2-2-4 Implementation Plan

2-2-4-1 Implementation Policy

The Project will be implemented in accordance with Japan's Grant Aid scheme. Accordingly, its implementation will only take place after approval of the Project by the Government of Japan and the conclusion of Exchange of Notes (E/N) between both governments. Basic issues and points to be noted in the process of implementing the Project are described as follows.

(1) Implementing Agency

The implementing Agency of the Project on the Ugandan side is the Rural Electrification Agency (REA). After completing the installation work for the Project, the planning department at REA entrusts the relevant work to a private-sector company called operator(s) in a similar manner as other areas. It will, therefore, be necessary for REA to maintain close contact and consultation with Japanese consultants and contractors (equipment suppliers) and to appoint a person responsible for the Project to ensure its smooth progress.

The appointed person responsible for the Project at REA will be required to fully explain the contents of the Project to other REA staff, concerned parties of districts, etc. and local residents at the project sites in order to facilitate their understanding of the Project and to encourage their cooperation in its implementation.

(2) Consultant

A Japanese consultant will conclude a consulting services agreement with REA and will provide a detail design and work supervision concerning the Project in order to implement procurement and installation of the equipment under the Project. The consultant will also prepare tender documents and open tender(s) for REA, the implementing agency of Project.

(3) Equipment Supplier(s)

In accordance with Japan's Grant Aid scheme, equipment supplier(s) of a Japanese juridical person selected by the Ugandan side will carry out the procurement of equipment and materials and installation work through competitive tendering. As it is deemed necessary that the contract to provide after-sale service including continuous supply of spare parts and an appropriate measure to breakdowns even after completing the Project, the equipment supplier should provide adequate liaison system after handing over the equipment and materials.

(4) Necessity for Dispatch of Japanese Engineers

The installation work for power distribution facilities under the Project will involve installation work for switchgears and 33kV distribution lines, etc. and foundation work, and so these works should be mutually coordinated. In addition, most of various types of construction work will be carried out in a parallel manner. It is therefore essential to dispatch a site manager who is able to consistently control and lead the construction work in order to manage work schedule, finished work quality and safety.

2-2-4-2 Implementation Conditions

(1) Situation of Construction Industry in Uganda and Technical Transfer

Since there are foreign-capital general contractors and electric firms in Kampala, it is possible to place orders at local companies for on-site recruitment and procurement of workers, transportation vehicles, construction work equipment and materials in Uganda for installation work for distribution lines under the Project. However, the dispatching of Japanese engineers is vital to schedule management, quality and safety control considering the tight delivery schedule for the Project, and quality of wooden poles locally procured, and in accordance with Japan's Grant Aid scheme.

On the other hand, since there is little installation work for power distribution facilities, and engineers with advanced skills are required for adjustment and testing, etc. at the time of installing the equipment and after installation, it will be difficult to effectively utilize local companies other than laborers. Accordingly, Japanese equipment suppliers should dispatch engineers from Japan and procure workers and machinery from local companies for installation work under the Project. In addition, Japanese engineers should provide on-the-job training (OJT) to Ugandan engineers during the relevant installation period in order to promote technical transfer.

(2) Effective Use of Local Equipment and Materials

Wooden poles used for power distribution lines, aggregates, cement and reinforcing bars, etc. to be utilized for foundation work are locally available in Uganda and have been adopted in previous grant aid projects. Consequently, in the formulation of an installation schedule, locally available materials will be utilized whenever possible as a means of promoting local industry. However, main materials and equipment for power distribution required for the Project are dependent upon importation, while local equipment and materials cannot be adopted, so they will be procured from Japan or third countries.

(3) Safety Measures

Although public unrest at the project sites is quite rare, special attention should be given to the prevention of theft of equipment and materials and to ensure the safety of those staff involved in the construction work. Consequently, not only Ugandan side but also Japanese side should take necessary measures to ensure safety, such as installing fences around stock yards of equipment and materials as temporary work and posting of guards or installation of telecommunication system, including Inmarsat.

(4) Tax Exemption

The procedure for tax exemption for equipment and materials to be procured under the Project is as follows. An equipment supplier submits an application in advance (Commitment to Pay Deferred Taxes on Imports) to REA via the consultant and the Ministry of Energy and Mineral Development (MEMD) which is the responsible ministry, is requested to pay necessary custom duties to the Uganda Revenue Authority. Accordingly, it is important to pay special attention to the process of acquiring a tax exemption in order to prevent any delays in the above-mentioned applications which could have a negative impact on the transportation schedule. Since MEMD also bears value added taxes on equipment and materials to be locally procured in Uganda in a similar manner, it is therefore important to coordinate with the client in advance so that budgetary appropriation can be taken smoothly in addition to the above-mentioned custom duties.

(5) Transportation

In general, equipment and materials transported by ocean freight to Uganda are unloaded at the Port of Mombasa in Kenya and transit customs clearance is taken at the said port. After confirmation is made for international borders, customs procedures are taken at the International Container Depot in Kampala. Although it is possible to undergo the above-mentioned procedures for equipment and materials to be transported to Project Sites B and D, consideration should be made to clear customs at Project Sites A and C by directly transporting to each site accompanied by customs officers after passing through the international border. Consideration should also be given to the fact that it takes approx. fifteen days to clear transit customs at the Port of Mombasa, container loading and inland transportation to the border with Uganda, and it takes approx. five days for transporting inland to Kampala and customs clearance.

The project sites are located in areas with poor transportation and processing conditions and where accessibility for vehicles for transporting equipment and machinery is often difficult due to inadequate infrastructure. In addition, some sections are impassable during the rainy season due to mud, so transportation should be planned during dry season as much as possible.

With regard to the transportation of products to be procured from Japan or third countries, a packaging method which can sufficiently withstand long marine transportation, unloading at port, inland transportation to the Project sites and storage should be adopted.

2-2-4-3 Scope of Work

The Japanese side will carry out procurement, installation work, testing, adjustment and foundation work of equipment and materials for new 33kV switchgears, 33kV distribution lines under the Project. As shown in Figure 2.2-1, the Ugandan side will be responsible for construction of 415/240V low voltage distribution lines. House (interior) wiring will be procured and installed by each consumer. Detailed work demarcation between the Japanese side and the Ugandan side is shown in table 2.2-17.

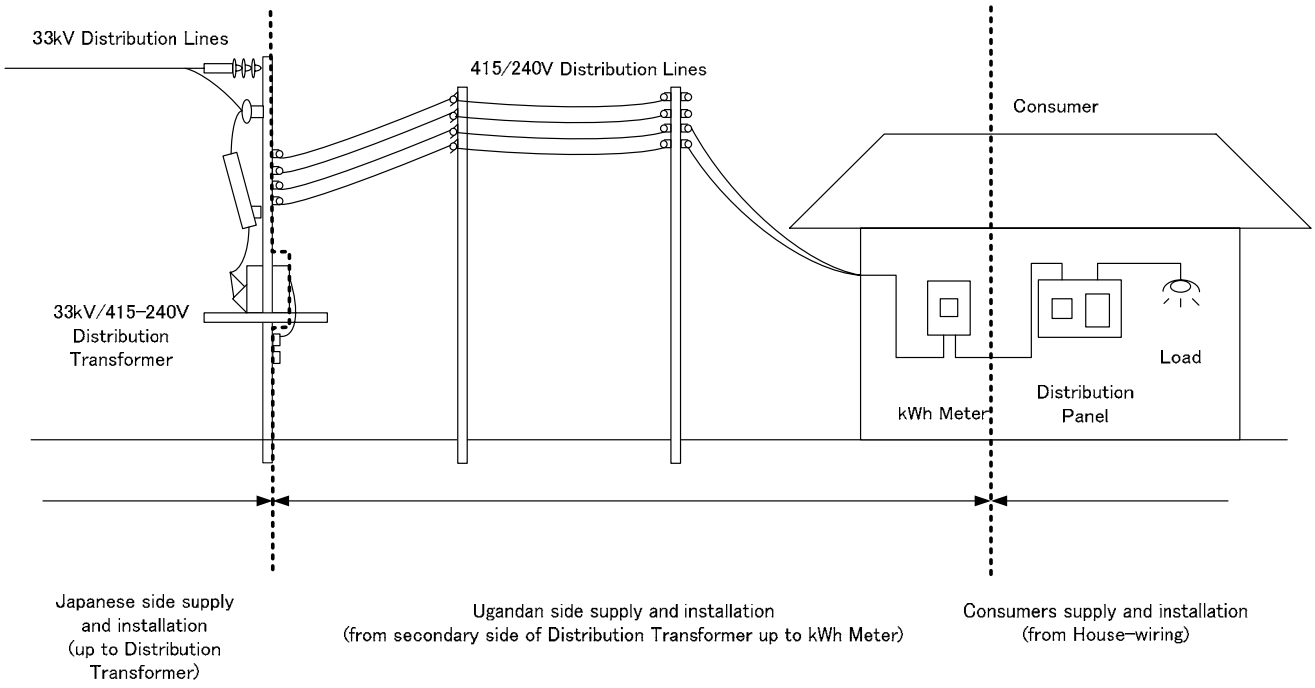


Figure 2.2-1 Work Demarcation between the Japanese and Ugandan Sides
(Conception Diagram)

Table 2.2-17 Scope of Work between Japan and Uganda

Work Item	Procurement		Installation		Remarks
	Japan	Uganda	Japan	Uganda	
1. Common Requirements					
(1) Securing of land for 33kV distribution lines		○		○	
(2) Removal of obstacles such as trees		○		○	To be completed prior to commencement of Japanese work
(3) Securing of stockyard for equipment and materials		○		○	
(4) Securing of safety during construction period		○		○	
(5) Coordination with consumers for power blackouts during construction period		○		○	Especially when connecting the existing equipment
(6) Public notice of scheduled power interruptions		○		○	
(7) Removal of trees, etc. after commencement of operation		○		○	Periodical maintenance
2. Construction of 33kV Distribution Lines					
(1) Design (including tender documents)	○				
(2) Equipment & materials such as bare conductors, lightning arresters, insulators, LBS & fittings	○		○		
(3) Distribution transformers	○		○		
(4) Wooden poles	○		○		
(5) Installation work	○		○		
(6) Installation & maintenance manuals	○		○		
(7) Testing instruments, spare parts	○		(○)	○ (Store)	Testing instruments will be utilized for installation work.
(8) Onsite testing before handing over of facilities	○		○		
(9) Removal of trees, etc. after commencement of operation	○				To be completed prior to commencement of Japanese work
3. Replacement of 33kV Switchgears at Iganga Suxstation					
(1) Design (including tender documents)	○				
(2) Connection of temporary jumper cables for existing 33kV distribution lines	○			○	Temporary cables to be removed by the Ugandan side after construction of the 33kV switchgears.
(3) Removal of the existing 33kV switchgears (including the foundation)		○		○	
(4) 33 kV Switchgear cubicles	○		○		
(5) Station power system	○		○		
(6) 33 kV feeders, transformer cables	○		○		The final connection of the existing lines to be taken by the Ugandan side.
(7) Civil & foundation work necessary for the above (4) & (5)	○		○		
(8) Spare parts, testing instruments, installation & maintenance manuals	○		(○)	○ (Store)	One-year supply for spare parts Testing instruments will be utilized in installation work.
(9) Onsite testing before commencement of operation			○		
(10) OJT			○ (Execu-tion)		
4. Construction of Low Voltage (LV) Distribution Lines					
(1) Design (including tender documents)		○			
(2) Equipment & materials such as bare conductors, down conductors & fittings		○		○	
(3) Wooden poles		○		○	
(4) Installation & maintenance manuals		○		○	
(5) Testing instruments, tools		○		○	
(6) Onsite testing		○		○	
(7) Spare parts		○		○	
(8) Removal of trees, etc. after commencement of operation		○		○	

(Note) ○ denotes side responsible for the work.

2-2-4-4 Consultant Supervision

In due consideration of the Japan's Grant Aid scheme and the objectives of the basic design, the consultant is responsible for smooth implementation of the work after creating a project team. Since the project sites are scattered locally, the consultant will dispatch at least one full-time engineer to the project site to manage work schedule, quality and safety control during the installation period. The consultant will also dispatch other engineers in line with the work progress of equipment installation, trial operation and adjustment, and acceptance test of the equipment before handing over and supervise construction work to be conducted by equipment suppliers. Moreover, as the occasion arises, the consultant will oversee that engineers participate in witnessing factory inspections and pre-shipment inspections of equipment to be produced in Japan or third countries in order to prevent any problems after the materials and equipment are delivered to the project site.

(1) Basic Principles of Work Supervision

The consultant will supervise the work progress to ensure the completion of the construction work within a predetermined period and will supervise and guide equipment suppliers to ensure quality described in the contract and safe implementation of the construction work in principle.

Major points to be noted for supervision work are described as follows.

(2) Schedule Control

The consultant will compare the actual progress of the following work items with the schedule to be planned by equipment supplier(s) at the time of a contract on a weekly and monthly basis. If any delay is foreseen, the consultant should issue a warning to the equipment supplier and request the supplier to submit recommended countermeasures so that the construction work can be completed within the agreed period. The above-mentioned comparison is mainly conducted by confirming the following items.

① Confirmation of quantity of work completed (Quantity of equipment manufactured at the factory and completed civil engineering work)
② Confirmation of quantity of equipment and materials delivered (equipment and materials of switchgears, distribution facilities and civil engineering work)
③ Confirmation of conditions of temporary work and preparation of construction machinery
④ Confirmation of actual number of engineers, skilled workers and laborers and their comparision with the original plan

(3) Quality and Finished Work Quality Control

The consultant will determine whether or not the equipment and materials to be manufactured, delivered and installed meet those set in the drawings of the contract, quality of the facilities and quality of finished work based on the following items. If any doubt in quality or specifications exists, the consultant will immediately ask the equipment supplier to rectify, alter or improve the situation.

① Check shop drawings and specifications of equipment and materials
② Witness factory inspection of equipment and materials or check factory test results
③ Check packing, transporting and temporary onsite storage methods
④ Check equipment shop drawings and installation manuals
⑤ Check manuals on trial runs, adjustment, testing and inspection of equipment
⑥ Supervise equipment installation work on-site and witness trial operation, adjustment, testing and inspection
⑦ Check civil work drawings, factory fabrication drawings, and check drawing specifications and quality of finished work against original drawings

(4) Safety Control

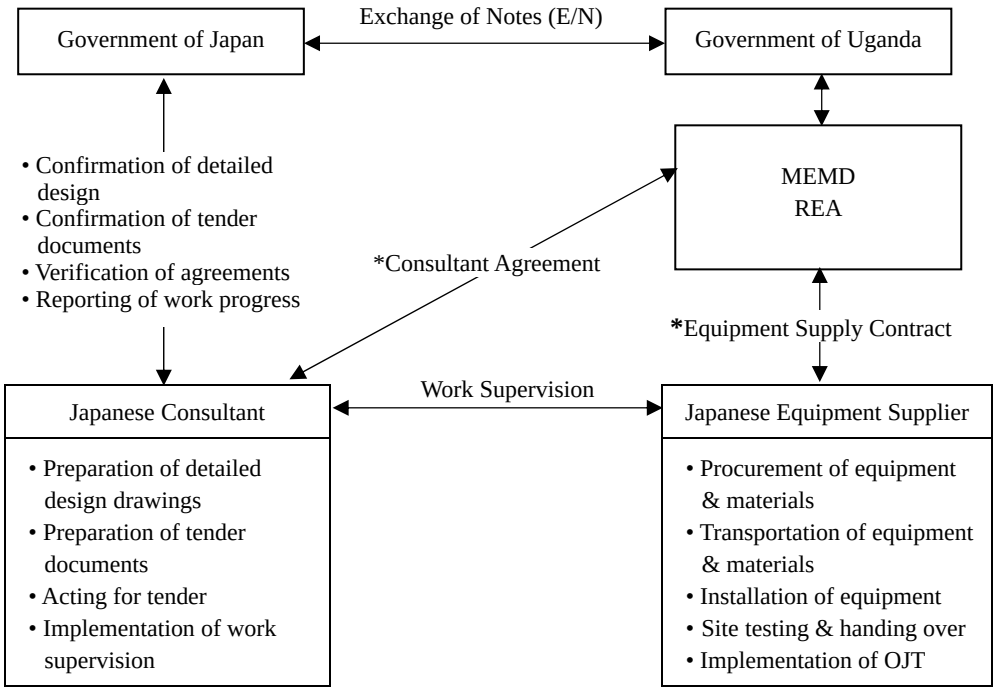
The consultant will provide safety supervision to prevent industrial accidents involving workers and third persons during the construction period through consultations and cooperation with subcontractor's site managers. The following points regarding safety control on-site should be carefully noted.

① Establishment of safety control rules and appointment of a safety control manager
② Prevention of accidents through regular inspection of construction machinery
③ Establishment of travel routes for construction vehicles and construction machinery and strict enforcement of safe driving speeds

④ Enforcement of welfare measures for workers and work holidays

(5) Project Implementation System

The relationship among participants in the implementation of the Project including the work supervision period is shown in Figure 2.2-2.



*Note: The consultant agreement and the equipment supply contract must be approved by the Government of Japan.

Figure 2.2-2 Project Implementation System

(6) Work Supervisors (Supervising Engineers)

The equipment supplier(s) will carry out procurement and installation of equipment and materials for 33kV distribution lines, and at the same time, conduct installation work of the 33kV switchgears and necessary foundation work. The equipment supplier will also employ local construction companies in Uganda in accordance with the contract agreements. Since it will be necessary for the equipment supplier to fully understand the contents of the subcontract regarding the work schedule, work quality and compliance with the specifications and safety measures, the equipment supplier will dispatch Japanese engineers with overseas experience similar to the Project to provide guidance and training for local companies.

Given the scale and contents of the planned installation work for 33kV switchgears and distribution lines under the Project, full-time engineers at least those listed in Table 2.2-18 should be dispatched.

Table 2.2-18 Engineers Dispatched by Equipment Supplier

Type of Engineer	No.	Assign Work	Assignment Period
Site Manager	1	Overall construction work management, consultation & coordination with related organizations, obtaining of necessary permits, director to implement OJT, equipment procurement control, customs clearance, personnel management, account's business	Entire construction period
Assistant Site Manager (Electrical Engineer)	1	Installation supervision of 33kV distribution lines (To share work at 2 sites for each phase with the above-mentioned site manager)	Relevant equipment installation work period
Electrical Engineer (Switchgear Facility)	1	Installation supervision of switchgears & distribution lines, etc.	Relevant equipment installation work period
Civil Engineer	1	Implementation of foundation work for switchgears	Relevant foundation work period
Testing & Adjustment (Distribution & Substation Equipment)	1	Testing & adjustment of circuit breakers & switches, implementation of OJT	Relevant testing & adjustment period

2-2-4-5 Quality Control Plan

A site supervisor of the consultant will determine whether or not the quality of facilities, equipment and materials specified in contract documents (such as technical specifications and detailed design drawings) has been secured by an equipment supplier based on the following items. If some doubt exists on whether or not quality has been ensured, the consultant should ask the equipment supplier to make corrections, changes or modifications.

① Check shop drawings and specifications of equipment and materials

② Witness factory inspections for equipment and materials and check factory inspection results

③ Check method of packaging and transportation and method of onsite temporary storage

④ Check work drawings of equipment and installation manuals

⑤ Check trial operation and adjustment at a factory and at sites related to equipment and materials and inspection manuals

⑥ Supervise on-site installation work for equipment and witness trial operation, adjustment and inspections

⑦ Check facility construction drawings and completed work at the site

⑧ Check as-built drawings

2-2-4-6 Procurement Plan

Equipment and materials for 33kV switchgears and 33kV distribution facilities (except for wooden poles) to be procured and installed under the Project are not manufactured in Uganda. Due to the limited budget in project financing, various equipment and materials are procured from African nations (such as South Africa, Tanzania and Kenya), Asian nations (such as China and India) and European nations.

Although some European substation equipment manufacturers have agents in Uganda, few manufacturers provide local after-sale service or spare parts, etc. for high voltage substation equipment. Consequently, during the selection of supply sources for the substation equipment and materials for the Project, it is necessary to carefully examine the latest situation in Uganda. To be more specific, the easy operation and maintenance of the equipment by the Ugandan engineers and the availability of after-sale service and spare parts in Uganda should be taken into consideration.

Operators that will be responsible for operation and maintenance of equipment and materials to be commissioned by REA after completion of the Project are quite familiar with the operation and maintenance of Japanese equipment since Japanese-manufactured 33kV substations, automatic voltage regulators and other distribution transformers procured during previous projects are still in good operating condition. REA is confident with the performance of the Japanese-manufactured main substation equipment and after-sale services provided by Japanese manufacturers. Therefore, they have requested procurement of Japanese equipment and materials for the Project through the Grant Aid by the Government of Japan.

With respect to equipment installation and construction machinery for transportation, 50-class cranes or trailers can be leased locally so that no specific problems are expected during the implementation of the Project.

As described above, the country of origin for equipment and materials under the Project are shown as follows.

(1) Equipment and Materials to be Procured Locally

1) Equipment and Materials for Construction Work

Cement, sand, aggregate for concrete, concrete blocks, reinforcing bars, timber, gasoline, diesel oil, construction-related vehicles, cranes, trailers and other equipment and materials for temporary work

2) Equipment and Materials for Distribution Lines

Wooden poles

(2) Equipment and Materials to be Procured from Japan

1) Equipment and Materials for 33kV Switchgear Facilities

Equipment and materials for 33kV Panels, etc.

2) Equipment and Materials for 33kV Distribution Lines

Aluminum conductors, distribution transformers, lightning arresters and load break switches, etc.

(3) Equipment and Materials to be procured from Third Countries

1) Metering Unit (DAC countries)

2) Wooden Poles (Kenya, Tanzania and South Africa)

2-2-4-7 Operation Guidance Plan

Before completion of the installation work, guidance on initial operations, operation and maintenance (O&M) training for the equipment and materials to be procured for the Project will be carried out. The said guidance will be provided by instructors from equipment suppliers in accordance with O&M manuals through OJT on site.

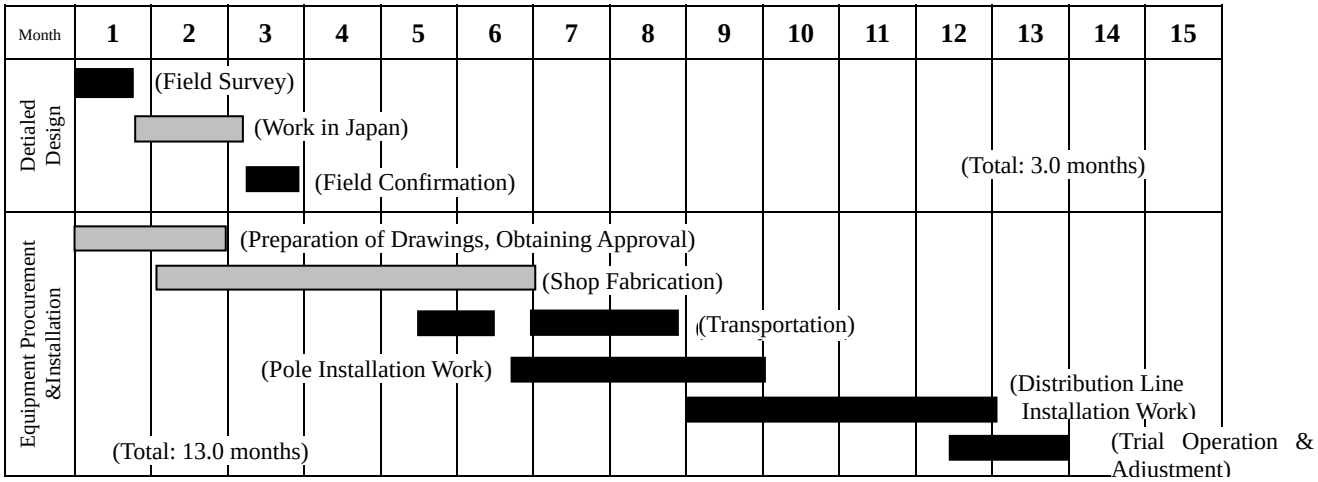
It will, therefore, be necessary for REA to maintain close contact and consultation with Japanese consultants and equipment suppliers and appoint a full-time engineer who will participate in OJT to ensure smooth progress of guidance. The appointed engineer will be required to train other personnel who cannot participate in the guidance and develop skills horizontally in order to improve the maintenance capacity of REA as a whole.

2-2-4-8 Implementation Schedule

The recommended project implementation schedule prepared in accordance with Japan's Grand Aid scheme is as follows.

(Phase 1 Construction Work)

Project Site B (Kagadi / Munteme Area in Hoima & Kibale District in Western Region) and Project Site D (Bukakata Area in Masaka District in Central Region)



(Phase 2 Construction Work)

Project Site A (Nabitende / Itanda Area in Iganga District in Eastern Region) and Project Site C (Bugeso / Iwemba Area in Bugiri District in Eastern Region)

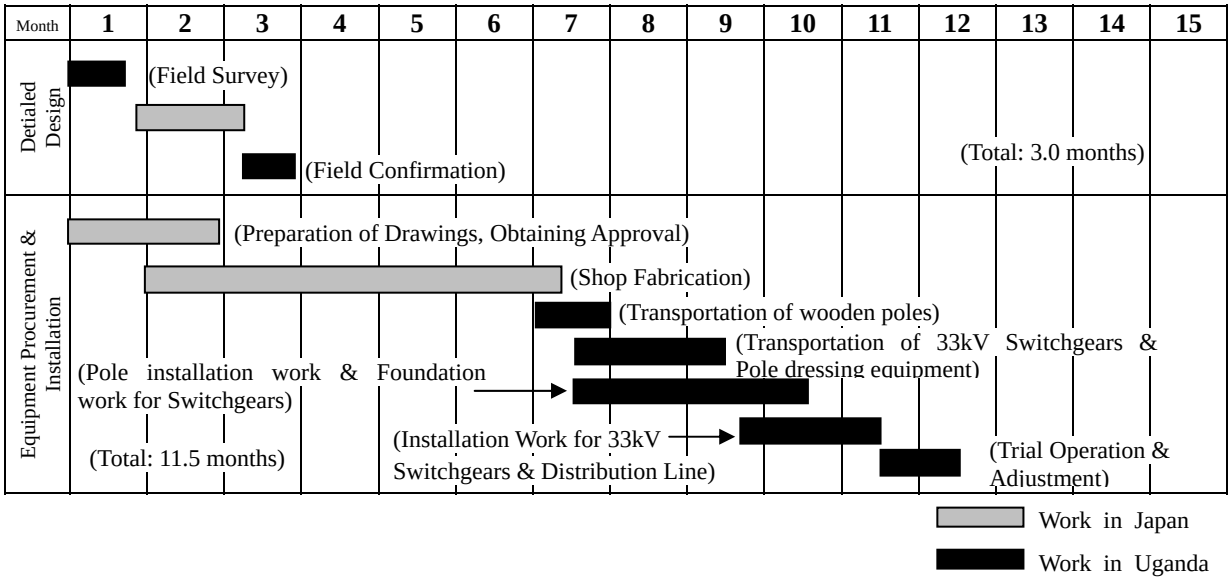


Figure 2.2-3 Project Implementation Schedule

2-3 Obligations of the Recipient Country

In implementing the Project, apart from work demarcation of the Ugandan side as shown in 2-2-4-3 “Scope of Work”, major undertakings by Ugandan side are described as follows.

(1) To provide necessary data and information for the Project

(2) To ensure smooth unloading, customs clearance and tax exemption of goods for the Project at international border and airport in Uganda

(3) To ensure smooth unloading, customs clearance and tax exemption of goods for the Project at the port in Kenya

(4) To permit Japanese nationals whose services may be required in connection with the supply of products and services under verified contracts for necessary entry and stay in Uganda

(5) To exempt Japanese nationals from custom duties, local taxes and other fiscal levies which may be imposed in Uganda with respect to the supply of products and services under verified contracts

(6) To bear service charges from a Japanese bank for banking services based on banking arrangements

(7) To bear all expenses other than those borne by the Japan’s Grant Aid necessary in the implementation of the Project

(8) To appoint engineers and skilled workers as a counterpart (C/P) in order to witness inspections of equipment and materials and to transfer operation and maintenance skills under the Project

(9) To formulate a power blackouts plan during equipment installation work and to carry out various procedures

(10) To use and maintain properly and effectively equipment and materials to be provided through Japan's Grant Aid scheme

(11) To ensure proper disposal sites for excavated soil, waste water and waste oil discharged during the construction period

(12) To complete the extension of 33kV distribution lines from Iganga Substation to Karilo town in accordance with the schedule required by Japan’s Grant Aid scheme and to remove the existing 33kV switchgears at the Iganga Substation (Project Site A: Nabitende / Itanda Area in Iganga District in the Eastern Region)

(13) To procure and install Automatic Voltage Regulator (AVR) in the existing 33kV distribution systems as a compensation measure for voltage drop in accordance with the schedule required by

Japan's Grant Aid scheme (Project Site B: Kagadi / Munteme Area in Hoima & Kibale District in the Western Region).

(14) To appoint operator(s) who will operate and maintain equipment and materials to be procured and installed under the Project and to inform the Japanese side.

(15) To provide safety instructions and education to local residents.

2-4 Project Operation and Maintenance Plan

2-4-1 Basic Concept

It is essential to ensure the appropriate operation and maintenance (O & M) of power distribution and substation facilities and to preserve the surrounding environment in order to improve the reliability of the power supply to consumers at the project sites and to provide stable electric power. Consequently, appropriate preventive maintenance and proper maintenance for the purpose of reducing the rate of faults and attaining improved reliability, safety and efficiency are strongly recommended.

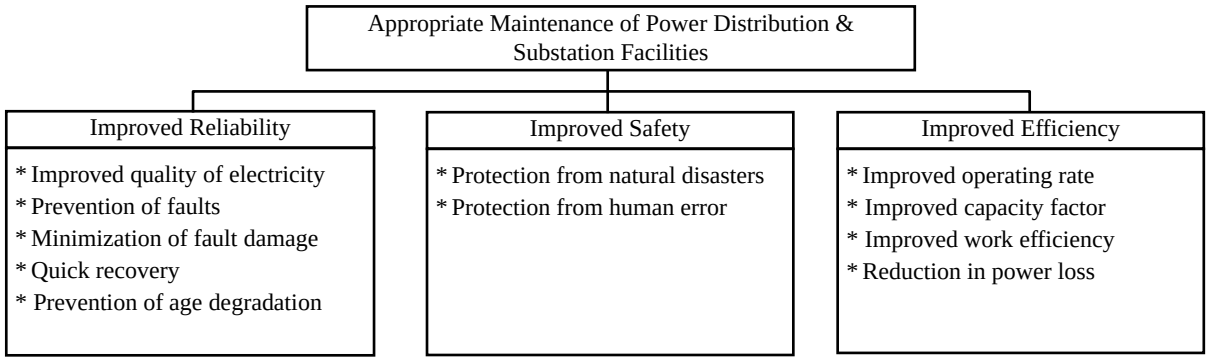


Figure 2.4-1 Basic Concept for the Maintenance of Power Distribution and Substation Facilities

Figure 2.4-1 illustrates the basic concept for the maintenance of power distribution facilities. The equipment and facilities to be procured and installed under the Project should be maintained based mainly on the concept of preventive maintenance.

Engineers are scheduled to be dispatched from Japanese equipment supplier(s) to conduct OJT on the operation and maintenance of relevant switchgears during installation work, testing and adjustment under the Project. At the same time, the Japanese side will provide necessary spare parts, testing instruments and maintenance tools, operation and maintenance manuals by recommending an operation and maintenance system after commencement of operation, in order to display sufficient effects.

In addition, as an implementing agency of the Project, REA entrusts the operation and maintenance of the 33kV distribution lines to a private-sector company called operator(s) after completion of the installation work. During the selection of operator(s), REA will conduct Pre-Qualification process before competitive bidding, to confirm operation experience in similar rural electrification projects, technical capacity and financial soundness. The Project plan includes an implementation system through office(s) of operator(s) entrusted by REA for the purpose of ensuring the organization and personnel for appropriate operation of the electrification project.

2-4-2 Periodical Inspection Items

(1) Periodical Inspection for 33kV Switchgears

The standard items for periodical inspections for the 33kV switchgears to be procured and installed under the Project are shown in Table 2.4-1.

As shown in the said table, inspections for the above-mentioned equipment can be classified into ① “patrol inspections” which are daily checks using the five human senses to detect abnormal heat and sounds in equipment, etc., ② “ordinary inspections” to check charging parts which cannot be checked by daily patrol inspections such as clamping conditions of bolts and damage on the surface of insulators, and ③ “detailed inspections” to check interlocking functions, etc. and to carry out accurate maintenance of instruments.

In general, ordinary inspections and detailed inspections are implemented once every 1 to 2 years and once every 4 years respectively. In addition, parts that have deteriorated in performance and insulating properties, worn contact points and other parts whose characteristics have changed such as fuses built into switchgears, and instruments and relays should be replaced when necessary after confirming the characteristics and frequency of utilization.

Table 2.4-1 Periodical Inspection Items for Standard Equipment

Item	Description (Method)	Patrolling Inspection	Ordinary Inspection	Detailed Inspection
Appearance	Indicating conditions of switch indicators, indicating lamps	○	○	
	Presence of abnormal noise, abnormal odor	○	○	
	Presence of discoloration by heat on terminals	○	○	
	Presence of crack or & damage of bushing & porcelain tube, damage condition	○	○	
	Rust on installed cases & footstools	○	○	
	Presence of abnormal temperature (heat gage)	○	○	
	Clamping conditions of bushing terminal (mechanical check)	○	○	
Operating Unit & Control Panel	Indicating conditions of various instruments	○	○	○
	Indication of operation counter		○	○
	Presence of moisture in operation boxes & panels, rust, damage		○	○
	Refueling, cleaning conditions		○	○
	Clamping conditions of terminals on distribution lines	○	○	○
	Confirmation of switch indication		○	○
	Presence of air or oil leakage		○	○
	Confirmation of pressure before & after operation (such as air pressure)		○	○
	Confirmation of actuating of operating units		○	○
	Presence of rust, deformity or damage to springs (care)	○	○	○
	Presence of abnormality in all clamping pins		○	○
	Inspection (care) of auxiliary switches & relays		○	○
	Inspection of DC control power source	○		
Measuring & Testing	Measurement of insulation resistance		○	○
	Measurement of contact resistance			○
	Presence of heater disconnection		○	○
	Performance test of relays		○	○

(2) Periodical Inspection for Distribution Lines

The most important service one can provide to consumers is to detect faults, damage or breakdowns through daily patrol inspections and to immediately carry out restoration work. In addition, if an outbreak of ground faults is anticipated due to the contact of distribution lines with trees, etc., preventive measures such as bush clearing should be taken in advance. Inspection items for daily patrol inspection are listed as follows.

① Presence of electric line cuts
② Presence of insulator damage
③ Presence of contact of distribution lines with trees, etc.
④ Presence of electric pole damage
⑤ Presence of electric pole inclination
⑥ Installing conditions and oil leakage from distribution transformers
⑦ Condition of various types of switchgears

2-4-3 Spare Parts Purchase Plan

(1) Classification of Spare Parts

Spare parts for the project can be classified into the following.

①	Consumables	:	Parts required for replacement due to exhaustion and deterioration conditions of equipment
②	Replacement parts	:	Parts required for replacement due to breakdown of equipment part
③	Emergency spare parts	:	Necessary replacement equipment during an emergency which involves malfunction of the distribution system due to equipment failure

(2) Scope of Spare Parts

The following equipment and materials are classified as consumables, replacement parts and emergency spare parts to be procured under the Project.

① 33 kV switchgears

② 33 kV distribution line

(3) Special Factors of the Project and Phasing of Procurement of Spare Parts

The Project is characterized by the following special factors so that spare parts should be procured at each phase.

① Construction work is scheduled to be implemented in 2 phases.

② Different operators are expected to operate and maintain each project site (4 sites).

③ Transportation between the project sites is difficult due to road condition and each project site (4 sites) is far from the capital Kampala or previous project sites.

(4) Selection Criteria of Spare Parts

1) Consumables

Consumables are necessary parts for periodical replacement due to exhaustion and deterioration during daily operation. The required number of consumables will be 100% of the annual expected amount.

2) Replacement Parts

Replacement parts are parts for repairs when there is partial damage even though periodical exhaustion or deterioration during daily operation can be neglected. The required number of replacement parts will be 100% of the annual expected amount.

3) Emergency Spare Parts

Emergency spare parts are required when equipment or materials breakdown due to some unexpected event, which has a huge impact on the stability of the power supply and makes it difficult to conduct onsite repairs at an early stage.

The reason for selecting emergency spare parts under the Project is explained as follows.

① "Protection equipment" such as lightning arresters and circuit breakers play a role in protecting transformers from abnormal current and voltage such as lightning impulses and ground fault or surges (switching impulse). Therefore they should be immediately replaced in the case of a breakdown. As thunderstorms frequently occur at the projects sites, if the system is continuously operated without replacing worn out protective equipment during a period of frequent thunderstorm activity, in the case of the breakdown due to subsequent lightning impulses, the primary transformer (trunk substation) may breakdown or fire could occur, which could result in power interruption of many consumers.

② From the viewpoint of procuring the minimum but necessary amount of equipment under the Project, the distribution network will be designed in a radial shape instead of a ring (loop). Accordingly, if a distribution transformer or protective equipment breaks down, consumers after the point of fault will not receive any electricity until the transformer is restored. A power interruption that extends for a long period of time will have serious social and economic impact on operation and maintenance by the implementing agency.

Moreover, it will be difficult to restore equipment with failure on site in an early stage with the existing technical skill of Ugandan side. Therefore, the Ugandan side should replace them with new equipment and restore power as soon as possible. However, operator(s) who will take charge of operation and maintenance under the Project do not have the relevant equipment for replacement. Distribution transformers and protection devices should be procured for emergency replacement parts.

③ With respect to vacuum circuit breakers, option (a) procuring the circuit breaker as emergency spare parts, and another option (b) procuring coils and packing as replacement parts can be considered. In due consideration of the skill level on the Ugandan side, because the option (b) requires skill in replacement and testing, a new circuit breaker will be procured in accordance with the option (a).

(5) Budgetary Steps for Spare Parts

The minimum but necessary one-year portion of spare parts and maintenance tools is scheduled to be procured under the Project. The major items are shown in Table 2.4-2. According to the utilization conditions in the previous assistance, the required quantity to be procured will be 100% of consumables and one of each type of replacement part. The Ugandan side should prepare the necessary budget for purchasing enough additional spare parts for one year after completion of the Project.

(6) Testing Instruments and Maintenance Tools

Testing instrument and tools necessary for appropriate maintenance will be procured under the Project. In particular, maintenance tools should be procured in due consideration of the following conditions.

① Since REA will entrust operation and maintenance works to operator(s), new maintenance tools necessary for operating and maintaining substation and distribution facilities to be installed under the Project should be prepared.

② Since Japanese-made equipment different from existing equipment specifications will be procured and installed, the minimum number of new maintenance tools are requested in conformity with the equipment and materials to be procured under the Project.

Table 2.4-2 Spare Parts and Maintenance Tools to be Procured Under the Project

Item	Unit	<Project Site A> Nabitende / Itanda Area in Iganga District (Eastern Region)	<Project Site B> Kagadi / Munteme Area in Hoima & Kibale District (Western Region)	<Project Site C> Bugeso / Iwemba Area in Bugiri District (Eastern Region)	<Project Site D> Bukakata Area in Masaka District (Central Region)
1. Emergency Spare Parts					
1.1 33kV Switchgear Cubicles					
(1) Vacuum Circuit Breaker	set	1			
1.2 33kV Distribution Lines					
(1) Load Break Switch	set	1	1	1	1
(2) Lightning Arrester (single phase) 5 kA	piece	3	3	3	3
(3) 33 kV/415-240 V Distribution Transformer					
1) 50 kVA Transformer	set		1		1
2) 100 kVA Transformer	set	1	1	1	1
3) 200 kVA Transformer	set	1	1	1	1
(4) Fused Cutout Switch	set	3	3	3	3
2. Replacement Parts					
2.1 33kV Switchgear Cubicles					
(1) Various Fuses	%	100			
(2) Various MCCBs	set	1			
(3) Various Protection Relay	set	1			
(4) Various Auxiliary Relays	set	1			
(5) Space Heater (with thermostat)	set	1			
(6) Various Instruments (Ammeter, watt meter, watt-hour meter, var-hour meter & integrating watt meter)	set	1			
(7) Various Current Transformers	set	1			
(8) Various Voltage Transformers	set	1			
(9) Various Switches	set	1			
(10) 33kV Cable Terminal Treatment Materials (for outdoors and indoors)	set	1			
2.2 33 kV Distribution Lines					
(1) Various Contacts for Load Break Switches	set	1	1	1	1
(2) Various Fused Cutout Switches	piece	3	3	3	3
3. Consumables					
(1) Various Lamps	%	100			
4. Testing Instruments					
(1) AC Dielectric Tester	set	1			
(2) Analogue-type Tester	piece	1	1	1	1
(3) Phase Rotation Meter	piece	1	1	1	1
(4) Voltage Detectors (for high voltage and low voltage)	piece	1			
(5) Relay Testing Kit (for single phase use)	set	1			
(6) Portable AC volt/amp meter	set	1			
(7) Insulation Resistance Tester (Megger) 500 V	set	1	1	1	1
(8) Insulation Resistance Tester (Megger) 1,000 V	set	1	1	1	1
(9) Portable Earth Resistance tester	set	1	1	1	1
(10) Digital-type Multi-meter	set	1	1	1	1
(11) Clip-on Meter	set	1			
(12) Clip-on Meter for Bulk Metering unit	set	1	1		1
5. Maintenance Tools					
(1) Crimping tool (with dices)	set	1	1	1	1
(2) Crimping tool (10 to 120 mm^2)	set	1	1	1	1
(3) Cable Cutter	set	1	1	1	1
(4) Operation Rod for Fused Cut-out Switch	set	1	1	1	1

2-5 Estimated Project Cost

2-5-1 Estimated Cost of the Requested Japanese Assistance

(1) Expenses to be taken by the Japanese side

The total cost of the Project to be implemented in accordance with the Japan's Grant Aid scheme will be determined before concluding the Exchange of Notes (E/N) for the Project.

(2) Expenses to be taken by Ugandan side: 5,579 million U.shs (Uganda shillings)
(Approx. ¥ 360million)

The components and amounts to be taken by Ugandan side are as follows.

1) Phase 1: Project Site B (Kagadi / Munteme Area in Hoima & Kibale District in the Western Region) and Project Site D (Bukakata Area in Masaka District in the Central Region)

① Land acquisition for distribution lines (33kV and low voltage) route:
53 million U.shs (Approx. ¥3.4 million)

② Bush clearing on distribution lines (33kV and low voltage) route:
90 million U.shs (Approx. ¥5.8 million)

③ Land acquisition for stockyard for 33kV distribution line facilities:
10 million U.shs (Approx. ¥0.6 million)

④ Procurement and installation of Automatic Voltage Regulator (AVR):
350 million U.shs (Approx. ¥22.6 million)

⑤ Procurement and installation of equipment and materials for low voltage distribution lines: 1,326 million U.shs (Approx. ¥85.5 million)

⑥ Procurement and installation of consumer kWh meters:
198 million U.shs (Approx. ¥12.8 million)

Phase 1 Subtotal: 2,027 million U.shs (Approx. ¥130.7 million)

2) Phase 2: Project Site A (Nabitende / Itanda Area in Iganga District in the Eastern Region) and Project Site C (Bugeso / Iwemba Area in Bugiri District in the Eastern Region)

① Land acquisition for distribution lines (33kV and low voltage) route:
53 million U.shs (Approx. ¥3.4 million)

② Bush clearing on distribution lines (33kV and low voltage) route:
38 million U.shs (Approx. ¥2.5 million)

③ Land acquisition for stockyard for 33kV switchgears and distribution line facilities:
10 million U.shs (Approx. ¥0.6 million)

④ Procurement and installation of 33kV distribution lines (Iganga to Karilo):
1,418 million U.shs (Approx. ¥91.4 million)

⑤ Removal of existing equipment and temporary cable installation (Iganga Substation):
141 million U.shs (Approx. ¥9.1 million)

⑥ Procurement and installation of equipment and materials for low voltage distribution lines: 1,581 million U.shs (Approx. ¥102.0 million)

⑦ Procurement and installation of consumer kWh meters:
311 million U.shs (Approx. 20.0 million)

Phase 2 Subtotal: 3,552 million U.shs (Approx. 229.0 million)

(3) Estimated Conditions

① Date of Estimation: February 2007

② Exchange Rate: 1 US$ = ¥118.79
(TTS average value between August 2006 and January 2007)
1 U.shs = ¥0.0645
(TTB average value between August 2006 and January 2007)

③ Implementation Period: The period for detail design and equipment procurement and installation are shown in implementation schedule by dividing into two phases for each project site.

④ Other: The Project will be implemented in accordance with the Japan's Grant Aid scheme.

2-5-2 Operation and Maintenance Cost

Although equipment to be procured under the Project is basically maintenance free, consumables necessary for operation of the facilities and replacement parts for deterioration should be continuously reserved as described in 2-4-3. Accordingly, Ugandan side should prepare the necessary budget so that operation and maintenance of the relevant facilities will not be disrupted.

Private-sector operator(s) to be selected through competitive bidding for each project site, will operate and maintain facilities to be installed for Project after commencement of operation under the

supervision of REA. Based on the project operation cost by existing operators, the following operation and maintenance cost (annual) can be estimated.

①	Personnel expenses:	Approx. 210 million U. shs	(Approx. ¥14 million)
②	Office expenses (including rent):	Approx.190 million U. shs	(Approx. ¥12 million)
③	Vehicle and fuel cost:	Approx. 12 million U. shs	(Approx. ¥1 million)
④	Expenses for consumables and spare parts:	Approx.12 million U. shs	(Approx. ¥1 million)
	Subtotal:	Approx. 424 million U. shs	(Approx. ¥28 million)
	Total (4 sites):	Approx. 1,696 million U.shs	(Approx. ¥112 million)

As the above-mentioned amount will be only about 3% of the operation and maintenance cost (approx. 50 billion U.shs/annually), no special problems are anticipated to ensure the maintenance cost at the project sites.

2-6 Other Relevant Issues

The following items are assumed to have a direct impact on the smooth implementation of the requested Japanese assistance.

(1) In order to procure and install equipment and materials for the 415V low voltage distribution lines to be taken by Ugandan side in line with the installation schedule of substation facilities and 33kV distribution lines to be procured and installed by Japanese side, Ugandan side should ensure smooth progress of installation work by appointing operator(s) who will take charge of the project sites and by formulating a construction schedule, personnel plan, procurement plan of equipment and materials, etc.

(2) The power supply system for consumers at the project sites will be established through implementation of the Project. Ugandan side should therefore review the power distribution system in due consideration of expansion of the area for power supply while taking into account improvement in living standards and disparity of living condition.

(3) By investigating the indices on socio-economic conditions at the project sites after implementation of the Project, the influence on socio-economic conditions of the Project and similar electrification projects should be evaluated in a quantitative manner.

(4) In addition to the mitigation measures formulated by the Study Team in the implementation of the Project, in due consideration of the recommendations shown in the approval letter issued by

the National Environment Management Authority (NEMA) and the National Forestry Authority (NFA), installation work, operation and maintenance will be carried out in cooperation with the responsible ministry and implementing agency of the Ugandan side.

CHAPTER 3

PROJECT EVALUATION AND RECOMMENDATIONS

CHAPTER 3
PROJECT EVALUATION AND RECOMMENDATIONS

3-1 Project Effect

The expected effects through implementation of the Project are described as follows.

(1) Direct Effect

Current Situation & Problems	Measures taken under the Project (Requested Japanese Assistance)	Positive Effect & Degree of Impact
With the formulation of the "Rural Electrification Strategy and Plan" in 2001 & the completion of the "Third Poverty Eradication Action Plan (PEAP)" in 2004, Uganda aims at promoting rural electrification to contribute to poverty reduction. However, the electrification rate in rural areas (about 4%) is still relatively lower compared with urban areas (about 20%), contributing to disparity in living standards.	The equipment & materials for 33kV distribution lines will be procured & installed at Kagadi / Munteme Area in Hoima & Kibale District in the Western Region (13 sites for about 13,000 residents) ,and Bukakata Area in Masaka District in the Central Region (9 sites for about 15,000 residents) in Phase 1.	The present household electrification rate (about 3%) in Hoima District in the Western Region will be improved to about 4%, and the present rate (about 0.4%) in Kibale District in the Western Region will be improved to about 2%, and the present rate (about 9%) in Masaka District in the Central Region will be improved to about 11% under the Project in Phase 1.
	The equipment & materials for 33kV distri bution lines will be procured & installed at Nabitende / Itanda Area in Iganga District in the Eastern Region (8 sites for about 34,000 residents), and Bugeso / Iwemba Area in Bugiri District in the Eastern Region (5 sites for about 14,000 residents) in Phase 2.	The present household electrification rate (about 4%) in Iganga District in the Eastern Region will be improved to about 7%, and the present rate (about 1%) will be improved to about 3% under the Project in Phase 2.
	The equipment & materials for 33kV distribution lines will be procured & installed for about 76,000 local residents at the targeted four regions.	Nationwide, the rural electrification rate will be improved by about 0.2% through the electrification in Phase 1 and Phase 2.

(2) Indirect Effect

Current Situation & Problems	Measures taken under the Project (Requested Japanese Assistance)	Positive Effect & Degree of Impact
1. Although there are clinics at the project sites that local residents utilize, refrigerators for storing pharmaceuticals or vaccine have not yet been improved, so patients with serious illness are transported to neighboring hospitals in villages that have been electrified.	The equipment & materials for 33kV distribution lines will be procured & installed in Nabitende / Itanda Area in Iganga District in the Eastern Region (8 sites for about 34,000 residents), Kagadi / Munteme Area in Hoima &Kibale District in the Western Region (13 sites for about 13,000 residents), Bugeso / Iwemba Area in Bugiri District in the Eastern Region (5 sites for about 14,000 residents), and Bukakata Area in Masaka District in the Central Region (9 sites for about 15,000 residents). Total number of beneficiary for the Project is approx. 76,000 residents.	It will be possible to introduce medical equipment & vaccine refrigerators at medical institutions in the project sites, so health and sanitation will be improved for local residents.

Current Situation & Problems	Measures taken under the Project (Requested Japanese Assistance)	Positive Effect & Degree of Impact
2. Although elementary & junior high schools take in charge of a part of the Universal Primary Education Program promoted by the government, the efficiency of study becomes lower without power.	Same as above	It will be possible to introduce lighting equipment & teaching materials (such as personal computers) by utilizing power at educational institutions in the project sites, so educational activities will be stimulated.
3. Since the project sites are production bases for farming products such as matoki (green bananas), maize, coffee, tea or rice, mills for flour or grain are out of operation due to high cost of fuel for diesel engines. This has therefore become a major burden on residents.	Same as above	It will be possible to utilize agricultural production equipment through more stable & affordable power at farming production bases in the project sites. This will enable agricultural productivity to increase & agricultural operations to become modernized and more advanced.
4. Although electricity is being supplied in Hoima and Munteme towns (project sites of the previous assistance) close to Project Site B through the 33kV distribution lines from the Hoima Substation, if a distribution line faults occur, power will be disrupted for a long period, making a stable power supply difficult.	Same as above	By extending the 33kV distribution lines from Kagadi village & connecting those to the 33kV distribution line from the Hoima Substation under the Project, the 33kV system will comprise a loop circuit, thus improving the reliability of the power supply with redundant configuration of power source.

3-2 Recommendations

3-2-1 Recommendations to be Taken by Recipient Country

Major undertakings to be implemented by Ugandan side are described as follows in order to produce desired and sustainable benefits of the Project.

(1) In order to procure and install equipment and materials for 415V low voltage distribution lines to be taken by Ugandan side in line with the installation schedule of substation facilities and 33kV distribution lines to be procured and installed by the Japanese side, Ugandan side should ensure smooth progress of construction work by appointing operator(s) who will take charge of the project sites and by formulating a installation schedule, personnel plan, procurement plan of equipment and materials, etc.

(2) Although distribution transformers that will meet the estimated power demand five years after the commencement of operation will be procured under the Project, the Ugandan side should prepare a budget to procure additional equipment to meet an increase in power demand after

commencement of operation by appropriately reviewing power demand and formulating a plan on additional transformers after completion of the Project.

(3) The power supply system for consumers at the project sites will be established through implementation of the Project. Ugandan side should therefore review the power distribution system in due consideration of expansion of the area for power supply while taking improvement in living standards and disparity of living conditions into account.

(4) Ugandan side should strictly enforce preventive maintenance such as bush clearing along the distribution lines by periodically carrying out on-site patrol inspections in order to reduce distribution line faults and to ensure a stable power supply system.

(5) In order to establish a fair electricity payment collection system, the Ugandan side should strictly enforce meter reading and collect electricity payment thorough installing individual electricity meters for all consumers.

(6) Engineers who will participate in on-the-job training (OJT) to be implemented under the Project should be appointed promptly and also be involved in training. At the same time, skills should be developed horizontally for other engineers who will not participate in training.

3-2-2 Technical Cooperation and Coordination with Other Donors

Other donors involved in rural electrification programs currently being implemented or scheduled in the future include the World Bank, the Swedish International Development Agency (SIDA) and the Norwegian Agency for International Development (NORAD). The World Bank supports rural electrification to Priority Rural Electrification Projects (PREPS) as the component of the Energy for Rural Transformation (ERT) Program; whereas, SIDA plans electrification projects at four locations (Pader, Kyenjojo, Bundibugyo and Bugiri districts), and NORAD schedules mini grid electrification through small-scale hydro power station at three sites (West Nile, Waki-Masindi and Bukoe-Nkenda regions). However, either program is not directly related to the Project. Also, no technical cooperation program is presumed for the implementation of the Project.

APPENDICES

1. MEMBER LIST OF THE STUDY TEAM

APPENDIX 1 MEMBER LIST OF STUDY TEAM

< 1st Field Survey >

Name	Assigned Work	Current Position
Mr. Hiroyuki Hayashi	Leader	Senior Program Administration Officer, Transportation and Electric Power Team, Project Management Group I, Grant Aid Management Department, JICA
Mr. Tadayuki Ogawa	Chief Consultant/ Power Supply Planner/ Power Distribution Planner I/ Specialist on the Environmental & Social Consideration	Yachiyo Engineering Co.,Ltd.
Mr. Masatsugu Komiya	Deputy Chief Consultant/ Power Distribution Planner II	Yachiyo Engineering Co.,Ltd.
Mr. Masayuki Tamai	Power Distribution Equipment Planner/ Operation & Maintenance Planner I	Yachiyo Engineering Co.,Ltd.
Mr. Tomonori Kondo	Power Distribution Equipment Planner/ Operation & Maintenance Planner II/ Procurement Planner & Cost Estimator II	Yachiyo Engineering Co.,Ltd.
Mr. Tetsuo Yatsu	Procurement Planner & Cost Estimator I	Yachiyo Engineering Co.,Ltd.
Mr. Kazunari Nogami	Natural Conditions Surveyor	Yachiyo Engineering Co.,Ltd.

< 2nd Field Survey >

Name	Assigned Work	Current Position
Mr. Takehiro Susaki	Leader	Resident Representative, JICA Uganda Office
Mr. Hideaki Matsuoka	Project Coordinator	East Africa Team, Regional Department IV(Africa), JICA
Mr. Tadayuki Ogawa	Chief Consultant/ Power Supply Planner/ Power Distribution Planner I/ Specialist on the Environmental & Social Consideration	Yachiyo Engineering Co.,Ltd.
Mr. Masatsugu Komiya	Deputy Chief Consultant/ Power Distribution Planner II	Yachiyo Engineering Co.,Ltd.
Mr. Masayuki Tamai	Power Distribution Equipment Planner/ Operation & Maintenance Planner I	Yachiyo Engineering Co.,Ltd.
Mr. Tomonori Kondo	Power Distribution Equipment Planner/ Operation & Maintenance Planner II/ Procurement Planner & Cost Estimator II	Yachiyo Engineering Co.,Ltd.
Mr. Kazunari Nogami	Natural Conditions Surveyor	Yachiyo Engineering Co.,Ltd.

< Draft Basic Design Study >

Name	Assigned Work	Current Position
Mr. Takehiro Susaki	Leader	Resident Representative, JICA Uganda Office
Mr. Tadayuki Ogawa	Chief Consultant/ Power Supply Planner/ Power Distribution Planner I/ Specialist on the Environmental & Social Consideration	Yachiyo Engineering Co.,Ltd.
Mr. Masatsugu Komiya	Deputy Chief Consultant/ Power Distribution Planner II	Yachiyo Engineering Co.,Ltd.

2. SURVEY SCHEDULE

APPENDIX 2 SURVEY SCHEDULE

< 1st Field Survey >

No.	Date	Day of the week	Survey Contents		Stay at
			Official	Consultant Members (Yachiyo Engineering Co.,Ltd.)	
			JICA (Mr. Hiroyuki Hayashi)	Mr. Tadayuki Ogawa, Mr. Masatsugu Komiya, Mr.Masayuki Tamai, Mr. Tetsuo Yatsu, Mr. Tomonori Kondo and Mr.Kazunari Nogami	
1	20 Nov.	Mon		• Trip from Narita (18:30) to Nagoya (19:50)by JL-053 • Trip from Nagoya (23:00) to Dubai (06:10+1)by JL-5097	
2	21 Nov.	Tue		• Trip from Dubai (14:30) to Entebbe (20:45) by EK-721	Kampala
3	22 Nov.	Wed		• Courtesy call to JICA Uganda Office & EOJ, and explanation/discussion of the schedule and contents of the field survey in Uganda. • Courtesy call to MEMD, REA & UETCL, submission of Inception Report & Questionnaire and explanation/discussion of the schedule and contents of the field survey.	ditto
4	23 Nov.	Thu		• Discussion with MEMD, REA & UETCL staff and Collection of data • Confirmation on the Priority of the Project in Rural Electrification Master Plan and National Development Policy • Confirmation on Electric Power Supply & Demand and the latest progress of Rural Electrification Projects • Collection of basic data and information for the selection of the Project site	ditto
5	24 Nov.	Fri		• Discussion with MEMD, REA & UETCL staff and Collection of data • Arrangement for accompanying counterpart personnel to Site survey • Discussion with NEMA to confirm regulations and procedures regarding Environmental and Social Considerations	ditto
6	25 Nov.	Sat		Move from Kampala to Jinja by car • Site survey at the Substations supplied in the previous Rural Electrification Project • Visiting Nalubale and Kiira P/S	Jinja
7	26 Nov.	Sun		• Sorting of Data and information collected • Internal meeting	ditto
8	27 Nov.	Mon		• Discussion with UMEME staff and Collection of data • Site Survey (site A) (Confirmation and measurement for 33kV distribution lines)	ditto
9	28 Nov.	Tue		• Site Survey (site C) (Confirmation and measurement for 33kV distribution lines)	ditto
10	29 Nov.	Wed		• Site Survey (site A) (Confirmation and measurement for 33kV distribution lines)	ditto
11	30 Nov.	Thu	• Trip from Lusaka (11:10) to Nairobi (16:35) by KQ-424 • Trip from Nairobi(18:10) to Entebbe(19:25) by KQ-414	• Discussion with UMEME staff and Collection of data Move from Jinja to Kampala by car • Meeting and discussion with REA	Kampala
12	1 Dec.	Fri	• Courtesy call to JICA Uganda Office & EOJ • Courtesy call to MEMD & REA	(Mr.Ogawa and Mr.Komiya)Same as leader (Mr.Yatsu and Mr. Kondo) • Collection of Data for Procurement of Equipment and Materials (Mr.Tamai and Mr.Nogami) • Collection of Answer for Questionnaire	ditto
13	2 Dec.	Sat	Move from Kampala to Masaka by car • Site Survey (site D) (Confirmation and measurement for 33kV distribution lines) • Site survey at Masaka Substation (S/S)		Masaka
14	3 Dec.	Sun	(7:00) Leave Masaka to Ferry terminal (8:00) Board on ferry to Kalangala • Site Survey (site D) (Confirmation and measurement for 33kV distribution lines)		ditto
15	4 Dec.	Mon	Move from Masaka to Kampala by car • Explanation of and discussion on M/D • Signing on M/D	(Mr.Ogawa and Mr.Komiya) •Same as Leader (Mr. Yatsu and Mr.Nogami) Move from Masaka to Kampala by car • Sorting data for Procurement of Equipment and Materials • Collection of Census Data (Mr. Tamai and Mr. Kondo) Move from Masaka to Hoima by car • Site Survey (site B) (Confirmation and measurement for 33kV distribution lines)	Kampala Hoima

No.	Date	Day of the week	Survey Contents		Stay at
			Official	Consultant Members (Yachiyo Engineering Co.,Ltd.)	
			JICA (Mr. Hiroyuki Hayashi)	Mr. Tadayuki Ogawa, Mr. Masatsugu Komiya, Mr.Masayuki Tamai, Mr. Tetsuo Yatsu, Mr. Tomonori Kondo and Mr.Kazunari Nogami	
16	5 Dec.	Tue	• Meeting with BIDCO for confirmation of technical issues	(Mr.Ogawa) ●Same as Leader (Mr. Tamai and Mr. Kondo) • Site Survey (site B) (Confirmation and measurement for 33kV distribution lines) (Mr. Nogami) ●Collection of Answer for Questionnaire and Census Data (Mr.Komiya and Mr.Yatsu) Trip from Entebbe(16:20) to Dubai (00:35+1) by EK-724	ditto
17	6 Dec.	Wed	(Mr.Hayasi, Mr.Ogawa and Mr.Nogami) Move from Kampala to Hoima by car • Site Survey (site B) (Confirmation and measurement for 33kV distribution lines) (Mr.Tamai and Mr.Kondo) • Site Survey (site B) (Confirmation and measurement for 33kV distribution lines) (Mr.Komiya and Mr.Yatsu) ●Trip from Dubai(02:50) to Nagoya (16:50) by JAL-5098		Hoima
18	7 Dec.	Thu	• Site Survey (site B) (Confirmation and measurement for 33kV distribution lines) Move from Hoima to Kampala by car		Kampala
19	8 Dec.	Fri	• Report to EOJ and JICA Uganda office • Trip from Entebbe(16:20) to Dubai (00:35+1) by KQ-724	(Mr.Ogawa) ●Same as Leader (Mr.Tamai and Mr.Kondo) • Collection of Data for Power Distribution Equipment Planning (Mr. Nogami) • Discussion with REA about Project Brief which should be submitted to NEMA	ditto
20	9 Dec.	Sat	• Trip from Dubai(02:50) to KIX (16:40) by JL-5090 • Trip from KIX(18:30) to Haneda(19:40) by JL-1316	• Sorting of Data and information collected • Internal meeting	ditto
21	10 Dec.	Sun		• Sorting of Data and information collected • Internal meeting	ditto
22	11 Dec.	Mon		(Mr.Ogawa) • Visiting MEMD & REA and Explanation of the results of the Field Survey • Survey of Budget and Organizational framework of MEMD, REA & UETCL (Mr.Tamai and Mr.Kondo) • Collection of Data for Procurement of Equipment and Materials (Mr. Nogami) • Discussion with REA about Project Brief which should be submitted to NEMA	ditto
23	12 Dec.	Tue		• Preparation of 1st Field Report (Mr.Tamai and Mr.Kondo) • Collection of Data for Procurement of Equipment and Materials	ditto
24	13 Dec.	Wed		• Preparation of 1st Field Report	ditto
25	14 Dec.	Thu		• Explanation and discussion on 1st Field Report to Ugandan side, and obtaining approval for the report	ditto
26	15 Dec.	Fri		• Report to EOJ and JICA Uganda office on the result of first field survey • Trip from Entebbe(16:20) to Dubai (00:35+1) by EK-724	
27	16 Dec.	Sat		• Trip from Dubai(02:50) to KIX (16:40) by JL-5090 • Trip from KIX(18:30) to Haneda(19:40) by JL-1316	

[Remarks]
EOJ : Embassy of Japan
JICA : Japan International Cooperation Agency
MEMD : Ministry of Energy and Mineral Development
REA : Rural Electrification Agency
UETCL : Uganda Electricity Transmission Company Ltd.
NEMA : National Environment Management Authority
M/D : Minutes of Discussions

Project Site A (Eastern Region) : Nabitende / Itanda Area in Iganga District
Project Site B (Western Region) : Kagadi / Munteme Area in Hoima and Kibale District
Project Site C (Eastern Region) : Bugeso / Iwemba Area in Bugiri District
Project Site D (Central Region) : Bukakata Area in Masaka District

< 2nd Field Survey >

No.	Date	Day of the week	Survey Contents			Stay at
			Official	Consultant Members (Yachiyo Engineering Co.,Ltd.)		
			JICA (Mr. Hideaki Matsuoka)	Mr. Tadayuki Ogawa, Mr. Masatsugu Komiya, Mr.Masayuki Tamai, Mr. Tomonori Kondo and Mr.Kazunari Nogami		
1	29 Jan.	Mon	• Trip from Narita to KIX • Trip from KIX to Dubai	• Trip from Narita (18:30) to Nagoya (19:50)by JL-053 • Trip from Nagoya (23:00) to Dubai (06:10+1)by JL-5097		
2	30 Jan.	Tue	• Trip from Dubai to Entebbe	• Trip from Dubai (08:25) to Entebbe (14:50) by EK-723		Kampala
3	31 Jan.	Wed	• Courtesy call to JICA Uganda Office & EOJ • Courtesy call to MEMD, REA & UETCL • Arrangement for accompanying counterpart personnel to Site survey	• Same as Leader		ditto
4	1 Feb.	Thu	• Discussion with MEMD & REA staff and Collection of data	(Mr.Ogawa, Mr.Komiya & Mr.Nogami) • Same as Leader	(Mr.Tamai & Mr.Kondo) Move from Kampala to Fort Portal by car • Site Survey (site B) (Confirmation and measurement for 33kV distribution lines)	Kampala Fort Portal
5	2 Feb.	Fri	Move from Kampala to Fort Portal by car • Site Survey (site B) (Confirmation and measurement for 33kV distribution lines)	(Mr.Ogawa, Mr.Komiya & Mr.Nogami) • Same as Leader	• Site Survey (site B) (Confirmation and measurement for 33kV distribution lines)	Fort Portal
6	3 Feb.	Sat	• Sorting of Data and information collected • Internal meeting			ditto
7	4 Feb.	Sun	Move from Fort Portal to Hoima by car • Site Survey (site B) (Confirmation and measurement for 33kV distribution lines)			Hoima
8	5 Feb.	Mon	Move from Hoima to Kampala by car	(Mr.Ogawa, Mr.Komiya and Mr.Nogami) • Same as Leader	(Mr.Tamai and Mr.Kondo) Move from Hoima to Masaka by car • Site Survey (site D) (Confirmation and measurement for 33kV distribution lines)	Kampala Masaka
9	6 Feb.	Tue	• Explanation of and discussion on M/D • Signing on M/D	(Mr.Ogawa, Mr.Komiya and Mr.Nogami) • Same as Leader	(Mr.Tamai and Mr.Kondo) • Site Survey (site D) (Confirmation and measurement for 33kV distribution lines)	ditto
10	7 Feb.	Wed	• Report to EOJ and JICA Uganda office	(Mr.Ogawa and Mr.Komiya) • Same as Leader • Approval of Project Brief submitted to NEMA • Collection of meteorological data at Ministry of Water, Lands and Environment • Certification of Custom Clearance Procedure at Ministry of Finance, Planning, and Economic Development	(Mr.Tamai and Mr.Kondo) • Site Survey (site D) (Confirmation and measurement for 33kV distribution lines) Move from Masaka to Kampala by car	Kampala
11	8 Feb.	Thu	• Trip from Entebbe to Dubai	• Discussion with UETCL staff and Collection of data • Confirmation of the range of Right-of-Way at Road Agency Formation Unit • Certification of Custom Clearance Procedure at Ministry of Finance, Planning, and Economic Development • Certification Locations of Forest Reserve Area in each Project Site at NFA • Sorting of Data and information collected in Project Site B and D Visiting Lugogo Load Dispatching Center		ditto

No.	Date	Day of the week	Survey Contents		Stay at
			Official	Consultant Members (Yachiyo Engineering Co.,Ltd.)	
			JICA (Mr. Hideaki Matsuoka)	Mr. Tadayuki Ogawa, Mr. Masatsugu Komiya, Mr.Masayuki Tamai, Mr. Tomonori Kondo and Mr.Kazunari Nogami	
12	9 Feb.	Fri	• Trip from Dubai to KIX • Trip from KIX to Haneda	• Discussion with UETCL staff and Collection of data • Discussion with REA staff and Collection of data • Sorting of Data and information collected in Project Site B and D • Submission of Project Brief to NFA (Mr.Tamai and Mr.Kondo) Move from Kampala to Jinja by car	Kampala Jinja
13	10 Feb.	Sat		(Mr.Ogawa and Mr.Nogami) Move from Kampala to Jinja by car (Mr.Tamai and Mr.Kondo) • Site Survey (site A) (Confirmation and measurement for 33kV distribution lines) (Mr.Komiya) • Trip from Entebbe(16:20) to Dubai (00:35+1) by KQ-724	Jinja
14	11 Feb.	Sun		• Internal meeting (Mr.Komiya) • Trip from Dubai(02:50) to KIX (16:40) by JL-5090 • Trip from KIX(18:30) to Haneda(19:40) by JL-1316	ditto
15	12 Feb.	Mon		• Site Survey (site A) (Confirmation and measurement for 33kV distribution lines)	ditto
16	13 Feb.	Tue		• Site Survey (site C) (Confirmation and measurement for 33kV distribution lines)	ditto
17	14 Feb.	Wed		Move from Jinja to Kampala by car • Certification of Custom Clearance Procedure at Ministry of Finance, Planning, and Economic Development • Sorting of Data and information collected in Project Site B and D	ditto
18	15 Feb.	Thu		• Approval of Project Brief submitted to NFA • Discussion with UETCL & REA staff and Collection of data	Kampala
19	16 Feb.	Fri		• Discussion with UETCL & REA staff and Collection of data • Confirmation of the range of Right-of-Way at Road Agency Formation Unit • Collection of meteorological data at Ministry of Water, Lands and Environment	ditto
20	17 Feb.	Sat		• Internal meeting	ditto
21	18 Feb.	Sun		• Internal meeting	ditto
22	19 Feb.	Mon		• Confirmation of the range of Right-of-Way at Ministry of Works and Transport • Certification of Custom Clearance Procedure at Ministry of Finance, Planning, and Economic Development • Preparation of 2nd Field Report	ditto
23	20 Feb.	Tue		• Explanation of and discussion on 2nd Field Report to Ugandan side • Sorting of Data and information collected in Project Site A, B, C and D	ditto
24	21 Feb.	Wed		• Sorting of Data and information collected in Project Site A, B, C and D	ditto
25	22 Feb.	Thu		• Explanation of and discussion on 2nd Field Report to Ugandan side, and obtaining approval for the report	ditto
26	23 Feb.	Fri		• Report to EOJ and JICA Uganda office on the result of Field Survey • Trip from Entebbe(16:20) to Dubai (00:35+1) by EK-724	
27	27 Feb.	Sat		• Trip from Dubai(02:50) to KIX (16:40) by JL-5090 • Trip from KIX(18:30) to Haneda(19:40) by JL-1316	

[Remarks]
NFA : National Forestry Authority

< Explanation of the Draft Basic Design Study Report>

No.	Date	Day of the week	Survey Contents Consultant Members (Yachiyo Engineering Co.,Ltd.) Mr. Tadayuki Ogawa, Mr. Masatsugu Komiya	Stay at
1	28 May	Mon	• Trip from Narita (18:30) to Nagoya (19:45) by JL-053 • Trip from Nagoya (22:45) to Dubai (04:45+1) by JL-5097	
2	29 May	Tue	• Trip from Dubai (08:25) to Entebbe (14:45) by EK-723	Kampala
3	30 May	Wed	• Courtesy call to JICA Uganda Office & EOJ (Explanation of and discussions on the contents of the outline of the Draft Basic Design Report) • Courtesy call and explanation of the survey schedule to MEMD, REA & UETCL	ditto
4	31 May	Thu	• Explanation and discussions on the contents of the outline of the Draft Basic Design Report and Draft Specifications for Equipment (MEMD & REA) • Confirmation on the schedule for finalizing M/P • Confirmation on the schedule for Ugandan scope of works • Arrangement for accompanying counterpart personnel to Site survey	ditto
5	1 June	Fri	ditto	ditto
6	2 June	Sat	Move from Kampala to Fort Portal by car	Fort Portal
7	3 June	Sun	• Site Survey (site B) (Confirmation and measurement for 33kV distribution lines) • Site Survey for installation of AVR at Kakumiro S/S	ditto
8	4 June	Mon	Move from Fort Portal to Kampala by car	Kampala
9	5 June	Tue	• Explanation and discussion on the M/D	ditto
10	6 June	Wed	• Signing on the M/D	ditto
11	7 June	Thu	• Report to EOJ and JICA Uganda office on the result of Field Survey • Trip from Entebbe (16:15) to Dubai (00:45+1) by EK-724	
12	8 June	Fri	• Trip from Dubai(02:50) to Nagoya (17:40) by JL-5098	

3. LIST OF PARTIES CONCERNED IN THE RECIPIENT COUNTRY

3. List of Parties Concerned in the Recipient Country

Organization and Name	Position
Ministry of Energy and Mineral Development (MEMD)	
Mr. Hon. Amb. Dr.Cos Kamanda Bataringaya	Minister of State Energy & Mineral Development
Mr. Hon.Eng.Simon D'Ujanga	Minister of State for Energy
Mr. Fred Kabagambe - Kaliisa	Permanent Secretary
Mr. Michael J.Odongo	Under Secretary
Mr. Watuwa Bwobi	Director, Directorate of Energy and Mineral Development
Eng. Paul Mubiru	Commissioner for Energy Resources Department
Ms. Cecilia Nakiranda Menya	Senior Energy Officer (Electrical)
Mr. Henry Bidasala	Ag. Assistant Commissioner, Electrical Power
Mr. Sajjabi J. Fredrick	Senior Energy Officer
Mr. James Baanabe Isingoma	Ag. Asst. Comm. Energy Efficiency
Rural Electrification Agency (REA)	
Mr. Godfrey Turyahikayo	Executive Director
Ms. Grania Rosette Rubomboras	Manager, Project Planning
Eng. Moses Murengezi	Manager, Project Monitoring & Evaluation
Mr. Charles Sabiiti	Manager, Finance & Administration
Mr. Philip F.P.Ggayi	Senior Planning Engineer
Mr. Werikhe K.Godfrey	Senior Construction Engineer
Mr. Muguwa Andrew	Senior Planning Engineer
Mr. Richard Muhangi	ICT/GIS Officer
Ms. Nantume Deborah Pamela	Trainee Engineer
Ms. Becky Kalyango	Receptionist
Uganda Electricity Transmission Company Ltd. (UETCL)	
Mr. Kiyemba Eriasi	Managing Director
Mr. Gerald Muganga	Manager, Engineering (Services)
Mr. William K. Kiryahika	Manager, Engineering (O&M)
Mr. Buhanga Boneventura	Principal Planning Engineer
Mr. Mukwaya Paul Mathew	Technical Officer (Maintenance)
Mr. Andrew Omalla Geno	Technical Officer Projects
Mr. Okot Dennis	Senior Dispatch Engineer
Mr. Ssekidde Moses	Protection Technician

Umeme Limited

Mr. Zach Human	Chief Technical Officer
Mr. Joseph Sempebwa	Network Service Manager (Lugogo Office)
Mr. Oryang M. Thomas	Delivery Controller (Hoima Office)
Mr. Onen Richard Lutaka	Technical Service Officer (Hoima Offoce)
Mr. Krispus Kitugwanidde	Technical Service Officer (Masaka Offoce)
Mr. Julius Mawejje	Technical Service Officer(Jinja Office)
Mr. SSenyonjo Michael	Technical Service Officer(Mubende Office)

National Environment Management Authority (NEMA)

Dr. Festus Bagoora	Natural Resource Management Specialist
Mr. Waiswa Ayazika Arnold	Environmental Impact Assessment Co-ordinator
Mr. Lufafa Dick	Environment Audit & Monitoring Officer

National Forestry Authority (NFA)

Ms. Hope Rwaguma	Ag. Executive Director
Mr. Samwiri Rwabwogo	Coordinator, Law Enforcement
Mr. Acaye Godfrey Jao	Law Enforcement Specialist
Mr. Ssekitto Rashid	Assistant GIS Specialist

Ministry of Works, Housing and Communication

Mr. Nelson Omagor	Principal Environment Officer

Ministry of Works and Transport

Eng. Karuma Kagyina	Assistant Commissioner Engineering

Road Agency Formation Unit (Ministry of Works, Housing and Communications)

Eng. Emmanuel T. Ojuka	BSc, (Civil Eng), Dip. Housing Studies, MUIPE, ERB Senior Project Engineer

Ministry of Finance, Planning and Economic Development

Mr. Moses Kaggwa	Tax Policy Department

Ministry of Water, Lands and Environment

Mr. Bauayana Musoke	Senior Meteorological Specialist
Mr. Aloysius Kagoro	Principal Meteorologist
Mr. Asizaua Fax Agadribo	Senior Mapping Expert
Mr. Kabundama Richard	Cartographer, Lands & Surveys Department

Representatives of Local Council, etc

Project Site A		
Mr. Godfrey Taire	Chairperson LC I	(Kawate)
Mr. Kadubira Wilberforce	Ministry of Agriculture, Iganga District	(Nawandara)
Mr. Waiswa Moses	Officer Nawandara	(Kilinga)
Mr. Mirimo Michael	Chairperson LC II	(Kiwanyi)
Mr. Kyebalala Jowal	Chairperson LC II	(Bugono)
Mr. Kayendeke Anney	Chairperson LC II	(Itanda)
Mr. Ksuule Akubu	Chairperson LC III	(Nabitende)
Project Site B		
Mr. Byakagaba John William	District Planner	(Munteme)
Mr. Majare Leomond	Chief Administration Officer	(Munteme)
Mr. Christopher Columbus Asiimme	District Health Inspector	(Munteme)
Mr. Afgonza Hannington	General Secretary Irobe LC I	(Mabaale)
Mr. Kabagambe Justice	Secretary of Sub-County	(Mabaale)
Mr. Katusabe Wilson	Secretary LC I	(Kiryane)
Mr. Afgonza Hannington	General Secretary LC I	(Kibale)
Project Site C		
Mr. Ngobi Freddie Aggrey	Chief Administrative Officer Bugiri District Local Government	(Bugiri)
Mr. Kyondha.M	District Planner	(Bugiri)
Mr. Mukuve Jimmy	Sub Accountant, Iwemba	(Iwemba)
Mr. Bin Masaba John	Secretary Finance, LC III	(Buyala)
Mr. Byakika Falaku	Chairperson LC	(Iwenba)
Mr. Jsoliica Jackson	Chairperson LC III	(Iwenba)
Project Site D		
Mr. JJuuko Alosios	Chairperson LC III	(Bukakata)
Mr. Jumwesige David Amooti	Fish Inspector	(Lambu)
Mr. SSeremba Hood	Sub-County Chief	(Bukakata)
Mr. Gyoloba Eddie Nyadzi	Secretaty	(Bukakata)

Ferdsult Engineering Services Ltd.

Mr. Mugisha Ferdinand	Managing Director
Mr. Waiswa David Mukova	Director of Engineering/Company Secretary
Mr. Enoch Kaggwa Mukuye	Director of Technical Services

Embassy of Sweden

Ms. Maria Selin	First Secretary

The World Bank Uganda Country Office

Mr. Paul Baringanire	Energy Specialist

Embassy of Japan in Uganda

Mr. Ryuzo Kikuchi	Ambassador
Mr. Kazuaki Kameda	Counselor
Mr. Katuya Yanagida	Second Secretary

JICA Uganda Office

Mr. Takehiro Susaki	Resident Representative
Mr. Kohei Yoshida	Assistant Resident Representative
Mr. Hiromichi Kano	Assistant Resident Representative

4. MINUTES OF DISCUSSIONS

Minutes of Discussions
on the Basic Design Study on
the Project for Rural Electrification Phase II
in the Republic of Uganda
(First Field Survey)

In response to the request from the Government of Republic of Uganda (hereinafter referred to as "Uganda"), the Government of Japan decided to conduct the Basic Design Study (hereinafter referred to as "the Study") on the Project for Rural Electrification Phase II (hereinafter referred to as "the Project") and entrusted the study to the Japan International Cooperation Agency (hereinafter referred to as "JICA").

JICA sent to Uganda the Basic Design Study Team for the first field survey (hereinafter referred to as "the Team"), headed by Mr. Hayashi Hiroyuki, Senior Project Administration Officer of the Transportation and Electric Power Team of the Project Management Group I, Grant Aid Management Department, JICA, and is scheduled to stay in the country from November 21 to December 15, 2006.

The Team held discussions with the concerned officials of the Government of Uganda.

In the course of the discussions, both sides have confirmed the main items described in the attached sheets. The Team will proceed to further works and prepare the second field survey.

Kampala, December 4, 2006

Mr. Hayashi Hiroyuki
Leader
Basic Design Study Team
Japan International Cooperation Agency

Mr. F. A. Kabagambe-Kaliisa
Permanent Secretary
Ministry of Energy and Mineral Development (MEMD)
Republic of Uganda

Mr. Godfrey Turyahikayo
Executive Director
Rural Electrification Agency (REA)
Republic of Uganda

ATTACHMENT

1. Objective

The objective of the Project is to install power distribution system in rural areas shown in Annex-1.

2. Project Sites

The sites of the Project are shown in Annex-1.

3. Organizations concerned in Uganda

(1) The Responsible Ministry for the Project is the Energy Resources Department, Ministry of Energy and Mineral Development (MEMD).

(2) The Implementing Agency is the Rural Electrification Agency (REA).

The organization charts of MEMD and REA are shown in Annex-2.

4. Components Requested by the Government of Uganda

After discussions with the Team, the following components were requested by the Ugandan side.

The final components of the Project including name of the villages/towns to be electrified under the Project will be decided after further studies, and JICA will assess the appropriateness of the request and will report to the Government of Japan.

(1) Project Site A: Nabitende / Itanda Area in Iganga District (Eastern Region)
- Supply and Installation of 33kV Distribution Lines (approximately 30km)
- Supply and installation of Distribution Transformers (33kV/415-230V)
- Replacement of 33kV Switchgear at the existing 33/11kV Iganga Substation

(2) Project Site B: Kagadi / Munteme Area in Hoima and Kibale District (Western Region)
- Supply and Installation of 33kV Distribution Lines (approximately 65km: to be confirmed)
- Supply and installation of Distribution Transformers (33kV/415-230V)

(3) Project Site C: Bugeso / Iwemba Area in Bugiri District (Eastern Region)
- Supply and Installation of 33kV Distribution Lines (approximately 25km)
- Supply and installation of Distribution Transformers (33kV/415-230V)

(4) Project Site D: Bukakata / Kalangala Area in Masaka and Kalangala District (Central Region)
- Supply and Installation of 33kV Distribution Lines (approximately 110km)
- Supply and installation of Distribution Transformers (33kV/415-230V)

5. Japan's Grant Aid Scheme

(1) The Ugandan side understands the Japan's Grant Aid scheme and the necessary measures to be taken by the Government of Uganda explained by the Team as described in Annex-3.

(2) The Ugandan side promised to take necessary measures as described in Annex-4, for smooth implementation of the Project as a condition for the Japan's Grant Aid to be implemented.

6. Environmental and Social Considerations

The Team explained the outline of JICA Environmental and Social Considerations Guideline (hereinafter referred to as "the JICA Guideline") to Ugandan side. The Ugandan side understands the necessary procedures for implementation of the Project in accordance with the JICA Guideline and related environmental regulations in Uganda.

MEMD/REA shall obtain the approval of the project brief document as the Initial Environment Assessment from National Environmental Management Authority (NEMA) by the end of February, 2007.

7. Schedule of the Study

(1) The Team will proceed to further studies until December 15, 2006.

(2) JICA will dispatch the second field survey to conduct basic design and cost estimation of each component in the end of January 2007.

(3) JICA will prepare the draft report in English and dispatch a team to the Ugandan side in order to explain its contents in the middle of May 2007.

(4) When the contents of the draft report are accepted in principle by the Government of Uganda, JICA will complete the final report and send it to the Government of Uganda around July 2007.

8. Other Relevant Issues

(1) The Ugandan side should submit answers in English to the Questionnaire, which the Team handed to the Ugandan side by December 6, 2006.

(2) The Ugandan side should provide necessary number of counterpart personnel to the Team during the field survey.

(3) The Ugandan side should arrange the budget allocation for securing lands, undertakings shown in Annex-3, and others described in this Minutes of Discussion.

(4) The Ugandan side requested the Team to carry out the training to the REA in Japan on operation and maintenance of new facilities as technical cooperation by JICA. The Ugandan side should submit the official request regarding training with concrete contents of trainings through the JICA Uganda Office by the end of May, 2007.

(5) The Ugandan side explained the status of the organizations concerned and the ownership of the property provided under the Project as follows;

- The Implementing Agency of the Project (REA) shall own the property provided under the Project during and after implementation of the Project.
- REA shall not be privatized in the foreseeable future.
- Ownership of the property provided under the Japan's Grant Aid shall not be transferred to private sector after implementation of the Project.

(6) The Low Tension (415/240 V) distribution lines beyond secondary terminal of Distribution Transformers shall be, in principle, designed, procured and installed by the Ugandan side for the Project.

(7) Both sides confirmed that 33kV Submarine cable between Bukakata and Kalangala (7km) in the Project Site D should be excluded from the Project by following reasons;

- The 250 kVA diesel engine generator as well as distribution system will be installed in year 2007 under finance of REA for electrification of District Headquarter of Kalangala town.
- In addition, large scale generators will be installed by private company in Kalangala town for supplying the power to palm oil factory as well as local residents. This project has been approved by the Government of Uganda in year 2005 and it is planned to commence the operation from the beginning of year 2008. Therefore, the power source for distribution network in Kalangala town will be secured without interconnection to the main grid.
- Benefit to Cost ratio will be much lower due to high initial cost of submarine cable.
- If the said submarine cable is to be covered under the Project, the interconnection line will be eventually used to purchase power from the co-generation plant in Kalangala town.

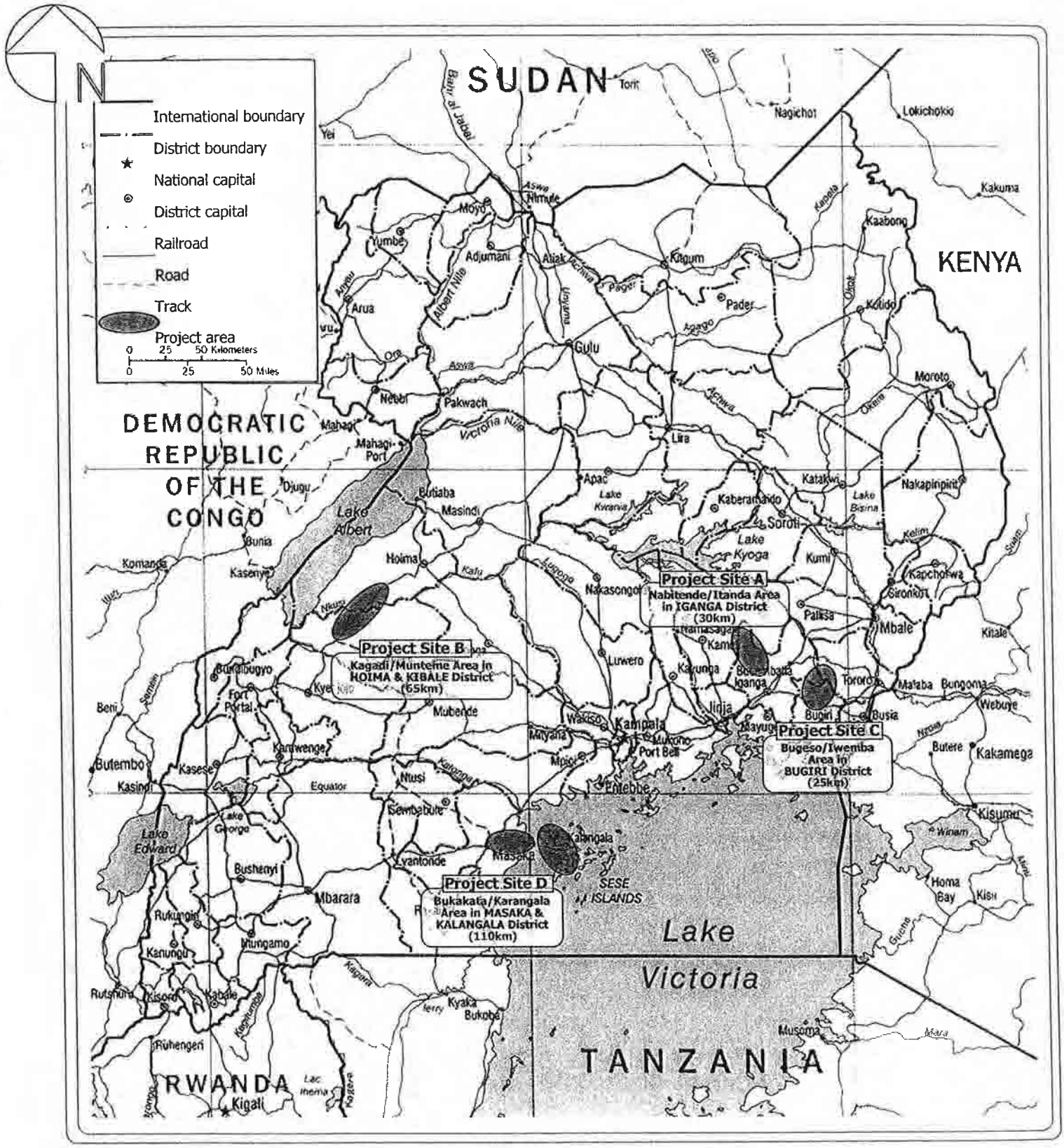
(8) The Ugandan side strongly requested to the Team that the installation of 33kV distribution lines could be covered under the scope of works by Japanese side since the human resource and budget for Ugandan side has been reduced after introduction of power sector reform.

(9) The Ugandan side explained all the requested Project Sites will be listed as high priority areas for the electrification in the final the Indicative Rural Electrification Master Plan (IREMP) which will be prepared by the end of March, 2007.

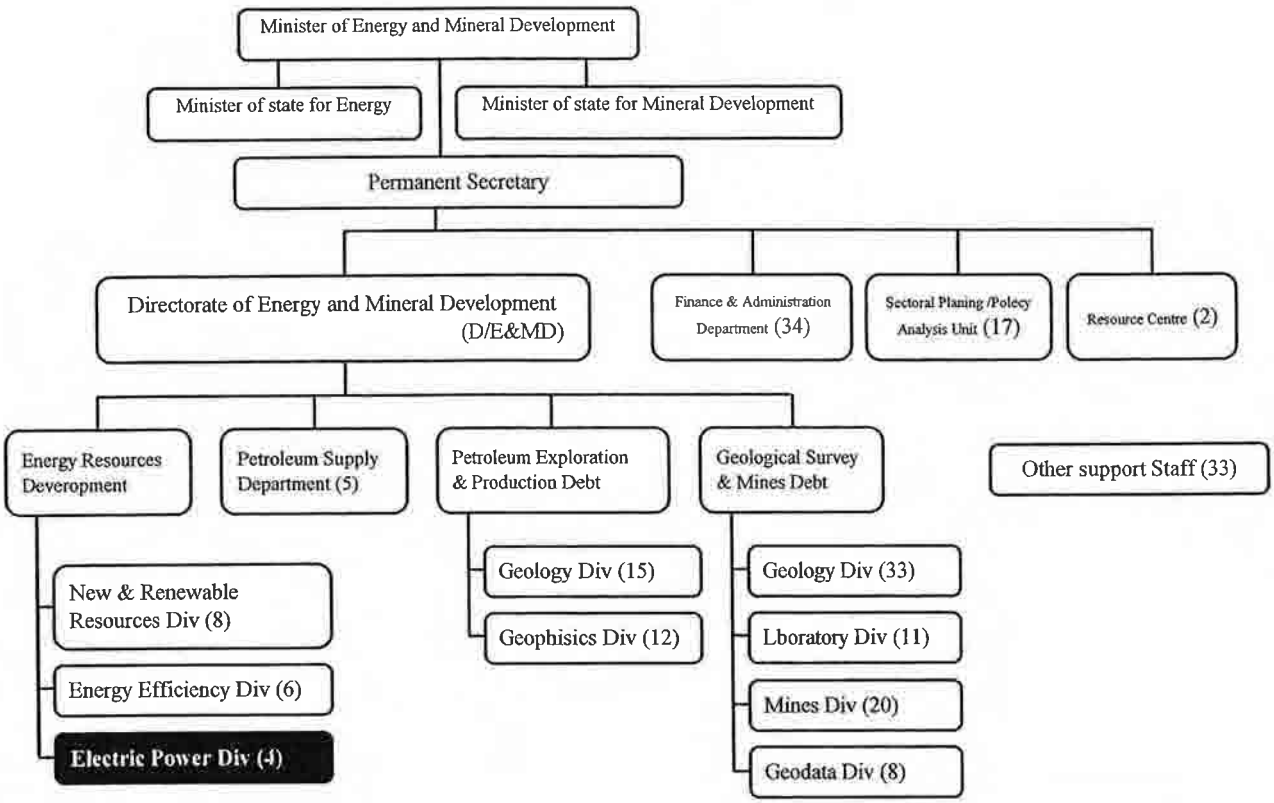
(10) The Ugandan side explained that the new 33kV feeder from Iganga Substation to Kaliro town shall be commissioned by the end of year 2007.

(11) The Ugandan side is requested to confirm necessary Right of Way (ROW) for the new road to be constructed in Project Site D by the end of January, 2007.

(12) Both sides agreed that further technical examination shall be necessary to determine whether voltage compensation facility, e.g., Booster Station, etc., need to be introduced or not, taking the economic viability, power demand forecast, voltage drops, etc., into consideration.



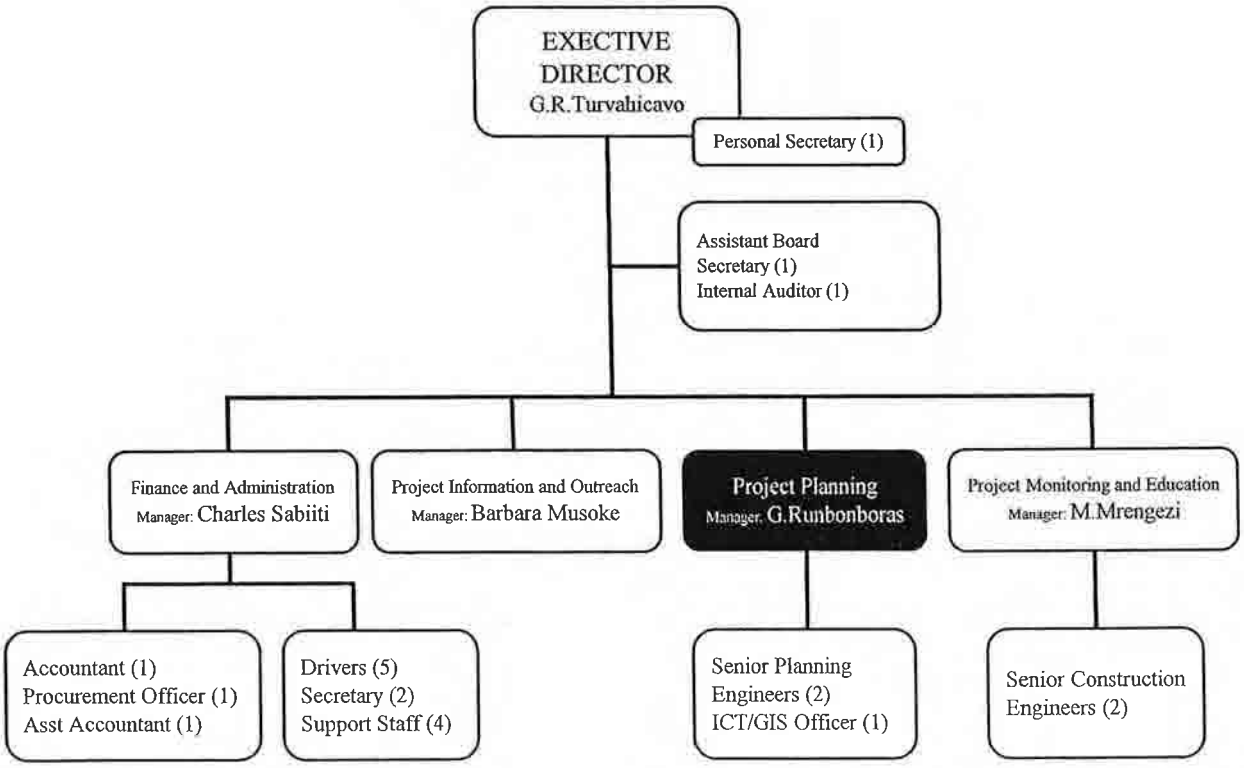
LOCATION MAP OF REPUBLIC OF UGANDA



souce:Annual Report2005 - for Ministry of Energy and Mineral Development

Total Number of staff: 230

Organization Chart of
The Ministry of Energy and Mineral Development (MEMD)



souce:Annual Rural Electrification Report - for the 2004/2005 Finacial Year

Total Number of Staff: 27

Organization Chart of
Rural Electrification Agency (REA)

Annex-3

JAPAN'S GRANT AID SCHEME

The Grant Aid Scheme provides a recipient country with non-reimbursable funds to procure the facilities, equipment and services (engineering services and transportation of the products, etc.) for economic and social development of the country under principles in accordance with the relevant laws and regulations of Japan. The Grant Aid is not supplied through the donation of materials as such.

1. Grant Aid Procedures

Japan's Grant Aid Scheme is executed through the following procedures.

Application	(Request made by the recipient country)
Study	(Basic Design Study conducted by JICA)
Appraisal &Approval	(Appraisal by the Government of Japan and Approval by the Cabinet)
Determination of Implementation	(The Note exchanged between the Governments of Japan and recipient country)

Firstly, the application or request for a Grant Aid project submitted by a recipient country is examined by the Government of Japan (the Ministry of Foreign Affairs) to determine whether or not it is eligible for Grant Aid. If the request is deemed appropriate, the Government of Japan assigns JICA (Japan International Cooperation Agency) to conduct a study on the request.

Secondly, JICA conducts the study (Basic Design Study) using (a) Japanese consulting firm(s).

Thirdly, the Government of Japan appraises the project to see whether or not it is suitable for Japan's Grant Aid Scheme, based on the Basic Design Study report prepared by JICA, and the results are then submitted to the Cabinet for approval.

Fourthly, the project, once approved by the Cabinet, becomes official with the Exchange of Notes (E/N) signed by the Governments of Japan and the recipient country.

Finally, for the implementation of the project, JICA assists the recipient country in such matters as preparing tenders, contracts and so on.

2. Basic Design Study

(1) Contents of the study

The aim of the Basic Design Study (hereafter referred to as "the Study") conducted by JICA on a requested project (hereafter referred to as "the Project") is to provide a basic document necessary for the appraisal of the Project by the Government of Japan. The contents of the Study are as follows:

- Confirmation of the background, objectives, and benefits of the Project and also institutional capacity of agencies concerned of the recipient country necessary for the Project's implementation.
- Evaluation of the appropriateness of the Project to be implemented under the Grant Aid Scheme from a technical, social and economic point of view.
- Confirmation of items agreed on by both parties concerning the basic concept of the Project.
- Preparation of a basic design of the Project.
- Estimation of costs of the Project.

The contents of the original request are not necessarily approved in their initial form as the contents of the Grant Aid project. The Basic Design of the Project is confirmed considering the guidelines of the Japan's Grant Aid Scheme.

The Government of Japan requests the Government of the recipient country to take whatever measures are necessary to ensure its self-reliance in the implementation of the Project. Such measures must be guaranteed even though they may fall outside of the jurisdiction of the organization in the recipient country actually implementing the Project. Therefore, the implementation of the Project is confirmed by all relevant organizations of the recipient country through the Minutes of Discussions.

(2) Selection of Consultants

For smooth implementation of the Study, JICA uses (a) registered consulting firm(s). JICA selects (a) firm(s) based on proposals submitted by interested firms. The firm(s) selected carry(ies) out a Basic Design Study and write(s) a report, based upon terms of reference set by JICA. The consultant firm(s) used for the Study is(are) recommended by JICA to the recipient country to also work on the Project's implementation after the Exchange of Notes, in order to maintain technical consistency.

3. Japan's Grant Aid Scheme

(1) Exchange of Notes (E/N)

Japan's Grant Aid is extended in accordance with the Notes exchanged by the two Governments concerned, in which the objectives of the Project, period of execution, conditions and amount of the Grant Aid, etc., are confirmed.

(2) "The period of the Grant Aid" means the one fiscal year which the Cabinet approves the Project for. Within the fiscal year, all procedures such as exchanging of the Notes, concluding contracts with (a) consultant firm(s) and (a) contractor(s) and final payment to them must be completed. However, in case of delays in delivery, installation or construction due to unforeseen factors such as national disaster, the period of the Grant Aid can be further extended for a maximum of one fiscal year at most by mutual agreement between the two Governments.

(3) Under the Grant Aid, in principle, Japanese products and services including transport or those of the recipient country are to be purchased. When the two Governments deem it necessary, the Grant Aid may be used for the purchase of the products or services of a third country. However, the prime contractors, namely, consulting, constructing and procurement firms, are limited to "Japanese nationals". (The term "Japanese nationals" means persons of Japanese nationality or Japanese corporations controlled by persons of Japanese nationality.)

(4) Necessity of "Verification"

The Government of recipient country or its designated authority will conclude contracts denominated in Japanese yen with Japanese nationals. Those contracts shall be verified by the Government of Japan. This "Verification" is deemed necessary to secure accountability to Japanese taxpayers.

(5) Undertakings required of the Government of the Recipient Country

In the implementation of the Grant Aid Project, the recipient country is required to undertake such necessary measures as the following:

a) To secure land necessary for the sites of the Project and to clear, level and reclaim the land prior to commencement of the construction,
b) To provide facilities for the distribution of electricity, water supply and drainage and other incidental facilities in and around the sites,
c) To secure buildings prior to the procurement in case the installation of the equipment,
d) To ensure all the expenses and prompt excursion for unloading, customs clearance at the port of disembarkation and internal transportation of the products purchased under the Grant Aid,
e) To exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which will be imposed in the recipient country with respect to the supply of the products and services under the Verified Contracts,
f) To accord Japanese nationals, whose services may be required in connection with the supply of the products and services under the Verified contracts, such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work.

(6) "Proper Use"

The recipient country is required to maintain and use the facilities constructed and the equipment purchased under the Grant Aid properly and effectively and to assign staff necessary for this operation and maintenance as well as to bear all the expenses other than those covered by the Grant Aid.

(7) "Re-export"

The products purchased under the Grant Aid should not be re-exported from the recipient country.

(8) Banking Arrangements (B/A)

a) The Government of the recipient country or its designated authority should open an account in the name of the Government of the recipient country in a bank in Japan (hereinafter referred to as "the Bank"). The Government of Japan will execute the Grant Aid by making payments in Japanese yen to cover the obligations incurred by the Government of the recipient country or its designated authority under the Verified Contracts.

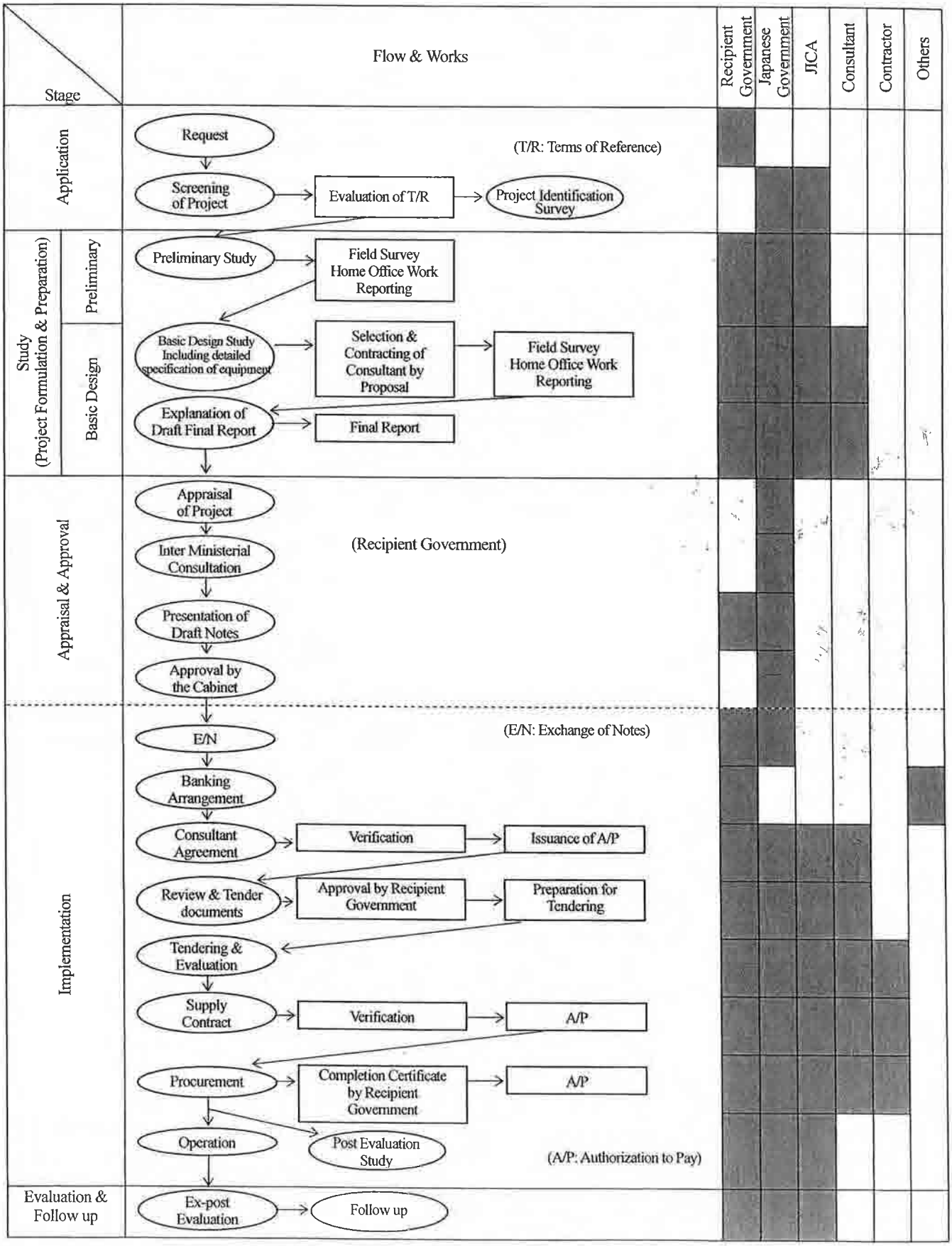
b) The payments will be made when payment requests are presented by the Bank to the Government of Japan under an Authorization to Pay (A/P) issued by the Government of the recipient country or its designated authority.

(9) Authorization to Pay (A/P)

The Government of the recipient country should bear an advising commission of an Authorization to Pay and payment commissions to the Bank.

(end)

Flow Chart of Japan's Grant Aid Procedures



Note: This chart shows the procedures in case of the Basic Design Study will include preparation of detailed specification of equipment

Annex-4

Major Undertaking to be Taken by Each Government

No.	Items	To be covered by Grant Aid	To be covered by Recipient Side
1	To secure land		●
2	To Clear, level and reclaim the site when needed		●
3	To construct gates and fences in and around the site		●
4	To construct the parking lot	●	
5	To construct temporary roads		
	1) Within the site	●	
	2) Outside the site		●
6	To construct the buildings	●	
7	To provide facilities for the distribution of electricity, water supply, drainage and other incidental facilities		
	1) Electricity		
	a. The distribution line to the site		●
	b. The drop wiring and internal wiring within the site	●	
	c. The main circuit breaker and transformer	●	
	2) Water supply		
	a. The city water distribution main to the site		●
	b. The supply system within the site (receiving and elevated tanks)	●	
	3) Drainage		
	a. The city drainage main (for storm, sewer and others) to the site		●
	b. The drainage system (for toilet sewer, ordinary waste, storm drainage and others) within the site	●	
	4) Gas supply		
	a. The city gas main to the site		●
	b. The gas supply system within the site	●	
	5) Telephone system		
	a. The telephone trunk line to the Main Distribution Frame/panel (MDF) of the building		●
	b. The MDF and the extension after the frame/panel	●	
	6) Furniture and Equipment		
	a. General furniture		●
	b. Project Equipment	●	
8	To bear the following commissions to the Japanese bank for banking services based upon the B/A		
	1) Advising commission of A/P		●
	2) Payment commission		●
9	To ensure unloading and customs clearance at port of disembarkation in recipient country		
	1) Marine (Air) transportation of the products from Japan to the recipient country	●	
	2) Tax exemption and customs clearance of the products at the port of disembarkation		●
	3) Internal transportation from the port of disembarkation to the project site	(●)	(●)
10	To accord Japanese nationals whose services may be required in connection with the supply of the products and the services under the verified contract, such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work.		●
11	To exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which may be imported in the recipient country with respect to the supply of the products and services under the verified contract.		●
12	To maintain and use properly and effectively the facilities constructed and equipment provided under the Grant Aid		●
13	To bear all the expenses , other than those to be borne by the Grant Aid, necessary for construction of the facilities as well as for the transportation and installation of the equipment		●

(B/A: Banking Arrangement, A/P: Authorization to Pay)

Minutes of Discussions
on the Basic Design Study on
the Project for Rural Electrification Phase II
in the Republic of Uganda
(Second Field Survey)

In November to December 2006, the Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched a Basic Design Study Team (First Field Survey) on the Project for Rural Electrification Phase II (hereinafter referred to as "the Project") to the Republic of Uganda (hereinafter referred to as "Uganda"), and through discussion and preliminary field survey, JICA examined the appropriateness of each requested component.

In order to conduct further study on each component, JICA sent to Uganda the Basic Design Study Team for the second field survey (hereinafter referred to as "the Team"), headed by Mr. Susaki Takehiro, Resident Representative of the JICA Uganda Office, and is scheduled to stay in the country from January 30 to February 23, 2007.

The Team held discussions with the concerned officials of the Government of Uganda. In the course of the discussions, both sides have confirmed the main items described in the attached sheets. The Team will proceed to carry out further works and prepare the draft report.

Kampala, February 6, 2007

Mr. Susaki Takehiro
Leader
Basic Design Study Team
Japan International Cooperation Agency

Mr. Watuwa Bwobi
Director
Directorate of Energy and Mineral Development
Ministry of Energy and Mineral Development (MEMD)
Republic of Uganda

Mr. Godfrey Turyahikayo
Executive Director
Rural Electrification Agency (REA)
Republic of Uganda

ATTACHMENT

1. Components to be studied in the Basic Design Study

Both sides confirmed that the 33 kV distribution lines inside Kalangala Island, which were included in the Project site D in the Minutes of Discussions signed on December 4, 2006, shall be excluded from the Project to avoid duplication with other projects by the Government of Uganda.

Both sides also confirmed that the Team would conduct the Basic Design Study on the following components, and JICA will assess the appropriateness of the request and will report to the Government of Japan.

(1) Project Site A: Nabitende / Itanda Area in Iganga District (Eastern Region)
- Supply and Installation of 33kV Distribution Lines (approximately 30 km)
- Supply and installation of Distribution Transformers (33kV/415-240V)
- Replacement of 33kV Switchgear at the existing 33/11kV Iganga Substation

(2) Project Site B: Kagadi / Munteme Area in Hoima and Kibale District (Western Region)
- Supply and Installation of 33kV Distribution Lines (approximately 65 km)
- Supply and installation of Distribution Transformers (33kV/415-240V)

(3) Project Site C: Bugeso / Iwemba Area in Bugiri District (Eastern Region)
- Supply and Installation of 33kV Distribution Lines (approximately 25 km)
- Supply and installation of Distribution Transformers (33kV/415-240V)

(4) Project Site D: Bukakata Area in Masaka District (Central Region)
- Supply and Installation of 33kV Distribution Lines (approximately 60 km)
- Supply and installation of Distribution Transformers (33kV/415-240V)

In case the Project is officially approved by the Government of Japan, the Project will be implemented in two phases as follows;

(1) Phase-1: Project Site B and Project Site D
(2) Phase-2: Project Site A and Project Site C

2. Environmental and Social Considerations

REA shall obtain the approval of the project brief document as the Initial Environment Assessment from National Environmental Management Authority (NEMA) by the end of February, 2007.

The Ugandan side shall also obtain permission from NFA (National Forestry Authority) for bush clearing on the Right of Way for 33kV distribution lines in the Forest Reserve Area in the Project Site D by the end of March, 2007, and complete bush clearing works for all project sites prior to distribution line's route survey by Japanese contractor.

3. Schedule of the Study

(1) The Team will proceed to further studies until February 23, 2007.

(2) JICA will prepare the draft report in English and dispatch a team to the Ugandan side in order to explain its contents in the middle of May 2007.

(3) When the contents of the draft report are accepted in principle by the Government of Uganda, JICA will complete the final report and send it to the Government of Uganda around July 2007.

4. Other Relevant Issues

(1) The Ugandan side should submit answers in English to the Questionnaire, which the Team handed to the Ugandan side by February 16, 2007.

(2) The Ugandan side should provide necessary number of counterpart personnel to the Team during the field survey.

(3) The Ugandan side shall provide funds for securing lands, undertakings shown in Annex-1, and others described in this Minutes of Discussion.

(4) The Ugandan side explained that the operation and maintenance works shall be carried out by introducing private operators under supervision by REA. The operator in charge of each Project Site shall be selected by the Ugandan side and informed to the Japanese side through JICA Uganda Office preferably before concluding Exchange of Notes (E/N) for the Project. The ownership of the property provided under the Japan's Grant Aid shall remain under the Government of Uganda after commencement of the Project.

(5) The Ugandan side informed the Japanese side that all the proposed Project Sites will be classified as high priority areas for the electrification to be connected to the national grid by the end of Year 2010 in the final Indicative Rural Electrification Master Plan (IREMP). The Ugandan side is requested to issue the letter which indicates all the requested project sites are included in the priority sites for electrification under the Final IREMP. The Ugandan side is requested to submit the Final IREMP to JICA Uganda Office soon after it is finished. The Ugandan side agreed to inform the latest status of preparation of the Final IREMP to JICA Uganda Office by the end of March, 2007.

(6) The Ugandan side shall secure enough budget and human resources for following undertakings in accordance with the implementation schedule shown in Annex-2;

- Secure ownership of the land for the proposed 33kV distribution lines.
- Bush clearing along the proposed 33kV distribution lines.
- Demolishing existing equipment and materials of 33kV switchyard including foundations in Iganga Substation.
- The design, procurement and installation of Low Tension (415/240 V) distribution lines beyond secondary terminal of Distribution Transformers.
- Other undertakings as described in the 1st and 2nd Field Report.

(7) The Ugandan side confirmed that the new 33kV feeder from Iganga Substation to Kaliro town shall be commissioned by the end of year 2007.

(8) The Ugandan side is kindly requested to start procurement of the Automatic Voltage Regulator (AVR) and related equipment at Mubende for the Project Site B by June 2007 and all installation works shall be completed by June 2008.

(9) The Load Break Switch (LBS) shall be procured under the Project for the existing 33kV distribution lines at Pole No. 1090B for the Project Site D. The Ugandan side is requested to install the LBS and relocate existing LV lines on the same pole (Pole No. 1090B).

(10) The Ugandan side requested the Government of Japan to procure and install Bulk Metering Units for Project Site A, B and D to measure power demand and consumption for the proper operation and maintenance at the connection point of new 33kV distribution lines to be constructed under the Project.

Annex-1

Major Undertaking to be Taken by Each Government

No.	Items	To be covered by Grant Aid	To be covered by Recipient Side
1	To secure land		●
2	To Clear, level and reclaim the site when needed		●
3	To construct gates and fences in and around the site		●
4	To construct the parking lot	●	
5	To construct temporary roads		
	1) Within the site	●	
	2) Outside the site		●
6	To construct the buildings	●	
7	To provide facilities for the distribution of electricity, water supply, drainage and other incidental facilities		
	1) Electricity		
	a. The distribution line to the site		●
	b. The drop wiring and internal wiring within the site	●	
	c. The main circuit breaker and transformer	●	
	2) Water supply		
	a. The city water distribution main to the site		●
	b. The supply system within the site (receiving and elevated tanks)	●	
	3) Drainage		
	a. The city drainage main (for storm, sewer and others) to the site		●
	b. The drainage system (for toilet sewer, ordinary waste, storm drainage and others) within the site	●	
	4) Gas supply		
	a. The city gas main to the site		●
	b. The gas supply system within the site	●	
	5) Telephone system		
	a. The telephone trunk line to the Main Distribution Frame/panel (MDF) of the building		●
	b. The MDF and the extension after the frame/panel	●	
	6) Furniture and Equipment		
	a. General furniture		●
	b. Project Equipment	●	
8	To bear the following commissions to the Japanese bank for banking services based upon the B/A		
	1) Advising commission of A/P		●
	2) Payment commission		●
9	To ensure unloading and customs clearance at port of disembarkation in recipient country		
	1) Marine (Air) transportation of the products from Japan to the recipient country	●	
	2) Tax exemption and customs clearance of the products at the port of disembarkation		●
	3) Internal transportation from the port of disembarkation to the project site	(●)	(●)
10	To accord Japanese nationals whose services may be required in connection with the supply of the products and the services under the verified contract, such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work.		●
11	To exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which may be imported in the recipient country with respect to the supply of the products and services under the verified contract.		●
12	To maintain and use properly and effectively the facilities constructed and equipment provided under the Grant Aid		●
13	To bear all the expenses , other than those to be borne by the Grant Aid, necessary for construction of the facilities as well as for the transportation and installation of the equipment		●

(B/A: Banking Arrangement, A/P: Authorization to Pay)

TENTATIVE IMPLEMENTATION SCHEDULE FOR UGANDAN SCOPE OF WORKS

(In case the Project is approved by the Government of Japan)

	Item	2007	2008	2009	2010	Remarks
		8 9 10 11 12	1 2 3 4 5 6 7 8 9 10 11 12	1 2 3 4 5 6 7 8 9 10 11 12	1 2 3	
		1 2 3 4 5	6 7 8 9 10 11 12 13 14 15 16 17	18 19 20 21 22 23 24 25 26 27 28 29	30 31 32	
1	Equipment supply and installation works by Japanese side.					
(1)	Transportation of equipment and materials from Japan and/or the third countries to the Project Site (Ocean and inland) by the Contractor					
(2)	Inland transportation of materials (wooden poles) procured in Uganda					
(3)	Installation works for poles of 33kV distribution lines by Japanese side.					
(4)	Installation works for 33kV distribution lines by Japanese side.					
(5)	Testing and asjustment of distribution equipment.	Positioning of pole location with Ugandan side		Positioning of pole location with Ugandan side		
(6)	Total commissioning test.					
(7)	[illegible] and handing over to Ugandan side from Japanese side.					
2	Equipment supply and installation works by Ugandan side.					
(1)	[illegible] for 33kV distribution lines.					
(2)	[illegible] 33kV distribution line routes.					
(3)	[illegible] of equipment & materials and installation works for LV distribution lines by Ugandan side (operator).					
(4)	[illegible] of the Automatic Voltage Regulator (AVR) [illegible] to the Project Site.					
(5)	[illegible] of the new 33kV feeder from Iganga S/S to [illegible] for the Project Site.					
(6)	[illegible] of equipment and materials of 33kV switchyard [illegible] at Iganga Substation.					
(7)	[illegible]					

: Rainy Season : Selection of Local Contractor by REA

MEMD : Ministry of Energy and Mineral Development
REA : Rural Electrification Agency

Minutes of Discussions
on the Basic Design Study on
the Project for Rural Electrification Phase II
in the Republic of Uganda
(Explanation on the Draft Report)

In November to December 2006 and January to February, 2007, the Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched a Basic Design Study Team (First and Second Field Survey) on the Project for Rural Electrification Phase II (hereinafter referred to as "the Project") to the Republic of Uganda (hereinafter referred to as "Uganda") and through discussion, field survey, and technical examination of the results in Japan, JICA prepared a draft report of the study.

In order to explain and consult the Government of Uganda on the components of the draft report, JICA sent to Uganda the Draft Report Explanation Team (hereinafter referred to as "the Team"), which is headed by Mr. Susaki Takehiro, Resident Representative of the JICA Uganda Office. The Team is scheduled to stay in the country from May 29 to June 7, 2007.

As a result of discussions, both sides have confirmed the main items described in the attached sheets.

Kampala, June 6, 2007

Mr. Susaki Takehiro
Leader
Basic Design Study Team
Japan International Cooperation Agency

Mr. F.A. Kabagambe-Kaliisa
Permanent Secretary
Ministry of Energy and Mineral Development (MEMD)
Republic of Uganda

Mr. Godfrey Turyahikayo
Executive Director
Rural Electrification Agency (REA)
Republic of Uganda

ATTACHMENT

1. Components of the Draft Report

The Ugandan side agreed and accepted in principle the components of the Draft Report explained by the Team.

2. Schedule of the Study

JICA will complete the Final Report in accordance with the confirmed items and send it to the Ugandan side around July 2007.

3. Other Relevant Issues

(1) The Ugandan side confirmed that the following major undertakings should be taken by the Ugandan side at its own expense;

- The Ugandan side shall select the operator for each Project Site and shall inform the Japanese side through JICA Uganda Office preferably before concluding Exchange of Notes (E/N) for the Project. The ownership of the property provided under Japan's Grant Aid shall remain under the Government of Uganda after commencement of the Project.
- Secure ownership of the land for the proposed 33kV distribution lines.
- Bush clearing along the proposed 33kV distribution lines.
- Demolishing existing equipment and materials of 33kV switchyard including foundations at Iganga Substation.
- Installation of 33kV Jumper cables between 33kV distribution lines and 33/11kV Main Transformer at Iganga Substation.
- The design, procurement and installation of Low Tension (415/240 V) distribution lines beyond secondary terminal of Distribution Transformers.
- Procurement and Installation of the Automatic Voltage Regulator (AVR) at Kakumiro for the Project Site B.
- Procurement and Installation of the new 33kV feeder from Iganga S/S to Kaliro town for the Project Site A.
- Other undertakings as described in the 1st and 2nd Field Reports.

Table.5-1 on the 2nd Field Report shows the minimum requirement for the budget allocation for Ugandan Scope of works.

(2) The Ugandan side is requested to secure the necessary budget for the above Ugandan scope of works, including the budget for VAT and Import Duties which will be exempted from the Supplier under Japan's Grant Aid scheme. MEMD is requested to issue 'Commitment to Pay Deferred Taxes on Imports' to be submitted to Uganda Revenue Authority for exemption of VAT and Import Duties for equipment and materials procured under the Project.

(3) The Ugandan side should provide the necessary number of counterpart personnel to the Team during the survey.

(4) The Team handed one copy of the draft detailed specifications of equipment and materials to be procured and initial cost estimation shown in Annex-1. Both sides agreed that the draft specifications and above-mentioned initial cost estimation were confidential and should not be duplicated or released to any outside parties.

(5) With reference to preparation of the Indicative Rural Electrification Master Plan (IREMP), the Ugandan side explained to the Team that the submission of the final IREMP will be postponed for several months due to the delay of completion works. The Ugandan side, however, emphasized again that all of the proposed project sites should be classified as Priority Rural Electrification Projects during the period 2008 – 2012 under Energy for Rural Transformation programme Phase II as shown in the letter ref. no. 111/6/001 dated May 4, 2007. The Project Sites were selected for the proposed sites for Japan's Grant Aid based on the criteria shown on Annex-2.

(6) The Ugandan side requested the Team that JICA provides training to the Ugandan side in Japan related to the Project as technical cooperation by JICA. The Ugandan side understands that the official request regarding training will be needed to be submitted to the Japanese side. The Ugandan side should submit the official request with the concrete contents of trainings in line with the Japanese official procedure (following Annual Survey on technical cooperation conducted by the Government of Japan in 2007).

(Remark) Annex-1 is excluded from the Minutes of Discussions of this Basic Design Study Report.

Priority Rural Electrification Projects for the Period 2008 - 2012

PREP Area/Line description	Network Strengthening Prior to Connection	Criteria to select the project sites for Japan's Grant Aid				
		Security Risk *1	No District HQ	Development Partner	Commitment	Other Reasons *2
1. Mubende PREP Expansion						
Mubende-Kyenjojo	Recloser (Mubende-Kenyojojo)			WB	No	
Mityana-Lusalira				AfDB	No	
Ssekanyonyi-Kikonge			No DHQ			
Bulera-Kyamusisi			No DHQ			
Muhorororo-Rugashari			No DHQ			
Isunga-Kyainaisoke			No DHQ			
Kyegegwa-Bujubuli			No DHQ			
Kiyuya-Madudu			No DHQ			
Katera-Muwanga			No DHQ			
Kiboga-Kapeke				GoU	No	
Bukuya-Kiboga						Regional Balancing
Katooke-Kagadi				GoU	No	
Myanzi-Mubende	Reclosers at Myanzi and Mubende			AfDB	No	
Nalweyo-Kakindu-Kisala	Voltage Regulator at Kiyuya, between Mubende and Kakumiro		No DHQ	AfDB	No	Community Request
Kibaale-Kyebando-Kasimbe	Voltage Regulator at Kiyuya, between Mubende and Kakumiro					Regional Balancing
Mubende Mining loop	Voltage Regulator at Kiyuya, between Mubende and Kakumiro		No DHQ			
Kakumiro-Hoima	Voltage Regulator at Kiyuya, between Mubende and Kakumiro			AfDB	No	
Kitaganya-Buhuka	Commission Nkusi Hydro or similar project		No DHQ			
Bukwiri-Kyankwankazi	Commission Nkusi Hydro or similar project		No DHQ	GoU	No	National Political School
2. Bushenyi, Ibanda, Kamwenge PREP						
Kemikyera-Bihanga		X	No DHQ			
Nyabutobo-Kakindo		X	No DHQ			
Bushenyi-Kakanju		X				
Bumbaire-Kabushaho		X	No DHQ			
Ruharo-Kitabi		X	No DHQ			
Kitagata-Kasana		X	No DHQ			
Kyambura-Katerere		X	No DHQ			
Bubangizi-Kanyabwanga	Commissioning of the Nengo Bridge Hydro Station or similar project	X	No DHQ			
Igorora-Rwomuhoro			No DHQ			
Ruhoko-Rukiri Bwanga			No DHQ			
Nyabuhike-Kigunga			No DHQ			
Kiruhura-Ruhumba				WB	No	
Ibanda-Rushere-Kazo-spur Rwemikoma				WB	No	
Kabirizi-Kyarumba		X	No DHQ			
Butare spur			No DHQ			
Rwashamaire-Nyabihoko			No DHQ			
Ntuntu-Nyabane	Construct a 33kV 100ACSR line from Nkenda to Kamwenge	X	No DHQ			
Ruhoko-Muhoro LS	Construct a 33kV 100ACSR line from Nkenda to Kamwenge	X	No DHQ			
Kamwenge-Bigodi	Construct a 33kV 100ACSR line from Nkenda to Kamwenge	X	No DHQ			
Kigarale-Kahuunge TC	Construct a 33kV 100ACSR line from Nkenda to Kamwenge	X	No DHQ			
Rwenshama T- Kishenyi	Commissioning of the Nengo Bridge Hydro Station or similar project	X	No DHQ			
3. Fort Portal, Hoima, Masindi, Bundibugyo						
Fort Portal-Kihondo	Construct 2nd Nkenda substation - Fort Portal 33kV 100ACSR line	X				
Fort Portal-Kihono (Alt)	Construct 2nd Nkenda substation - Fort Portal 33kV 100ACSR line	X				
Hoima-Buseruka-Toonya				PIP	No	Mini-hydro Connection
Kyesiga-Buseruka			No DHQ			
T- Butaba TC LS	Commission Nkusi Hydro or similar project		No DHQ			
Bulissa-Wasenko	Commission Nkusi Hydro or similar project		No DHQ			
Ihungu-Kyanjubwa	Commission Nkusi Hydro or similar project		No DHQ			
Bwijanga-Ntooma	Commission Nkusi Hydro or similar project		No DHQ			
FP-Rugumbo - Kyenjojo - Katoke	Install AVR at Kakumiro			SIDA	Yes	
Muntome-Kagadi	Install AVR at Kakumiro			GoJ	No	a,b,c & d (close to the previous project)
Masindi-Waki-Bulisa	Commission Waki Hydro or similar project			NORAD	No	Mini-hydro Connection
4. Mbarara-Ntungamo						
Mbarara-Kyabirukwa-Kikagati-Ntungamo with tee off to Mirama Hill and Kyabirukwa (under procurement) For ERT Phase 1	Feeder bay at Mbarara North Sub Station, recloser at Ntungamo			WB	Yes	
5. Mbarara-Ntungamo Prep Expansion						
Rakai-Kabingo	Partially supplied from Kabingo, partially from Rakai			WB	No	
Kakukuru-Nyakyera	Commission Nsongezi Hydro or similar project		No DHQ			
Kabuyanda-Rwoho	Commission Nsongezi Hydro or similar project		No DHQ			
6. Masaka Kalangala Prep 1						
Kyotera-Mutukula (with tee off to Kasher	Recloser (Kyotera-Mutukula) (New 132/33kV Substation at Kibale)			WB	No	
Masaka-Bukakata				GoJ	No	a,b,c & d
7. Masaka Prep Expansion						
Masaka-Njabyajjwe+spur						Project size is too small.
Bikira-Namirembe			No DHQ			
Ssembabule-Lwemiyaga						Regional Balancing
Ssembabule-Lyantonde						Regional Balancing
Lumbugu-Lyantonde						Project size is too small.
Rakai-Kabingo	Partially supplied from Kabingo, partially from Rakai					Project size is too small.
Bugoma-Kalangala Town				PIP	No	
Kalangala Town-Bidco				GoU	No	
8. West Nile Expansion						
Paidha-Zombo-Warr-Vurra with tee off to	Commisioning of Nyagak SHP	XX	No DHQ	GTZ	No	
Nebbi-Angal-Packwach with tee off to Panyimur via Parombo	Commisioning of Nyagak SHP	XX	No DHQ	GTZ	No	
Arua-Koboko	Mvepi Hydro Station or similar strengthening	XX		GTZ	No	
Koboko-Yumbe	Mvepi Hydro Station or similar strengthening	XX		GTZ	No	
Yumbe-Udupi-Arua	Mvepi Hydro Station or similar strengthening	XX				
Wandi-Rhino Camp	Mvepi Hydro Station or similar strengthening	XX	No DHQ			
Rhino Camp-Pakwach	Mvepi Hydro Station or similar strengthening	XX	No DHQ			
Koboko-Oraba	Mvepi Hydro Station or similar strengthening	XX				
Adraka-Midigo	Mvepi Hydro Station or similar strengthening	XX	No DHQ			
Arua-Adumi-Odrmachaku-Abiriachi	Mvepi Hydro Station or similar strengthening	XX				
Ovisoni spur	Mvepi Hydro Station or similar strengthening	XX	No DHQ			
Okavu - Logiri	Mvepi Hydro Station or similar strengthening	XX	No DHQ			

*1. XX: Very High Security Risk
X: Security condition must be considered when a project is planned

*2 Following reasons should be noted
(a. Regional Balancing, b. Economic Potential, c.Requests from the people,
d. Socio equity)

PREP Area/Line description	Network Strengthening Prior to Connection	Criteria to select the project sites for Japan's Grant Aid				
		Security Risk *1	No District HQ	Development Partner	Commitment	Other Reasons *2
9. Gulu Adjumani Moyo including expansion				GoU	No	
Gulu-Adjumani-Moyo	Voltage Regulator on Gulu 33kV busbar (Extension of 132kV to Gulu?)	XX				
Pakelle-Ofua	Olwiyu 132/33kV substation with Olwiyo/Gulu 2nd 33kV line	XX	No DHQ			
Adjumani-Obongi	Olwiyu 132/33kV substation with Olwiyo/Gulu 2nd 33kV line	XX				
Paicho-Patiko-Palaro	Olwiyu 132/33kV substation with Olwiyo/Gulu 2nd 33kV line	XX	No DHQ			
Gulu-KochGoma	Voltage Regulator on Gulu 33kV busbar; 33kV Feeder bay	XX				
Awer-Pagak-Amuru	Olwiyu 132/33kV substation with Olwiyo/Gulu 2nd 33kV line	XX	No DHQ			
ParakMission-Awere-Corner Kilak	Olwiyu 132/33kV substation with Olwiyo/Pakwach 2nd 33kV line	XX	No DHQ			
Laropi-Dufile-Arra	Olwiyu 132/33kV substation with Olwiyo/Gulu 2nd 33kV line	XX	No DHQ			
Rackokoko-Awere	2nd Lira - Agago 33kV line	XX	No DHQ			
Acholibur-Gulu	Olwiyu 132/33kV sub with Olwiyo/Gulu 2nd line; 33kV feeder ba	XX				
10. Moroto Prep expansion						
Kokeris-Matany-triangle of hope	Voltage regulator at Usuk SCHQ	XX	No DHQ			
Kangole-Lotome	Voltage regulator at Usuk SCHQ	XX	No DHQ			
Katakwi-Kangole	Voltage regulator at Usuk SCHQ	XX				
Kangole-Moroto-Katikekile	Voltage regulator at Usuk SCHQ	XX				
11. Kaberamaido prep expamsion / Kab/Amolatar						
Kalaki-Kipenet		XX	No DHQ			
Kaberamaido - Kangai		XX				
Kalaki-Otuboi	fanle to check	XX	No DHQ			
Kaberamaido-Dokolo	Voltage regulator at Olio TC	XX				
Ochero-Akampala Landing Site	Voltage regulator at Olio TC	XX	No DHQ			
Amolatar-Abeja	Voltage regulator at Olio TC	XX				
Alemere-Awelo-Chakwara	Voltage regulator at Olio TC	XX	No DHQ			
Odiac-Muntu	Voltage regulator at Olio TC	XX	No DHQ			
Bangladesh spur	Voltage regulator at Olio TC	XX	No DHQ			
Amalotar-Aputi-Amai + spur	Voltage regulator at Olio TC	XX				
Kaberamaido-Kangai	Voltage regulator at Olio TC	XX				
Katine-Kabermaido-Ocherok	Voltage regulator at Olio TC	XX				
Ocherok-Nakasongola	Voltage regulator at Olio TC	XX				
12. Tingey Kongasis, Nakapiririt						
Tingey Kongasis spurs	Sironko - Tingey 33kV line; Sironko voltage regulator		No DHQ			
Nakapiririt-Amudat	Sironko - Tingey 33kV line; Sironko voltage regulator	XX				
Amudat-Loroo	Sironko - Tingey 33kV line; Sironko voltage regulator	XX	No DHQ			
Sironko-Nakapiririt	Voltage regulator at Usuk SCHQ	XX				
Kapchorwa-Suam	Sironko - Tingey 33kV line; Sironko voltage regulator			AfDB	No	
13. Soroti, Katakwi, Amuria, Kumi, Pallisa						
Prep intersect-Gweri		X	No DHQ			
Usuk-Ongongoja		X	No DHQ			
Aakum-Adacar		X	No DHQ			
Katakwi-Kokorio	Line from Opoyu substation to Toroma; no Katakwi T-off	X				
Toroma-Omodoi		X	No DHQ			
Toroma-Lake Opeta		X	No DHQ			
Magoro-Ngariam		X	No DHQ			
Toroma-Adodoi		X	No DHQ			
Bukedea-Kanyum						Regional Balancing
Kachumbala-Ngora			No DHQ			
Kumi-Bukedea						Regional Balancing
Kumi-Omatenga						Regional Balancing
Kumi-Malera						Regional Balancing
Ngora-Aciisa			No DHQ			
Ojkingai-Kamuda		X	No DHQ			
Soroti-Sapiri	Directly from Opuyo substation; Not from Soroti	X				
Sapiri-Kateta		X	No DHQ			
Serere-Mulondo-Bulondo		X	No DHQ			
Serere-Kagwara		X	No DHQ			
Opuyo-Wera-(Amuria)-Katakwi	33kV Feeder bay (Amuria)	X		AfDB	No	
Amuria-Achwa		X				
Amuria-Kapelabyong		X				
Achumet-Oditel		X	No DHQ			
Amuria-Orungo		X				
14. Bugiri, Busia, Buteteleja, Iganga, Mpigi, Mayuge						
Nakivumbe-Bugiri						Regional Balancing
Namayemba-Buswale	Re-build the 50Cu Tororo - Busia - Lumino feeder with 125ACSR		No DHQ			
Mayuge-Namayingo						Project size is too small.
Bugiri-Namalumba						Regional Balancing
Buguri-Muterere				SIDA	Yes	
Naluwerere-Kasokwe			No DHQ			
Nabukalu-Bugobi			No DHQ			
Kayango-Buwune			No DHQ			
Lutolo-Lufudu			No DHQ			
Buguri-Nankoma-Wakawaka				GoU/REF	No	
Busia-Butanda	Re-build the 50Cu Tororo - Busia - Lumino feeder with 125ACSR					Upgrading of existing 33kV lines.
Busitema-Iyolwa	Re-build the 50Cu Tororo - Busia - Lumino feeder with 125ACSR		No DHQ			
Lumino-Namalngo	Re-build the 50Cu Tororo - Busia - Lumino feeder with 125ACSR		No DHQ			
Musafu-Lumino-E	Re-build the 50Cu Tororo - Busia - Lumino feeder with 125ACSR		No DHQ			
Masafu-Lumino-W	Re-build the 50Cu Tororo - Busia - Lumino feeder with 125ACSR		No DHQ			
Kaluube-Bugoto	Re-build the 50Cu Tororo - Busia - Lumino feeder with 125ACSR		No DHQ			
Mayuge-Kisenyi	Re-build the 50Cu Tororo - Busia - Lumino feeder with 125ACSR					Upgrading of existing 33kV lines.
Mayguye-Nakalanga-T-Kidibuli	Re-build the 50Cu Tororo - Busia - Lumino feeder with 125ACSR					Upgrading of existing 33kV lines.
Lugoli- Bulwaye-Mpungwe	Re-build the 50Cu Tororo - Busia - Lumino feeder with 125ACSR		No DHQ			
Namadi - Bwondha	Re-build the 50Cu Tororo - Busia - Lumino feeder with 100ACSR		No DHQ			
Dhagusi Island			No DHQ			
Buteteja-Busolwe-Mulanda-Tororo						Upgrading from 11kV to 33kV.
Ikiiki-Kanginmina			No DHQ			
Ngogwe-Nalusonga-Ssenyi	Confirm capacity on 11kV network (Mukono)		No DHQ			
Nkozi-Kituntu	Confirm capacity on 11kV network (Mpigi)		No DHQ			
Buwama-Butebo Pier	Confirm capacity on 11kV network (Mpigi)		No DHQ			
Nabyewange-Goru Point	Confirm capacity on 11kV network (Mpigi)		No DHQ			
Katende-Kiringente	Confirm capacity on 11kV network (Mpigi)		No DHQ			
Kasanje-Mabamba-Namagobo	Confirm capacity on 11kV network (Mpigi)		No DHQ			
Namayunba-Kitalya	Confirm capacity on 11kV network (Wakiso)		No DHQ			
Namadi - Bwondha	Re-build the 50Cu Tororo - Busia - Lumino feeder with 100ACSR		No DHQ	AfDB	No	
Namuntere - Namayemba	Re-build the 50Cu Tororo - Busia - Lumino feeder with 100ACSR		No DHQ			

*1. XX: Very High Security Risk
X: Security condition must be considered when a project is planned.
*2. Following reasons should be noted.
(a. Regional Balancing, b. Economic Potential, c.Requests from the people,
d. Socio equity)

PREP Area/Line description	Network Strengthening Prior to Connection	Criteria to select the project sites for Japan's Grant Aid				
		Security Risk *1	No District HQ	Development Partner	Commitment	Other Reasons *2
Nabitende-Itanda				GoJ	No	a,b,c & d (close to the previous project)
Bugeso-Iwemba				GoJ	No	a,b,c & d (close to the previous project)
15. Kitgum, Pader, Kotido, Kaabong						
Madei Opei- Agoro	2nd Lira - Agago 33kV line; Voltage regulator on Agago-Kitgum line	XX	No DHQ			
Nam Okora -Orom	Voltage regulator at Kwonkio TC East of Agago	XX	No DHQ			
PalabekGem- Kal - Ogili	2nd Lira - Agago 33kV line; Voltage regulator on Agago-Kitgum line	XX	No DHQ			
Padibe-Lokung	2nd Lira - Agago 33kV line; Voltage regulator on Agago-Kitgum line	XX	No DHQ			
KitgumMatibe-Mucwini	2nd Lira - Agago 33kV line; Voltage regulator on Agago-Kitgum line	XX				
Pajule-Lapul		XX	No DHQ			
Kitgum-Wol-Kalongo	Voltage regulator at Kwonkio TC East of Agago	XX	No DHQ			
Kwanjio-Pader IDP		XX	No DHQ			
Agago-Adwari-Ablm		XX	No DHQ			
Adilang-Paimol-Kacciciru	Voltage regulator at Kwonkio TC East of Agago	XX	No DHQ			
Owari-Kalango H	Voltage regulator at Kwonkio TC East of Agago	XX	No DHQ			
Patangoi-Kalango H	Voltage regulator at Kwonkio TC East of Agago	XX		SIDA	No	
Abim-Kotido-spur Kalakala	Voltage regulator at Orwangu TC	XX				
Kotido-Kaabong	Voltage regulator at Orwangu TC	XX				
Kitgum-Padibe-Opei-Palabek-Pagimo	2nd Lira - Agago 33kV line; Voltage regulator on Agago-Kitgum line	XX	No DHQ			
Kitgum-Nam Okora	2nd Lira - Agago 33kV line; Voltage regulator on Agago-Kitgum line	XX	No DHQ			
16. Lira, Apac						
Alito-Ngetta		XX	No DHQ			
Opeta-Acokora	Install a voltage regulator on the Gulu 33kV busbar	XX	No DHQ			
Loro-Otwal	Olwiyu 132/33kV substation with Olwiyo/Pakwach 2nd 33kV line	XX	No DHQ			
Dogapio-Atura	Install a voltage regulator on the Gulu 33kV busbar	XX	No DHQ			
Apac-alemi	fanie to check	XX	No DHQ			
Apac-Awila	fanie to check	XX	No DHQ			
Alenga-Kungu	fanie to check	XX	No DHQ			
Inomo-Nambieso	fanie to check	XX	No DHQ			
Aduku-Chawente		XX	No DHQ			
Aboke Corner - Kamudini	Install a voltage regulator on the Gulu 33kV busbar	XX	No DHQ			
Bobi-Minakulu	Olwiyu 132/33kV substation with Olwiyo/Pakwach 2nd 33kV line	XX		GoU	No	
Aloi-Omoro		XX	No DHQ			
Aloi-Dokolo		XX	No DHQ			
Dokolo-Agwata	Voltage regulator at Olio TC	XX	No DHQ			
Dokolo-Kwera	Voltage regulator at Olio TC	XX	No DHQ			
Amugo-Omugo		XX	No DHQ			
Bweyale-Atura	Olwiyu 132/33kV substation with Olwiyo/Pakwach 2nd 33kV line	XX	No DHQ			
Lira-Odwari-Ololim	Voltage regulator at Orwangu TC	XX				
Spur-Oyam	Voltage regulator at Orwangu TC	XX	No DHQ			
17. Luwero, Nakaseke, Nakasongola, Kamuli, Kayunga						
Bbale-Galiraaya			No DHQ			
Kayunga-Busaana			No DHQ			
Galiraayi-Bukungu			No DHQ			
Kayunga-Nakifuma			No DHQ			
Kayunga-Busaana			No DHQ			
18. SW Prep Kanungu, Rukungiri						
Bulema-Matanda		X	No DHQ			
Kayonza-Bugoma		X				
Rukungiri-Kisiizi		X				
Kisiizi-Kyampene		X				
Rukungiri-Kayonza	Commissioning of the Nengo Bridge Hydro Station or similar project	X				
Katobo-Rwenshama	Commissioning of the Nengo Bridge Hydro Station or similar project	X	No DHQ			
19. SW Prep Kisoro, Kabale						
Kisoro-Nyarusiza	Commissioning of the Nyamabuye Hydro Station or similar project			WB	No	(i) Community Request (ii) Connection of Nyamabuye mini-hydro station
Karengyere-Nteko	Commissioning of the Nyamabuye Hydro Station or similar project		No DHQ			
Muhanga-Kisiizi			No DHQ			
Muko-Bufundi	Commissioning of the Nyamabuye Hydro Station or similar project		No DHQ			
Kabale-Hamurwa HC	Commissioning of the Nyamabuye Hydro Station or similar project		No DHQ			
HamurwaHC-Kanungu	Commissioning of the Nyamabuye Hydro Station or similar project		No DHQ			
Hamurwa HC-Busanza	Commissioning of the Nyamabuye Hydro Station or similar project		No DHQ			

GoU: Government of Uganda
SIDA: Swedish International Development Agency
GoJ: Government of Japan
AfDB: African Development Bank
PIP: Privately Initiated Projects
REF: Rural Electrification Fund
NORAD: Norwegian Agency for Development

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