

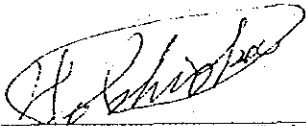
MINUTES OF DISCUSSIONS
 BASIC DESIGN STUDY ON THE PROJECT FOR
 ELECTRIFICATION IN LOWER VOLTA AREA
 IN THE REPUBLIC OF GHANA
 (CONSULTATION ON DRAFT REPORT)

In November 1992, the Japan International Cooperation Agency (JICA) dispatched a Basic Design Study team on the Project for Electrification in Lower Volta Area (hereinafter referred to as "the Project") to the Republic of Ghana, and through discussions, field survey, and technical examination of the results in Japan, has prepared the draft report of the study.

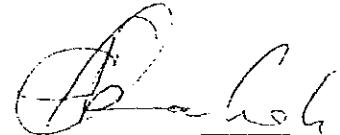
In order to explain and to consult the Ghanaian side on the components of the draft report, JICA sent to the Republic of Ghana a study team, which is headed by Mr. Hidetoshi Ishioka, First Basic Design Study Division, Grant Aid Study and Design Department of JICA, and is scheduled to stay in the country from March 9, 1993.

As a result of discussions, both parties confirmed the main items described on the attached sheets.

Accra, 15th March, 1993



Mr. Hidetoshi Ishioka
 Leader
 Basic Design Study Team



Mr. Charles Abakah
 Director
 International Economic
 Division, Ministry of
 Finance & Economic
 Planning

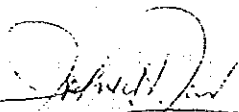
W I T N E S S E S



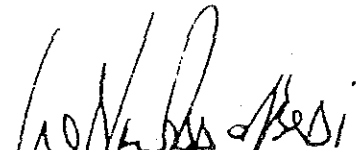
Mr. J. K. Owusu
 Ag. Chief Director
 Ministry of Energy



Mr. E. A. K. Kalitsi
 Chief Executive
 Volta River Authority



Mr. John K. Hagan
 Managing Director
 Electricity Corporation
 of Ghana



Dr. F. Y. Addo-Abedi
 Deputy Chief Executive
 Ghana Highway Authority

A T T A C H M E N T

1. Title of the Project

The official title of the Project is changed to "The Project for Electrification in Lower Volta Area".

2. Components of Draft Report

The Government of the Republic of Ghana has agreed and accepted in principle the components of the draft report proposed by the Team. In addition the technical matters were agreed by both sides as shown in Annex-2.

3. Japan's Grant Aid System

- (1) The Government of the Republic Ghana has understood the system of Japanese Grant Aid explained by the Team.
- (2) The Government of the Republic of Ghana will take necessary measures, described in Annex-1 for smooth implementation of the Project on condition that the Grant Aid assistance by the Government of Japan is extended to the Project.

4. Further Schedule

The team will make the final report in accordance with the confirmed items, and sent it to the Government of the republic of Ghana by the end of May.

5. Operation and Maintenance for the Facilities

The Government of the Republic of Ghana stressed that it will allocate necessary budget for the works including operation

and maintenance of the facilities to be constructed as well as the equipment to be procured under the Project, on condition that the grant aid by the Government of Japan is extended to the Project.

Necessary measures to be taken by the Government of the
Republic of Ghana in case Japan's Grant Aid is executed

1. To provide cleared, embanked and leveled land for the Project.
2. To provide all the foundations for substation equipment.
3. To provide the land for temporary site office, warehouse and stockyard during the implementation period.
4. To conduct the survey work for transmission and distribution lines according to specifications in the basic design study report (draft) prepared and explained by the Japanese team.
5. To provide temporary facilities such as water supply, drainage, electricity and fence, etc., in and around the sites.
6. To ensure speedy unloading, tax exemption, customs clearance of the goods for the Project at the port and/or airport of disembarkation.
7. 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 Republic of Ghana and stay therein for the performance of their work.
8. To exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which may be imposed in the Republic of Ghana with respect to the supply of the products and services under the verified contracts.

9. To bear commissions to a Japanese foreign exchange bank for the banking services based upon the Banking Arrangement.
10. To bear all expenses, other than those to be borne by the Grant Aid necessary for the execution of the Project.
11. To assign full time counterpart engineers/technicians, to the Project, who will receive the technical transfer regarding the operation and maintenance technique for the Project.
12. To take necessary measures against and responsibility for the interruption of electricity during a construction period when it is necessary.
13. To ensure proper maintenance and operation of the facilities constructed and equipment procured under the Grant Aid.

ISSUES DISCUSSED

1. Implementation Agency

ECG and VRA insisted that Ministry of Energy & Mines (MEn) as an implementation agency is not realistic because all actual works will be done under responsibilities of ECG and VRA. JICA team ("the team") replied that implementation agency for the Project should be only one. Therefore both parties discussed and agreed the implementation agency is MEn as mentioned in the Minutes signed on 27th November, 1992 ("the Minutes"). The team requested to the Ghanaian side to have a meeting to confirm and decide the roles of each organization. (MEn ,ECG and VRA)

2. Capacity of Main Transformer of Sogakope Substation

ECG have a plan to feed power to all Keta system from Sogakope Substation and Aflao is to be a stand-by. Accordingly, it is necessary to increase transformer capacity from 10MVA to 15MVA. The team agreed to the ECG proposal.

3. Take-Off of 69KV at Asiekpe Substation

VRA proposed for wood pole supported overhead line take-off instead of the use of 69KV power cable. The team replied that wood poles may not be suitable for 69KV line because the line should have a fundamental function as the supply source for all other facilities to be constructed under the Project. The team agreed to use overhead line construction.

4. Maximum Demand Meter in Sogakope Substation

ECG requested to the team to provide maximum demand meter and the team agreed.

5. Phase Conductors of 69KV Transmission Line

VRA requested the use of AAAC 185 sq.mm instead of ACSR and the team agreed.

6. Phase Conductors for Distribution Lines

ECG proposed that phase conductor should be copper in the area within 1km from seashore while aluminum for the others, and that bare conductors are to be used for low voltage lines instead of PVC insulated conductors described in the draft report. The team agreed. ECG proposed to the team to consider to purchase local made LV conductors but details are to be considered at the time of detailed design stage.

7. Pole-mounted Transformers

ECG is now on progress of the detailed design of low voltage distribution lines and it is expected that total number and capacity of the transformer may differ from the plan in the draft report. It is possible to make minor changes at the time of detailed design stage.

8. Training in Japan

ECG and VRA requested that four engineers - two from ECG and two from VRA - are to be dispatched to Japan for training mainly to learn maintenance method of gas insulated circuit breakers. The team replied that it is impossible to receive four trainees but there is possibility to receive two trainees.

9. Kind of Insulators

Insulators to be supplied under this Project are Japan-made high quality porcelain type.

JICA