

The Preparatory Survey on the Project for Rural Electrification Phase III in the Republic of Uganda

1. Location/Conditions

District: Mpigi



Conditions
Permanent and seasonal wetlands with seasonal flood water are highly modified mainly with agricultural activities (rice, maize, peas, and vegetables). Some of the wetlands had water systems.

Location	Field Point	Surrounding Area
MA1 (Position: No 27 25 1 037 29 20 2)	Seasonal wetland with water system	Maize cultivation
MA2 (Position: No 27 18 1 037 30 16 4)	Seasonal wetland with a tree cutover	Paddy field
MA3 (Position: No 27 09 3 037 31 11 0)	Seasonal wetland with a tree cutover	Cultivated land

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Location	Field Point	Surrounding Area
MA4 (Position: No 27 17 1 037 31 10 4)	Seasonal wetland with a tree cutover	Cultivated land
MA5 (Position: No 27 17 3 037 31 03 0)	Seasonal wetland with a tree cutover	Cultivated land
MA6 (Position: No 27 12 5 037 31 42 4)	Seasonal wetland with a tree cutover	Sugarcane cultivation
MA7 (Position: No 27 27 0 037 31 34 1)	Seasonal wetland with a tree cutover	Paddy field
MA8 (Position: No 27 51 9 037 32 42 5)	Permanent wetland with a lot pond 20 meters from the road	Paddy field

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Location	Field Point	Surrounding Area
MA9 (Position: No 28 11 5 037 31 07 0)	Permanent wetland with a tree cutover	Paddy field
MA10 (Position: No 28 06 3 037 31 12 4)	Permanent wetland with a tree cutover	Maize cultivation

2. Specific Issues and Mitigation Measures

Issues	Mitigation Measures
Environmental and Social Issues - Seasonal and permanent wetlands observed in low levels were highly modified - Water ponds at the low level were located at the lowest points of wetlands - Degradation (mainly with Nigella, Mimosa, and other species, grasses, reeds, etc.) Technical Issues - Soft ground	- The poles will be installed at approximately 100m apart to avoid the tree cutovers and wetlands - To ensure the poles will be installed on the wetlands, the poles' locations should be away from the field cutovers not to obstruct the flow of water - Clearance of the vegetation and excavation will be limited to the area where the electricity poles will be installed

3. Attendants

Preparatory Survey Team (JICA)	District Officials
REA Expert Toshiyuki Imai REA Environmental Officer Ayumu CRYSTALINE Chief Consultant Kazuhiko Kato Environmental Consultant Takashi OKAMURA	District Environment Officer ARUNA TRINOMAS Date: 20/06/2011 District Natural Resources Officer Lubosa AMUKA Date: 21/06/2011

Date: 21 June 2011

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Location	Field Point	Surrounding Area
MA11 (Position: No 27 07 1 037 31 07 0)	Seasonal wetland with a tree cutover	Paddy field
MA12 (Position: No 27 07 1 037 31 07 0)	Seasonal wetland with a tree cutover	Paddy field
MA13 (Position: No 27 07 1 037 31 07 0)	Seasonal wetland with a tree cutover	Paddy field
MA14 (Position: No 27 07 1 037 31 07 0)	Seasonal wetland with a tree cutover	Paddy field
MA15 (Position: No 27 07 1 037 31 07 0)	Seasonal wetland with a tree cutover	Paddy field

1. Location/Conditions: Wetlands



Conditions
Permanent and seasonal wetlands with seasonal flood water are highly modified mainly with agricultural activities (rice, maize, peas, and vegetables). Some of the wetlands had water systems.

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Location	Focus Point	Surrounding Area
A11-040000: N 0 17 24.9 E 33 23 31.2 	Bamboo/Slender Acacia forest with a few palm trees 	Public Road (New vegetation) Euphorbia grass 
B11-040000: N 0 28 21 E 33 33 36.6 	Sparse forest (mostly bamboo) with a few palm trees 	Public Road (New vegetation) palm, art grass 
C11-040000: N 0 29 38.8 E 33 33 38.4 Low forest, the area with open of the public road is dominated with the bamboo forest (mostly art grass) 	Sparse forest (mostly bamboo) with a few palm trees 	Public Road 

2. Specific Issues and Mitigation Measures

Issues	Mitigation Measures
Environmental and Social Issues: <ul style="list-style-type: none"> Seasonal and permanent wetlands observed in lowlands were highly modified. Water ponds in the low columns were located at the lowest points of wetlands. Degradation (mostly of ridges, phragmites, straggly bushes, eucalyptus grass, palm etc.) Technical Issues: <ul style="list-style-type: none"> Soft Ground 	<ul style="list-style-type: none"> The poles will be installed at approximately 100m apart to avoid the trees columns and ridges. To ease the poles will be installed in the wetlands that public, treatments should be away from the low columns not to obstruct the flow of water. Cleanance of the vegetation and excavation will be limited at the area where the electricity poles will be installed.

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3. Attendants


Preparatory Survey Team (SCA)	District Officials
REA Engineer: <i>[Signature]</i> REA Environmental Officer: <i>[Signature]</i> Chief Consultant: <i>[Signature]</i> Environmental Consultant: <i>[Signature]</i>	District Local Officer: <i>[Signature]</i> <i>[Signature]</i>

Date: 23 June, 2011

The Preparatory Survey on the Project for Rural Electrification Phase III in the Republic of Uganda




4. Location/Conditions: Cultural Property

Location:



Conditions:

The area is (Bukuru) located in the lowlands of the wetland (Bukuru) area. It is a seasonal wetland. The area is dominated by seasonal wetlands. There are some permanent wetlands in the area. The area is dominated by seasonal wetlands. There are some permanent wetlands in the area.

Location	Focus Point	Surrounding Area
B11-040000: N 0 17 24.9 E 33 23 31.2 		

2. Specific Issues and Mitigation Measures

Issues	Mitigation Measures
Environmental and Social Issues: <ul style="list-style-type: none"> The seasonal wetlands in the lowlands were highly modified. The area is dominated by seasonal wetlands. There are some permanent wetlands in the area. Technical Issues: <ul style="list-style-type: none"> Soft Ground 	<ul style="list-style-type: none"> The seasonal wetlands in the lowlands were highly modified. The area is dominated by seasonal wetlands. There are some permanent wetlands in the area.

3. Attendants


Preparatory Survey Team (SCA)	District Officials
REA Engineer: <i>[Signature]</i> REA Environmental Officer: <i>[Signature]</i> Chief Consultant: <i>[Signature]</i> Environmental Consultant: <i>[Signature]</i>	District Local Officer: <i>[Signature]</i> <i>[Signature]</i>

Date: 23 June, 2011

The Preparatory Survey on the Project for Rural Electrification Phase III in the Republic of Uganda










Location/Conditions: Wetlands

Location:



Conditions:

The area has two seasonal wetlands Nafere seasonal wetland and Nafere with tributaries like Horse. The vegetation was in its natural state but the wetlands were used for grazing and watering animals. Nafere seasonal wetland and stream was observed passing both sections of Bukuru - Mwendu-Tyran and its fork - Munduli (See BSI-2 and BSI-3).

Location	Focus Point	Surrounding Area
BSI-1 Position: N 0 17 24.9 E 33 23 31.2 	Seasonal wetland with a few palm trees 	Euphorbia and New vegetation (mostly art grass) 
BSI-2 Position: N 0 24 4 43 57 20.0 	There is a lot of art grass (mostly art grass) in the area 	Seasonal wetland (mostly art grass) 
BSI-3 Position: N 0 18 12 13 36 34.3 	There is a lot of art grass (mostly art grass) in the area 	Seasonal wetland (mostly art grass) 

The Preparatory Survey on the Project for Rural Electrification Phase II in the Republic of Uganda

1. Specific Issues and Mitigation Measures

Issues	Mitigation Measures
Environmental and Social Issues: <ul style="list-style-type: none"> Seasonal wetlands were observed in low lands in the wetland forest vegetation. Water pools at the low elevations were located at the lower points of wetlands. Development (roads, bridges, animal, elephant pens, residential, others) facilities, etc.) 	<ul style="list-style-type: none"> The Project Road will be designed to avoid such points and will proceed. The poles will be installed at approximately 100m apart to avoid the low elevations and streams. In case the poles are installed in the wetlands, the poles' location will be away from the low elevations to avoid obstruction of the flow of water. Change of the vegetation and elevation will be limited in the area where the electricity poles will be installed.
Technical Issues: <ul style="list-style-type: none"> Soft Ground 	

2. Attendants

Preparatory Survey Team (JICA)	District Officials
REA Engineer REA Environmental Officer Chief Consultant Environmental Consultant Date: 30/06/11	District Environment Officer District Environment Officer District Environment Officer

The Preparatory Survey on the Project for Rural Electrification Phase II in the Republic of Uganda

1. Location/Conditions: Wetlands

Location/Conditions: Wetlands	Conditions
District: Bugiri Sub-District: ... 	Permanent and seasonal wetlands were observed but some are highly modified mainly with agricultural activities (rice, maize, cassava and vegetables). One permanent wetland was observed at about 20 degree width with paddy field (See H01-01).

Location	Focal Point	Surrounding Area
H01-1 Position: N0 27 04 9 E 03 28 37 S 	Mainly seasonal wetland with rice culture 	Mainly agriculture
H01-2 Position: N0 27 14 9 E 03 42 08 S 	Submerged seasonal wetland with rice culture 	Paddy field
H01-3 Position: N0 27 11 2 E 03 44 18 S 	Seasonal wetland seasonal wetland with rice culture 	Paddy field

The Preparatory Survey on the Project for Rural Electrification Phase II in the Republic of Uganda

Location	Focal Point	Surrounding Area
H01-4 Position: N0 27 04 9 E 03 28 37 S 	Mainly seasonal wetland with rice culture 	Mainly agriculture
H01-5 Position: N0 27 14 9 E 03 42 08 S 	Submerged seasonal wetland with rice culture 	Paddy field
H01-6 Position: N0 27 11 2 E 03 44 18 S 	Seasonal wetland seasonal wetland with rice culture 	Paddy field
H01-7 Position: N0 27 04 9 E 03 28 37 S 	Mainly seasonal wetland with rice culture 	Mainly agriculture
H01-8 Position: N0 27 14 9 E 03 42 08 S 	Submerged seasonal wetland with rice culture 	Paddy field
H01-9 Position: N0 27 11 2 E 03 44 18 S 	Seasonal wetland seasonal wetland with rice culture 	Paddy field

The Preparatory Survey on the Project for Rural Electrification Phase II in the Republic of Uganda

Location	Focal Point	Surrounding Area
H01-10 Position: N0 27 04 9 E 03 28 37 S 	Mainly seasonal wetland with rice culture 	Mainly agriculture
H01-11 Position: N0 27 14 9 E 03 42 08 S 	Submerged seasonal wetland with rice culture 	Paddy field

2. Specific Issues and Mitigation Measures

Issues	Mitigation Measures
Environmental and Social Issues: <ul style="list-style-type: none"> Seasonal and permanent wetlands observed in low lands were highly modified. Water pools at the low elevations were located at the lower points of wetlands. Development (roads, bridges, animal, elephant pens, residential, others) facilities, etc.) 	<ul style="list-style-type: none"> The Project Road will be designed to avoid water pools and soft ground. The poles will be installed at approximately 100m apart to avoid the low elevations and streams. In case the poles are installed in the wetlands, the poles' location will be away from the low elevations to avoid obstruction of the flow of water. Change of the vegetation and elevation will be limited in the area where the electricity poles will be installed.
Technical Issues: <ul style="list-style-type: none"> Soft Ground 	

3. Attendants

Preparatory Survey Team (JICA)	District Officials
REA Engineer REA Environmental Officer Chief Consultant Environmental Consultant Date: 27/06/11	District Environment Officer District Environment Officer District Environment Officer

1. Location/Conditions: Central Forest Reserve

District: Bugra

Location: The Central Forest Reserve (CFR) is situated in the Central Forest Reserve (CFR) subproject area. It is located in the Central Forest Reserve (CFR) subproject area. It is located in the Central Forest Reserve (CFR) subproject area.

Local Point: The road from the CFR to the local point is located in the Central Forest Reserve (CFR) subproject area. It is located in the Central Forest Reserve (CFR) subproject area.

Surrounding Area: The surrounding area is located in the Central Forest Reserve (CFR) subproject area. It is located in the Central Forest Reserve (CFR) subproject area.

Issues	Mitigation Measures
<p>Environmental and Social Issues:</p> <ul style="list-style-type: none"> The road that the Project Route is proposed along passes through CFR at about 4 km. Some trees on the 33kV distribution lines may be affected on the north side. <p>Technical Issues:</p> <ul style="list-style-type: none"> None 	<p>The Project Route will be designed to pass the north side by road a plantation. The Project Route will be shifted to the south in some sections.</p> <ul style="list-style-type: none"> The poles will be installed at approximately 100m apart to minimize the number of poles in the line. It will be compensated with other benefits for the affected trees and encourage replanting of other trees.

Preparatory Survey Team (JICA)	District Officials
<p>REA Engineer: <i>[Signature]</i></p> <p>REA Environmental Officer: <i>[Signature]</i></p> <p>Chief Consultant: <i>[Signature]</i></p> <p>Environmental Consultant: <i>[Signature]</i></p>	<p>District Environment Officer: <i>[Signature]</i></p>

Date: 27/06/11

1. Location/Conditions: Cultural Property

District: Bugra

Location: The cultural site (Kakuba) is located on the northern side of the road in the CFR. The site is surrounded by tall trees.

Local Point: The road from the CFR to the local point is located in the Central Forest Reserve (CFR) subproject area. It is located in the Central Forest Reserve (CFR) subproject area.

Surrounding Area: The surrounding area is located in the Central Forest Reserve (CFR) subproject area. It is located in the Central Forest Reserve (CFR) subproject area.

Issues	Mitigation Measures
<p>Environmental and Social Issues:</p> <ul style="list-style-type: none"> The cultural site (Kakuba) is located on the road in the Project Route is designed. <p>Technical Issues:</p> <ul style="list-style-type: none"> None 	<p>The cultural site will not be impacted by the Project Route. The site will be designed along the opposite side of the road (the southern side).</p>

Preparatory Survey Team (JICA)	District Officials
<p>REA Engineer: <i>[Signature]</i></p> <p>REA Environmental Officer: <i>[Signature]</i></p> <p>Chief Consultant: <i>[Signature]</i></p> <p>Environmental Consultant: <i>[Signature]</i></p>	<p>District Environment Officer: <i>[Signature]</i></p>

Date: 27/06/11

1. Location/Conditions: Wetlands

District: Nwoya

Location: The wetlands are located in the Nwoya District. It is located in the Nwoya District.

Local Point: The road from the CFR to the local point is located in the Central Forest Reserve (CFR) subproject area. It is located in the Central Forest Reserve (CFR) subproject area.




Surrounding Area: The surrounding area is located in the Central Forest Reserve (CFR) subproject area. It is located in the Central Forest Reserve (CFR) subproject area.

Location	Local Point	Surrounding Area
BC1-1 Position: 02 44 0 833 0 35.7	Wetlands (shrubland) situated with rice cultivation	Field (33kV) cable route (shrubland)
BC1-2 Position: 06 11 31.2 833 04 36.2	Wetlands (shrubland) situated with rice cultivation	Field (33kV) cable route (shrubland)
BC1-3 Position: 06 18 27.4 833 05 25.6	Wetlands (shrubland) situated with rice cultivation	Field (33kV) cable route (shrubland)

Location	Local Point	Surrounding Area
BC1-4 Position: 06 18 27.4 833 05 25.6	Wetlands (shrubland) situated with rice cultivation	Field (33kV) cable route (shrubland)
BC1-5 Position: 06 18 27.4 833 05 25.6	Wetlands (shrubland) situated with rice cultivation	Field (33kV) cable route (shrubland)
BC1-6 Position: 06 18 27.4 833 05 25.6	Wetlands (shrubland) situated with rice cultivation	Field (33kV) cable route (shrubland)
BC1-7 Position: 06 18 27.4 833 05 25.6	Wetlands (shrubland) situated with rice cultivation	Field (33kV) cable route (shrubland)
BC1-8 Position: 06 18 27.4 833 05 25.6	Wetlands (shrubland) situated with rice cultivation	Field (33kV) cable route (shrubland)
BC1-9 Position: 06 18 27.4 833 05 25.6	Wetlands (shrubland) situated with rice cultivation	Field (33kV) cable route (shrubland)
BC1-10 Position: 06 18 27.4 833 05 25.6	Wetlands (shrubland) situated with rice cultivation	Field (33kV) cable route (shrubland)
BC1-11 Position: 06 18 27.4 833 05 25.6	Wetlands (shrubland) situated with rice cultivation	Field (33kV) cable route (shrubland)
BC1-12 Position: 06 18 27.4 833 05 25.6	Wetlands (shrubland) situated with rice cultivation	Field (33kV) cable route (shrubland)
BC1-13 Position: 06 18 27.4 833 05 25.6	Wetlands (shrubland) situated with rice cultivation	Field (33kV) cable route (shrubland)
BC1-14 Position: 06 18 27.4 833 05 25.6	Wetlands (shrubland) situated with rice cultivation	Field (33kV) cable route (shrubland)
BC1-15 Position: 06 18 27.4 833 05 25.6	Wetlands (shrubland) situated with rice cultivation	Field (33kV) cable route (shrubland)
BC1-16 Position: 06 18 27.4 833 05 25.6	Wetlands (shrubland) situated with rice cultivation	Field (33kV) cable route (shrubland)
BC1-17 Position: 06 18 27.4 833 05 25.6	Wetlands (shrubland) situated with rice cultivation	Field (33kV) cable route (shrubland)
BC1-18 Position: 06 18 27.4 833 05 25.6	Wetlands (shrubland) situated with rice cultivation	Field (33kV) cable route (shrubland)
BC1-19 Position: 06 18 27.4 833 05 25.6	Wetlands (shrubland) situated with rice cultivation	Field (33kV) cable route (shrubland)
BC1-20 Position: 06 18 27.4 833 05 25.6	Wetlands (shrubland) situated with rice cultivation	Field (33kV) cable route (shrubland)

The Preparatory Survey on the Project for
Rural Electrification Phase III in the Republic of Uganda

Location	Project Name	Administrative Area
Busoga Region, District of Iganga	Electrification of Iganga District	Busoga Region

2. Specific Issues and Mitigation Measures

Issues	Mitigation Measures
Environmental and Social Issues <ul style="list-style-type: none"> Residential buildings are established close to the substation site. There are no trees in the area. There are no trees in the area. There are no trees in the area. 	<ul style="list-style-type: none"> The Project Route will be designed to pass behind the buildings. The route will be designed to pass behind the buildings. The route will be designed to pass behind the buildings. The route will be designed to pass behind the buildings.
Technical Issues <ul style="list-style-type: none"> There are no trees in the area. There are no trees in the area. There are no trees in the area. 	<ul style="list-style-type: none"> The Project Route will be designed to pass behind the buildings. The route will be designed to pass behind the buildings. The route will be designed to pass behind the buildings.


3. Attendants

Preparatory Survey Team (LICA)	District Officials
PIA Engineer: <i>[Signature]</i> PIA Environmental Officer: <i>[Signature]</i> Chief Consultant: <i>[Signature]</i> Environmental Consultant: <i>[Signature]</i> Date: 6/27/2011	District Administration Officer: <i>[Signature]</i> Date: 7/1/2011




The Preparatory Survey on the Project for
Rural Electrification Phase III in the Republic of Uganda

1. Location/Conditions: Settlement

Location: Nansinyiro (Lat: 0° 10' N, Long: 33° 10' E)



Conditions: Residential buildings are established close to the substation at the start of the Project Road branch at Busoga A IC at Nansinyiro IC.

Location	Focal Point	Surrounding Area
NGS Position: N 175 140 E 11 72 30 A 	Residential buildings are built close to the substation. 	Building perimeter. 

2. Specific Issues and Mitigation Measures

Issues	Mitigation Measures
Environmental and Social Issues <ul style="list-style-type: none"> The Project Route will affect the residential buildings along the road at about 400 meters. 	<ul style="list-style-type: none"> The Project Route will be designed to pass behind the buildings. It will consequently connect to the Nansinyiro-Lugala Project Route.
Technical Issues <ul style="list-style-type: none"> The route is too narrow to pass the Project Route along the road at about 400 meters. 	

3. Attendants

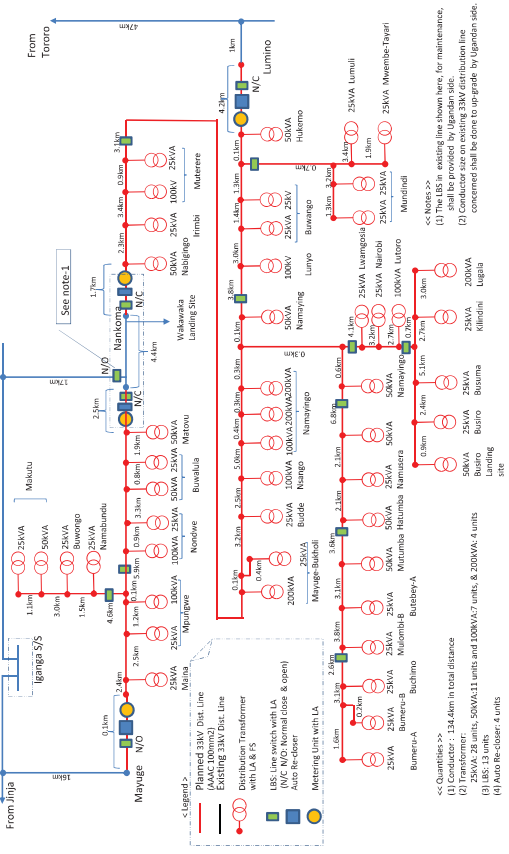
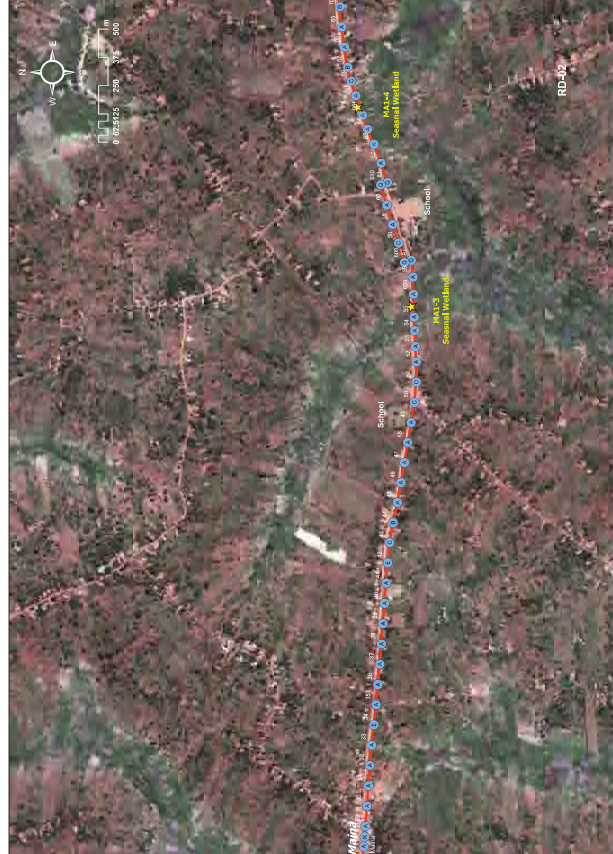
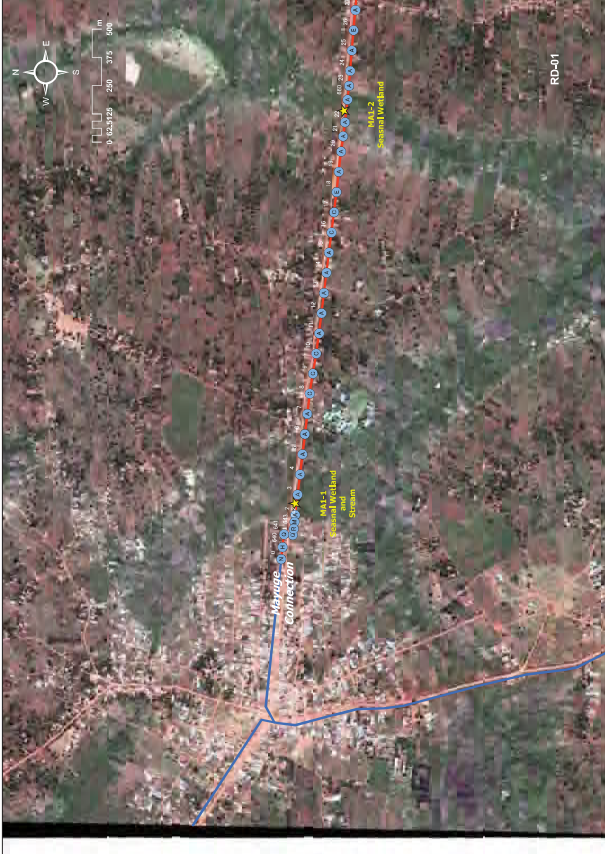
Preparatory Survey Team (LICA)	District Officials
PIA Engineer: <i>[Signature]</i> PIA Environmental Officer: <i>[Signature]</i> Chief Consultant: <i>[Signature]</i> Environmental Consultant: <i>[Signature]</i> Date: 6/27/2011	District Administration Officer: <i>[Signature]</i> Date: 7/1/2011

Drawings

Contents of Drawings

- Single Line Diagram of the Project**
 DWG No. UD3-E1: 33kV Distribution Network Diagram on the Project (Mayuge - Lunino)
- Route Map of the Project**
 DWG No. R-01: Route Map of the Project
 DWG No. RD-01-RD-35: Detail Route Map of the Project
- Pole Assembly Drawings for Distribution Lines**

DWG No. T-01	Pole Type A	Intermediate Pole (Line Angle: 0 - 5 degree)
DWG No. T-02	Pole Type B	Light Angle Pole (Line Angle: 5 - 20 degree)
DWG No. T-03	Pole Type C	Heavy Angle Pole (Line Angle: 30 - 50 degree)
DWG No. T-04	Pole Type D	Heavy Angle Pole (Line Angle: 50 - 90 degree)
DWG No. T-05	Pole Type E	Section Pole (Horizontal Arrangement)
DWG No. T-07	Pole Type G	Terminal Pole
DWG No. T-08	Pole Type H	Load Break Switch (LBS) Pole
DWG No. T-09	Pole Type J	T-off Pole (Branch)
DWG No. T-10	Pole Type I	Transformer Pole (Line end)
DWG No. T-11	Pole Type K	Transformer Pole (on Line)
DWG No. T-12	Pole Type M	Bulk Metering Unit Pole
DWG No. T-13	Pole Type N	Connection Plan to the existing line (extension type)
DWG No. T-14	Pole Type Q	Sharp Angle Pole (Line Angle: 90 - 90 degree) (Horizontal)
DWG No. T-15	Pole Type R	Auto Re-closer Pole
DWG No. T-16	Pole Type W	Intermediate Pole (area to be flooded)

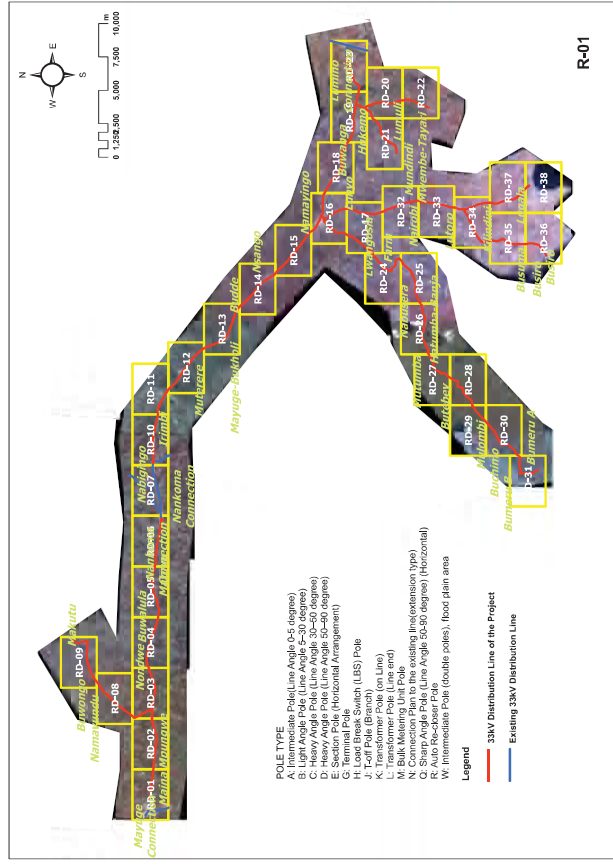


Legend:
 - Proposed 33kV Dist. Line
 - Existing 33kV Dist. Line
 - Distribution Transformer with LA & FS
 - LBS-Line switch with LA (N/C N/O: Normal close & open)
 - Auto Recloser
 - Metering Unit with LA

Notes:
 (1) Conductor: 134.4km in total distance
 (2) Transformer: 25MVA: 25 units, 20MVA: 11 units and 10MVA: 7 units, & 200kVA: 4 units
 (3) 25MVA: 28 units, 20MVA: 11 units and 10MVA: 7 units, & 200kVA: 4 units
 (4) Auto Rec: 4 units

Notes:
 (1) The proposed line shown here, for maintenance, shall be provided by Ugandan side.
 (2) Conductor size on existing 33kV distribution line concerned shall be done to up grade by Ugandan side.

UGS-E-1: 33kV Distribution Network Diagram on the Project (Mayuge-Lumino)



R-01

