamiyo health centre 2 is the most utilised health facility.

People in the sub-villages expect that there'll be reduction of accidents on the bridge especially during rainy season.

Table 11.2.17 Expected Changes (Section 4, Southern Side)

Survey Item	Buluzi	
Expected Changes	• Increase in trade • Easy movement • Reduction in accident rate on the bridge • Speed may increase on the road increasing accidents	•

Source: JICA Study Team

Table 11.2.18 Summary of Results (Section 4, Southern Side)

Survey Item		Buluzi	
Sub-county, Parish		Ottaka	
Access to Lira			
	On foot	24hrs	
	By bicycle	12hrs	
	By motorcycle	4hrs	
	By car	1.5hrs	
Access to Patongo2			
	On foot	4hrs	
	By bicycle	2hrs	
	By motorcycle	1hr	
	By car	45mins	
Access Pader			
	On foot	2hrs	
	By bicycle	1hr	
	By motorcycle	45mins	
	By car	30mins	
Marketing Information			
	Cash crop	simsim	
	Selling place	• Sell to middlemen at an near trading centre	•
	Transportation	On foot and by bicycle	
	Cash crop	Cassava	
	Selling place	• Sell to middlemen at an near trading centre	•
	Transportation	On foot and by bicycle	
	Cost of transportation		
	Route	-	
	Way of transportation	on foot and by bicycle	
	Cost in Ushs	-	
Education			
	Popular primary school	Lamiyo P7	
	Access to the school		
	On foot	30mins	
	By bicycle	10mins	
	By motorcycle	5mins	
	By car	3mins	
	Nearest secondary school	Lira Palwo	
	% of secondary school students living outside	55%	
Health			
	Popular health unit	Lamiyo HC2	
	Access to the health unit		
	On foot	Health centre within the sub-village	
	By bicycle	-	
	By motorcycle	-	
	By car	-	

Source: JICA Study Team

(5) Section 5 (Lawodo- Binya)

1) Northern Side

Oralalur and Ading sub villagers were selected as survey sites for the northern side the bridge. Summary of the interview survey is shown in Table 11.2.20. At these sub-villages, people sell their agricultural products in Acet, a nearby trading centre and also to middlemen who come to the villages. The most popular secondary schools for these villagers are school in Gulu town and to Acet HC2 for health service provider.

The survey also asked what kinds of changes people on the target road expect by the bridges construction. Table 11.2.19 shows answers from the sub-villages. They answer that the bridge construction will improve access and linkages within the villages. In addition, transportation of agricultural products to major trading centres would be much easier and cheaper.

Table 11.2.19 xpected Changes (Section 5, Northern Side)

Survey Item	Oralalur	Ading
Expected Changes	• Development in the area since villages will be accessible • Access to hospital will be made easier improving health • Easy transportation and linkages to other areas within the villages • Agriculture productivity may increase since there will be means of transporting them to their respective markets	• .Easy transportation to Gulu town • Easy trade due to improved transport • Improved health due to better access to good health facilities • Access to schools will be made easy improving literacy within the villages.

Source: JICA Study Team

Table 11.2.20 Summary of Results (Section 5, Northern Side)

Survey Item		Oralalur	Ading
Sub-county, Parish		Te aceng	
Access to Gulu			
	On foot	6hrs	12hrs
	By bicycle	3hrs	7hrs
	By motorcycle	1hr	2hrs
	By car	1.5hrs	3hrs
Access to Opit			
	On foot	3hrs	8hrs
	By bicycle	1.5hrs	4hrs
	By motorcycle	45mins	2hrs
	By car	55mins	3hrs
Access to Acet			
	On foot	1.5hrs	1hr
	By bicycle	30mins	40mins
	By motorcycle	230mins	10mins
	By car	30mins	20mins
Marketing Information			
	Cash crop	Simsim	Beans
	Selling place	• Sell to middlemen who come to the village	• Sell to middlemen at a near trading centre(Acet)
	Cash crop	Beans	
	Selling place	Sell to middlemen who come to the village	•
	Cash Crop	cassava	
	Selling place	• Sell to middlemen at the near trading centre (Acet)	
	Transportation	By bicycle	On foot and By bicycle
	Cost of transportation		
	Route	Layoko to Acet	Layoko to Acet
	Way of transportation	By bicycle	By bicycle and on foot
	Cost in Ushs	-	
Education			
	Popular primary school	Layoko PS	Aceng P/S
	Access to the school		
	On foot	School within the sub-village	School within the sub-village
	By bicycle		-
	By motorcycle		-
	By car		-
	Nearest secondary school		No secondary school nearby
	% of secondary school students living outside	Lalogo SS	100%
Health			
	Popular health unit	Acet HC	Acet HC
	Access to the health unit		
	On foot	2hrs	3hrs
	By bicycle	1hr	1.5hrs
	By motorcycle	45mins	30mins
	By car	1.5hrs	40mins

Source: JICA Study Team

2) Southern Side

In the southern side of urgent project Section 5 is Akamdyang sub village. This villagers sell their agricultural products to middlemen who come from Gulu, in Lira, within and surrounding villages . Besides, they mostly use Anaka hospital as their main health facility. It should be noted that few secondary school students live outside the sub-villages, compared to other surveyed sub-villages.

As shown in Table 11.2.21, they consider the bridge construction will improve accessibility to district headquarter (Otwee). They also consider that the bridge construction will change lives of people who live in the northern side of the Aswa River. Furthermore, they expect economic expansion in their own sub-villages.

Table 11.2.21 Expected Changes (Section 5, Southern Side)

Survey Item	Akamdyang	
Expected Changes	• .Market accessibility to thwe villages • Improving relationship between Acholi and Langi • Schools may come up since there will be access • Transportation will be made easy for farmers for their agricultural products • Villages within the project site may attain centre status since more people will start using the roads • Development within the village may come up.	•

Source: JICA Study Team

Table 11.2.22 Summary of Results (Section 5, Southern Side)

Survey Item		Akamdyang	
Sub-county, Parish			
Access to Gulu			
	On foot	8hrs	
	By bicycle	4hrs	
	By motorcycle	45mins	
	By car	1.5hrs	
Access to Opit			
	On foot	Not applicable	
	By bicycle		
	By motorcycle		
	By car		
Access to Acet			
	On foot	3hrs	
	By bicycle	1.5hrs	
	By motorcycle	45mins	
	By car	1hr	
Marketing Information			
	Cash crop	Rice	
	Selling place	• Sell to middlemen in Lira • Sell to middlemen at the major trading centre (Gulu) • Sell to villagers at surrounding villages • Sell to villagers in the village	•
	Transportation	-Bicycle and car	
	Cash crop	Groundnuts	
	Selling place	• Sell to middlemen in Lira • Sell to middlemen at the major trading centre (Gulu) • Sell to villagers at surrounding villages • Sell to villagers in the village	
	Transportation	By bicycle and car/public transport	
	Cost of transportation		
	Route	Akamdyang to Acet	
	Way of transportation	By bicycle	
	Cost in Ushs	-	
Education			
	Popular primary school	Layoko P/S	
	Access to the school		
	On foot	School within the sub-village	
	By bicycle	-	-
	By motorcycle	-	-
	By car	-	-
	Nearest secondary school	Paicho SS	
	% of secondary school students living outside	100%	
Health			
	Popular health unit	Apem HC2	
	Access to the health unit		
	On foot	1.5hrs	
	By bicycle	30mins	
	By motorcycle	10mins	
	By car	25mins	

Source: JICA Study Team

(6) Section 6 (Olwiyo-Anaka road)

1) Northern Side

Baubi A sub-village was selected as survey sites for the northern side the bridge. Summary of the interview survey is shown in Table 11.2.24. At these sub-villages, people sell their agricultural products to middlemen at the major trading centre (Pabbo) and also to middlemen in Gulu. The most popular secondary in Pabbo is Pabbol secondary school and the most popular health unit among people in this sub-village is Lacor (Pabbo) Hospital and it takes about 2 hours on foot to reach the hospital from there. Looking at these results, connection between these sub-villages to Pabbo is stronger than connection between the sub-villages to Amuru although there is Aswa River between the sub-villages to Anaka.

The survey also asked what kinds of changes people on the target road expect by the bridge construction. Table 11.2.23 shows answers from the sub-villages. They answer that the bridge construction will make access to Anaka hospital much easier. In addition, transportation of agricultural products to major trading centres would be much easier and cheaper.

Table 11.2.23 Expected Changes (Section 6, Northern Side)

Survey Item	Olong	Dog akago
Expected Changes	• Movements will be made easy since the roads will be easily accessible • Employment potential for the youth during the construction • Centre status may be attained within the village since the road will become even busier • Development may result since business is expected to boom along the road	• Development due to improvement of marketability • Movement will be made easier • Increase in business especially agricultural products • Out6sioders will be able to penetrate the villages increasing incomes of the villages through sales of various items • Compensation to those along the roads (plants and buildings)

Source: JICA Study Team

Table 11.2.24 Summary of Results (Section 6, Northern Side)

Survey Item		Olong	Dog akago
Sub-county, Parish			
Access to Purongo			
	On foot	3hrs	4hrs
	By bicycle	1.5hrs	3hrs
	By motorcycle	30mins	1.5hrs
	By car	45mins	45mins
Access to Anaka			
	On foot	1.5hrs	40mins
	By bicycle	40mins	20mins
	By motorcycle	15mins	7mins
	By car	20mins	10mins
Marketing Information			
	Cash crop	Rice	Maize
	Selling place	• Sell to middlemen at the near trading centre(Anaka) • Sell to villagers at surrounding villages • Sell to villagers within the village • Sell to middlemen who come to the village (Anaka, Gulu, West Nile)	• sell to middlemen at the major trading centre (Anaka) • sell to a company who come to the village (Anaka hospital) • sell to villagers at surrounding villages
	Cash crop	Groundnuts	Groundnuts
	Selling place	• Sell to middlemen at the near trading centre(Anaka) • Sell to villagers at surrounding villages • Sell to villagers within the village • Sell to middlemen who come to the village (Anaka, Gulu, West Nile)	• sell to middlemen at the major trading centre (Anaka) • sell to a company who come to the village (Anaka hospital) • sell to villagers at surrounding villages • sell to middlemen at the major trading centre (Gulu)
	Cash Crop	cotton	Beans
	Selling place	• sell to company	• sell to middlemen at the major trading centre (Anaka) • sell to a company who come to the village (Anaka hospital) • sell to villagers at surrounding villages • sell to middlemen at the major trading centre (Gulu)
	Transportation	By bicycle and car	By bicycle
	Cost of transportation		
	Route	Onong to Anaka, Anaka to Gulu	Dog akago to Anaka/pakwach
	Way of transportation	Bicycle and car	Bicycle and car
	Cost in Ushs	2,000 per bag, 7,000 per person	
Education			
	Popular primary school	Anaka Central	Anaka Central
	Access to the school		
	On foot	2hrs	30mins
	By bicycle	50mins	10mins
	By motorcycle	15mins	5mins
	By car	30mins	N/A
	Nearest secondary school	Anaka Pope Paul IV	Anaka Pope Paul
	% of secondary	70%	75%

Survey Item		Olong	Dog akago
	school students living outside		
Health			
	Popular health unit	Anaka Hospital	Anaka Hospital
	Access to the health unit		
	On foot	2hrs	3hrs
	By bicycle	50mins	2hrs
	By motorcycle	15mins	1hr
	By car	30mins	1.5hrs

Source: JICA Study Team

2) Southern Side

In the southern side of urgent project Section 6, Adak A sub-village and Olet B sub-village were the survey sites. Since they are close to Pabbo major trading centres in Amuru, it seems that their connection with Anaka is very strong. They sell their agricultural products to middlemen who come from Anaka as well as they bring them to Anaka for selling. Besides, they mostly use Anaka hospital as their main health facility. It should be noted that few secondary school students live outside the sub-villages, compared to other surveyed sub-villages.

As shown in Table 11.2.25, they consider the bridge construction will improve accessibility to district headquarter (Otwee). They also consider that the bridge construction will change lives of people who live in the northern side of the Aswa River. Furthermore, they expect economic expansion in their own sub-villages.

Table 11.2.25 Expected Changes (Section 6, Southern Side)

Survey Item	Aria East	
Expected Changes	• Development may result since market will be brought to the villages • Hospital will be easily accessible thus, improving health • Movement will be made easy since the road will no longer be muddy during rainy season • Transport will be easily accessible since more vehicles will start using the road • Centre status may be attained in the villages since many will utilise the busy road as market for small scale business along the road • Social interaction between Acholi and West nilers(Madi, Alur) will improve	•

Source: JICA Study Team

Table 11.2.26 Summary of Results (Section 6, Southern Side)

Survey Item		Aria East	
Sub-county, Parish			
Access to Purongo			
	On foot	3hrs	
	By bicycle	1hr	
	By motorcycle	20mins	
	By car	30mins	
Access to Anaka			
	On foot	3hrs	
	By bicycle	1hr	
	By motorcycle	15mins	
	By car	30mins	
Marketing Information			
	Cash crop	Rice	
	Selling place	• Sell to middlemen who come to the village(villagers, Anaka, Purongo, Olwiyo) • Sell to middlemen at the near trading centre (Olwiyo, Anaka)	•
	Transportation	-Bicycle and car/public transport	
	Cash crop	Groundnuts	
	Selling place	• Sell to middlemen who come to the village(Lamogi, Panyimungu) • Sell to middlemen at the near trading centre (Olwiyo, Anaka)	
	Transportation	By bicycle and car/public transport	
	Cost of transportation		
	Route	Aria East to Olwiyo/Anaka, Olwiyo to Purongo	
	Way of transportation	-Bicycle and As a passenger of a private truck, Bicycle	
	Cost in Ushs	-2,000 per bag, 2,000 per person	
Education			
	Popular primary school	Aparanga P/S	
	Access to the school		
	On foot	School within the sub-village	
	By bicycle	-	-
	By motorcycle	-	-
	By car	-	-
	Nearest secondary school	Anaka Pope Paul	
	% of secondary school students living outside	100%	
Health			
	Popular health unit	Aparanga HC2	Kulu Opal HC2
	Access to the health unit		
	On foot	Health centre close to the sub-village	Health Centre within the sub-village
	By bicycle	-	-
	By motorcycle	-	-
	By car	-	-

Source: JICA Study Team