

2.2.4 Implementation Plan

2.2.4.1 Implementation Policy

The Project will be implemented within the framework of the grant aid scheme by the Government of Japan. Accordingly, the Project will only be implemented after its approval by the Government of Japan and the formal Exchange of Notes between the Government of Japan and the Government of Nigeria. The basic issues and special points for consideration for the implementation of the Project are described below.

(1) Project Implementation Body

The organization responsible for the implementation of the Project on the Nigerian side is the Federal Ministry of Power and Steel (FMPS). Department of Electrical Inspectorate Services of FMPS will implement the Project, while operation and maintenance of the new facilities after completion of the Project will be conducted by PHCN. Accordingly, Electrical Inspectorate Services of FMPS will appoint a person to be in charge of the implementation of the Project through close coordination and discussion with the Japanese Consultant and Equipment Supplier to ensure the smooth progress of the Project. The selected person will be required to fully explain the contents of the Project to staff members of such stakeholders as the FMPS, PHCN and state government and local residents to be affected by the distribution lines to be constructed/added under the Project to obtain their understanding and cooperation for implementation of the Project.

(2) Consultant

In order to procure and install the necessary equipment for the Project, the Japanese Consultant will conclude a consulting services agreement with the FMPS and will conduct the detailed design and supervision of the site work for the Project. The Consultant will also prepare the tender documents and will execute the tender on behalf of the FMPS, i.e. the project implementation body.

(3) Equipment Supplier

The Equipment Supplier, which will be a Japanese corporation selected by the Government of Nigeria by means of open tender in accordance with Japan's grant aid scheme, will conduct the procurement and installation of the new equipment, etc. As it is deemed necessary for the Equipment Supplier to provide after services in terms of the supply of spare parts and the repair of breakdowns in regard to the new equipment, the Equipment Supplier must give proper consideration to the establishment of a post-project liaison system.

(4) Necessity to Dispatch Japanese Engineer

The planned work under the Project involves the installation of 33 kV distribution lines, including poles, transformers and distribution panels, etc. and foundation work, necessitating the coordination of all types of work. As various types of work will be simultaneously conducted, the dispatch of a Japanese engineer as the site manager will be essential for the purpose of progress management, quality and safety control.

2.2.4.2 Implementation Conditions

(1) Local Construction Industry and Transfer of Skills

Subsidiaries of foreign general construction companies and electrical work companies are located in Abuja and Lagos. The recruitment/procurement of workers, transport vehicles and construction equipment, etc. is relatively easy and it should be possible to use local companies for the construction of the planned distribution lines and the installation of the distribution transformers as subcontractors. However, considering the strict delivery terms required for a Japanese grant aid project and the quality of concrete poles, etc. which could be locally procured, the dispatch of a Japanese engineer for schedule, quality and safety control will be essential.

In the case of the equipment installation work, the use of local companies for other than the recruitment of workers will be difficult because of the little experience of local companies and also because of the necessity for highly skilled engineers for the installation work and equipment adjustment and testing after installation. For this reason, it is highly desirable for the Japanese Equipment Supplier to obtain workers and installation equipment, etc. from local companies while dispatching its own engineer(s) for supervision purposes. This Japanese engineer(s) will provide OJT for Nigerian engineers during the installation period to transfer vital skills to local engineers.

(2) Use of Local Equipment and Materials

In Nigeria, the local procurement of aggregates, cement and reinforcing bars, etc. for the foundation work and such distribution materials as conductors and concrete poles is possible even though control and guidance on the quality and observation of the delivery terms may be necessary. These local materials are, in fact, often used for work similar to that planned under the Project. The use of local equipment and materials will, therefore, be planned as much as possible for the formulation of the work implementation plan. However, in the case of the main distribution equipment required for the Project, Nigeria relies on imported products as no local products are available. Accordingly, this equipment will be imported from Japan.

(3) Security Measures

Even though the project sites have few security problems, careful attention must be paid to preventing the theft of equipment and materials and also to the security of the people involved in the Project. Needless to say, the Nigerian side should introduce the necessary security measures. The Japanese side will erect fencing around the equipment yard as part of the temporary work and will hire security guards. Further security measures will be adopted in connection with the installation of communication equipment using the Inmatsat.

(4) Tax Exemption

An application for tax exemption (including VAT) for the equipment and materials to be procured under the Project will be made to the Federal Ministry of Finance by the Equipment Supplier who will submit the relevant application to the FMPS. This application will be forwarded to the Federal Ministry of Finance via the National Planning Commission (NPC). Careful attention will be required to avoid any adverse impacts of any delay of obtaining tax exemption approval on the progress of the Project.

(5) Transportation

The project sites are located in areas with poor conditions for transportation and construction work as the lack of infrastructure (roads) makes the access of vehicles delivering equipment and materials to the sites difficult. Given the fact that there is a delta area which floods during the rainy season, a suitable period and method for transportation should be planned so that transportation takes place during the dry season. It is also necessary to plan the use of special vehicles.

2.2.4.3 Scope of Work

Among the various types of work related to the new booster stations, distribution transformers and 33 kV distribution lines, the Japanese side will conduct the procurement, installation, testing and adjustment of the equipment and the foundation work. Meanwhile, the Nigerian side will be responsible for the installation of 415 – 240 V LV distribution lines. Table 2-23 shows the details of the division of work between the two sides.

Table 2-23 Division of Work between Japanese Side and Nigerian Side

Work Item	Procurement		Installation		Remarks
	Japan	Nigeria	Japan	Nigeria	
1. Common Items					
(1) Removal of trees and other obstacles		○		○	Prior to the start of the Japanese work Especially when connecting with the existing line Periodic maintenance Provided by State Governments
(2) Improvement of access roads		○		○	
(3) Provision of stock yards		○		○	
(4) Security during the work period		○		○	
(5) Coordination with users on power interruption during the work period		○		○	
(6) Notification of power interruption necessitated by the work		○		○	
(7) Removal of trees, etc. after the commencement of operation		○		○	
(8) Public awareness activities to expedite usage of electricity in the project areas		○		○	
2. Construction of Booster and Capacitor Stations					
(1) 33 kV voltage regulator (including reactive power compensation)	○		○		One years supply of spare parts Prior to the start of the Japanese work Including guards
(2) 33 kV distribution panel	○		○		
(3) Station transformer	○		○		
(4) Connecting materials required for (1) through (3) above	○		○		
(5) Civil engineering, foundation and exterior work required for (1) through (4) above	○		○		
(6) Spare parts, testing apparatus, maintenance tools and O & M manual	○			○ (to store)	
(7) Pre-handing over field test			○ (to conduct)	○ (to witness)	
(8) OJT (On the Job Training)			○		
(9) Construction of perimeter fence and gate	○		○		
(10) Ground preparation and approach road to site		○		○	
(11) Construction of guard house		○		○	
(12) Construction of drainage system		○		○	
3. Construction of 33 kV Distribution Line					
(1) Bare conductors, section switches, arresters, insulators and pole-dressing materials, etc.	○		○		One years supply of spare parts
(2) Distribution transformers	○		○		
(3) Safety wall for the above (1) (concrete blocks)	○		○		
(4) Concrete / Steel poles	○		○		
(5) Excavation, foundation setting and refilling for the above (4)	○		○		
(6) Connecting jumper with existing line	○		○		
(7) Spare parts, testing apparatus, maintenance tools and O & M manual	○			○ (to store)	
(8) Pre-handing over field test	○		○ (to conduct)	○ (to witness)	
(9) OJT (On the Job Training)			○		
4. Construction of LV Distribution Lines					
(1) Bare conductors, feeder pillars, insulators and pole-dressing materials, etc.		○		○	
(2) Concrete poles		○		○	
(3) Spare parts, testing apparatus and maintenance manual		○		○ (to store)	
(4) Pre-operation field test		○		○	

Note: ○ indicates the side to conduct the work in question.

2.2.4.4 Consultant Supervision

The Consultant will organize a project team to be responsible for the detailed design and work supervision in accordance with Japan's grant aid scheme and the concept and principles of the basic design in order to smoothly proceed with the implementation of the Project. The Consultant will also appoint at least one full-time on-site engineer to supervise the progress management, quality control and safety control in view of the facts that the project sites are scattered in the project sites and that the Nigerian side will conduct the LV distribution line construction work in parallel with the 33 kV distribution line construction work by the Japanese side. The Consultant will also dispatch other expert engineers in accordance with the progress of the installation, test running and adjustment and delivery testing, etc. to supervise the work assigned to the Equipment Supplier. Furthermore, the Consultant will arrange for Japanese experts to attend the inspection of equipment manufactured in Japan or a third country at the manufacturing and pre-delivery stages to prevent any equipment problems after delivery to Nigeria.

(1) Supervision Principles

The Consultant will supervise the work progress to ensure punctual completion within the planned period and will supervise and guide the Equipment Supplier in order to achieve the work quality, amount of work completed and delivery terms for the equipment, etc. indicated in the contract without accidents or other problems at the site. The main points to be noted for the supervision work are described below.

1) Progress Management

The Consultant will make weekly or monthly comparisons between the actual work progress and the contract schedule submitted by the Equipment Supplier at the time of signing the contract. If the Consultant foresees any delay of the work, he will issue a warning to the Equipment Supplier, requesting that the Equipment Supplier to submit counter measures to ensure the completion of the construction work and equipment delivery within the planned work period. This comparison will be mainly conducted for the following items.

- ① Volume of the work completed (including the quantity of manufactured equipment by manufacturers and the volume of on-site civil engineering work)
- ② Quantity of the equipment and materials delivered (related equipment and materials for booster station, distribution lines, and civil engineering work)
- ③ Confirmation of the preparations for the temporary work and construction machinery
- ④ Work efficiency and actual number of engineers, technicians and workers at work

2) Management for Quality and Completed Work Amount

The Consultant will supervise the Equipment Supplier in regard to the following items to ensure that the manufactured, delivered and installed equipment and constructed facilities meet the quality and completed work amount demanded in the contract documents. If the Consultant believes that the quality and/or completed work amount do not meet the requirements, he will demand that the Equipment Supplier correct, change or modify the situation.

- ① Checking of the shop drawings and specifications for equipment
- ② Checking of the factory inspection reports for equipment or attendance at the shop inspection
- ③ Checking of the packing, transportation and temporary on-site storage method
- ④ Checking of the construction drawings and installation manuals for the equipment
- ⑤ Checking of the trial operation, adjustment, testing and inspection manuals for the equipment
- ⑥ Supervision of the installation work at site and witnessing of the trial operation, adjustment, testing and inspection of the equipment
- ⑦ Comparison between the equipment installation drawings and actual amount of completed work at site

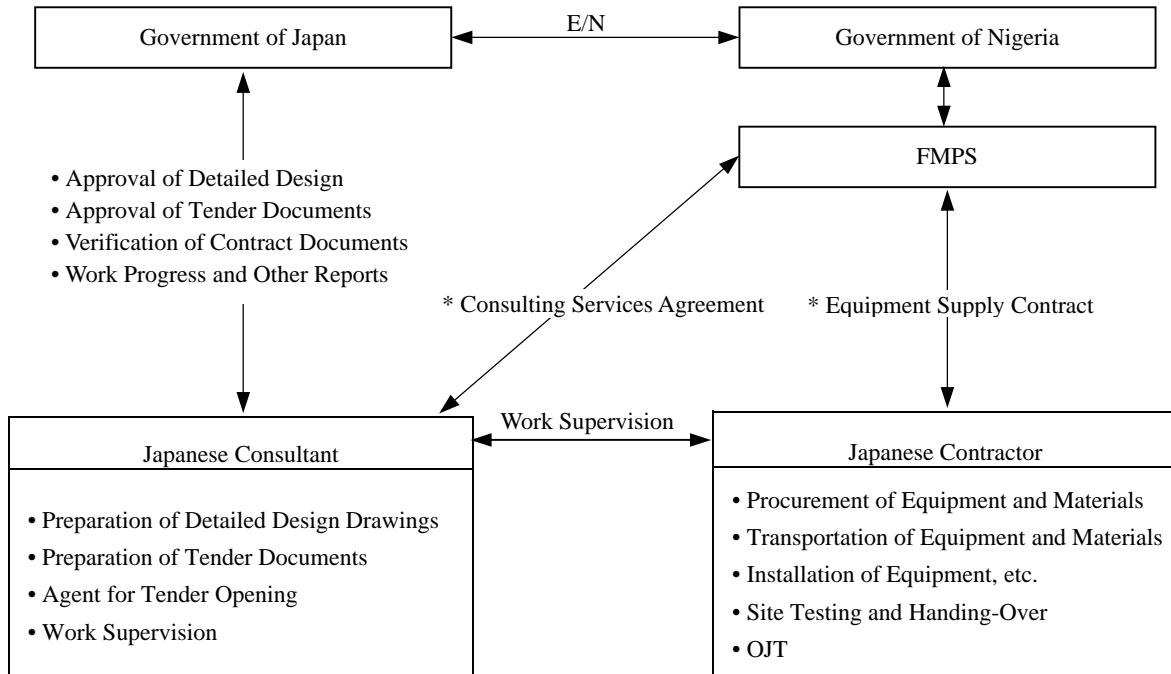
3) Safety Control

The Consultant will discuss and cooperate with the representative of the Equipment Supplier with a view to supervising the on-site construction and installation work to prevent any accidents to workers with due attention paid to the following safety control principles.

- ① Establishment of safety control rules and appointment of a person responsible for work safety
- ② Prevention of accidents to workers by means of the periodic inspection of the construction machinery
- ③ Introduction of travelling routes for work vehicles and construction machinery, etc. and the thorough enforcement of slow driving at site
- ④ Enforcement of welfare measures and days-off for workers

(2) Project Implementation Regime

The project implementation regime, i.e. relationship between the parties involved in the implementation of the Project, including at the work supervision stage, is shown in Fig. 2-1.



* The consulting services agreement and the equipment supply contract must be verified by the Government of Japan.

Fig. 2-1 Project Implementation Regime

(3) Work Supervisors

In addition to the procurement and delivery of the equipment and materials for 33 kV distribution line construction work, the Equipment Supplier will conduct the equipment installation work as well as the foundation work for the booster stations. To conduct such work, the Equipment Supplier will use local companies as subcontractors. Accordingly, the Equipment Supplier must ensure that the subcontractors strictly observe the requirements set forth in the equipment supply contract regarding the work schedule, quality, amount of completed work and safety. For this purpose, the Equipment Supplier will dispatch engineers with experience of similar work overseas to the projects sites to provide guidance and advice for the subcontractors.

Given the scale and contents of the booster station construction work, it is desirable for the Equipment Supplier to dispatch those engineers listed in Table 2-24 to work full-time at the relevant sites.

Table 2-24 Engineers to be dispatched by the Equipment Supplier

Type of Engineer	No.	Assigned Work	Dispatch Period
Site Manager	1	General management of the on-site work; discussions and coordination with and the obtaining approvals from related organizations; overall responsibility for OJT; control of equipment and material procurement; overseeing of customs clearance; labour control; accounting	Throughout the work period
Electrical Engineer (Distribution)	1	Management of the 33 kV distribution line installation work	Equipment installation period
Electrical Engineer (Substation equipment)	1	Management of the installation work for the transformers, distribution panels and cables, etc.	Equipment installation period
Testing and Adjustment (Circuit Breakers)	1	Testing and adjustment of circuit breakers; implementation of OJT	Testing and adjustment period
Testing and Adjustment (Transformers)	1	Testing and adjustment of transformers; implementation of OJT	Testing and adjustment period

2.2.4.5 Quality Control Plan

The supervisor dispatched by the Consultant will supervise and check whether or not the Equipment Supplier is meeting the requirements specified in the contract documents (Technical Specifications and Detailed Design Drawings, etc.) regarding the quality of the equipment and materials to be procured under the Project and the amounts of the completed construction/installation work. The check items are listed below. If the supervisor believes that the quality or amount of completed work is unlikely to meet the relevant requirement, he will demand that the Equipment Supplier correct, change or modify the situation.

- ① Checking of the shop drawings and specifications for equipment
- ② Checking of the factory inspection reports for equipment or attendance at the shop inspection
- ③ Checking of the packing, transportation and temporary on-site storage method
- ④ Checking of the construction drawings and installation manuals for the equipment
- ⑤ Checking of the trial operation, adjustment, testing and inspection manuals for the equipment
- ⑥ Supervision of the site installation work and witnessing of the trial operation, adjustment, testing and inspection of the equipment
- ⑦ Comparison between the equipment installation drawings and actual amount of completed work at site
- ⑧ Checking of the as-built drawings

2.2.4.6 Procurement Plan

Nigeria does not manufacture transformers (including AVR's to be installed at the booster stations), distribution panels and other main equipment to be procured and installed under the Project. When Nigeria buys such equipment (including those made in Japan) at its own expense, it mainly buys from such European countries as the UK, Germany and Italy because of budgetary constraints. However, regardless of the proximity to Nigeria, few European manufacturers and their representatives have suitable after-service systems to deal with breakdowns and subsequent repair needs and to provide spare parts. As for pole assemblies and insulators, procurement from Japanese manufactures is recommended since these equipment accounts for very small portion, and urgent customs clearance and transportation will be necessary to complete the construction works during the dry season, and the quality of local procurement cannot be lower. At a meeting with the FMPS and PHCN, the supply of Japanese products instead of less reliable third country products was requested regarding AVR's, capacitors and distribution panels to be installed at the booster stations, distribution transformers for 33 kV distribution lines and other main equipment.

PHCN, which will be responsible for the operation and maintenance of the new facilities and equipment after completion of the Project, is familiar with the operation and maintenance techniques for Japanese equipment as the transmission and distribution equipment procured under the previous "Rural Electrification Project in the Federal Republic of Nigeria (FY 2000)" is still smoothly operating without any breakdowns. The PHCN has expressed its confidence in the low breakdown rate of the main substation and distribution equipment made in Japan and also in the after-service system provided by Japanese manufacturers. Moreover, Japanese transformers (330/132 kV) for trunk substations and distribution transformers which were installed some 30 years ago in Nigeria are still operating without any problems.

Meanwhile, the Business Units of the PHCN have kept broken-down distribution transformers, insulators and pole-mounted switches, etc. made in third countries which have simply been piled up because of the failure of their manufacturers to investigate the causes of breakdown and to introduce measures to prevent the recurrence of breakdown. As such, PHCN is unwilling to procure such equipment in the future if possible.

As described above, the Nigerian side has strong confidence in Japanese products and hopes that Japanese products will be procured under the Project in view of the fact that the Project is a Japanese grant aid project.

In regard to machinery to transport and install the equipment, 50 ton class cranes and trailers can be leased locally and no problems are anticipated for the implementation of the Project in these aspects.

However, given the facts that the infrastructure in the project sites is poor and the work conditions are far from ideal because of the existence of mountain areas and swamps, etc., special transport vehicles will be necessary. The use of such special vehicles is particularly relevant in the case of Eburutu Communities and one village in Ranch Communities where ordinary transport vehicles will be unable to carry on the narrow, steep and hardly maintained roads.

Based on the above considerations, the following procurement sources for the equipment and materials to be used for the Project have been selected.

a) Equipment and materials for local procurement

① Equipment and materials for construction work

Cement; sand; concrete aggregates; concrete blocks; bricks; reinforcing bars; wood; petrol; diesel oil; work vehicles; cranes; trailers; other materials for temporary work

② Materials for distribution lines

Conductors and concrete poles, etc.

b) Equipment and materials for procurement in Japan

① Equipment for booster stations

AVRs and 33 kV distribution panels, etc.

② Equipment and materials for distribution lines

Distribution transformers; insulators; arresters; section switches; built-up steel plate poles, etc.

③ Transport vehicles

Transport vehicles for uneven road

c) Equipment for procurement in third countries which are the member of DAC

① Auto reclosers

The transportation of the items procured in Japan and third countries will adopt a packaging method which can withstand long maritime transportation, landing at a port, inland transportation to the project sites and storage at equipment yards. The port for the unloading of the equipment, etc. from abroad for the Project will be Port Harcourt or Lagos. Both ports have large-scale

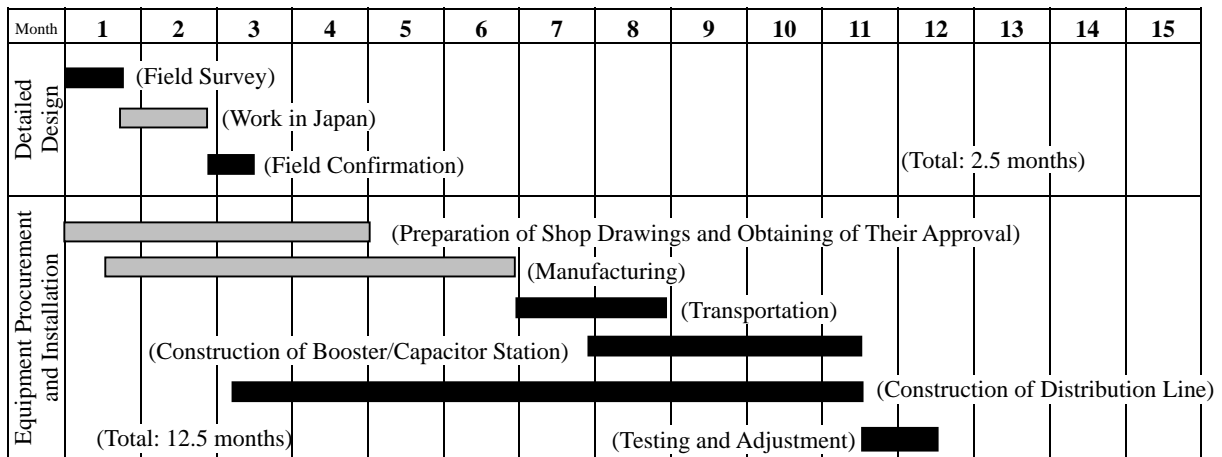
unloading facilities and no problems are anticipated in regard to the unloading of the equipment, etc. for the Project at either port.

As the customs clearance of imported goods usually takes about one month at Port Lagos, the largest port in Nigeria, the Equipment Supplier must prepare the necessary documents in advance to shorten the time for customs clearance in order to observe the project schedule.

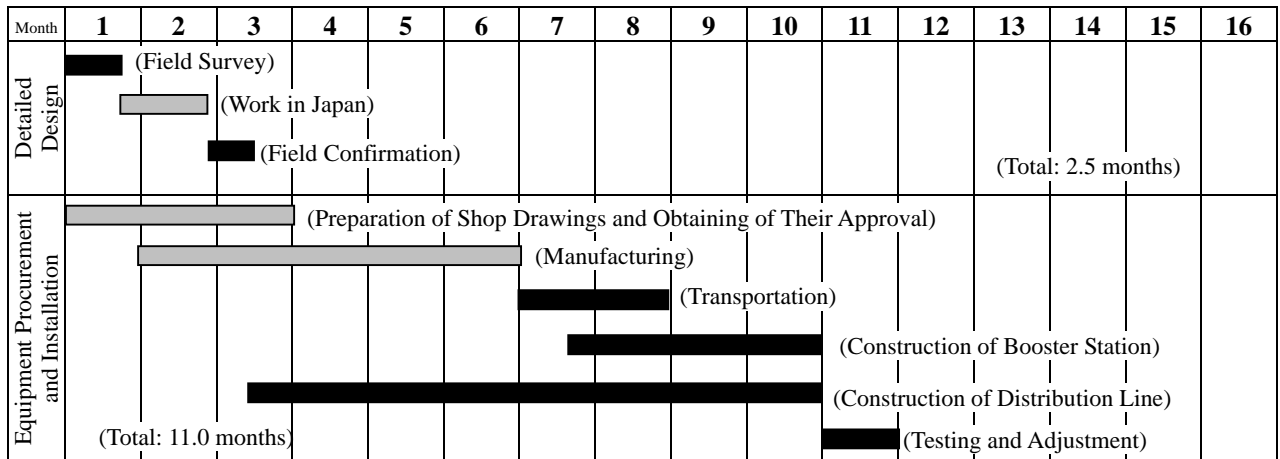
2.2.4.7 Implementation Schedule

According to Japan's grant aid scheme, the Project will be implemented in accordance with the following schedule.

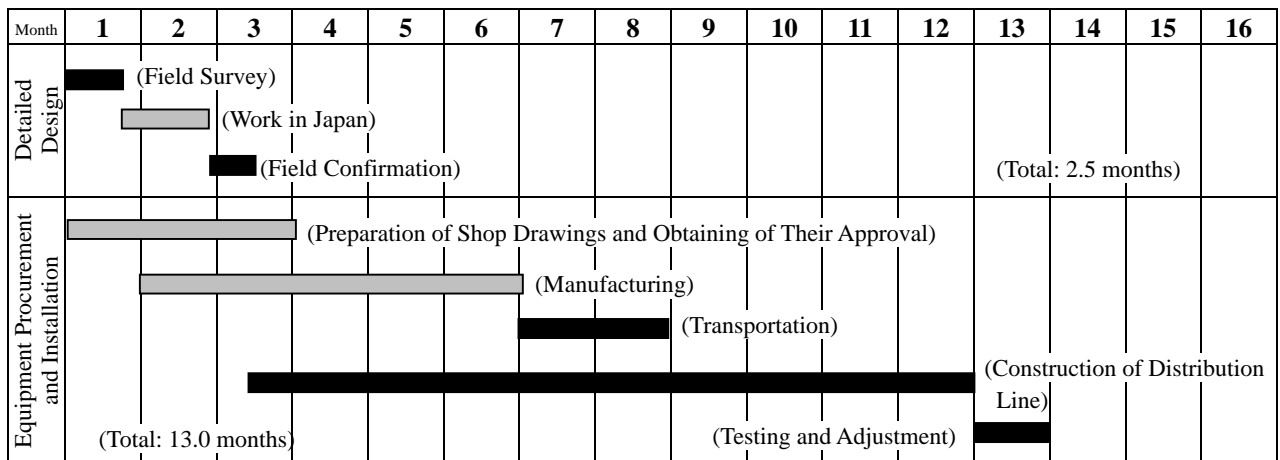
(Phase I Work) Ranch Communities in Cross River State



(Phase II Work) Ibedu Ibiaikot Clan in Akwa Ibom State



(Phase III Work) Eburutu Communities in Cross River State



■ Work in Japan ■ Work in Nigeria

Fig. 2-2 Project Implementation Schedule

2.3 Obligations of Recipient Country

The Nigerian side will be responsible for the following for the smooth implementation of the Project.

- (1) Provision of necessary data and information for the Project
- (2) Ensuring the speedy unloading, customs clearance and tax exemption of the products required for the Project at the port (and airport) of disembarkation in Nigeria
- (3) Permission of Japanese nationals for their entry into Nigeria and stay therein for the performance of their work, whose services may be required in connection with the supply of products and services under verified contracts.
- (4) Exemption from customs duties, internal taxes and other fiscal levies which are normally imposed on a Japanese corporation or Japanese nationals in Nigeria in respect to the supply of products and services under verified contracts
- (5) Bearing of the commission of a Japanese bank for banking services based on the banking arrangements
- (6) Bearing of all expenses other than those to be borne by the Japanese grant aid necessary for the execution of the Project
- (7) Assignment of exclusive counterpart engineers and technicians for the Project in order to transfer operation and maintenance techniques under the Project and to witness the inspection of the equipment and materials procured under the Project
- (8) Proper and effective use and maintenance of all facilities constructed and equipment and materials provided and installed under the Japanese grant aid
- (9) Provision of proper disposal sites for excavated soil, waste water and oil discharged during the work period
- (10) Guidance and education for local residents on safety
- (11) In Eburutu Communities in Cross River State, 1) the work to install an additional transformer (30 MVA x 1 unit) at Itu 132/33 kV Substation which is the feeder point to newly extended 33 kV distribution line to the said area, 2) the work to construct temporary roads at sections where vehicle passage is currently impossible (ground levelling, road widening and bush clearing, etc.) , and 3) the Ibiono Idoro Project as well as the Edem Urua Project, which are rural electrification projects of the FMPS, must be completed prior to the commencement of the construction work by the Japanese side.

2.4 Project Operation Plan

2.4.1 Basic Policies

The proper operation and maintenance of the substation and distribution facilities and the suitable maintenance of their operating environment will be essential to improve the reliability of electricity supply for customers in the project sites and to ensure a stable supply of electricity. For these purposes, the practice of preventive maintenance should be adopted to reduce the breakdown rate of these facilities in order to increase their reliability, safety and efficiency. Fig. 2-3 shows the basic concept of such maintenance. In short, preventive maintenance should become the core of the maintenance of the equipment and facilities to be procured/constructed under the Project.

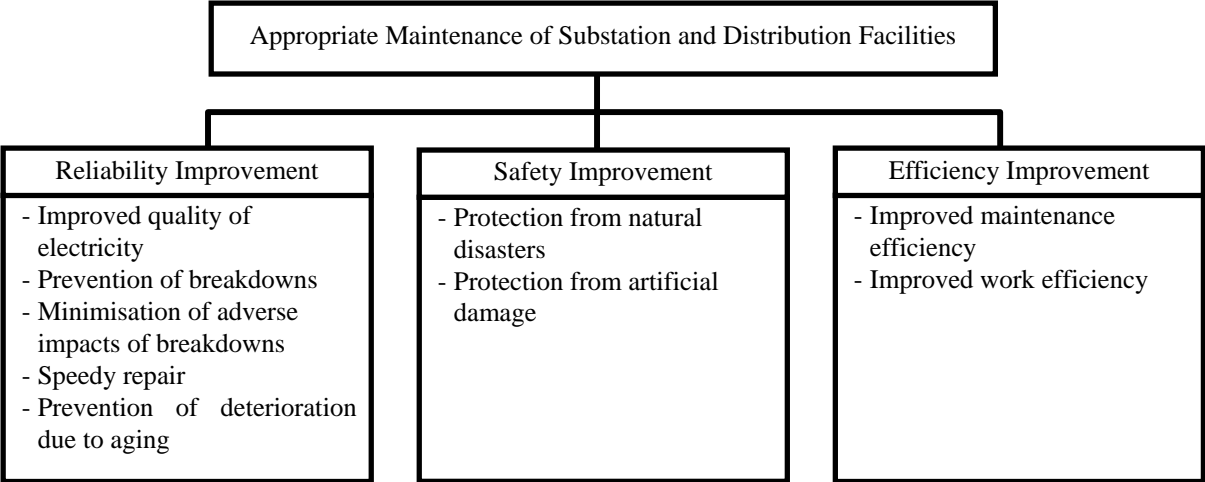


Fig. 2-3 Basic Concept of Maintenance for Substation and Distribution Facilities

As part of the Project, it is planned that the Japanese Equipment Supplier will dispatch engineers during the installation period as well as the testing and adjustment period to provide OJT on the substation facilities (booster stations and a capacitor station). This OJT will be fully effective if the Japanese side provides the necessary spare parts, testing apparatus, maintenance tools and O & M manuals and proposes a suitable O & M system after commencement of operation at the same time.

PHCN which will be responsible for O & M after completion of the Project is planning to introduce an O & M system to be employed by the following offices under the overall control of the PHCN Port Harcourt Office. As such, the organization and manpower to operate an adequate electricity supply service will be in place.

- Ranch Communities

Ranch Communities Service Center (Planned) under Ikom Business Unit

- Ibedu Ibiaikot Clan

Uyo Business Unit

- Eburutu Communities

Calabar Business Unit (some towns/villages are served by Uyo Business Unit or Umahia Business Unit)

2.4.2 Regular Inspection Items

(1) Regular Inspection of Booster and Capacitor Station Equipment

The standard inspection items regarding the booster and capacitor station equipment to be procured under the Project are shown in Table 2-25. As the table shows, the inspection of the said equipment is classified as (i) “patrolling inspection” which is conducted daily using human senses to check any abnormal heating and sound, etc. of the equipment, (ii) “standard inspection” to check loaded sections beyond the daily patrolling inspection, including the fastening conditions of bolts, etc. of the equipment and the cleanliness of or damage to the surface of insulated items, etc. and (iii) “detailed inspection” to check the proper functioning of the interlocking mechanism between equipment and the accuracy of instruments, etc.

Standard inspections are conducted every one or two years while detailed inspections are conducted approximately every four years.

The regular replacement of certain parts at the time of either standard inspection or detailed inspection is desirable based on confirmation of the characteristics as well as frequency of use of such parts. These include fuses, measuring instruments and relays, etc. installed inside the distribution panels and others which are liable to performance deterioration, including insulation performance, abrasion of the contact points and changes of the characteristics.

(2) Regular Inspection of Distribution Lines

One of the most important customer services is the maintenance of distribution lines by means of detecting breakdowns and damage through regular patrolling and immediate repair. When an earth fault and others can be expected due to tree contact, etc. along the route, preventive measures, including the cutting of trees, should be taken. The major check items for patrolling inspection are listed below.

- ① Break down of conductors
- ② Damage to insulators
- ③ Contact between conductors and trees
- ④ Damage to poles
- ⑤ Leaning of poles
- ⑥ Installation condition of and oil leakage from distribution transformers
- ⑦ Operating condition of various switches

Table 2-25 Regular Inspection Items for Standard Distribution Equipment, etc.

Subject	Inspection Item (Method)	Patrolling Inspection	Standard Inspection	Detailed Inspection
Equipment Outlook	Switch indicator and indication light	○	○	
	Abnormal sound or odour	○	○	
	Thermal discolouration of terminals	○	○	
	Cracks, damage or staining of bushing and insulator	○	○	
	Rust on casings and frames	○	○	
	Abnormal temperature (thermometer)	○	○	
	Fastening of bushing terminals (mechanical check)	○	○	
Operating Apparatus and Control Panels	Correct indication by various instruments	○	○	○
	Counter indication		○	○
	Condensation, rust and damage inside console and panels		○	○
	Condition of oil supply and cleaning		○	○
	Fastening of cable terminals	○	○	○
	State of switch indication		○	○
	Air leakage and oil leakage		○	○
	Pressure before and after operation (air pressure, etc.)		○	○
	Working of instruments		○	○
	Rust, deformation and/or damage to springs (maintenance)	○	○	○
	Abnormality of fastening pins		○	○
	Auxiliary switchgear and relays (maintenance)		○	○
Measurement/ Testing	DC control power source	○		
	Measurement of insulation resistance		○	○
	Measurement of contact resistance			○
	Breaking of heater cable		○	○
	Testing of relay function		○	○

2.4.3 Spare Parts Procurement Plan

(1) Classification of Spare Parts

The spare parts covered by the scope of the Project are classified into the following three categories.

- ① Expendable parts : parts which replace comparable parts in accordance with their natural wear and tear over time

- ② Replacement parts : repair parts which are used to replace broken parts
- ③ Emergency spare equipment : equipment which is used to replace comparable equipment, the breakdown of which threatens the suspension of the distribution system

(2) Target Equipment for Spare Parts

The expendable parts, replacement parts and emergency spare parts/equipment to be procured under the Project are those associated with the following facilities.

- ① Booster station (ATV, distribution panel and outdoor lighting)
- ② 33 kV distribution lines

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

As the Project has the following special factors, the procurement of spare parts for each phase is necessary.

- ① The implementation of the Project is planned to be conducted in three phases.
- ② At the three project sites where the Project will be implemented in three corresponding phases, facility and equipment maintenance is conducted by separate PHCN Service Centres.
- ③ There is no ready convenient means of transport between the project sites and all of the sites are far from the capital or are the targeted sites of previous cooperation.

(4) Selection Criteria for Each Category of Spare Parts

1) Expendable Parts

These are parts which become worn and torn through routine operation and which require periodic replacement. The quantity of spare parts to be procured will be equivalent to 100% of the estimated annual requirement for each subject part.

2) Replacement Parts

These are parts which do not become worn and torn through routine operation but which are liable to breakage. The quantity of spare parts to be procured will be equivalent to 100% of the estimated annual requirement for each subject part.

3) Emergency Spare Equipment

This is equipment of which the breakdown due to an unanticipated or unpredicted reason will greatly hamper the stable supply of electricity and of which quite on-site repair will be difficult.

The reasons for the selection and supply of certain emergency spare equipment under the Project are described below.

- ① So-called protective equipment, such as arresters and circuit breakers, play the role of protecting the transformers from abnormal current and voltage caused by lightning impulse, grounding accidents and switching impulse, etc. Once it breaks down, immediate replacement is necessary. As the project sites are characterised by frequent thunderstorms, continuous system operation without the replacement of broken down protective equipment during the peak thunderstorm season could lead to the breakdown of a primary side transformer (at a key substation) or even a fire due to a thunderstorm, possibly resulting in the suspension of electricity supply over a wide area.
- ② Under the Project, the distribution network is designed in a radiating manner instead of a loop from the viewpoint of procuring the minimum necessary equipment. For this reason, the breakdown of a distribution transformer or protective equipment, etc. means that users beyond the point of an accident would be unable to receive electricity until repair work has been completed. The long-term suspension of electricity supply would have not only serious social impacts on various users who now rely on such supply to maintain their social and economic activities but would also have serious adverse impacts on the maintenance system as well as operation budget of the PHCN (especially its local offices). To prevent such damage, the quick restoration of electricity supply is essential.

Given the fact that the swift on-site repair of broken-down equipment is difficult given the existing technical expertise in Nigeria, it will be necessary for the Nigerian side to replace broken-down equipment with new equipment to ensure the quick restoration of electricity supply. However, the PHCN which is responsible for maintenance work does not possess any spare equipment to replace broken-down equipment. The procurement of distribution transformers and protective equipment, etc. as emergency spare equipment is, therefore, essential. Investigation into the causes of equipment breakdown and repair work will be conducted after delivery to a plant of the manufacturer.

- ③ In regard to vacuum circuit breakers, there are two procurement methods, i.e. (i) the procurement of vacuum circuit breakers proper as emergency spare equipment and (ii) the procurement of coils and packings, etc. as replacement parts. As the latter requires replacing and testing skills, the former, i.e. the procurement of vacuum circuit breakers proper, is necessary under the Project in view of the technical capability of the PHCN.

(5) Budgeting for Spare Parts

The minimum necessary quantities of expendable parts and replacement parts for use in one year will be procured and supplied under the Project. Table 3-26 lists these parts and their quantities. The basis for the procurement quantity is 100% for expendable parts and replacement parts and one each for emergency spare equipment in view of the actual use of these items under the previous cooperation. It will be necessary for the Nigerian side to secure the necessary budget to procure additional expendable parts, replacement parts and emergency spare equipment within one year of the completion of the Project.

(6) Testing Apparatus and Maintenance Tools

Testing apparatus and maintenance tools, both of which are necessary to ensure appropriate maintenance work will also be procured under the Project. The procurement of maintenance tools in particular will take the following conditions into consideration.

- ① A set of new maintenance tools will be required in the Ranch Community area of Cross River State as it will be necessary for the PHCN to establish a new service centre responsible for the operation and maintenance of the transforming and distribution equipment to be installed under the Project.
- ② For other areas, a request has been made for the procurement and supply of the new minimum necessary maintenance tools corresponding to the equipment to be procured under the Project as the new Japanese equipment to be procured and installed has different specifications from those of the existing equipment.

Table 2-26 Spare Parts to be Provided under the Project

Item	Unit	Ranch Communities in Cross River State	Ibedu Ibiaikot Clan in Akwa Ibom State	Eburutu Communities in Cross River State
1. Booster Station				
(1) Booster				
1) 33 kV bushing	piece	1	1	
2) Silica gel for moisture absorption (2kg) *1	set	1	1	
3) Various lamps *1	%	100	100	
4) Various fuses	%	100	100	
5) Various MCCBs	piece/type	1	1	
6) Various protection relays	piece/type	1	1	
7) Temperature gauge	set	1	1	
8) Oil gauge	set	1	1	
9) Space heater (with thermostat)	set	1	1	
10) Packing for repair *1	piece/type	1	1	
11) Pressure relief valve	piece	1	1	
(2) Switchgear Cubicle				
1) Vacuum circuit breaker *2	set	1	1	
2) Various lamps *1	%	100	100	
3) Various fuses	%	100	100	
4) Various MCCBs	piece/type	1	1	
5) Various protection relays	piece/type	1	1	
6) Various auxiliary relays	piece/type	1	1	
7) Space heater (with thermostat)	set	1	1	
8) Various meters (voltage, current, real power, reactive power and integrating watt-hour)	piece/type	1	1	
9) Various instrument current transformers	piece/type	1	1	
10) Various instrument voltage transformers	piece/type	1	1	
11) Various switches	piece/type	1	1	
(3) Outdoor lightning				
1) Lamp *1	piece	1	1	
2) Ballast	piece	1	1	
3) Photocell	piece	1	1	
4) Lamp cover	piece	1	1	
2. 33 kV Distribution Line				
(1) For Load break switch				
1) Various contacts	piece/type	1	1	1
2) Load break switch *2	set	1	1	1
(2) For Disconnecting Switch				
1) Various contacts	piece/type	1	1	1
2) Disconnecting switch *2	set	1	1	1
(3) Lightning Arrester (single phase)				
1) 5 kA	piece	9	9	9
2) 10 kA	piece	3	3	
(4) 33 kV cable terminal treatment materials (for outdoor and indoor application)	set	1	1	
(5) For 33 kV/415-240 V distribution transformer				
1) 200 kVA transformer *2	set	1	1	1
2) 300 kVA transformer *2	set	1	1	1
3) 500 kVA transformer *2	set	1		1
(6) For Open Fused Cutout	piece	3	3	3
(7) For Auto recloser				
1) Various fuse and lamp in control panel	piece/type	1		1
2) Circuit Breaker *2	piece	1		1

(Remarks) *1: Expendable parts, *2: Emergency spare equipment, No remarks: Replacement parts

2.5 Other Relevant Issues

2.5.1 Estimated Cost of Requested Japanese Assistance

The total project cost in the case of the Project's implementation under the grant aid scheme of the Government of Japan is estimated to be approximately ¥ 2,634 million. The Japanese portion and the Nigerian portion of the project cost are described below based on the estimation conditions on the work demarcation between the two countries mentioned earlier. However, this estimated project cost is a provisional figure and is not necessarily the ceiling for grant aid agreed upon in the E/N. This figure will be further scrutinised at the time of examining the actual implementation of the Project.

(1) Japanese Portion Estimated Total: ¥ 2,228 million

1) Ranch Communities in Cross River State

Cost Item		Estimated Cost (¥ million)
Equipment	Equipment and materials for booster station, capacitor station and 33 kV distribution line	857
Detailed Design and Work/Procurement Supervision		69

Estimated Project Cost (Sub-Total): approx. ¥ 926 million

2) Ibedu Ibiaikot Clan in Akwa Ibom State

Cost Item		Estimated Cost (¥ million)
Equipment	Equipment and materials for booster station and 33 kV distribution line	412
Detailed Design and Work/Procurement Supervision		69

Estimated Project Cost (Sub-Total): approx. ¥ 481 million

3) Eburutu Communities in Cross River State

Cost Item		Estimated Cost (¥ million)
Equipment	Equipment and materials for 33 kV distribution line	752
Detailed Design and Work/Procurement Supervision		69

Estimated Project Cost (Sub-Total): approx. ¥ 821 million

(2) Nigerian Portion US\$ 3,574,000 (approx. ¥ 405.8 million)

The main cost items for the Nigerian side are listed below. This figure represents approximately 13% of the total budget for new electrification project of the FMPS in 2005, and could be judged within the range of affordable expenditure.

- 1) Ranch Communities in Cross River State
 - ① Bush clearing along the distribution routes (33 kV and LV) : US\$ 7,000 (approx. ¥ 0.8 million)
 - ② Site preparation for booster and capacitor stations : US\$ 1,000 (approx. ¥ 0.1 million)
 - ③ Procurement and installation of LV distribution line equipment and materials : US\$ 634,000 (approx. ¥ 72.0 million)
 - ④ Establishment of the Ranch Communities Service Center : US\$ 154,000 (approx. ¥ 18.0 million)
 - Sub-Total (Ranch Communities) : US\$ 796,000 (approx. ¥ 90.9 million)

- 2) Ibedu Ibiaikot Clan in Akwa Ibom State
 - ① Bush clearing along the distribution routes (33 kV and LV) : US\$ 2,000 (approx. ¥ 0.2 million)
 - ② Site preparation for booster station : US\$ 1,000 (approx. ¥ 0.1 million)
 - ③ Procurement and installation of LV distribution line equipment and materials : US\$ 618,000 (approx. ¥ 70.2 million)
 - Sub-Total (Ibedu Ibiaikot Clan) : US\$ 621,000 (approx. ¥ 70.5 million)

- 3) Eburutu Communities in Cross River State
 - ① Bush clearing along the distribution routes (33 kV and LV) : US\$ 9,000 (approx. ¥ 1.0 million)
 - ② Procurement and installation of LV distribution line equipment and materials : US\$ 1,438,000 (approx. ¥ 163.3 million)
 - ③ Construction of temporary roads (levelling and widening) : US\$ 710,000 (approx. ¥ 80.6 million)
 - Sub-Total (Eburutu Communities) : US\$ 2,157,000

(approx. ¥ 244.9 million)

(3) Estimation Conditions

- ① Timing of estimation : November, 2005
- ② Foreign exchange rate : US\$ 1 = ¥113.53 (average TTS value from June to November, 2005)
NGN 1 = ¥0.842 (as above)
- ③ Work period : The Project will be divided into three phases with each phase featuring one project site. The periods of the detailed design work, procurement work and installation work are shown in the project implementation schedules (see 2.2.4.7).
- ④ Others : The Project will be implemented in line with the guidelines for Japan's grant aid projects.

2.5.2 Operation and Maintenance Cost

The PHCN will be responsible for the operation and maintenance of the equipment and materials to be installed under the Project after the commencement of operation under the supervision by FMPS. Among the three project sites, the existing business unit will conduct the operation and maintenance, including simple repairs of the distribution equipment and collection of the electricity tariff, etc., in Ibedu Ibiaikot Clan in Akwa Ibom State and Eburutu Communities in Cross River State. In contrast, the establishment of the Ranch Communities Service Center (tentative name) will be necessary as a branch office of Ikom Business Unit in Ranch Communities in Cross River State. As PHCN can relocate some staff members of the Ikom Business Unit to run the said center, the recruitment of new operation and maintenance staff following the implementation of the Project will be unnecessary.

Although the range of equipment concerned is basically maintenance-free, it will still be necessary for the booster stations and other facilities to keep consumables required for equipment operation and spare parts to replace the relevant parts depending on the state of deterioration as described in 2.4.3. For this reason, it will be necessary for the Nigerian side to allocate the necessary budget (approximately ¥20 million/year) to ensure the uninterrupted operation of the equipment. This figure represents approximately 0.1% of the total operation and maintenance expenditure of the PHCN in 2003 and should be well within the scope of affordable expenditure.

2.6 Important Issues Regarding Implementation of the Project

There are some important issues to be addressed by Nigerian side as they are believed to have direct implications regarding the smooth implementation of the Project. These issues are listed below.

- (1) In order to conduct the procurement and installation of the 415 V LV distribution equipment and materials at its own expense in line with the work schedule for the 33 kV distribution lines to be procured and installed by Japanese side under the Project, it will be necessary for Nigerian side to form a construction team and to prepare the work implementation schedule, personnel dispatch plan, and procurement plan for equipment and materials so that the work by Nigerian side can be conducted smoothly.
- (2) Distribution transformers to meet the estimated power demand up to five years after their commissioning will be procured under the Project. However, it will be necessary for Nigerian side to review the power demand from time to time to determine the actual increase of such demand after commissioning, to prepare a plan for installation of additional transformers after completion of the Project and to secure the necessary budget for the procurement of new equipment.
- (3) While the power supply system for consumers in the project sites will be established by the Project, it will be necessary for Nigerian side to review the distribution networks in view of the future expansion of areas requiring power supply and to expand the service areas if necessary to improve and reduce the gap of the local standard of living.
- (4) It will be necessary for Nigerian side to conduct regular on-site patrols and to employ the practice of preventive maintenance, including tree cutting along the distribution line routes, to reduce the number of faults on distribution lines and to establish a stable power supply system.
- (5) It will be necessary for Nigerian side to install watt-hour meters for all consumers, to read such meters regularly and to properly collect the payment in order to establish a fair electricity payment collection system.
- (6) It will be necessary for Nigerian side to construct a management office (PHCN) to operate and maintain the new power facilities and to provide a user service by the time of the Project's completion. This office should commence operation at the same time as the commissioning of the planned facilities under the Project in view of the establishment of an appropriate operation and maintenance system (Ranch Communities only).

- (7) It will be necessary for Nigerian side to swiftly appoint engineers to participate in the OJT to be conducted under the Project, to ensure that they attend the said OJT and to encourage spreading the newly transferred skills to other engineers who do not participate in the said OJT.

CHAPTER 3

PROJECT EVALUATION AND RECOMMENDATIONS

CHAPTER 3

PROJECT EVALUATION AND RECOMMENDATIONS

3.1 Project Effects

The implementation of the Project is expected to have the following effects.

(1) Direct Effects

Present Situation and Problems	Improvement Measures Under the Project	Effects and Degree of Improvement Under the Project
While the National Rural Electrification Programme is being promoted in Nigeria as a rural electrification programme, the electrification rate in rural areas (approx. 20%) is much lower than that in urban areas (approx. 60%), constituting one cause for the gap in the living standard.	Construction of booster stations and the procurement and installation of equipment and materials for 33 kV distribution lines for Ranch Communities in Cross River State (13 villages, 29,000 residents), Ibedu Ibiaikot Clan in Akwa Ibom State (14 villages, 28,000 residents) and Eburutu Communities in Cross River State (27 villages, 117,000 residents)	The electrification of the three project sites will improve the rural electrification rate in important towns/villages in Cross River State from approx. 7% to approx. 93% while the corresponding rate in Akwa Ibom State will improve from approx. 21% to approx. 31%.

(2) Indirect Effects

Present Situation and Problems	Improvement Measures Under the Project	Effects and Degree of Improvement Under the Project
1. The project sites have health centres and clinics which are used by local residents. Although sterilizers, x-ray units and operation equipment are available, they cannot be fully used due to lack of power supply.	Construction of booster stations and the procurement and installation of equipment and materials for 33 kV distribution lines for Ranch Communities in Cross River State (13 villages, 29,000 residents), Ibedu Ibiaikot Clan in Akwa Ibom State (14 villages, 28,000 residents) and Eburutu Communities in Cross River State (27 villages, 117,000 residents)	The introduction of medical equipment and refrigerators to store drugs, etc. using electricity will become possible, facilitating the improvement of the health of and a hygienic environment for local residents.
2. Primary and secondary schools in the project sites play an important part of the Universal Basic Education (UBE) Programme promoted by the government but the lack of power supply reduces the learning efficiency.	Ditto	The introduction of lighting fixtures and teaching materials such as PCs in classrooms will vitalise educational activities.

3.2 Recommendations

It will be necessary for Nigerian side to complete the following tasks to ensure the realisation and continuation of the positive effects of the Project.

- (1) In order to conduct the procurement and installation of 415 V LV distribution equipment and materials at its own expense, in line with the work schedule for 33 kV distribution lines to be procured and installed by Japanese side under the Project, it will be necessary for Nigerian side to form a construction team and to prepare the work implementation schedule, personnel dispatch plan, and procurement plan for equipment and materials so that the work by Nigerian side can be conducted smoothly.
- (2) Distribution transformers to meet the estimated power demand up to five years after their commissioning will be procured under the Project. However, it will be necessary for Nigerian side to review the power demand from time to time to determine the actual increase of such demand after commissioning, to prepare a plan for installation of additional transformers after completion of the Project and to secure the necessary budget for the procurement of new equipment.
- (3) While the power supply system for consumers in the project sites will be established by the Project, it will be necessary for Nigerian side to review the distribution networks in view of the future expansion of areas requiring power supply and to expand the service areas if necessary to improve and reduce the gap of the local standard of living.
- (4) It will be necessary for Nigerian side to conduct regular on-site patrols and to employ the practice of preventive maintenance, including tree cutting along the distribution line routes, to reduce the number of faults on distribution lines and to establish a stable power supply system.
- (5) It will be necessary for Nigerian side to install watt-hour meters for all consumers, to read such meters regularly and to properly collect the payment in order to establish a fair electricity payment collection system.
- (6) It will be necessary for the Nigerian side to construct a management office (in Ranch Communities in Cross River State) to operate and maintain the new power facilities and to provide a user service by the time of the Project's completion. This office should commence operation at the same time as the commissioning of the planned facilities under the Project in view of the establishment of an appropriate operation and maintenance system.

- (7) It will be necessary for Nigerian side to swiftly appoint engineers to participate in the OJT to be conducted under the Project, to ensure that they attend the said OJT and to encourage spreading the newly transferred skills to other engineers who do not participate in the said OJT.

APPENDICES

1. MEMBER LIST OF THE STUDY TEAM

Member List of the Study Team

1 . Basic Design Study

Name	Work Assignment	Position
Mr. Katsuji MIYATA	Leader	Technical Coordination and Examination Team, Office of Technical Coordination and Examination, Grant Aid Management Department, JICA
Mr. Masatsugu KOMIYA	Chief Consultant/ Power Supply Planner/ Power Distribution Planner I	Yachiyo Engineering Co., Ltd.
Mr. Tadayuki OGAWA	Power Distribution Planner II/Specialist on the Environmental and Social Consideration	Yachiyo Engineering Co., Ltd.
Mr. Atsuhito URUNO	Power Distribution Equipment Planner I/ Operation and Maintenance Planner I	Yachiyo Engineering Co., Ltd.
Mr. Tatsuya KOBAYASHI	Power Distribution Equipment Planner II/ Operation and Maintenance Planner II	Yachiyo Engineering Co. Ltd.
Mr. Takayuki MIYAMOTO	Construction Planner / Cost Estimator	Yachiyo Engineering Co. Ltd.
Mr. Kyoji FUJII	Specialist on Social Consideration	Yachiyo Engineering Co. Ltd.

2 . Explanation of the Draft Basic Design Study Report

Name	Work Assignment	Position
Mr. Shigeo YAMAGATA		Resident Representative JICA Nigeria Office
Mr. Masatsugu KOMIYA	Chief Consultant/ Power Supply Planner/ Power Distribution Planner I	Yachiyo Engineering Co., Ltd.
Mr. Tadayuki OGAWA	Power Distribution Planner II/Specialist on the Environmental and Social Consideration	Yachiyo Engineering Co., Ltd.

2. SURVEY SCHEDULE

SURVEY SCHEDULE

(1) Basic Design Study

Day No.	Date	Day of Week	Activity			Overnight Stay
			Government Official (K. Miyata)	Consultant Group A (M. Komiya, N. Fujiashi and T. Kobayashi)	Consultant Group B (T. Ogawa, A. Uruno and T. Miyamoto)	
1	Sept. 26	Mon.	(Consultant members: Komiya, Fujiashi, Uruno, Kobayashi and Miyamoto) Travelling [from Tokyo 10:20 JL403 to London 14:45] Travelling [from London 22:15 BA083 to Abuja 04:25 + 1]			On board plane
2	Sept. 27	Tues.	<ul style="list-style-type: none"> • Courtesy visit to the JICA Nigeria office to explain and discuss the schedule and contents of the study • Courtesy visit to the NPC to explain and discuss the schedule and contents of the study • Courtesy visit to the Embassy of Japan in Nigeria to explain and discuss the schedule and contents of the study • Courtesy visit to the FMPS to explain and discuss the schedule and contents of the study 			Abuja
3	Sept. 28	Wed.	<ul style="list-style-type: none"> • Working level discussions with officials of the FMPS, NPC and PHCN (on the rural electrification policy, etc.) and data gathering • Explanation of and discussions on the IC/R • Preparations for the field survey CC/P, police escort arrangements of a clerk responsible for safety measures and courtesy visit to the state electrification bureau, etc. • Checking with the MOE on the EIA guidelines 			Abuja
4	Sept. 29	Thurs.	<ul style="list-style-type: none"> • Study on the post-project maintenance system (BPE, FMPS and PHCN) • Discussions on the rural electrification policy with World Bank officials 	<Ogawa> Travelling [from Tokyo 10:20 JL403 to London 14:45] Travelling [from London 22:15 BA083 to Abuja 04:25 + 1]	Abuja	
5	Sept. 30	Fri.	• Meeting with the FMPS and PHCN on technical matters and data gathering			Abuja
6	Oct. 1	Sat.	• Team meeting and arrangement of the gathered materials			Abuja
7	Oct. 2	Sun.	<ul style="list-style-type: none"> • Team meeting and arrangement of the gathered materials <Fujiashi> Travelling [from Abuja 08:15 BA082 to London 14:40] Travelling [from London 21:00 JL404 to Tokyo 16:45 + 1]			Abuja
8	Oct. 3	Mon.	<Komiya, Ogawa, Uruno, Kobayashi and Miyamoto> Travelling [from Abuja 09:00 to Calabar 12:00 by air] <ul style="list-style-type: none"> • Courtesy visit to the MRS of the Cross River State Government and explanation of and discussions on the schedule and contents of the study • Confirmation of the target areas for electrification <Komiya and Kobayashi> Travelling [from Calabar to Uyo by land: 1.5 hours]			A/G: Uyo B/G: Calabar
9	Oct. 4	Tue.	<u>Study on Ibedu Ibiaikot Clan in Akwa Ibom State</u> <ul style="list-style-type: none"> • Courtesy visit to the Rural Development Bureau of the Akwa Ibom State Government and explanation of and discussions on the schedule and contents of the study • Survey on the Uyo Substation • Courtesy visit to the Odo LGHQ Office (Nsit Atai Local Government) and explanation of and discussions on the schedule and contents of the study 	<u>Study on Ranch Communities in Cross River State</u> <ul style="list-style-type: none"> • Gathering of data and reference materials Travelling [from Calabar to Obudu by land; 6 hours]	A/G: Uyo B/G: Obudu	

Day No.	Date	Day of Week	Activity			Overnight Stay
			Government Official	Consultant Group A	Consultant Group B	
			(K. Miyata)	(M. Komiya, N. Fujiashi and T. Kobayashi)	(T. Ogawa, A. Uruno and T. Miyamoto)	
10	Oct. 5	Wed.	<ul style="list-style-type: none"> Confirmation and surveying of the planned booster station construction site Confirmation of the connecting point with the existing 33 kV line Confirmation, reconnaissance and surveying of the 33 kV HV distribution route 	<ul style="list-style-type: none"> Confirmation and surveying of the planned booster station construction site Confirmation of the connecting point with the existing 33 kV line Confirmation, reconnaissance and surveying of the 33 kV HV distribution route 	AG/Uyo B/G: Obudu	
11	Oct. 6	Thur.	<ul style="list-style-type: none"> Confirmation, reconnaissance and surveying of the 33 kV HV distribution route 	<ul style="list-style-type: none"> Confirmation, reconnaissance and surveying of the 33 kV HV distribution route 	A/G: Uyo B/G: Obudu	
12	Oct. 7	Fri.	<ul style="list-style-type: none"> Discussions at the PHCN Uyo Office Courtesy visit to the Governor of Akwa Ibom State 	<ul style="list-style-type: none"> Confirmation and reconnaissance of the LV distribution areas Confirmation of the pole mounted transformer installation sites 	A/G: Uyo B/G: Obudu	
13	Oct. 8	Sat.	<p><Miyata> Arrival at Abuja <Komiya> Travelling [from Uyo to Calabar by land; 1.5 hours] Travelling [from Calabar 12:30 to Lagos 13:45/14:30 to Abuja 15:40 by air] <Kobayashi> <ul style="list-style-type: none"> Confirmation, reconnaissance and surveying of the 33 kV HV distribution route </p>	<ul style="list-style-type: none"> Confirmation and reconnaissance of the LV distribution areas Confirmation of the pole mounted transformer installation sites 	Miyata and Komiya: Abuja AG/ Uyo (Kobayashi) B/G: Obudu	
14	Oct. 9	Sun.	<p><Miyata and Komiya> <ul style="list-style-type: none"> Survey on the state of post-electrification of the target areas of previous aid projects (state of maintenance and impacts of electrification, etc.) Travelling [from Abuja to Lafia by land (3 hours), to Obi (1 hour) and to Keana in Nasarawa State (1 hour) (day trip survey)]</p>	<ul style="list-style-type: none"> Team meeting and arrangement of the gathered materials <p><Uruno> Travelling [from Obudu to Uyo by land; 6 hours]</p>	Miyata and Komiya: Abuja AG/ Uyo (Kobayashi) B/G: Obudu	
15	Oct. 10	Mon.	<p><Miyata and Komiya> <ul style="list-style-type: none"> Discussions with the FMPS and NPC on the M/D </p>	<p><Uruno and Kobayashi> <ul style="list-style-type: none"> Confirmation, reconnaissance and surveying of the 33 kV HV distribution route </p>	<ul style="list-style-type: none"> Confirmation and reconnaissance of the LV distribution lines Confirmation of the pole mounted transformer installation sites 	Miyata and Komiya: Abuja A/G: Uyo (Kobayashi and Urono) B/G: Obudu
16	Oct. 11	Tues.	<p><Miyata and Komiya> Signing of the M/D with the FMPS and NPC</p>	<ul style="list-style-type: none"> Confirmation and reconnaissance of the LV distribution lines Confirmation of the pole mounted transformer installation sites 	Travelling [from Obudu to Abakaliki by land; 5 hours] <ul style="list-style-type: none"> Survey on the Abakaliki Substation 	Miyata and Komiya: Abuja A/G: Uyo (Kobayashi and Urono) B/G: Abakaliki
17	Oct. 12	Wed.	<p><Miyata and Komiya> <ul style="list-style-type: none"> Reporting to the Embassy of Japan and the JICA Office in Nigeria </p>	<ul style="list-style-type: none"> Confirmation and reconnaissance of the LV distribution areas Travelling [from Uyo to Calabar by land; 1.5 hours]	Travelling [from Abakaliki to Calabar by land; 6 hours] <ul style="list-style-type: none"> Gathering of data for the study 	Miyata and Komiya: Abuja A/G, B/G: Calabar
18	Oct. 13	Thur.	<p><Miyata> Travelling [from Abuja 08:15 BA082 to London 14:40] Travelling [from London 19:00 JL402 to Tokyo 15:30 + 1]</p>	<p><u>Study on Eburutu Communities in Cross River State</u> <ul style="list-style-type: none"> Gathering of data for the study Discussions with the MRD of the Cross River State Government in preparation for the field survey Survey on the Itu Substation </p>	Komiya: Abuja A/G, B/G: Calabar	

Day No.	Date	Day of Week	Activity			Overnight Stay
			Government Official	Consultant Group A	Consultant Group B	
			(K. Miyata)	(M. Komiya, N. Fujiashi and T. Kobayashi)	(T. Ogawa, A. Uruno and T. Miyamoto)	
19	Oct. 14	Fri.	<Komiya> Travelling [from Abuja 08:15 BA082 to London 14:40] Travelling [from London 21:00 JL404 to Tokyo 17:55 + 1]	<ul style="list-style-type: none"> • Gathering of data for the study • Survey on the Calabar Substation • Discussions at the PHCN Calabar Office 		A/G, B/G: Calabar
20	Oct. 15	Sat.	<Komiya> Arrival at Tokyo (Narita) 17:55	<ul style="list-style-type: none"> • Confirmation, reconnaissance and surveying of the 33 kV HV distribution route • Confirmation of the connection point with the existing 33 kV line • Confirmation of the pole mounted transformer installation sites • Confirmation and reconnaissance of the LV distribution areas 		A/G, B/G: Calabar
21	Oct. 16	Sun.		<ul style="list-style-type: none"> • Team meeting and arrangement of the gathered materials 		A/G, B/G: Calabar
22	Oct. 17	Mon.		<ul style="list-style-type: none"> • Confirmation, reconnaissance and surveying of the 33 kV HV distribution route • Confirmation of the connection point with the existing 33 kV line • Confirmation of the pole mounted transformer installation sites • Confirmation and reconnaissance of the LV distribution areas 		A/G, B/G: Calabar
23	Oct. 18	Tues.		<ul style="list-style-type: none"> • As above • Discussions at the PHCN Umuahia Office 		A/G, B/G: Calabar
24	Oct. 19	Wed.		<ul style="list-style-type: none"> • Courtesy visit to the Odupani LGHQ and explanation of and discussions on the schedule and contents of the study • Discussions with MRD and PHCN officials 		A/G, B/G: Calabar
25	Oct. 20	Thur.		<ul style="list-style-type: none"> • Confirmation, reconnaissance and surveying of the 33 kV HV distribution route • Confirmation of the connection point with the existing 33 kV line • Confirmation of the pole mounted transformer installation sites • Confirmation and reconnaissance of the LV distribution areas 		A/G, B/G: Calabar
26	Oct. 21	Fri.		<ul style="list-style-type: none"> • Discussions with MRD and PHCN officials • Port survey at Port Calabar (for the transportation plan) 		A/G, B/G: Calabar
27	Oct. 22	Sat.		<p><Ogawa and Kobayashi> Travelling [from Calabar 12:30 to Lagos 13:45/14:30 to Abuja 15:40 by air] <Uruno and Miyamoto> Travelling [from Calabar to Port Harcourt by land; 3 hours] <ul style="list-style-type: none"> • Survey on concrete pole manufacturers in Port Harcourt </p>	Ogawa and Kobayashi: Abuja Uruno and Miyamoto: Calabar	
28	Oct. 23	Sun.		<ul style="list-style-type: none"> • Team meeting and arrangement of the gathered materials 	Ogawa and Kobayashi: Abuja Uruno and Miyamoto: Calabar	
29	Oct. 24	Mon.		<p><Ogawa and Kobayashi> <ul style="list-style-type: none"> • Confirmation of and discussions with the FMPS on the project contents based on the survey results <Uruno and Miyamoto> <ul style="list-style-type: none"> • Survey on the construction material market (Calabar) </p>	Ogawa and Kobayashi: Abuja Uruno and Miyamoto: Calabar	

Day No.	Date	Day of Week	Activity			Overnight Stay
			Government Official	Consultant Group A	Consultant Group B	
			(K. Miyata)	(M. Komiya, N. Fujiashi and T. Kobayashi)	(T. Ogawa, A. Uruno and T. Miyamoto)	
30	Oct. 25	Tues.		<Ogawa and Kobayashi> • Confirmation of and discussions with the FMPS on the project contents based on the survey results <Uruno and Miyamoto> Travelling [from Calabar 07:15 to Lagos 08:25 by air] • Survey on concrete pole manufacturers in Lagos Travelling [from Lagos 16:10 to Abuja 17:20 by air]	Abuja	
31	Oct. 26	Wed.		• Confirmation of and discussions with the FMPS and PHCN on the project contents • Preparation of the field report	Abuja	
32	Oct. 27	Thur.		As above	Abuja	
33	Oct. 28	Fri.		As above	Abuja	
34	Oct. 29	Sat.		As above <Kobayashi> Travelling [from Abuja 08:15 BA082 to London 14:40] Travelling [from London 21:00 JL404 to Tokyo 16:45 + 1]	Abuja	
35	Oct. 30	Sun.		• Preparation of the field report • Arrangement of the gathered data and materials	Abuja	
36	Oct. 31	Mon.		• Preparation of the field report	Abuja	
37	Nov. 1	Tues.		• Preparation of the field report	Abuja	
38	Nov. 2	Wed.		• Discussions on the field report	Abuja	
39	Nov. 3	Thur.		• Obtaining of the approval of the field report from the Nigerian side • Farewell visits to Nigerian organizations • Reporting of the outline of the field survey and farewell visits to the Embassy of Japan and the JICA Office in Nigeria	Abuja	
40	Nov. 4	Fri.		Travelling [from Abuja 08:15 BA082 to London 14:40] Travelling [from London 21:00 JL404 to Tokyo 17:55 + 1]		
41	Nov. 5	Sat.		Arrival at Tokyo 17:55		

(2) Explanation of the Draft Basic Design Study Report

Day No.	Date	Day of Week	Activity	Overnight Stay
			Government Official and Consultants	
1	Feb. 26	Sun.	<Komiya and Ogawa> Travelling [from Tokyo 12:00 JL401 to London 15:45] Travelling [from London 22:15 BA083 to Abuja 04:25 + 1]	On board plane
2	Feb. 27	Mon.	<ul style="list-style-type: none"> • Courtesy visit to the JICA Nigeria office and explanation of and discussions on the contents of the Outline of the Basic Design • Courtesy visit to the Embassy of Japan in Nigeria • Courtesy visits to the NPC, FMPS and PHCN 	Abuja
3	Feb. 28	Tues.	<ul style="list-style-type: none"> • Explanation of and discussions on the contents of the Outline of the Basic Design (FMPS and PHCN) • Discussions on the draft equipment specifications (FMPS and PHCN) 	Abuja
4	Mar. 1	Wed.	<ul style="list-style-type: none"> • Confirmation on the approval for EIA application (Federal Ministry of Environment) 	Abuja
5	Mar. 2	Thur.	<ul style="list-style-type: none"> • Joint meeting to explain and discuss the contents of the Project to/with staff members of the FMPS, PHCN and state governments 	Abuja
6	Mar. 3	Fri.	<ul style="list-style-type: none"> • Meeting with the World Bank to discuss rural electrification policy, and to explain the contents of the Outline of the Basic Design • Explanation of the grant aid cooperation scheme, gathering of data and confirmation of the Nigerian undertakings 	Abuja
7	Mar. 4	Sat.	<ul style="list-style-type: none"> • Team meeting and arrangement of the gathered materials 	Abuja
8	Mar. 5	Sun.	<ul style="list-style-type: none"> • Team meeting and arrangement of the gathered materials 	Abuja
9	Mar. 6	Mon.	<ul style="list-style-type: none"> • Explanation of the grant aid cooperation scheme, gathering of data and confirmation of the Nigerian undertakings 	Abuja
10	Mar. 7	Tue.	<ul style="list-style-type: none"> • Explanation of and discussions on the M/D 	Abuja
11	Mar. 8	Wed.	<ul style="list-style-type: none"> • Signing of the M/D 	Abuja
12	Mar. 9	Thur.	<ul style="list-style-type: none"> • Farewell visits and reporting on the outcome of the trip to the Embassy of Japan and the JICA Office in Nigeria • Farewell visits to Nigerian organizations 	Abuja
13	Mar. 10	Fri.	Travelling [from Abuja 08:15 BA082 to London 14:40] Travelling [from London 19:00 JL402 to Tokyo 15:55 + 1]	On board plane
14	Mar. 11	Sat.	Arrival at Tokyo 17:55	

3. LIST OF PARTIES CONCERNED IN THE RECIPIENT COUNTRY

List of Parties Concerned in the Recipient Country

National Planning Commission (NPC)

Mr. Ayodele Omotoso	Deputy Director, Multilateral Aid Division
Mr. A. M. Bachaka	Assistant Director, Bilateral Aid Division
Mr. R. O. Showole	Chief Planning Officer, Bilateral Aid Division
Mr. Nwozuzu Samuel	Principal Planning Officer, Bilateral Aid Division

Federal Ministry of Power & Steel (FMPS)

Senator Liyel Imoke	Honorable Minister
Hon. Ahmed Abdulhamid	Honorable Minister of State
Engr. Sadiq M. Mahmood	Permanent Secretary
Engr. H. Nggada	Director, Electrical Inspectorate Services
Engr. F. N. A. Olapade	Deputy Director, Electrical Inspectorate Services
Engr. L. K. Orekoya	Deputy Director, Electrical Inspectorate Services
Engr. A. Adebisi	Assistant Director, Electrical Inspectorate Services
Engr. Abubakar Ali-Dapshima	Principal Inspecting Engineer
Mr. Muntari Ibrahim	Special Assistant to the Minister of State
Mr. Clinton A. Oni	Chief Press Secretary

Federal Ministry of Environment (FMOE)

Prof. P. A F Dixon	Director, Environmental Assessment
Mr. O. J. Omoloyin	Deputy Director, EIA Evaluation & Analysis
Mr. Clement O. Ohikhueme	Desk Officer, Bilateral Relations
Mrs. Bnkola Odetoro	Environmental Assessment Division

Cross River State Government

Barr. Mike Aniah	Commissioner Ministry of Public Utilities, Calabar
Mr. Francis M. A. Nyiam-Bisong	Permanent Secretary Ministry of Public Utilities, Calabar
Surv. Victor O. Nyamse	Permanent Secretary Surveys & Town Planning, Calabar
Engr. Michael B. Effiom, MNSE	Director, Electrical Services Ministry of Public Utilities, Calabar

Odukpani Local Government Area

Hon. Bassey Akiba

Executive Chairman
Odukpani Local Government Headquarter

Akwa Ibom State Government

Obong (Arch.) Victor Attah

Governor of Akwa Ibom State

Barr. Ime T. Ekpoattai

Commissioner
Ministry of Rural Development

Engr. Michael Effiong Udo

Director
Ministry of Works and Transport

Mr. Jimmy Akpanamma

Host Community Representative
Ministry of Rural Development

Engr. Peter Udobang

Head of Electrical Directory
Ministry of Rural Development

Engr. Young Ibok

Senior Engineer
Ministry of Rural Development

Engr. Ikoedem Akpan

Senior Engineer
Ministry of Rural Development

Nsit Atai Local Government Area

Obong Asuquo Barby Udo

Chief
Nsit Atai Local Government Headquarter

Power Holding Company of Nigeria (PHCN)

Engr. S. O. Udeh

Assistant General Manager

Engr. W. O. Emenike

General Manager
Rural Electrification Sub Section

Engr. Kawu B. A.

Planning/Design Engr. South-South Zone
Rural Electrification, Port Harcourt Zonal Hq.

Engr. A. K. Eze

Manager, Electrical, Rural Electrification
Port Harcourt

Engr. G. N. Irechukwu

Work Center Manager
Transysco Calabar Works Center

Engr. C. E. Otiji

Business Manager
Ikom/Ogoja Business Unit

Engr. Oliver A. Ezeugwu

Business Manager
Uyo Business Unit

Engr. O. E. Ezeugwa

Business Manager
Umuahia Business Unit

Engr. Uduma Okala

Head, Technical Services
Calabar Business Unit

Engr. M. T. Ekpo	Senior Manager, Distribution Uyo Business Unit
Engr. Joe E. K. Igwe	Manager, Operation and Maintenance Uyo Business Unit
Engr. Ekung Jack	Assistant Manager, Protection Uyo Business Unit
Mr, Uze P. C. Anyanwu	Manager, System Operations Uyo Substation
Mr. Udeme Etok	Uyo Substation
Mr. E. E. Umoafia	Uyo Substation
Mr. Peter S. A.	Uyo Substation

The World Bank Nigeria Office

Mr. Subramaniam V. Iyer	Lead Financial Analyst, Task Team Leader National Energy Development Project
Mr. Christophe de Gouvello	Senior Energy Specialist
Mr. Justin Runji	Senior Transportation Specialist, Africa Transportation

Embassy of Japan in Nigeria

Mr. Akio Tanaka	Ambassador
Mr. Yoshimasa Iwata	Minister-Counsellor
Mr. Shintaro Kitagawa	First Secretary

JICA Nigeria Office

Mr. Shigeo Yamagata	Resident Representative
Mr. Bashir Ibrahim	Security Advisor

4. MINUTES OF DISCUSSIONS

**Minutes of Discussions
on the Basic Design Study on
the Project for Rural Electrification in Cross River and Akwa Ibom States
in the Federal Republic of Nigeria**

In response to the request from the Government of the Federal Republic of Nigeria (hereinafter referred to as "Nigeria"), the Government of Japan decided to conduct the Basic Design Study (hereinafter referred to as "the Study") on the project for Rural Electrification in Cross River and Akwa Ibom States (hereinafter referred to as "the Project") and entrusted the study to the Japan International Cooperation Agency (hereinafter referred to as "JICA").

JICA sent to Nigeria the Basic Design Study Team (hereinafter referred to as "the Team"), headed by Mr. Katsuji Miyata, Technical Coordination and Examination Team, Office of Technical Coordination and Examination, Grant Aid Management Department, JICA, and is scheduled to stay in the country from September 27, 2005 to November 4, 2005.

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

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.

Abuja, October 11, 2005

宮田 克二

Mr. Katsuji Miyata
Leader
Basic Design Study Team
Japan International Cooperation Agency

H. Nggada

Engr. H. Nggada
Director, Electrical Inspectorate Services Department
Federal Ministry of Power and Steel

R. O. Showole

Mr. R. O. Showole
Chief Planning Officer
National Planning Commission

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ATTACHMENT

1. Objective

The objective of the Project is to realize rural electrification in Cross River and Akwa Ibom States by installing power distribution systems.

2. Project Site

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

3. Organizations concerned in Nigeria

(1) The Responsible and Implementing Agency for the Project is the Federal Ministry of Power & Steel (FMPS).

(2) The Agency in charge of operation and maintenance of the equipment and materials to be provided under the Project (hereinafter called as "O&M Agency") is the Power Holding Company of Nigeria (PHCN).

The organization charts of FMPS and PHCN are shown in Annex-2.

4. Components Requested by the Government of Nigeria

After discussions with the Team, the following components were finally requested by the Nigerian side. Name of Villages to be electrified under the Project is shown in Annex-3.

(1) Supply and Installation of Distribution System in Cross River State

Ranch Communities (13 villages):

33kV Distribution System:

- (a) 33kV Booster Station 10MVA with 5MVar Capacitor
- (b) 33/0.415kV Distribution Transformers (200, 300 or 500kVA for villages)
- (c) 33kV Distribution Line (approx. 48km)
- (d) Reclosers, Section Load Break Switch (LBS) Pole

11kV Distribution System:

- (e) 33/11kV 2.5MVA Substation with 1MVar Capacitor
- (f) 11/0.415kV Distribution Transformers (200, 300 or 500kVA for villages)
- (g) 11kV Distribution Line (approx. 18km)
- (h) 11kV Distribution Line (approx. 12km) (bottom hill-top)

Eburutu Clan (29 villages):

- (a) 33kV Booster Station 10MVA with 5MVar Capacitor
- (b) 33/0.415kV Distribution Transformers (200, 300 or 500kVA for villages)
- (c) 33kV Distribution Line (approx. 104km)
- (d) 33kV Distribution Line (approx. 2km) (Across the River)
- (e) Reclosers, Section Load Break Switch (LBS) Pole

(2) Supply and Installation of Distribution System in Akwa Ibom State

Ibedu Ibiaikot Clan (15 villages):

lu

- (a) 33kV Booster Station 5MVA with 3MVar Capacitor
 - (b) 33/0.415kV Distribution Transformers (200, 300 or 500kVA for villages which will have new 33kV Distribution Lines)
 - (c) 33kV Distribution Line (approx. 20km)
 - (d) Reclosers, Section Load Break Switch (LBS) Pole
- Supply Only:
- (e) 33/0.415kV Distribution Transformers (200, 300 or 500kVA for villages which have the existing 33kV Distribution Lines)

5. Japan's Grant Aid Scheme

- (1) The Nigerian side understands the Japan's Grant Aid scheme and the necessary measures to be taken by the Government of Nigeria explained by the Team as described in Annex-4.
- (2) The Nigerian side promised to take necessary measures as described in Annex-5, for smooth implementation of the Project as a condition for the Japan's Grant Aid to be implemented.

6. Schedule of the Study

- (1) The Team will proceed to further studies in Nigeria until November 4, 2005.
- (2) JICA will prepare the draft report in English and dispatch a team to Nigeria in order to explain its contents in the beginning of February 2006.
- (3) When the contents of the draft report are accepted in principle by the Government of Nigeria, JICA will complete the final report and send it to the Government of Nigeria around April 2006.

7. Explanation of the Policy of the Government of Japan

The Nigeria side understands that the following present policy of the Government of Japan which is explained by the Team.

- (1) The Ministry of Foreign Affairs of Japan (hereinafter referred to as "MOFA") made its own Appraisal Guidelines for Grant Aid Project, which refer to the new JICA Guidelines for Environmental and Social Considerations. MOFA will set down critical path(s) for each stage of projects from the viewpoints of the Environmental and Social Considerations (hereinafter referred to as "the ESC") especially for the resettlement issues.
- (2) MOFA may suspend the implementation of projects unless otherwise the process of the ESC including the above-mentioned resettlement issues is followed.

8. Other Relevant Issues

- (1) The Nigerian side should submit answers in English to the Questionnaire, which the Team handed to the Nigerian side, by the end of October 2005.
- (2) The Nigerian side should provide necessary number(s) of counterpart personnel to the Team during the field survey.
- (3) The Nigerian side should arrange the budget allocation for securing land(s), undertakings shown in Annex-4, and others described in this Minutes of Discussion.
- (4) The Nigerian side explained to the Team that they secured the site necessary for installation of power distribution systems in the Project Site.
- (5) The Nigerian side requested the Team to carry out the training to the FMPS and/or PIICN in Japan on operation and maintenance of new facilities as technical cooperation by JICA. The Nigerian

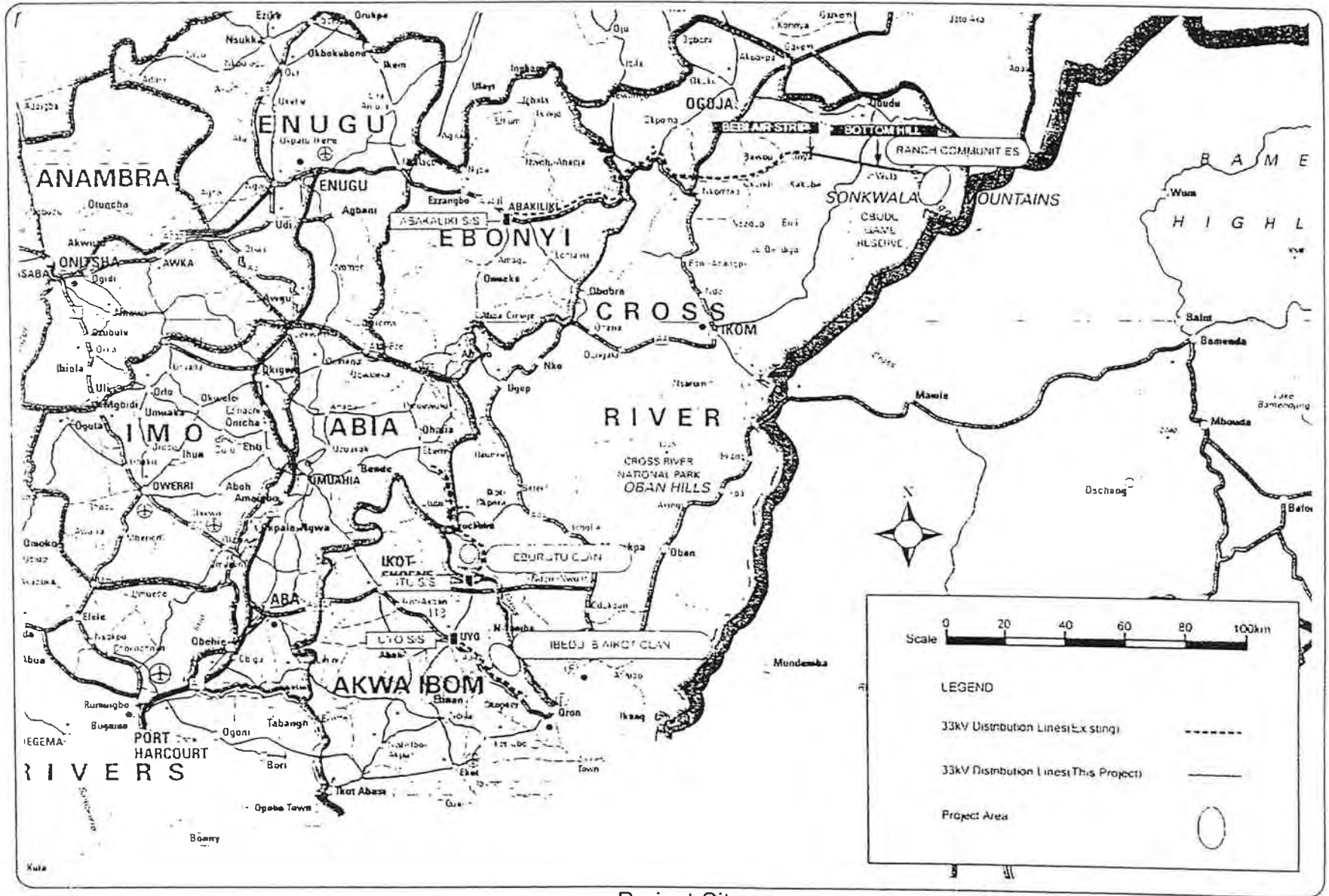
side should submit the official request regarding training with concrete contents of trainings through the Embassy of Japan/JICA Nigeria Office as soon as possible.

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

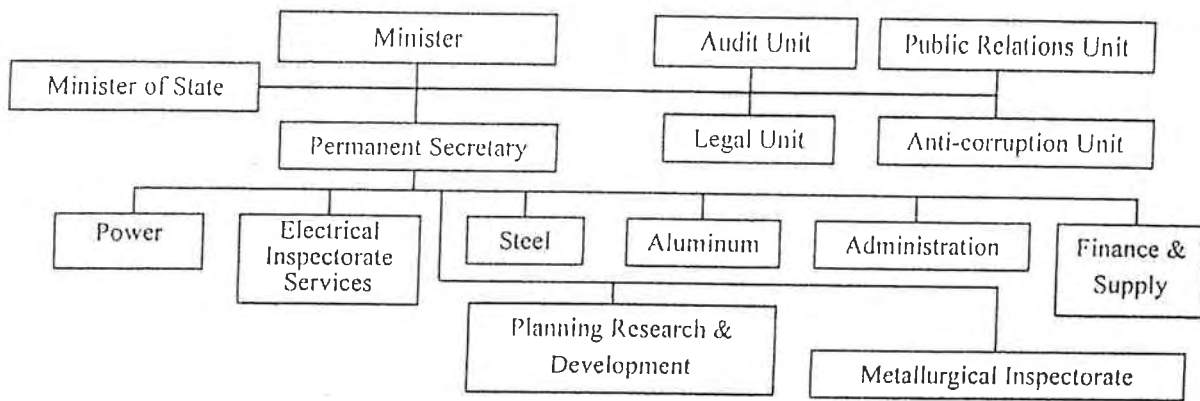
- The Responsible and Implementing Agency of the Project (FMPS) shall own the property provided under the Project during and after implementation of the Project. The O&M Agency (PHCN) shall be in charge of operation and maintenance of the equipment and materials to be provided under the Project after implementation of the Project.
- The Responsible and Implementing Agency of the Project (FMPS) shall not be privatized.
- Ownership of the property provided under the Japan's Grant Aid shall not be transferred to private sector even if the operations of the O&M Agency (PHCN) are outsourced.

The Nigerian side shall issue an official letter from the Minister of FMPS to JICA Nigeria Office to inform Japanese side of the final status and ownership explained above by the end of October, 2005.

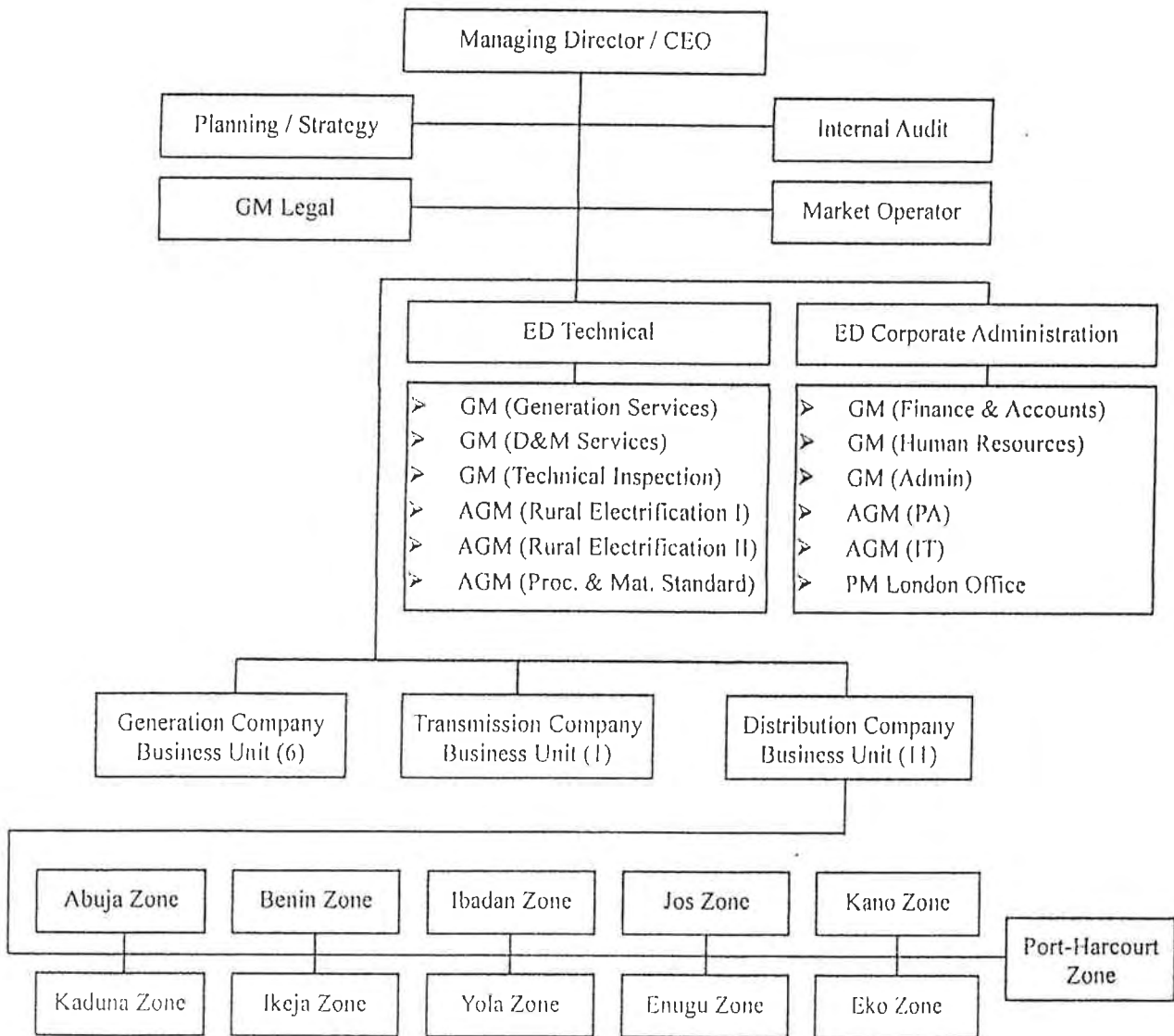
- (7) Both sides agreed that further technical examination shall be necessary to determine whether 11kV distribution system and 33kV Booster Stations need to be introduced or not, taking the economic viability, power demand forecast, voltage drops, etc., into consideration.
- (8) Low Tension (0.415kV) distribution systems beyond secondary terminal of Distribution Transformers shall be designed, procured and installed by Nigerian side for the Project.
- (9) The Nigerian side explained that, in Akwa Ibom State, the existing 33kV distribution lines in Ibedu Ibiakot Clan and the existing distribution transformer located at Unyehe village in Ibedu Ibiakot Clan will be utilized under the Project.
- (10) The Nigerian side requested to implement the Project divided into 2 phases in case that it is acceptable for Japanese Government.



Project Sites



Organization Chart of FMPS



Organization Chart of PHCN

Annex-3 Name of Villages to be electrified under the Project

No.	Name of Villages	No.	Name of Villages
1.	Ranch Communities in Cross River State	3.	Ibedu Ibiakot Clan in Akwa Ibom State
(1)	Utanga	(1)	Ikot Otu
(2)	Amana I	(2)	Ibakang
(3)	Belinge I (Becheve Clan) (Note 1)	(3)	Ikot Nkpen
(4)	Belinge II (Becheve Clan) (Note 1)	(4)	Okoro Atai
(5)	Ugbakoko (Becheve Clan) (Note 1)	(5)	Okoro Nsit
(6)	Old Ikvette (Bottom Hill)	(6)	Idifa
(7)	Kigol	(7)	Ikot Abiaenye
(8)	Apah-Ajile	(8)	Idikpa
(9)	Ranch Resort	(9)	Ibedu
(10)	Okwamu	(10)	Ndisiak
(11)	Keji-Oku	(11)	Ikot Nkpong
(12)	Okpazange	(12)	Ikot Ekpot
(13)	Anape	(13)	Ikot Ntuen
2.	Eburutu Clan in Cross River State	(14)	Adia
(1)	Eki	(15)	Unyehe (Note 2)
(2)	Obom		
(3)	Itiat		
(4)	Ikot Efa		
(5)	Assang Eniong		
(6)	Eseku I		
(7)	Eseku II		
(8)	Ikot Osu		
(9)	Yoki		
(10)	Obodio		
(11)	Obio Nno		
(12)	Ekpene Ibiabong Eki		
(13)	Iboho		
(14)	Odioho Iboho		
(15)	Idere		
(16)	Mbiabong Ukwa		
(17)	Esit Ukwa		
(18)	Ikot Ekpo Anwafiong		
(19)	Ikot Udim		
(20)	Isong Inyang		
(21)	Mbiabong Ito		
(22)	Akpabio		
(23)	Uta Mbara Ito		
(24)	Obot Isu		
(25)	Enem		
(26)	Ekim Ito		
(27)	Ntan Obue Ukpe		
(28)	Obot Akpabio		
(29)	Okpo Eniong		

Notes:

- 1) There are more than ten villages under Becheve Clan in Ranch Community, Cross River State. However, only three villages mentioned above should be included in the scope of the Project, considering the distance from grid and capacity of distribution transformers.
- 2) The existing 33/0.415kV distribution transformer installed at Unyehe village in Ibedu Ibiakot Clan, Akwa Ibom State, will be utilized for the Project.

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.

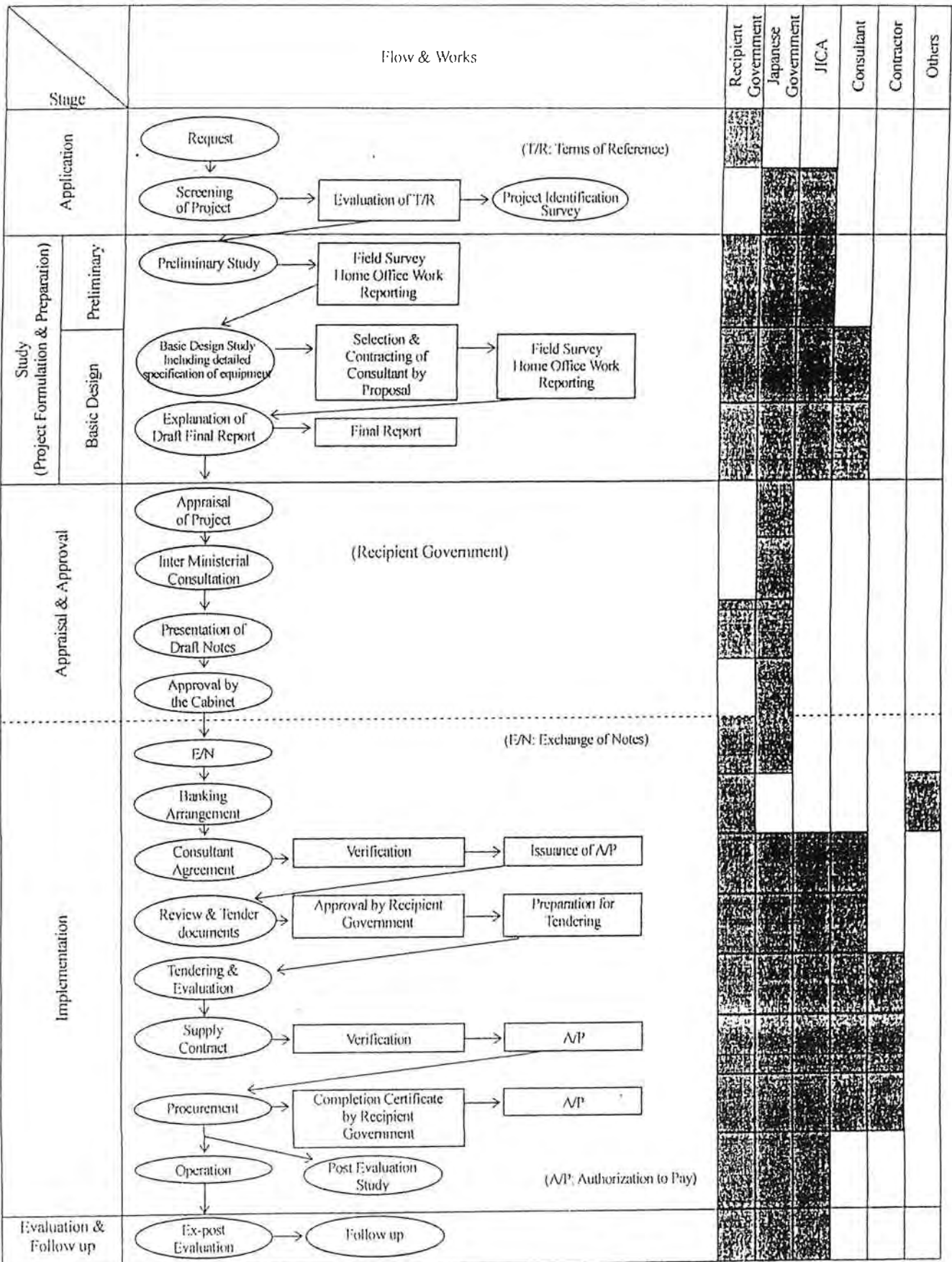
b) The payments will be made when payment requests are presented by the Bank to the Government of Japan under an Authorization to Pay (A/P) issued by the Government of the recipient country or its designated authority.

(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

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 in Cross River and Akwa Ibom States
in the Federal Republic of Nigeria
(Explanation on the Draft Report)

In September to October, 2005, the Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched a Basic Design Study Team on the Project for Rural Electrification in Cross River and Akwa Ibom States (hereinafter referred to as "the Project") to the Federal Republic of Nigeria (hereinafter referred to as "Nigeria") and through discussion, field survey, and technical examination of the results in Japan, JICA prepared a draft report of the study.

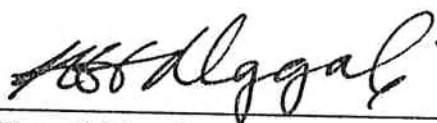
In order to explain and consult the Government of Nigeria on the components of the draft report, JICA sent to Nigeria the Draft Report Explanation Team (hereinafter referred to as "the Team"), which is dispatched by the Grant Aid Management Department, JICA headquarters and is scheduled to stay in the country from February 27 to March 10, 2006.

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

Abuja, March 8, 2006



Mr. Yamagata Shigeo
Resident Representative
JICA Nigeria Office



Engr. H. Nggada
Director, Electrical Inspectorate Services Department
Federal Ministry of Power and Steel



Mr. R. O. Showole
Chief Planning Officer
National Planning Commission

ATTACHMENT

1. Components of the Draft Report

The Nigerian 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 Nigerian side around April 2006.

3. Other Relevant Issues

(1) The Nigerian side explained to the Team that the Federal Ministry of Environment (FMOE) examined and approved the inception report submitted by the Federal Ministry of Power & Steel (FMPS) regarding environmental and social considerations for the Project (as per Annex-1).

(2) Both sides re-confirmed that the Nigerian side should allocate necessary budget for undertakings to be done on a timely manner, based on the provisional amount shown in the draft report in fiscal year 2006 to 2010.

(3) Both sides confirmed major undertakings to be done by the Nigerian side for smooth implementation of the Project and future development of the distribution lines in the target area as follows;

1) For all target areas;

a) to design, procure and install the 415 V LV distribution equipment and materials promptly in the three project sites for electrification,

b) to secure the necessary budget for expansion of the distribution lines in order to meet the estimated power demand up to five years after commissioning of the Project. To prepare appropriate plan for installation of additional electrical equipment, the Nigerian side should review the power demand from time to time,

c) to conduct regular on-site patrols and to employ the practice of preventive maintenance, including tree cutting along the distribution line routes in order to reduce the number of faults on distribution lines and to establish stable power supply system,

d) to store properly spare parts and maintenance tools to prevent from missing and theft. Those spare parts and maintenance tools should be owned by FMPS, and used by PHCN (Power Holding Company of Nigeria) or succeeding distribution companies under supervision by FMPS.

e) to conduct necessary activities to raise public awareness for possible consumers in the project areas to expedite usage of electricity, including installation of house wiring and purchase of electric appliances.

2) For Eburutu Communities in Cross River State;

a) to install an additional transformer (30 MVA x 1 unit) at Itu 132/33 kV Substation which is the feeder point to newly extended 33 kV distribution line to the said area,

b) to construct temporary roads at necessary sections where vehicle passage is currently impossible (ground leveling, road widening, bush clearing, etc.),

c) to complete the Ibiono Idoro Project as well as the Edem Urua Project, which are rural electrification projects to be implemented by the FMPS prior to the commencement of the construction work by the Japanese side.

3) For Ranch Communities in Cross River State;

a) to construct a management office in order to establish an appropriate operation and maintenance system by the completion of the Project.

(4) The Team explained that the Project will be divided into 3 phases as shown in the Draft Report.



FEDERAL MINISTRY OF ENVIRONMENT

7TH & 9TH FLOOR, FEDERAL SECRETARIAT, SHEHU SHAGARI WAY

P. M. B. 468, GARKI, ABUJA

FMENV/CONF/EIA/123.755/Vol.1/23

Telephone/Fax:.....

Ref. No: 3rd March, 2006.....

E-mail:.....

Date:.....

ENVIRONMENTAL ASSESSMENT

EIA DIVISION

Department of:.....

The Honourable Minister
Federal Ministry of Power and Steel,
Federal Secretariat Complex,
Annex 111, Shehu Shagari Way,
Abuja.

**EIA APPROVAL FOR THE JAPANESE GRANT IN-AID FOR RURAL
ELECTRIFICATION PROJECTS IN AKWA IBOM AND CROSS RIVER STATES,
NIGERIA.**


Please refer to your letter Ref. No. FMP & S / ICRE / 6650 / S.10 / T/ 16 dated 15th November, 2005 on the above subject.


2. After due consideration of the urgency of the request and the data contained in the Technical report provided, I am directed to convey the Ministry's EIA Approval for project commencement subject to the following conditions:

- (i) Full implementation of the Environmental Management Plan (EMP) and mitigation measures in the EMP report.
- (ii) There shall be impact mitigation monitoring by FMENV in collaboration with other relevant regulatory authorities which shall be facilitated by your Ministry as may be required by FMENV.
- (iii) All Project related Community issues shall be promptly addressed by your Ministry.
- (iv) There shall be continuous consultation with the host Communities throughout the life span of the project.

3. Please accept the assurances of the Honourable Minister's highest regards.

4. Thank you for your co-operation.


Dr. N.G. Ekeh
For: Honourable Minister.


R. V. J

5. REVISED LIST OF TARGET VILLGAES IN EBURUTU COMMUNITIES

Revised List of Target Villages in Eburutu Communities

No.	Name of village
1	Obom Itiat
2	Ikot Efa
3	Idim Ndom
4	Atan Eki
5	Esuk Atan
6	Obodio Eki
7	Obio Nno
8	Ekpene Ibiabong Eki
9	Ikot Ekpo Anwafiong
10	Isong Inyang
11	Atan Onoyom
12	Iboho Ito
13	Idere
14	Odioho Ito
15	Enen Ito
16	Ekim Ito
17	Utambara Ito
18	Akpabio Ito
19	Obot Esu
20	Mbiabong Ito I
21	Mbiabong Ito II
22	Okpo
23	Asang Eniong
24	Ntanobu Ukpe
25	Obot Akpabio
26	Mbiabong Ukwa
27	Ukwa Ibom