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VOLTA RIVER AUTHORITY

Cables VOLTA, ACCRA

Phone 64941

P. O. BOX M77,
ACCRA, GHANA

Our Ref. 231/4763

Your Ref.

Date. 12th June, 1971.

Mr. Francois M. Ettori,
International Bank for Reconstruction
and Development,
1818 H. Street N.W.,
Washington, D.C. 20433,
U. S. A.

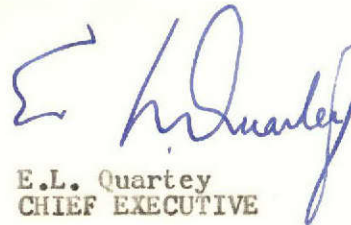
Dear Mr. Ettori,

MAJOR UNIT OUTAGES - AKOSOMBO POWERHOUSE

I forward herewith a set of papers on the information you wanted on major unit outages at Akosombo Powerhouse for the years 1965 to 1970.

Yours faithfully,

Encl:


E.L. Quartey
CHIEF EXECUTIVE

VOLTA RIVER AUTHORITY



P O BOX 173
ACCRA GHANA

Capital VOLTA ACCRA

Phone 44441

Our Ref

Your Ref

Date 13th June 1971

Dear Sir,
Reference is made to your letter of the 11th June 1971 regarding the proposed construction of a dam on the Volta River for the purpose of generating electricity and providing water for irrigation.

WORLD BANK - ACCRA

I forward herewith a set of papers on the information you wanted on major water outages at various locations for the years 1967 to 1970.

Yours faithfully,

[Handwritten signature]
Director General

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TELETYPE UNIT

1971 JUN 21

VOLTA RIVER AUTHORITY
DEPARTMENT OF POWER OPERATIONS
AKOSOMBO

UNIT OPERATIONAL STATISTICS

YEAR	UNIT	GENERATION AVAILABLE			GENERATION UNAVAILABLE	
		TOTAL HOURS RAN (a)	TOTAL HOURS IDLE (b)	TOTAL HOURS AVAILABLE (a) + (b)	TOTAL HOURS UNAVAILABLE	
1965	1G1					
	1G2					
	1G3	2178	689	2867	109	
	1G4	1476	12	1488	72	
1966	1G1	3969	2621	6590	490	7080
	1G2	4327	3183	7510	554	8064
	1G3	4501	3087	7588	1172	8760
	1G4	6323	1832	8155	605	8760
1967	1G1	5281	2047	7328	1432	8760
	1G2	5581	2531	8112	648	8760
	1G3	5787	1148	6935	1825	8760
	1G4	6309	732	7041	1719	8760
1968	1G1	6483	1154	7637	1147	8784
	1G2	6490	1186	7676	1108	8784
	1G3	6562	1711	8273	511	8784
	1G4	7112	960	8072	712	8784
1969	1G1	7377	1052	8429	331	8760
	1G2	7119	1306	8425	335	8760
	1G3	7457	693	8150	610	8760
	1G4	5529	2477	8006	745	8751
1970	1G1	6796	765	7561	1199	8760
	1G2	6837	1048	7885	875	8760
	1G3	7013	871	7884	876	8760
	1G4	7111	881	7992	768	8760

DATE OF COMMISSIONING:

1G1 - 12-3-66
1G2 - 30-1-66
1G3 - 30-8-65
1G4 - 28-10-65

PERIOD	GROSS HEAD	UNIT CAPACITY
April to August	217 feet	142MW
September to March	222 feet	147MW

5 MW less.
No less.

Applicable for period: Sept. 67 to Dec. 70.

NOTES

1. Under summary of "Generation Unavailable", the figure recorded included both major and minor outages. This figure is therefore larger than the Combined Total outage figure given on the Unit outage sheets.
2. (i) Major Outage: Unit out of service and unavailable for generation exceeding 24 hours, which may be spread over 2 or more maintenance days.

(ii) Minor Outage: Unit out of service and unavailable for generation for periods less than as defined for major outages.
3. Maximum generation hours available varies with gross head on unit, i.e. variation of headwater and tailwater caused by draw-down of reservoir and spilling operations during flood season.

VOLTA RIVER AUTHORITY
DEPARTMENT OF POWER OPERATIONS
AKOSOMBO

Sheet 1 of 2

MAJOR UNIT OUTAGES - AKOSOMBO POWERHOUSE

Year.....1966

MONTH	UNIT	TOTAL OUTAGE HOURS					
		GENERATION		TRANSMISSION		COMBINED	
		PLANNED	FAILURE	PLANNED	FAILURE	PLANNED	FAILURE
JANUARY 588	1G1						
	1G2						
	1G3						
	1G4						
FEBRUARY 588	1G1						
	1G2						
	1G3						
	1G4						
MARCH 588	1G1						
	1G2						
	1G3						
	1G4						
APRIL 578	1G1						
	1G2						
	1G3	50					
	1G4						
MAY 563	1G1						
	1G2						
	1G3	120					
	1G4						
JUNE 578	1G1						
	1G2						
	1G3						
	1G4		49				
JULY 485	1G1						
	1G2						
	1G3					422	
	1G4	81					
AUGUST 558	1G1						
	1G2						
	1G3		149				
	1G4						
SEPTEMBER 547	1G1					174	
	1G2						
	1G3	28					
	1G4						
OCTOBER 571	1G1						
	1G2						
	1G3						
	1G4	81					

720
744
7% v 147

MONTH	UNIT	GENERATION		TRANSMISSION		COMBINED	
		PLANNED	FAILURE	PLANNED	FAILURE	PLANNED	FAILURE
NOVEMBER 536	1G1	~14.9	73				
	1G2	~5.92	29				
	1G3	~24.91	122				
	1G4	31	~6.33				
DECEMBER 572	1G2						
	1G2						
	1G3		77				
	1G4						
TOTAL FOR YEAR	1G1		73			174	
	1G2		29				
	1G3	198	348			422	
	1G4	193	49				

DEFINITIONS

1. Major Outage - Outage lasting two days or more.
2. Generation - Outage for work on Turbines, Governors, Generators, Penstocks, Headgates and Draft Tube,
3. Transmission - Outage for work on Main Transformers, Buses, Disconnect and Ground Switches.
4. Combined - Outage involving items (2) and (3) above.
5. Unit Capacity (1G1, 1G2, 1G3 and 1G4) - 147MW at a Gross Head of 222 ft.

JKD:

$$\frac{73+29+122+31}{720} \times 147 =$$

$$= \frac{73}{720} \times 147 + \frac{29}{720} \times 147 +$$

VOLTA RIVER AUTHORITY
DEPARTMENT OF POWER OPERATIONS
AKOSOMBO

Sheet 1 of 2

MAJOR UNIT OUTAGES - AKOSOMBO POWERHOUSE

Year...1967.....

MONTH	UNIT	TOTAL OUTAGE HOURS					
		GENERATION		TRANSMISSION		COMBINED	
		PLANNED	FAILURE	PLANNED	FAILURE	PLANNED	FAILURE
JANUARY 452	1G1						
	1G2						
	1G3						
	1G4					666	
FEBRUARY 467	1G1						
	1G2						
	1G3						
	1G4					592	
MARCH 445	1G1						
	1G2		32				
	1G3					667	
	1G4						
APRIL 508	1G1						
	1G2						
	1G3					304	
	1G4		87				
MAY 417	1G1						
	1G2					838	
	1G3						
	1G4						
JUNE 488	1G1						
	1G2					378	
	1G3						
	1G4		112				
JULY 487	1G1					494	
	1G2						
	1G3						
	1G4						
AUGUST 437	1G1					740	
	1G2						
	1G3						
	1G4						
SEPTEMBER 531	1G1						
	1G2						
	1G3	244					
	1G4		34				
OCTOBER 514	1G1						
	1G2		139				
	1G3	222					
	1G4						

MONTH	UNIT	GENERATION		TRANSMISSION		COMBINED	
		PLANNED	FAILURE	PLANNED	FAILURE	PLANNED	FAILURE
NOVEMBER 522	1G1		81				
	1G2						
	1G3	241					
	1G4						
DECEMBER 588	1G1						
	1G2						
	1G3						
	1G4						
TOTAL FOR YEAR	1G1		81			1234	
	1G2		171			1216	
	1G3	707				971	
	1G4		233			1258	

DEFINITIONS

1. Major Outage - Outage lasting two days or more.
2. Generation - Outage for work on Turbines, Governors, Generators, Penstocks, Headgates and Draft Tube.
3. Transmission - Outage for work on Main Transformers, Buses, Disconnect and Ground Switches.
4. Combined - Outage involving items (2) and (3) above.
5. Unit Capacity (1G1, 1G2, 1G3 and 1G4) - 147MW at a Gross Head of 222 ft.

JKD:

VOLTA RIVER AUTHORITY
DEPARTMENT OF POWER OPERATIONS
AKOSOMBO

Sheet 1 of 2

MAJOR UNIT OUTAGES - AKOSOMBO POWERHOUSE

Year...1968.....

MONTH	UNIT	TOTAL OUTAGE HOURS					
		GENERATION		TRANSMISSION		COMBINED	
		PLANNED	FAILURE	PLANNED	FAILURE	PLANNED	FAILURE
JANUARY 588	1G1						
	1G2						
	1G3						
	1G4						
FEBRUARY 566	1G1						
	1G2						
	1G3					107	
	1G4						
MARCH 464	1G1						
	1G2						
	1G3					330	
	1G4					276	
APRIL 542	1G1						
	1G2					224	
	1G3						
	1G4						
MAY 545	1G1						
	1G2					213	
	1G3						
	1G4						
JUNE 484	1G1		511				
	1G2						
	1G3						
	1G4						
JULY 413	1G1		496				
	1G2		359				
	1G3						
	1G4						
AUGUST 579	1G1		45				
	1G2						
	1G3						
	1G4						
SEPTEMBER 581	1G1						
	1G2						
	1G3						
	1G4						
OCTOBER 586	1G1						
	1G2						
	1G3						
	1G4						

MONTH	UNIT	GENERATION		TRANSMISSION		COMBINED	
		PLANNED	FAILURE	PLANNED	FAILURE	PLANNED	FAILURE
NOVEMBER 588	1G1						
	1G2						
	1G3						
	1G4						
DECEMBER 588	1G1						
	1G2						
	1G3						
	1G4						
TOTAL FOR YEAR	1G1		1052				
	1G2		359			437	
	1G3					437	
	1G4					276	

DEFINITIONS

1. Major Outage - Outage lasting two days or more.
2. Generation - Outage for work on Turbines, Governors, Generators, Penstocks, Headgates and Draft Tube.
3. Transmission - Outage for work on Main Transformers, Buses, Disconnect and Ground Switches.
4. Combined - Outage involving items (2) and (3) above.
5. Unit Capacity (1G1, 1G2, 1G3 and 1G4) - 147MW at a Gross Head of 222 ft.

JKD:

VOLTA RIVER AUTHORITY
DEPARTMENT OF POWER OPERATIONS
AKOSOMBO

Sheet 1 of 2

MAJOR UNIT OUTAGES - AKOSOMBO POWERHOUSE

Year.....1969

MONTH	UNIT	TOTAL OUTAGE HOURS					
		GENERATION		TRANSMISSION		COMBINED	
		PLANNED	FAILURE	PLANNED	FAILURE	PLANNED	FAILURE
JANUARY 502	1G1						
	1G2						
	1G3						
	1G4					423	
FEBRUARY 551	1G1						
	1G2						
	1G3					183	
	1G4						
MARCH 508	1G1						
	1G2					60	
	1G3					330	
	1G4						
APRIL 550	1G1						
	1G2					187	
	1G3						
	1G4						
MAY 542	1G1					223	
	1G2						
	1G3						
	1G4						
JUNE 588	1G1						
	1G2						
	1G3						
	1G4						
JULY 588	1G1						
	1G2						
	1G3						
	1G4						
AUGUST 573	1G1						
	1G2		73				
	1G3						
	1G4						
SEPTEMBER 588	1G1						
	1G2						
	1G3						
	1G4						
OCTOBER 588	1G1						
	1G2						
	1G3						
	1G4						

MONTH	UNIT	GENERATION		TRANSMISSION		COMBINED	
		PLANNED	FAILURE	PLANNED	FAILURE	PLANNED	FAILURE
NOVEMBER 578	1G1						
	1G2						
	1G3						
	1G4						
DECEMBER 358	1G1						
	1G2						
	1G3						
	1G4						
TOTAL FOR YEAR	1G1					223	
	1G2		73			247	
	1G3					513	
	1G4					423	

DEFINITIONS

1. Major Outage - Outage lasting two days or more.
2. Generation - Outage for work on Turbines, Governors, Generators, Penstocks, Headgates and Draft Tube.
3. Transmission - Outage for work on Main Transformers, Buses, Disconnect and Ground Switches.
4. Combined - Outage involving items (2) and (3) above.
5. Unit Capacity (1G1, 1G2, 1G3 and 1G4) - 147MW at a Gross Head of 222 ft.

JKD:

VOLTA RIVER AUTHORITY
DEPARTMENT OF POWER OPERATIONS
AKOSOMBO

Sheet 1 of 2

MAJOR UNIT OUTAGES - AKOSOMBO POWERHOUSE

Year.....**1965**

MONTH	UNIT	TOTAL OUTAGE HOURS					
		GENERATION		TRANSMISSION		COMBINED	
		PLANNED	FAILURE	PLANNED	FAILURE	PLANNED	FAILURE
JANUARY	1G1						
	1G2						
	1G3						
	1G4						
FEBRUARY	1G1						
	1G2						
	1G3						
	1G4						
MARCH	1G1						
	1G2						
	1G3						
	1G4						
APRIL	1G1						
	1G2						
	1G3						
	1G4						
MAY	1G1						
	1G2						
	1G3						
	1G4						
JUNE	1G1						
	1G2						
	1G3						
	1G4						
JULY	1G1						
	1G2						
	1G3						
	1G4						
AUGUST	1G1						
	1G2						
	1G3						
	1G4						
SEPTEMBER	1G1						
	1G2						
	1G3						
	1G4						
OCTOBER	1G1						
	1G2						
	1G3						
	1G4						

MONTH	UNIT	GENERATION		TRANSMISSION		COMBINED	
		PLANNED	FAILURE	PLANNED	FAILURE	PLANNED	FAILURE
NOVEMBER -147	1G1						
	1G2						
	1G3						
	1G4					72	
DECEMBER -21	1G1						
	1G2						
	1G3		104				
	1G4						
TOTAL FOR YEAR	1G1		-				
	1G2		-				
	1G3		104				
	1G4		-			72	

DEFINITIONS

1. Major Outage - Outage lasting two days or more.
2. Generation - Outage for work on Turbines, Governors, Generators, Penstocks, Headgates and Draft Tube.
3. Transmission - Outage for work on Main Transformers, Buses, Disconnect and Ground Switches.
4. Combined - Outage involving items (2) and (3) above.
5. Unit Capacity (1G1, 1G2, 1G3 and 1G4) - 147MW at a Gross Head of 222 ft.

JKD:

VOLTA RIVER AUTHORITY
DEPARTMENT OF POWER OPERATIONS
AKOSOMBO

Sheet 1 of 2

MAJOR UNIT OUTAGES - AKOSOMBO POWERHOUSE

Year.....1970

MONTH	UNIT	TOTAL OUTAGE HOURS					
		GENERATION		TRANSMISSION		COMBINED	
		PLANNED	FAILURE	PLANNED	FAILURE	PLANNED	FAILURE
JANUARY 588	1G1						
	1G2						
	1G3						
	1G4						
FEBRUARY 546	1G1						
	1G2						
	1G3						
	1G4					205	
MARCH 537	1G1						
	1G2					121	
	1G3					130	
	1G4						
APRIL 545	1G1					72	
	1G2					137	
	1G3						
	1G4						
MAY 501	1G1					76	
	1G2		257				
	1G3	67					
	1G4		26				
JUNE 511	1G1						
	1G2						
	1G3		213				
	1G4		166				
JULY 498	1G1		258				
	1G2		185				
	1G3						
	1G4						
AUGUST 543	1G1						
	1G2						
	1G3		222				
	1G4						
SEPTEMBER 528	1G1		49				
	1G2						
	1G3						
	1G4						
OCTOBER 487	1G1		495				
	1G2						
	1G3						
	1G4						

MONTH	UNIT	GENERATION		TRANSMISSION		COMBINED	
		PLANNED	FAILURE	PLANNED	FAILURE	PLANNED	FAILURE
NOVEMBER 580	1G1						
	1G2						
	1G3	41					
	1G4						
DECEMBER 588	1G1						
	1G2						
	1G3						
	1G4						
TOTAL FOR YEAR	1G1		802			148	
	1G2		442			258	
	1G3	108	435			130	
	1G4		192			205	

DEFINITIONS

1. Major Outage - Outage lasting two days or more.
2. Generation - Outage for work on Turbines, Governors, Generators, Penstocks, Headgates and Draft Tube.
3. Transmission - Outage for work on Main Transformers, Buses, Disconnect and Ground Switches.
4. Combined - Outage involving items (2) and (3) above.
5. Unit Capacity (1G1, 1G2, 1G3 and 1G4) - 147MW at a Gross Head of 222 ft.

JKD:



VOLTA RIVER AUTHORITY

Cables VOLTA, ACCRA

P. O. BOX M77,
ACCRA, GHANA

Phone 64941

Our Ref. *231/4594*

Your Ref.

Date. June 1, 1971.

Mr. Francois M. Etori,
International Bank for Reconstruction
and Development,
1818 H Street N.W.,
Washington, D.C. 20433,
U. S. A.

Dear Mr. Etori,

I forward herewith a cyclostyled copy of the Volta River Authority's Agreement dated 22nd April, 1969, with Kaiser Engineers International covering Consulting Engineering Services for the Akosombo Expansion Programme.

I will be pleased, in due course, to receive the photo-stat version which I gave you before you left.

We will be sending you the rest of the information required as soon as possible.

Best regards to you and Mr. Anderson.

Yours faithfully,

Enc.

E.A.K. Kalitsi
DIRECTOR OF FINANCE

RECEIVED
1971 JUN -7 AM 9:18
ADMINISTRATIVE
SECTION

STANDARD OF SERVICE
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This AGREEMENT made and entered into the 22ND day of APRIL, 1969, by and between the Volta River Authority (hereinafter called "the Authority") and Kaiser Engineers International, Inc., a corporation organised and existing under the laws of Nevada in the United States of America (hereinafter referred to as "Kaiser Engineers"),

WITNESSETH:

WHEREAS, the Authority operates a hydroelectric generating station at Akosombo, Ghana and a high-voltage transmission system and substations in Ghana (hereinafter sometimes called "the existing system") and desires to expand the said generating station by the installation of Generating Units Nos. 5 and 6 and related auxiliary equipment, together with appropriate additions to the Akosombo Switchyard and the Volta and Smelter Substations (all such expanded facilities sometimes being referred to herein as "the Project"); and

WHEREAS, the Authority intends to enter into contracts with others for the following:

Supply of Turbines and Governors;

Supply of Generators, Transformers, and Major Electrical Equipment;

Supply of Equipment for 161 KV Switchyard and Substations;

Construction and installation at Akosombo Power Station;

Construction and installation at 161 KV Switchyard and Substations

(all such contracts sometimes being referred to herein as "Contracts", "Supply contracts" and "Construction contracts", and the firm or firms with which the Authority executes a contract for the Supply and Construction contracts being hereinafter referred to as the "Contractor", "Contractors", "Supplier" or "Suppliers"); and

WHEREAS, the Authority desires to appoint Kaiser Engineers to be the Engineer to perform services in connection with the Project as more fully described hereinafter (all such services sometimes being referred to herein as "the Work");

NOW, THEREFORE, in consideration of the mutual covenants hereinafter contained, the Authority and Kaiser Engineers agree as follows:

ARTICLE A - STATEMENT OF WORK

The Project consists of the expansion of the Akosombo Power Station through the installation of the fifth and sixth generating units and the attendant changes; and additions required in the Akosombo Switchyard and substation, the Volta substation, and the added capacity requirements in the Valco Smelter Substation to supply the expanded smelter energy demand. Kaiser Engineers shall design the required expansion and changes; prepare specifications, drawings and all necessary documents to permit the Authority to obtain competitive bids for equipment, construction and installation; assist the Authority in awarding contracts; prepare contract documents; supervise the supply of equipment and materials; construction and installation work, and acceptance testing; and in general provide the project management and full engineering design and supervision services described below for the Project.

Section A-1. SCOPE OF WORK - PREPARATION OF CONTRACT DRAWINGS AND SPECIFICATIONS

a. Kaiser Engineers shall provide such qualified personnel, facilities, equipment, and materials excepting for those items which are to be provided by the Authority as set forth under this Agreement, necessary to prepare contract drawings, bid documents and specifications for the Project.

b. The above services will include such surveys, design analyses, contract drawings, cost estimates, specifications, and other items as may be required to promote competitive bids for the supply of principal equipment, installation, and construction work for the Project. Contract drawings and specifications prepared under Section A-1 of this Agreement shall consist of those required for the letting of contracts for the following:

(1) Supply of two Francis turbine units including steel draft tube liners, scroll cases, runner assemblies, governors, and shafts. The units will be essentially identical in size, capacity and performance with the four units already installed and operating.

(2) Supply of two generators of 128 megawatts nominal output and related bus work. The generators will be essentially identical in size, capacity, and performance with the four existing and operating units.

(3) Supply of two power transformers for the Akosombo Substation rated at approximately 165 MVA.

(4) Civil construction required at the Akosombo Generating Station, Switchyard, Akosombo Substation, and Valco Smelter Substation to accommodate the additional equipment and changes necessitated by the expansion.

(5) Installation of the two additional turbines and generators.

(6) Supply and installation of control equipment including all relays and metering devices and all necessary material and equipment for the two additional turbines and generators.

(7) Supply and installation of all additions to the Akosombo Switchyard including steel takeoff towers and conductors between the powerhouse and Akosombo Switchyard, extension of the Switchyard by the addition of approximately four bays including oil circuit breakers, protective relays and bus work.

(8) Supply and installation of additions to Volta Substation consisting of two-thirds of a bay including oil circuit breakers, relays and protective devices.

(9) Supply and installation of approximately 2-1/2 miles of 161 KV line from the Volta Substation to the Valco Smelter Substation.

(10) Supply and installation of an additional 85-MVA transformer at the Valco Smelter Substation with all its related circuit breakers, isolating switches and protective devices.

c. If, as a result of present operating experience, it becomes evident that greater output can be obtained from the turbines than called for by the performance specifications for the existing system, Kaiser Engineers shall endeavour to specify the additional generators for an output capacity capable of utilizing the additional turbine output. In such cases all accessory and control equipment, transformers, and protective devices shall be specified to handle the additional generator output. It is understood, however, that any such changes will be made only if they do not require any major redesign or reconstruction of the Akosombo powerhouse. If such major reconstruction would be required to utilize the additional capacity available, Kaiser Engineers shall notify the Authority and make a recommendation as to the advisability of the changes. If the Authority agrees to the powerhouse changes, Kaiser Engineers and the Authority shall negotiate an amendment to this Agreement for the additional engineering services required.

d. To perform services in Section A-1, a through c above, Kaiser Engineers shall without limiting the scope set out above execute the following:

1. Home Office Services

(a) Preparation of contract drawings in sufficient detail to define all components of the Project in such a manner that will permit the Authority to obtain reasonable competitive bids in accordance with the regulations and requirements of the Governmental Agency or other financial institutions financing the procurement and installation of equipment and materials and the associated civil construction work.

(b) Preparation of specifications for construction, and for the supply and installation of equipment and materials to at least the same standards used in the existing system.

(c) Preparation of bid forms which, with the contract drawings and other required documents, will form the contract documents.

(d) Furnishing of a realistic schedule for the execution of the Project (covering the procurement, construction, project management and initial run-in period).

(e) Preparation of reasonably firm estimates of all procurement, installation, and construction costs. The method and basis of estimating unit prices shall be explained in reasonable detail. Preparation of cost estimates shall be predicated on the procurement of goods and services having their source and origin in those countries specified by the financing Agency or other financial institution. Such estimates shall be summarized to reflect:

(1) Foreign exchange costs including: supply, installation, and installation contractors' overheads, profit, home office costs, chargeable depreciation of imported equipment, delivered cost of materials incorporated in the Project, salaries, international transportation, and per diem payments of non-Ghanaian personnel employed on the Project, and contingencies.

(2) Local costs including: cost of local construction and installation labour; cost of all equipment, materials and other services of local source and origin incorporated in the Project including inland transportation costs; costs of all sub-contracts let to local firms; and local contingencies.

(f) Submittal of draft contract documents for review and approval of the Authority, and the financing Agencies designated by the Authority.

(g) Such drafts shall be regarded as approved within thirty days following Kaiser Engineers delivery of such drafts to the Authority and said financing Agencies, unless modifications are mutually agreed between the Authority and Kaiser Engineers, or unless modifications requested by the Authority cannot be mutually agreed within such time. In the latter event, the Authority shall direct Kaiser Engineers at the expiration of such time as to the manner in which said documents are to be printed and the Authority shall be solely responsible for the directed modifications, and the consequences of their use in the contracts. Kaiser Engineers shall prepare 100 copies of the contract documents for use of the Authority, the financing Agencies and bidders.

(h) Submittal of copies of pertinent supporting data related to the preparation of contract documents if requested by the Authority.

(i) Assistance to the Authority in publicizing the requests for bids as required by the financing Agency or other financial institutions.

(j) Advice to the Authority on the qualifications of bidders.

(k) Analysis of all bids and assistance to the Authority in the award of contracts, including recommendation for award of each proposed contract.

(l) Advice to the Authority in the negotiation of contracts with successful bidders.

(m) All drawings shall have legends and notes in English. All specifications shall be in English. All dimensions and quantities shall be in the same units as in the existing system.

2. Field Services

All field work required for the collection of data to be used in the preparation of contract documents.

Section A-2 SCOPE OF WORK - PREPARATION OF CONSTRUCTION DRAWINGS AND SUPPLEMENTARY SPECIFICATIONS AND DRAWINGS

Kaiser Engineers shall provide the qualified U.S. personnel and facilities necessary to prepare such detailed designs, construction drawings, supplementary specifications and drawings as may be required, both prior to award of the contracts and during the construction and installation phase of the Project. Detailed drawings will be supplied by Suppliers and Contractors, and Kaiser Engineers shall prepare further detailed drawings and supplementary specifications as required. Kaiser Engineers shall supply said drawings and specifications in sufficient time to enable the Contractors and Suppliers to start and continue their work without delay.

To perform the services enumerated in Section A-2, Kaiser Engineers shall, without limiting the scope set out above execute the following:

a. Preparation of said construction drawings showing clearly all dimensions and details necessary to Kaiser Engineers' field staff and the Contractors for the execution of the Project. Drawings shall have legends and notes in English. Dimensions and quantities shall be in the same units as in the existing system. Two reproducible prints of each said construction drawing including all revisions shall be furnished to the Authority as Project implementation progresses.

Preparation of said supplementary specifications for the Project execution, written in English and utilizing the same units as in the existing system. These specifications and drawings shall be submitted and approved as specified in Section A-1,

d (1) (f) and (g). After approval by the Authority, Kaiser Engineers shall prepare the required number of copies for use by the Authority, the financing Agency, the Contractors, or the bidders.

Section A-3 SCOPE OF WORK - ENGINEERING SERVICES DURING PROJECT CONSTRUCTION

a. During the Project construction period Kaiser Engineers shall provide resident engineering services as necessary for the satisfactory completion of the Work.

b. To perform the above mentioned resident engineering services Kaiser Engineers shall execute the following:

(1) Home and Field Office Services

(a) Manufacturer's Drawings. Review all drawings of the manufacturers to insure that the equipment conforms to the specifications, space limitations, and other requirements.

(b) As-Built Drawings. Provide a complete set of "as-built" drawings that incorporate all revisions and changes introduced during construction. Kaiser Engineers shall furnish to the Authority two complete sets of reproducible full size prints and ten complete sets of drawings of the same reduced size as those provided for the existing system.

(c) Final Report. Prepare a final report in ten copies on the design and construction of the Project for the Authority's permanent files.

(d) Resident Engineering Staff. Provide not fewer than two resident engineers, one of whom shall be designated the Chief Resident Engineer, to insure that the materials, equipment, and construction of the Project are in accordance with the Engineer's plans and specifications. Kaiser Engineers will utilize the

engineering staff assigned by the Authority pursuant to Section B-9 of this Agreement. The resident engineers shall be assisted, when necessary to accomplish timely performance of the Work, by additional personnel of Kaiser Engineers. The resident engineers shall include professional personnel qualified and experienced in project management, concrete work, welding inspection, and installation engineering supervision. The periods of assignment of the resident engineers shall be scheduled to provide the required technical services when, in the judgment of Kaiser Engineers, such service is needed for construction supervision. The resident engineers' duties shall include:

- i) Direction of the gathering of information required for resident engineering services.
- ii) Issuance of instructions to the Authority's engineering staff assigned to the Project and organization and supervision of the inspection staff.
- iii) Review and approval of drawings, specifications and other details submitted by the Contractors.
- iv) Approval of necessary field changes. Any material changes shall first be referred to the Authority for approval.
- v) Inspection of work performed by the Contractors, for compliance with the plans and specifications.
- vi) Supervision of the measurement of quantities of the work executed by the Contractors.
- vii) Verification and approval of Contractors' invoices prior to payment.
- viii) Supervision of acceptance tests.
- ix) Certification of contractors' execution and completion of the work according to the drawings and specifications before final acceptance by the Authority including certification of documents prepared by suppliers and contractors required by Agencies providing financing for the Project.

x) Assistance in engineering liaison between the Authority and the Contractors except in cases of litigation and disputes.

xi) Supplying to Kaiser Engineer's home office or to the Authority the information necessary for preparation of monthly, quarterly, and final reports and "as-built" drawings.

(e) Shop inspection. Make necessary inspections at the manufacturing plants where the various major pieces of equipment such as turbines, generators, switchgear and transformers are fabricated.

(f) Field Visits by Design Engineers. Any necessary visits to the field of design engineers from Kaiser Engineer's home office for the purpose of coordinating field and design activities so that construction drawings reflect accurately any changed conditions that appear as the Project advances.

(g) Services of Specialists and Special Assistance During Construction. Any necessary services of specialists and other special assistance to the resident engineers during construction, as required.

(2) Reports

Monthly and quarterly progress reports shall be prepared by Kaiser Engineers' services for the construction of the Project. Such reports shall accurately reflect the extent of progress as measured against estimated goals. Twelve copies of the reports shall be supplied to the Authority to provide a mechanism for speedy identification and analysis of any problems which may arise. Bar charts shall be included which reflect the progress of at least the following items of work:

- Engineering studies and designs
- Contract drawings and documents, specifications and cost estimates.
- Design drawings
- Construction drawings
- Construction progress
- Reports and approvals.

The reports shall include names, positions and activities of the individual field staff members during the reporting period. The report shall be prepared on 8 1/2" x 11" sheets and bound in suitable binders. The face of the binder shall include the Authority's name, project title and identifying numbers, period covered by the report, consecutive number of the report, and Kaiser Engineer's name. Data for preparation of the report shall be collected in Kaiser Engineer's home office during all phases of the Work and in the field by the Chief Resident Engineer assisted by the field staff during the construction phase. Reports shall be prepared either in Ghana or in the home office at Kaiser Engineer's option and shall be transmitted to the Authority not later than the 20th day of the month following the end of the report period.

3) Clarifications and Explanations

During the period between delivery of Contract Documents to the Authority and the award of contracts to successful bidders, Kaiser Engineers shall furnish necessary clarifications and explanations related to the Project requested by the bidders.

ARTICLE B - RESPONSIBILITIES OF THE VOLTA RIVER AUTHORITY

Section B-1

The Authority shall use its best efforts to arrange for Kaiser Engineers to be exempt from all income taxes, custom, excise, license, permit and other taxes and fees or duties which might otherwise be imposed or levied by the Republic of Ghana or any political subdivision thereof on the services to be performed by Kaiser Engineers hereunder to the end that Kaiser Engineers shall receive the compensation provided for herein free of all such impositions or levies. To the extent that Kaiser Engineers is not so exempted, the Authority shall pay all such impositions or levies on behalf of Kaiser Engineers or reimburse to Kaiser Engineers within sixty days any such impositions or levies paid by or withheld from Kaiser Engineers.



Section B-2

The Authority shall use its best efforts to arrange that Kaiser Engineers' employees and consultants of Kaiser Engineers and its sub-contractors shall be exempt from any and all income taxes, social welfare taxes, social welfare and unemployment insurances, compulsory savings and such other taxes, deductions, or withholding insurance related to the income of any such employee which are or may be imposed by the Republic of Ghana or by any political subdivision thereof. To the extent that such personnel are not so exempted, the Authority shall reimburse within 60 days to Kaiser Engineers, for reimbursement to the employee, any amounts imposed or withheld with respect to such personnel.

Section B-3

The Authority will provide all necessary office space, furniture, fixtures, equipment, supplies, utilities, and the like, including project transportation, for Kaiser Engineers services in Ghana.

Section B-4

The Authority will provide furnished housing for Kaiser Engineers' personnel assigned to the site comparable to housing enjoyed by the senior staff of the Authority.

Section B-5

The Authority will pay directly in local currency all costs incurred in Ghana for telephone, telex, cables, postage, duplicating reproduction, and other similar expenses directly related to this Agreement.

Section B-7

The Authority will pay directly in local currency costs reasonably incurred within Ghana incidental to this Agreement for travel, transportation, hotel and boarding expenses of

Kaiser Engineers' personnel, provided however that such costs are commensurate with those paid VRA personnel of equivalent position and grade.

Section B-8.

The Authority shall furnish to Kaiser Engineers free of charge all local currency paid secretarial and administrative personnel, surveyors, and inspectors reasonably required by Kaiser Engineers.

Section B-9

The Authority shall provide an engineering staff for the Project not fewer than three engineers, it being understood that the Authority shall have the right to utilize temporarily one or more of such Engineers for emergency services designated by the Chief Executive of the Authority. Staff of the Authority shall remain at all times the employees of the Authority and not of Kaiser Engineers.

ARTICLE C - COMPENSATION AND PAYMENT

Section C-1

The Authority shall pay to Kaiser Engineers as compensation for the performance of the Work the sum of Six Hundred and Fifty Thousand Dollars (U.S. \$650,000).

Section C-2

To cover the compensation provided in Section C-1, a confirmed Irrevocable Letter of Credit with terms and conditions satisfactory to Kaiser Engineers and confirmed by the Bank of America N.T. & S.A., Oakland, California, shall be established by the Authority for the full amount thereof. The terms and conditions of the said letter of credit shall include the payment schedule set forth in Section C-3 hereof.

Section C-3

The compensation to Kaiser Engineers shall be due and payable by presentation of invoices against said letter of credit over a period of 36 calendar months in the following installments:

(1) Sixty thousand Dollars (U.S. \$60,000) within thirty calendar days of the effective date of this agreement.

(2) Thereafter, three (3) consecutive equal monthly installments of Thirty Two Thousand Dollars (\$32,000) each at the end of each calendar month starting with the month after the payment under subsection (1) hereof is due.

(3) Thereafter, thirty-one (31) consecutive equal monthly installments of Fifteen Thousand Three Hundred and Fifty-five Dollars (\$15,355) each at the end of each calendar month starting with the month after the last payment under subsection (2) hereof is due.

(4) The balance of Seventeen Thousand Nine Hundred and Ninety Five Dollars (\$17,995) to be paid at such time that all services specified in the Agreement have been completed, all required inspections have been made, and with the exception of possible outstanding claims of contractors and suppliers, all required certifications have been received, and a release of all claims against the Authority has been furnished to the Authority, except as Kaiser Engineers and in the Authority may otherwise agree with the approval of A.I.D.

ARTICLE D - COMMENCEMENT, COMPLETION AND TERMINATION

Section D-1

Kaiser Engineers shall begin work under this contract within thirty days after the following requisites have been met:

a. This Agreement has been executed by authorized representatives of the Authority and Kaiser Engineers.

b. Letter of Credit is established as provided in Section C-2 of the Agreement.

c. Written authorization has been received from the Authority to start work.

Section D-2

a. Kaiser Engineers shall complete their services under Section A-1, d(1) (a) through (f) within 90 days after initiation of its services; under Section A-1, d(1) (k) within 30 days after each bid opening date, and shall complete all drawings and documents required for the execution of contracts not later than 60 days following the award of contracts to successful bidders and receipt of all required suppliers and contractors drawings. In the event of failure by Kaiser Engineers to complete the above work by the specified dates, Kaiser Engineers shall pay to the Authority the liquidated damages set forth in Section G-21 of this Agreement.

b. The total period of services covered by the agreed compensation in Section C-1 of this Agreement shall not exceed 36 months. If, however, Kaiser Engineers services are delayed beyond 36 months, then Kaiser Engineers shall be paid by the Authority its necessary expenses during such delay, provided that if such delay extends the period of Kaiser Engineers services beyond a total of 39 months, then provision of further services shall be subject to issuance of a change order in accordance with Article E below.

Section D-3

a. This Agreement may be terminated in case of the failure of either of the parties to fulfill its obligations hereunder, or by agreement of the parties. In the event either party does not perform any of its obligations under this Agreement, then in each such event the other party, by written notice to the non-performing party, may suspend performance of services hereunder and, if the

applicable obligation is not fulfilled within thirty (30) calendar days following the date of delivery of such written notice, it may, by written notice to the non-performing party, terminate this Agreement at any time thereafter unless the non-performing party has in the meantime fulfilled such obligation.

b. The Authority may at any time terminate performance of the work under this Agreement in whole or in part by giving 90 days written notice to Kaiser Engineers stating the grounds for termination.

c. Any termination shall be without prejudice to any claim which the parties hereto may have against each other.

d. Upon receipt of a notice, suspension or termination under this Section, Kaiser Engineers shall unless the notice directs otherwise discontinue all work and proceed to suspend or terminate all existing orders and suspend or terminate all subcontracts insofar as such orders or subcontracts relate to the suspended or terminated portions of this Agreement.

e. Upon the termination of performance of work in accordance with this section full and complete settlement of all claims of Kaiser Engineers with respect to the terminated work shall be made as enumerated below, provided, however that termination by the Authority of the Work before authorization to begin the Work has been given by the Authority, shall be without liability to the Authority.

In the event of any termination of this Agreement for other than default of Kaiser Engineers, the Authority shall pay to Kaiser Engineers:

(1) All other costs and expenses which Kaiser Engineers may incur as a result of such termination including, without limitation, costs and expenses incurred in connection with the phasing out of said services demobilization and personnel transportation and moving of Kaiser Engineers' personnel and families and household goods to their original point of hire.

(2) In the event of any termination after Kaiser Engineers' commencement of the Work, then in addition to the payments specified in subsection (1) above, the Authority shall pay an equitable termination payment having due regard to the value of the total engineering services then completed by Kaiser Engineers and the documents to be handed over by Kaiser Engineers under Section D-4 of this Article.

f. Kaiser Engineers shall furnish an accounting and inventory for property of the Authority of which it had custody and a release in a form mutually agreed with the Authority.

Section D-4

Upon any such termination, Kaiser Engineers shall hand over to the Authority copies of all completed specifications, diagrams, layouts, drawings, plans, maps, design specifications, reports, and other documents of an engineering nature prepared to the date of termination by or for Kaiser Engineers in the performance of the Work, all subject to the provisions of Section G-1.

ARTICLE E - CHANGES

The Authority may at any time issue written change orders providing for changes with respect to Kaiser Engineers services under this Agreement and any equitable adjustment in Kaiser Engineers compensation under this Agreement by reason of such changes. Such change orders shall be mutually agreed in writing by the Authority and Kaiser Engineers, and shall be subject to the written approval of the Agency for International Development (hereinafter sometimes referred to as "A.I.D."), for any change order which alone or together with prior change orders increases A.I.D.'s financed portion of Kaiser Engineers compensation under this Agreement.

Article F - Insurance

Section F-1

Kaiser Engineers shall provide and thereafter maintain Workmen's Compensation Insurance as required by the United States Public Law 208, 77th Congress, as amended (42 USC 1651), with respect to and prior to the departure for overseas employment under this Agreement of all employees who are hired in the United States, or who are American citizens or bona fide residents of the United States. For all other authorized employees not hired in the United States or who are not American citizens or bona fide residents or the United States, Kaiser Engineers shall provide the necessary employer's liability insurance. Kaiser Engineers shall further provide and maintain third party liability insurance for the Work, naming the Authority as additional assured. Kaiser Engineer will furnish the Certificate of Insurance maintained with respect to the third party liability Insurance under this Section to the Authority. Such Certificates will provide fifteen (15) days prior notice to the Authority of any material change in, or cancellation of, the insurance covered thereby. Moreover, Kaiser Engineers agree to insert the provision of this Section with respect to Workmens Compensation in all subcontracts.

Section F-2

If the Authority maintains Physical Damage Insurance to cover the construction of the Project and to cover equipment required in the performance thereof, or requires third party contractors or sub-contractors to carry such insurance, the Authority shall cause Kaiser Engineers to be named as an additional assured under all such insurance policies.

The Authority will furnish Certificates of Insurance maintained under this Section to Kaiser Engineers. Certificates will provide for fifteen (15) days' prior notice to Kaiser Engineers of any material change in, or cancellation of, the Insurance coverage thereby.

ARTICLE G - GENERAL TERMS AND CONDITIONS

Section G-1. ENGINEERING PLANS

All engineering information and data furnished by the Authority to Kaiser Engineers shall remain the property of the Authority. All plans, specifications, reports, and other documents of an engineering or design nature prepared hereunder by Kaiser Engineers or under its supervision and relating to the Project shall be and remain the property of Kaiser Engineers. Such plans, specifications, reports and other documents may be used by the Authority, provided, however, that such use shall be solely in connection with the construction, operation, maintenance, and repair of the Project.

Section G-2. ENGINEER'S EMPLOYEES

Kaiser Engineers in the performance of the Work shall at all times covered by this Agreement act as an independent contractor and not as an employee of the Authority, and shall exercise supervision over Kaiser Engineers employees. Kaiser Engineers and its employees shall conform to all applicable laws, regulations and ordinances promulgated by the legally constituted authorities of Ghana and shall promptly correct any violations thereof called to their attention. Kaiser Engineers further agrees, on written request of the Authority to terminate the employment under this Agreement of any of its employees in Ghana if the Authority on reasonable grounds determines that such termination is required.

Section G-3. LIABILITY

a. Kaiser Engineers shall secure and maintain during the Work and for one year following completion of the Work, comprehensive public liability and property damage liability insurance covering the acts or omissions of its officers, agents, and employees up to a limit of \$200,000 per person and \$1,000,000 per occurrence with respect to personal injury and \$2,000,000 per occurrence with respect to property damage and shall furnish to the Authority a Certificate of Insurance so secured and maintained under this

Section. If personal injury to officers, agents or employees of the Authority, or damage to property of the Authority is caused solely by the negligence of Kaiser Engineers' employees, Kaiser Engineers shall be liable for such damage or injury up to the amount recovered by Kaiser Engineers under the insurance coverage described above, but neither Kaiser Engineers nor its affiliated Kaiser Companies, nor their officers, agents or employees shall have any further liability with respect to such damage or injury nor shall be liable to the Authority for any other loss, damage, costs, or liability arising out of or in connection with performance of the services pursuant to this Agreement.

b. Subject to a above, the Authority shall indemnify and save Kaiser Engineers and its officers, agents and employees and its affiliated engineering companies and their officers, agents and employees free from and against any loss, damage, costs or liability of whatever kind or nature arising out of or in connection with the performance of services pursuant to this Agreement.

Section G-4. SOURCE OF PROCUREMENT FOR GOODS AND SERVICES

a. If this Agreement authorizes or requires Kaiser Engineers to procure equipment, materials, or supplies, the cost of which is to be reimbursed hereunder, such procurement shall be of new equipment, materials or supplies unless procurement of used equipment, materials or supplies is approved in advance in writing by the Authority.

b. Except as the A.I.D. may otherwise agree in writing, all goods purchased by Kaiser Engineers with United States dollars for use in the performance of their services under this Agreement shall have their source in the United States. Goods shall be deemed to have their source in the United States only if they are mined, grown, or produced in the United States and are shipped directly from the United States to Ghana or from the United

States to a free port to bonded warehouse; provided, however, that no goods which are produced in the United States shall be deemed to have their source in the United States if they contain any component from a country not included in A.I.D. Geographic Code 935 as in effect either at the time of such production or at the time of such importation, or if they contain components imported into the United States from countries not included in said Code 935 and acquired by the Producer in the form in which they were imported, and a total cost of such components delivered at the point of production amounts to no more than 10% (ten per cent) of the lowest price (excluding cost of ocean transportation and marine insurance) at which the supplier makes the goods available for export sale.

c. No goods the cost of which are to be purchased hereunder may be transported to Ghana on a carrier of any country not included in Code 935 of the A.I.D. Geographic Code Book as in effect at the time such transportation is procured.

d. All goods and services procured for the Work shall have their source in countries included in A.I.D. Geographic Code Book 935.

e. For purposes of this Agreement, goods are deemed to be "produced" when through manufacturing, purchasing, or assembly of components, a commercially recognized new product results which is substantially different in basic characteristics or in purpose or utility from its components.

f. If in connection with placement of any marine insurance on shipments financed in U.S. Dollars under this Agreement, the Government of Ghana, by statute, decree, rule or regulation, favours any insurance company of any country over any marine insurance company authorized to do business in any state of the United States of America, goods financed under this Agreement shall during the continuance of such discrimination be also insured in the United

States with a company or companies authorized to do a marine insurance in any state in the United States of America.

g. Except as A.I.D. may otherwise agree in writing, at least fifty percent (50%) of any gross tonnage (computed separately for dry bulk carriers, dry cargo liners, and tankers) of all goods financed in U.S. dollars hereunder shall be transported on privately owned United States flag commercial vessels.

h. Except as the Authority may otherwise specify in writing, Kaiser Engineers shall procure insurance for any goods procured under this Agreement against risks incident to any transit to the point of their use in Ghana by Kaiser Engineers. Such insurance shall be consistent with sound commercial practice, shall cover the total purchase price of such equipment and materials, and the insurance proceeds shall be payable in the currency in which such equipment and materials were paid for.

i. Any commodities and their shipping containers financed under this Agreement if procured from the United States must carry the official A.I.D. emblem designed for the purpose. This identification shall be affixed by metal plate, decalcomania, stencil, label, tag, or other means, depending upon the type of commodity or shipping container and the nature of the surface to be marked. The emblems placed on the commodities must be substantially as durable as the trade mark or company or brand name affixed by the producer, the emblems on the shipping containers must be legible until they reach the consignee. The kind and the size of the emblem may vary depending on the size of the commodity, package, or shipping container to be marked, but must be large enough to be clearly visible at a reasonable distance. The emblem will appear in the colours shown on the samples available in the Office of Small Business, Agency for International Development, Washington D.C., or in the Office of the A.I.D. Mission to Ghana.

j. All international air travel required under this Agreement shall be made on U.S. flag carriers when available and convenient.

k. All international air shipment required under this Agreement shall be made on U.S. flag carriers unless shipment would, in the judgment of Kaiser Engineers, be delayed an unreasonable time awaiting a U.S. carrier either at point of origin or transshipment provided that Kaiser Engineers certify to the facts in the voucher or other documents retained as part of their contract records to support their claim for reimbursement.

Section G-5 FORCE MAJEURE

1. Definition. Force Majeure means causes beyond the control and without the fault or negligence of Kaiser Engineers, or the Authority as the case may be, including, but not restricted to, acts of God, or of the public enemy, acts of the Government of the United States of America or of the Government of Ghana in either their sovereign or contractual capacity, acts or omissions of bidders or of contractors in the performance of a contract with either party, fires, floods, epidemic quarantine restrictions, strikes, freight embargoes, and unusually severe weather or delays of subcontractors due to such causes.

2. Notice of Force Majeure. Kaiser Engineers shall forthwith and in any event within thirty (30) days from the beginning of such delays in the performance of its services as may result from Force Majeure notify the Authority in writing of the evidence and reason for such delays.

3. The installment payments during Force Majeure. The first installment payable after the occurrence of such a Force Majeure delay exceeding fifteen (15) days shall be paid in accordance with the schedule in Section C-3. No further installments shall be paid or payable during the continuance of such Force Majeure delay. Upon the discontinuance of such Force Majeure delay and the resumption

of performance by Kaiser Engineers, the compensation payment schedule shall, unless Kaiser Engineers and the Authority otherwise agree in writing, automatically be extended for a period equal to the period of non-performance and the remaining installments of the compensation payment shall be paid in accordance with the schedule so extended.

Section G-6 DISPUTES

Any dispute, controversy, or difference whatsoever which may arise between the parties out of and in relation to or in connection with the validity or invalidity, construction, execution, meaning, operation, or effect of this Agreement, or the breach thereof, shall be finally settled under the rules of conciliation and arbitration of the International Chamber of Commerce.

Any arbitration proceeding hereunder shall be conducted in London, England, by a panel composed of three arbitrators, one of whom shall be chosen by the Authority, one by Kaiser Engineers and the third by the two so chosen. If either or both the Authority and Kaiser Engineers fail to choose an arbitrator within fourteen (14) calendar days after receiving notice of a request for arbitration, or if the two arbitrators so chosen cannot agree upon a third arbitrator within fourteen (14) calendar days after having been chosen, the Court of Arbitration of the International Chamber of Commerce shall, upon request that either or both of the parties, appoint the arbitrator or arbitrators required to complete the panel. In any case, the third arbitrator shall not be a citizen of either the Republic of Ghana or the United States of America, or any person having served in the Government or the administration of the Republic of Ghana or the United States of America. Each party hereby submits to the jurisdiction of the arbitration panel established in accordance herewith. Any awards of such arbitration panel shall be finally binding upon the parties and may be entered in any court having jurisdiction.

Section G-7 NOTICES

The Authority shall for the purposes of this Agreement and promptly upon the execution thereof designate and notify Kaiser Engineers of the person who shall be the Authority's representative and as such authorized to receive communications on behalf of the Authority and to issue on its behalf all instructions, authorizations, and approvals hereunder. Kaiser Engineers shall designate and notify the Authority of the person who shall be Kaiser Engineers' representative and shall, among other things be authorized to receive on behalf of Kaiser Engineers communications relating to the Work. Any notice given by any of the parties hereunder shall be sufficient only if in writing and delivered in person or sent by telegraph, cable, or registered mail as follows:

To the Authority: Volta River Authority,
P.O. Box M. 77,
Accra, Ghana.

To Kaiser Engineers:

Kaiser Engineers International Inc.,
300 Lakeside Drive,
Oakland, California 94604,
U.S.A.

Attention: Mr. Earl G. Peacock

or to such other addresses as any such parties shall designate by notice given as herein required.

Notice hereunder shall be effective when delivered.

Section G-8 SUBCONTRACTS AND ASSIGNMENTS

The Authority agrees that Kaiser Engineers can use the services of such consultants or subcontractors as may be required only after approval by the Authority and A.I.D. and subcontractors shall conform in every respect thereto. Kaiser Engineers may not assign the rights and obligations under this Agreement without the prior written approval of the Authority and A.I.D. and in that event, normally to not more than one assignee.

Section G-9 PRIOR AGREEMENTS

This Agreement shall supersede all prior agreements and negotiations between the parties whether written or oral relating to the subject matter of this Agreement prior to the effective date of this Agreement.

Section G-10 TRAVEL

Kaiser Engineers' services hereunder are contingent upon the free entry and exit, re-entry and re-exit into and from Ghana of Kaiser Engineers' personnel and their families and dependents and all other employees, agents, and consultants required by Kaiser Engineers in the performance of the Work.

Section G-11 SALARIES

It is understood that salaries of Kaiser Engineers' employees will be paid by Kaiser Engineers outside Ghana.

Section G-12 ACCOUNTS RECORDS AND INSPECTION

The system of accounting to be employed by Kaiser Engineers will be such as to be satisfactory to the Authority. Books and records pertaining to the Agreement shall be kept and maintained in the English language, to the extent and at such place or places as the Authority may direct for a period of three (3) years after final payment. The Authority and A.I.D. at all reasonable times shall have the right and be given the opportunity:

(a) To inspect and audit the books and records related to the Project of both the Kaiser Engineers and all sub-contractors under this Agreement; and

(b) To inspect the facilities, activities, and work pertinent to the Agreement and all subcontracts in Ghana or elsewhere; and

(c) To interview personnel engaged in performance of the Agreement and all subcontracts. A provision confirming and agreeing to such right of the Authority and A.I.D. with respect to sub-contracts shall be incorporated as a part of the Agreement of the parties in all subcontracts.

Section G-13. COVENANT AGAINST CONTINGENT FEES.

Kaiser Engineers warrants that no person or selling agency has been employed or retained to solicit or secure this Agreement upon an agreement or understanding for a commission, percentage, brokerage, or contingent fee, excepting bona fide employees or bona fide established commercial or selling agencies maintained by Kaiser Engineers for the purpose of securing business. For breach or violation of this warranty, the Authority shall have the right to annul this Agreement without liability, or, in its discretion deduct from the contract price or consideration, or otherwise recover, the full amount of such commission, percentage, brokerage, or contingent fees.

Section G-14. GRATUITIES.

The Authority may, by written notice to Kaiser Engineers, terminate the right of Kaiser Engineers to proceed under this Agreement if it is found, after notice and hearing by the Authority, that gratuities in the form of gifts, entertainments, or otherwise were offered or given by Kaiser Engineers or any agent or representative of Kaiser Engineers to any officer or employee of the Authority, with a view toward securing this Agreement or securing favourable treatment with respect to the awarding or amending, or the making of any determination to the performance of such Agreement; provided that if the existence of the facts upon which the Authority makes such findings shall be an issue, they may be taken to arbitration pursuant to Section G-6 of this Agreement.

Section G-15. REPORTS AND INFORMATION. All information gathered under this contract by Kaiser Engineers and all reports and recommendations hereunder shall be treated as confidential by Kaiser Engineers and shall not, without the Authority's written approval be made available to any person, party, or government other than the Government of Ghana or A.I.D., except as otherwise expressly provided in the Agreement. The Engineer shall prepare and submit such interim and final reports as provided in Section A3 b(2) of this Agreement.



Section G-16. DEFAULT

In the event of a default on the part of either party of this Agreement in performance of any of the terms and conditions of said Agreement, the other party may forthwith advise the defaulting party and indicate the extent, if any, to which such default prevents fulfillment of obligation under this Agreement.

Section G-17. SECURITY CLEARANCE

Kaiser Engineers shall obtain security clearance from A.I.D. for its U.S. personnel for whom such clearance is required by A.I.D. and, when so required by the Authority, for nominees regardless of citizenship. Kaiser Engineers agree that none of its U.S. personnel, or citizens of other nationality, shall perform work in Ghana under this Agreement until written notice is received from A.I.D. to the effect that the security clearance, if required, has been granted.

Section G-18. NON-DISCRIMINATION

During the performance of this Agreement, Kaiser Engineers agrees as follows with respect to personnel recruited in the United States and U.S. citizens, wherever recruited:

- a. Kaiser Engineers will not discriminate against any employee or applicant for employment because of race, creed, color, or national origin. Kaiser Engineers will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, creed, color, or national origin. Such action shall include but not be limited to, the following: employment, upgrading, demotion or transfer, recruitment or recruitment advertising, layoff or termination, rates of pay or other forms of compensation, and selection for training, including apprenticeship. Kaiser Engineers agree to post in conspicuous places, available to employees and applicants for employment, notices setting forth the provisions of this non-discrimination clause.

b. Kaiser Engineers will, in all solicitations or advertisements for employees placed by or on behalf of Kaiser Engineers, state that all qualified applicants will receive consideration for employment without regard to race, creed, color, or national origin.

c. Kaiser Engineers will send to each labour union or representative of workers with which it has a collective bargaining agreement or other contract or undertaking, a notice advising the labour union or workers' representative of Kaiser Engineers' commitments under Section 202 of U.S. Government Executive Order No. 11246 of September 24, 1965, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

d. Kaiser Engineers will comply with all provisions of U.S. Government Executive Order No. 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the U.S. Secretary of Labor.

e. Kaiser Engineers will furnish information and reports required by Government Executive Order No. 11246 of September, 1965, and by the rules, regulations, and orders of the U.S. Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the A.I.D. and the U.S. Secretary of Labor for purposes of investigations to ascertain compliance with such rule, regulations and orders.

f. In the event of Kaiser Engineers non-compliance with the non-discrimination clause of this Agreement or with any of the said rules, regulations, or orders this Agreement may be cancelled, terminated or suspended in whole or in part and Kaiser Engineers may be declared ineligible for further U.S. Government contracts in accordance with procedures authorized in U.S. Government Executive Order No. 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in U.S. Executive Order No. 11246 of September 24, 1965, or by rule, regulation, or order of the U.S. Secretary of Labor, or as otherwise provided by law.

g. Kaiser Engineers will include the provisions of paragraphs a through g, in every subcontract as A.I.D. may direct unless exempted by rules, regulations or orders of the U.S. Secretary of Labor issued pursuant to Section 204 of the U.S. Executive Order No. 11246 of September 24, 1965 so that such provisions will be binding upon each subcontractor or vendor. Kaiser Engineers will take such action with respect to any subcontract as A.I.D. may direct as a means of enforcing such provisions, including sanctions for non-compliance. Provided, however, that in the event Kaiser Engineers becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the contracting agency, Kaiser Engineers may request the United States to enter into such litigation to protect the interest of the United States.

Section G-19. RELEASE ON CONCLUSION OF WORK

Without prejudice to the other provisions to this Agreement the Authority and Kaiser Engineers shall be mutually free of all obligations that derive from the execution of this Agreement when the requisites set forth in Section D-2 have been fulfilled and the last payment shall have been received by Kaiser Engineers.

Section G-20. LEGAL EFFECTS OF CERTAIN A.I.D. APPROVALS

The parties hereto understand A.I.D. has reserved certain approval rights including, but not limited to, the right to approve the terms of this Agreement, the contractor, and any or all plans, reports, specifications, subcontracts, bid documents, drawings, or other documents related to this Agreement and the Project of which it is a part. The parties hereto further understand and agree that A.I.D., in reserving any or all of the foregoing approval rights, has acted solely as lender to assure the proper use of United States Government funds, and that any decision by A.I.D., to exercise or refrain from exercising these approval rights shall be

made as a lender in the course of financing this Project and shall not be construed as making A.I.D. a party to the Agreement. The parties hereto understand and agree that A.I.D. may, from time to time, exercise the foregoing approval rights, or discuss matters related to these rights and the Project of which this Agreement is part, with the parties jointly or separately, without thereby incurring any responsibility or liability to the parties jointly or to any of them.

Any approval or failure to disapprove by A.I.D. of any plan, report, specification, contract, bid document, drawing or other documents shall not bar the Authority or A.I.D. from asserting any right, or relieve Kaiser Engineers of any liability which Kaiser Engineers might otherwise have to the Authority or A.I.D. because of such plan, specification, contract, bid document, drawing or other document, or any performance or failure or performance thereunder, or any A.I.D. contractors or suppliers certificate.

Section G-21 LIQUIDATED DAMAGES

The Authority hereby represents that time is of the essence to this Agreement, and further asserts that damage will result to the Authority if Kaiser Engineers fails to complete the various parts of the Work by the dates specified above in Section D 2 a or any extension thereof granted by the Authority. Since the exact amount of such damage would be difficult to ascertain it is agreed that subject to section G-5 Kaiser Engineers shall pay to the Authority, as liquidated damages and not as penalty, the sum of One Thousand Dollars (\$1,000) for each calendar day the completion of the various parts of the Work as set forth in Section D 2 a is delayed beyond the completion dates. The total amount of liquidated damages assessed will not be in excess of Six Hundred Fifty Thousand Dollars (\$650,000) U.S. dollars.

Section G-22

This contract shall be effective upon approval of the United States Agency for International Development and signature by the parties.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of the date entered on the first page hereof.

ATTEST: THE VOLTA RIVER AUTHORITY

BY: (Sgd.) E.L. Quartey

TITLE: CHIEF EXECUTIVE

DATE: APRIL 9TH, 1969.

ATTEST: KAISER ENGINEERS INTERNATIONAL INC.

BY: (Sgd.) Earl G. Peacock

TITLE: VICE PRESIDENT

DATE: 2ND MAY, 1969

RURAL ELECTRIFICATION

BALANCE SHEET AS AT 31ST DECEMBER, 1970

<u>ASSETS</u>	<u>NOTES</u>	G¢	N¢
FIXED ASSETS IN SERVICE	1		
Gross Value		296,328	
Less: Accumulated Depreciation		<u>195,735</u>	
Net Fixed Assets in Service			100,593
CAPITAL WORK IN PROGRESS	2		307,631
CURRENT ASSETS			
Stocks	3	33,837	
Debtors	4	<u>18,423</u>	
Total Current Assets			<u>52,260</u>
TOTAL ASSETS			<u><u>Ng460,484</u></u>

CAPITAL AND LIABILITIES

EQUITY AND RESERVES

Government Contributions		437,117
Capital Reserve	5	10,478
Accumulated Deficit		<u>(181,354)</u>

Total Equity and Reserves 266,241

CURRENT LIABILITIES

Accounts Payable and Provisions		6,314
Electricity Corporation of Ghana	6	<u>187,929</u>

TOTAL CAPITAL AND LIABILITIES Ng460,484

..... Managing Director

..... Chief Accountant

The above Balance Sheet should be read in conjunction with the attached notes.

RURAL ELECTRIFICATION

DEFICIT ACCOUNT FOR THE YEAR
ENDED 31ST DECEMBER, 1970

₵

Accumulated deficit to 31st December, 1969
transferred from Electricity Corporation
of Ghana accounts:

Nampong/Ashanti

77,077

Kibi

24,000

101,077

Deficit for the year

80,277

Total deficit carried forward

₵181,354

RURAL ELECTRIFICATION

REVENUE ACCOUNT FOR THE YEAR
ENDED 31ST DECEMBER, 1970

	Total	Wampong/ Ashanti	Kibi
	₦	₦	₦
REVENUE FROM ELECTRICITY SALES	<u>57,457</u>	<u>46,804</u>	<u>10,653</u>
OPERATING AND GENERAL EXPENSES			
Generation	55,088	38,186	16,902
Distribution	34,475	23,819	10,656
Transport	6,373	5,948	425
Administration:			
Districts	12,208	10,561	1,647
Head Office	<u>16,700</u>	<u>12,000</u>	<u>4,700</u>
	124,844	90,514	34,330
Depreciation of Fixed Assets in Use	<u>13,464</u>	<u>12,178</u>	<u>1,286</u>
	<u>138,308</u>	<u>102,692</u>	<u>35,616</u>
NET OPERATING DEFICIT	80,851	55,888	24,963
Less: Other Income	<u>574</u>	<u>574</u>	<u>-</u>
NET DEFICIT	<u>₦80,277</u>	<u>₦55,314</u>	<u>₦24,963</u>

1. Fixed Assets and Depreciation

A. Gross Value

	Gross Value at 1st Jan. 1970	Additions	Disposals and Transfers	Gross Value at 31st Dec. 1970
	₦	₦	₦	₦
Buildings and Civil Works	3,852	-	-	3,852
Generating Plant and Machinery	193,241	-	103,713	256,954
Transmission and Distribution System	21,869	2,169	-	24,038
Meters	1,586	1,008	-	2,594
Motor Vehicles	<u>2,215</u>	<u>5,675</u>	-	<u>8,890</u>
	<u>₦ 185,763</u>	<u>8,842</u>	<u>103,713</u>	<u>296,902</u>

The gross value of assets is based on the valuation as per Electricity Corporation of Ghana books plus additions at cost.

B. Depreciation

	Accumulated Depreciation at 1st Jan. 1970	Depreciation Charge for the year	Rate	Disposals and Transfers	Accumulated Depreciation at 31st Dec. 1970
	₦	₦	%	₦	₦
Buildings and Civil Works	-	96	2½	-	96
Generating Plant and Machinery	86,084	10,214	6½	93,235	189,113
Transmission and Distribution Systems	809	927	4 or 5	-	1,736
Meters	-	209	10	-	209
Motor Vehicles	<u>2,143</u>	<u>2,018</u>	33½	-	<u>4,161</u>
	<u>₦ 89,036</u>	<u>13,464</u>		<u>93,235</u>	<u>195,735</u>

Depreciation charge is calculated on the gross value of the asset and charged at half the normal annual rate of depreciation during the calendar year in which the asset is acquired.

2. Capital Work in Progress

This figure represents the cost of construction not yet completed and put into use in respect of new stations and developments and extensions in existing stations.

3. Stocks

Stocks have been valued at average cost, and are made up of :-

	<u>₦</u>
Mechanical Stores	1,623
Electrical Stores	<u>32,214</u>
	<u>₦ 33,837</u>

4. **Debts**

The debtors figure represents outstanding debts for energy consumption and is shown gross without any provisions for bad and doubtful debts.

5. **Capital Reserve**

The Capital Reserve represents the Net Book Value of redundant assets transferred from Electricity Corporation of Ghana for use in rural electrification. The original reserve for the net book value of these assets was fully provided for from Government Equity.

6. **Electricity Corporation of Ghana**

This figure represents the amount due to the Electricity Corporation of Ghana for rural electrification as per note 8 to Electricity Corporation's accounts.

Comparative figures

7. No comparative figures for the previous year have been shown as these are the first accounts which have been prepared for Rural Electrification.

1969

BALANCE SHEET AS AT 31ST NOVEMBER, 1970
ELECTRICITY CORPORATION OF GHANA

1970

1969	1970	ASSETS	NOTES	1970	1969
		FIXED ASSETS IN SERVICE	2		
		Gross Value		39,276,828	
		Less: Accumulated Depreciation		<u>11,938,433</u>	
		Not Fixed Assets in Service			27,338,395
		NET REDUNDANT ASSETS	3		3,120,330
		CAPITAL WORK IN PROGRESS	5		10,809,255
		CURRENT ASSETS			
		Stocks	6	2,441,791	
		Debtors	7	6,845,567	
		Government Debt - Rural Electrification	8	6,575	
		Prepayments	9	399,566	
		Short Term Investments	10	4,450,000	
		Bank and Cash Balances	11	<u>790,506</u>	
		Total Current Assets			<u>14,934,005</u>
		TOTAL ASSETS			<u><u>1056,201,985</u></u>
		CAPITAL AND LIABILITIES			
		EQUITY AND RESERVES			
		Government Equity	12	17,312,460	
		Income Surplus		7,927,537	
		Redundant Assets Capital Reserve	4	3,120,330	
		Repairs and Maintenance Equalisation Reserve	13	875,000	
		Difference on Exchange Account	14	<u>53,532</u>	
		Total Equity and Reserves			29,288,859
		LONG TERM LOANS	15		
		K.F.A. Credit 5 1/2%, 1969-86; US\$20,000,000		5,252,686	
		I.D.A. Credit 6 1/2%, 1971-88; US\$10,000,000		9,507,859	
		B.I.C.C. Credit		1,921,004	
		Other British Supplier Credits		<u>1,132,836</u>	
					17,814,385
		CURRENT LIABILITIES			
		Accounts Payable and Provisions	16		5,093,870
		CONSUMER CONTRIBUTIONS RESERVE	17		<u>4,004,871</u>
		TOTAL CAPITAL AND LIABILITIES			<u><u>1056,201,985</u></u>
33,444,023					
<u>10,310,382</u>					
	23,133,641				
	3,514,014				
	<u>10,017,602</u>				
3,226,160					
6,410,078					
-					
1,470,502					
4,500,000					
<u>1,126,048</u>					
	<u>16,732,788</u>				
	<u><u>1053,398,045</u></u>				
17,907,310					
6,082,597					
3,514,014					
625,000					
<u>60,196</u>					
	28,189,117				
5,411,858					
6,595,692					
2,015,858					
<u>1,134,067</u>					
	15,157,475				
	6,745,278				
	<u>3,306,175</u>				
	<u><u>1053,398,045</u></u>				

..... Managing Director

..... Chief Accountant

The above Balance Sheet should be read in conjunction with the attached notes.

ELECTRICITY CORPORATION OF GHANA

INCOME SURPLUS ACCOUNT FOR THE YEAR
ENDED 31ST DECEMBER, 1970

<u>1969</u>			<u>1970</u>
₵		₵	₵
3,968,806	Income surplus brought forward		6,082,597
-	Prior year adjustments		124,229
<u>3,968,806</u>			<u>6,206,826</u>
2,113,791	Profit for the year from Revenue Account	1,800,988	
-	Losses: Rural Electrification	<u>80,277</u>	
			<u>1,720,711</u>
<u>₵6,082,597</u>			<u>₵7,927,537</u>

ELECTRICITY CORPORATION OF GHANA

OTHER INCOME FOR THE YEAR ENDED
31ST DECEMBER, 1970

<u>1969</u>		<u>1970</u>
₵		₵
	Overheads charged on work carried out for customers	
99,105		107,300
13,976	Profit on sales of stores	4,711
35,610	Fees and Licences	40,605
13,570	Hire charges	13,286
272	Sale of appliances	256
4,073	Profit on disposal of assets	1,014
41,718	Stock surpluses	55,760
	Other interests and discounts receivable	
4,053		10,419
<u>₵212,377</u>		<u>₵233,351</u>

ELECTRICITY CORPORATION OF GHANA

**REVENUE ACCOUNT FOR THE YEAR
ENDED 31ST DECEMBER, 1970**

<u>1969</u>		<u>1970</u>
₦		₦
<u>13,020,750</u>	REVENUE FROM ELECTRICITY SALES	<u>14,170,941</u>
	OPERATING AND GENERAL EXPENSES	
3,975,383	Purchased Power	4,665,575
967,375	Generation and Standby	1,010,678
1,389,845	Distribution	1,495,097
217,746	Transport	235,030
	Administration:	
912,652	Regions and Districts	1,042,907
1,106,178	Head Office	1,259,572
-	Provision for Staff Bonus	125,000
118,565	Provision for Doubtful Debts	-
176,000	Provision for Obsolete Stocks	-
<u>8,863,744</u>		<u>9,833,859</u>
1,471,325	Depreciation of Fixed Assets in Service	1,843,747
<u>10,335,069</u>		<u>11,677,606</u>
2,685,681	NET OPERATING INCOME	2,493,335
(680,481)	Less: Interest Charges	(972,141)
(250,000)	Repairs and Maintenance Equalisation Reserve	(250,000)
<u>1,755,200</u>	Net Income	1,271,194
146,214	Add: Investment Income	296,443
212,377	Other Income	233,351
<u>₦2,113,791</u>	PROFIT FOR THE PERIOD	<u>₦1,800,988</u>

Note: Head Office administration expenses is after charging:

Directors' emoluments	₦14,188
Audit fee (₦7,350 relates to 1969 audit)	₦23,850

1.

The Corporation was established as a statutory corporation on 13th January, 1967 under the Electricity Corporation of Ghana Decree, 1967 (N.L.C.D. 125). By Executive Instrument No.99 dated 29th June, 1967 the Government transferred to the Corporation the assets of the Electricity Division of the Ministry of Works and Housing with effect from 1st July, 1967. The assets transferred and the liabilities of the Electricity Division at 1st July, 1967 assumed by the Corporation are defined in the agreement dated 6th May, 1968 between the Government and the Corporation and in the Supplementary agreement between the parties dated 20th June, 1968.

The title to the land upon which the properties of the Corporation are situated remains vested in the Government of the Republic of Ghana.

2. Fixed Assets and DepreciationA. Gross Value

	Gross Value at 1st Jan. 1970	Additions	Disposals and Transfers	Gross Value at 31st December 1970
	₦	₦	₦	₦
Buildings and Civil Works	3,545,309	418,315	10,529	3,974,233
Generating Plant and Machinery	3,970,271	110,234	(233,492)	3,847,613
Transmission and Distribution System	23,917,869	5,161,999	(47,553)	29,032,275
Tools and Equipment	105,167	6,305	-	111,532
Furniture and Office Equipment	478,351	42,229	(3,620)	516,960
Meters	945,018	64,338	(3,645)	1,005,711
Motor Vehicles	481,958	336,776	(30,250)	788,484
	<u>₦ 33,444,023</u>	<u>6,140,856</u>	<u>(308,051)</u>	<u>39,276,828</u>

The gross value of assets is based on the valuations at vesting date, 1st July, 1967, with additions, disposals and transfers since that date at cost.

B. Depreciation

	Accumulated Depreciation at 1st Jan. 1970	Depreciation Charge for the year 1970	Rate	Disposals and Transfers	Accumulated Depreciation at 31st December 1970
	₦	₦	%	₦	₦
Buildings and Civil Works	445,022	93,856	2½	12,250	551,128
Generating Plant and Machinery	2,607,382	212,460	6½	(148,245)	2,671,597
Transmission and Distribution System	5,718,000	1,251,136	4 or 5	(14,809)	6,954,247
Tools and Equipment	90,968	4,828	12½	-	95,796
Furniture and Office Equipment	339,925	44,372	10 or 20	(3,620)	380,677
Meters	702,338	63,987	10	(1,051)	767,274
Motor Vehicles	406,747	124,470	33½	(23,505)	507,714
	<u>₦ 10,310,382</u>	<u>1,807,109</u>		<u>(179,058)</u>	<u>11,938,433</u>

Depreciation charge for the year
 Accelerated depreciation on assets
 declared redundant
 Total per Revenue Account

₱
 1,007,109

35,678

₱ 1,043,747

Depreciation charge is calculated on the gross value of the asset and is charged at half the normal annual rate of depreciation during the calendar year in which the asset is acquired. Prior to 1970 depreciation was charged first in the year following that in which the asset is acquired.

3. Redundant Assets

A. Gross Value of Redundant Assets

	Balance at 1st Jan. 1970	Transfers to in use	Transfers from in use	Balance at 31st Dec. 1970
	₱	₱	₱	₱
Buildings and Civil Works	1,499,112	37,944	23,563	1,484,791
Generating Plant and Machinery	6,324,589	103,713	80,251	6,301,127
	<u>₱ 7,823,701</u>	<u>141,657</u>	<u>103,814</u>	<u>7,785,658</u>

B. Special Depreciation for
Redundant Assets

	Accumulated Depreciation at 1st Jan. 1970	Transfers to in use	Transfers from in use	Depreciation from Redun- dant Assets Capital Reserve	Accumulated Depreciation at 31st December 1970
	₱	₱	₱	₱	₱
Buildings and Civil Works	452,083	17,265	5,015	35,416	475,249
Generating Plant and Machinery	3,857,604	93,235	62,161	363,749	4,190,279
	<u>₱ 4,309,687</u>	<u>110,500</u>	<u>67,176</u>	<u>399,165</u>	<u>4,665,528</u>

C. Not Redundant Assets

	Balance at 1st Jan. 1970	Transfer to in use	Transfer from in use	Depreciation for the year	Balance at 31st Dec. 1970
	₱	₱	₱	₱	₱
	<u>₱ 3,514,014</u>	<u>31,157</u>	<u>36,638</u>	<u>399,165</u>	<u>3,120,330</u>

4. Redundant Assets Capital Reserve

	<u>₦</u>	<u>₦</u>
Balance at 1st January 1970		3,514,014
Deduct:		
Amounts transferred to Government Equity on reclassification of assets as available for use	20,679	
Net Book value of assets transferred to Rural Electrification	<u>10,478</u>	
	31,157	
Depreciation on redundant assets	<u>322,165</u>	<u>430,322</u>
		3,063,692
Add:		
Amounts charged to revenue as accelerated depreciation on assets declared redundant during the year		<u>36,638</u>
Balance at 31st December 1970		<u>₦ 3,120,330</u>

5. Capital Work-in-Progress

This figure represents the cost of work not yet completed and put into use. The expenditure relates mainly to transmission and distribution systems extensions. This is made up as follows:-

	<u>1970</u>	<u>1969</u>
Construction work executed to date	8,102,481	5,817,516
Contract materials on hand or in transit awaiting installation	<u>2,706,774</u>	<u>4,200,066</u>
	<u>₦ 10,809,255</u>	<u>10,017,602</u>

6. Stocks

	<u>1970</u>	<u>1970</u>	<u>1970</u>	<u>1969</u>
	<u>Electrical</u>	<u>Mechanical</u>	<u>Total</u>	<u>Total</u>
	<u>₦</u>	<u>₦</u>	<u>₦</u>	<u>₦</u>
At Central Stores	1,688,576	687,815	2,376,391	2,616,462
At District Stores	<u>750,597</u>	<u>561,291</u>	<u>1,311,888</u>	<u>1,306,225</u>
	2,439,173	1,249,106	3,688,279	3,922,707
Less Obsolete stock provision	<u>659,775</u>	<u>669,830</u>	<u>1,329,605</u>	<u>826,000</u>
	<u>₦ 1,779,398</u>	<u>579,276</u>	<u>2,358,674</u>	<u>3,096,707</u>
In transit			<u>83,117</u>	<u>129,453</u>
			<u>₦ 2,441,791</u>	<u>3,226,160</u>

Stocks at Central Stores have been valued at standard prices whilst those at District Stores have been valued at average cost. Head Office Administration expenses have been reduced by a credit of ₦28,500 as a result of the use of standard pricing at Central Stores.

Centralised debtors being Government departments and certain State Corporations :-

	<u>1970</u>	<u>1969</u>
	₵	₵
Outstanding at 1st July 1967	695,902	691,139
Incurred since 1st July 1967 and outstanding at 31st December	<u>1,472,756</u>	<u>1,922,414</u>
	2,128,238	2,613,553
Other debtors including decentralised Government departments and State Corporations paying locally	5,108,726	4,698,767
Provision for bad and doubtful debts	<u>(1,175,000)</u>	<u>(1,175,000)</u>
	3,933,726	
Staff Advances	204,463	114,209
Sundry debtors	<u>579,120</u>	<u>156,529</u>
	<u>₵ 6,845,587</u>	<u>6,410,078</u>

2. Rural Electrification

In accordance with the decision of the Executive Council (National Liberation Council) on 12th December, 1967 "the Government should through subventions to the Corporation cover the losses on uneconomic stations which will be brought into operation for social or other reasons in accordance with Government policy".

The activities of rural stations coming under this category have to be kept separate from those of the Electricity Corporation of Ghana as a whole.

Separate accounts have been prepared for rural electrification to include Kwepeng/Ashanti and Kibi. These accounts are shown at the end of these notes.

The amount due to Electricity Corporation of Ghana is arrived at as follows :-

		<u>₵</u>
Net assets financed from Electricity Corporation of Ghana funds		454,170
Accumulated deficits :-		
Up to 1969	101,077	
Deficit for 1970	<u>80,277</u>	<u>181,354</u>
		635,524
Less Government contributions	437,117	
Redundant Assets Capital Reserve	<u>10,478</u>	<u>447,595</u>
		187,929
Amount due to Electricity Corporation of Ghana		187,929
Deduct: Provision for contingent liability for losses		<u>181,354</u>
		<u>₵ 6,975</u>

9. Expenditure

Advances paid to contractors for capital development work

331,000

Payments in advance being the unexpired portion of certain expenditure apportioned on a time basis

67,923

₦ 399,566

10. Short-Term Investments

	<u>1970</u> ₦	<u>1969</u> ₦
Ghana Government 5½% Stabilisation Stocks (1961-66)	3,750,000	4,450,000
Ghana Government 6½% Liberation Stocks (1971-76)	50,000	50,000
Ghana Government 9½% Conversion Stocks (1971-76)	<u>690,000</u>	-
	<u>₦ 4,490,000</u>	<u>4,900,000</u>

The above Government stocks are at present redeemable at any time at par.

11. Cash and Bank Balances

	<u>1970</u> ₦	<u>1969</u> ₦
Head Office accounts :-		
Current accounts	100,442	709,334
Deposit accounts	79,059	124,319
Cash in hand	473	452
District accounts	515,543	251,321
Cash in transit	<u>94,986</u>	<u>40,622</u>
	<u>₦ 790,506</u>	<u>1,126,048</u>

12. Government Equity

	<u>1970</u> ₦	<u>1969</u> ₦
Balance at 1st January	17,907,310	17,864,620
Sundry adjustments to the amounts included in the Assets Transfer Agreement (net)	-	9,207
Transfers from redundant assets capital reserve following reclassification of certain assets as available for use	20,679	87,784
Assets incorrectly charged to capital reserve in 1969 reversed and charged to revenue	54,301	(54,301)
Reinstatement of reserve for redundant mechanical stores,	<u>(669,490)</u>	-
	<u>₦ 17,312,460</u>	<u>₦ 17,907,310</u>

13. Repairs and Maintenance Provisional Reserves

A significant proportion of the Corporation's assets are new. These new assets, while contributing to current profits incur abnormally low repairs and maintenance costs compared with average costs likely to be incurred during the life of the assets.

The Corporation has therefore adopted a policy of setting aside a sum which it considers will equalise the charge against profits year by year for the repair and maintenance of its assets.

14. Difference on Exchange Account

	<u>₦</u>
Balance at 1st January 1970	60,196
Net losses arising on disbursements in foreign currencies during the year	<u>6,664</u>
Balance at 31st December 1970	<u>₦ 53,532</u>

15. Long-Term Loans

The loans are repayable in instalments up to 1983 and the balance shown represents amounts drawn down to date less repayments.

	K.F.W. Credit 5½% 1969-86	I.D.A. Credit 6½% 1971-88	B.I.C.C. Credit	Other British Suppliers' Credits
	<u>₦</u>	<u>₦</u>	<u>₦</u>	<u>₦</u>
Balance at 1st January 1970	5,411,858	6,595,692	2,015,858	1,134,067
Drawings during the year	-	2,912,167	-	-
Repayments during the year	<u>159,172</u>	<u>-</u>	<u>94,854</u>	<u>1,231</u>
Balance at 31st December 1970	<u>₦ 5,252,686</u>	<u>9,507,659</u>	<u>1,921,004</u>	<u>1,132,836</u>

The K.F.W. Credit and I.D.A. Credit represent development credits made available by the Kreditanstalt Fur Wiederaufbau and the International Development Association to the Government of Ghana and re-lent to Electricity Corporation of Ghana under subsidiary loan agreement between the Government and Electricity Corporation of Ghana.

The B.I.C.C. Credit and other British suppliers' credits represent amounts due on deferred terms for the purchase of materials. Payments for these amounts have been rescheduled under moratorium agreements between the UK and Ghana Government. The amounts payable at any date depends on special schedules provided by the Bank of Ghana.

16. Accounts Payable and Provisions

	<u>1970</u> <u>₦</u>	<u>1969</u> <u>₦</u>
Accountant-General's account	667,871	667,871
Contractors for capital development work	1,385,601	2,479,221
Interest	-	405,034
Trade Creditors	1,149,747	623,306
Ghana Supply Commission	772,806	992,195
Secured expenses	206,617	90,490
Payroll deductions	190,889	322,796
Provision for billing adjustments	682,022	682,022
Other credit balances	<u>38,517</u>	<u>282,343</u>
	<u>₦ 5,035,870</u>	<u>6,745,278</u>

17. Consumer Contributions Reserve

	<u>1970</u>	<u>1969</u>
	N\$	N\$
Balance at 1st January	3,306,175	1,952,495
Transfer to rural electrification	(70,000)	-
Add: Consumers contributions in respect of jobs completed and connections made during the year	<u>768,696</u>	<u>1,353,682</u>
Balance at 31st December	<u>N\$ 4,004,871</u>	<u>3,306,175</u>

18. Capital Commitments

Capital commitments at 31st December 1970 amounted to approximately N\$1,800,000.

19. Rate of Exchange

Liabilities in foreign currencies have been converted at the official rates of exchange in force on 31st December, 1970.

20. Taxation

The Corporation is exempt from income tax.

ENGINEERING STATISTICS - 1970

V.O.S. SUPPLIED STATIONS

STATION	H.P. KW	CAPACITY KVA	UNITS GEN AND PURCHASED	COST PER UNIT. Nf.
Asofo	42,444	30,000	240,000 ^{CC}	0.92
Tam/Tpong	28,000	40,000	123,430,000	0.78
Kumasi	12,450	25,000	63,020,000	0.85
Takoradi	11,044	40,000	65,510,000	0.82
Bofofidi/Tafe	1,400	5,000	6,030,000	1.10
Cape Coast	2,300	5,000	5,242,000	1.00
Epong	8,048	25,000	20,547,000	0.78
Tarkwa	2,916	4,000	13,926,100	0.95
Wibawa	900	5,000	4,310,200	0.88
Kumasi	200	5,000	1,334,000	1.35
Kumasi	270	5,000	1,463,000	1.02
Obuasi	200	7,000	1,375,000	0.81
Akwatia	77.50	2,000	158,375	1.08
Total	100,029.50	200,000	564,790,925	0.80

DIESEL STATIONS

Akwamkese	128	160	440,841	9.1
Bolgatanga	300	152.5	853,771	7.5
Ho/VR	810	1,300	3,205,835	2.3
Kota	310	250	846,078	4.8
Oda	408	617	1,803,176	4.1
Saltpond	228	755	682,400	5.9
Sunyani	920	1,200	3,050,950	2.5
Tamale	2,730	2,730	6,417,843	2.7
Nampong/Ashanti	300	446	1,129,520	4.0 4 3
Damu	74	300	2,3,242	8.15
Total	6,208	7,310.5	19,565,351	8.2

Note

Cost price per kWh is purchase price from V.O.S. for V.O.S. supplied stations.

For diesel stations cost includes all generating costs (fuel lub. oil, repair and maintenance, wages etc.)

INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT

INTERNATIONAL DEVELOPMENT ASSOCIATION

OFFICE MEMORANDUM

TO: Mr. Gavin E. Wyatt

DATE: September 22, 1971

FROM: Ali N. Memon

SUBJECT: GHANA - Loan 618-GH - Volta River Authority (VRA)
Project Supervision
Credit 256-GH - Electricity Corporation
of Ghana (ECG)
Full Report

In accordance with Terms of Reference dated August 4, 1971, I visited Accra, Ghana, between August 12 and 21 to carry out supervision of the Volta expansion project (Loan 618-GH) and to check on steps being taken to make Credit 256-GH effective.

Project Data - Loan 618-GH

1.01	Amount of Loan	US\$6.0 million
	Amount Disbursed at August 31, 1971	US\$1.428 million
	Estimated Disbursements per Appraisal Report	US\$3.5 million
	Amount Committed at August 31, 1971	US\$4.8 million
	Date of Loan Agreement	June 23, 1969
	Effective Date	October 1, 1969
	Closing Date	December 31, 1973
	Date of Last Supervision Mission	April 15, 1971
	Current Exchange Rate	US\$1.00 = NØ 1.02
	Fiscal Year Ends	December 31

1.02 The project is part of the 1969-72 expansion program of the Volta River Authority (VRA) and consists of (a) installation of the final two 128/147 MW generating units at Akosombo hydroelectric plant; (b) expansion of 165 kV sub-station capacity; (c) acquisition of service vehicles for transmission line maintenance; and (d) consulting services for two studies: one to review VRA's operations, organizational structure, staffing policies and accounting system; the other to review future expansion plans and make recommendations as to the most economic project for the next extension of VRA's generating capacity after

completion of the project. The project will bring the Akosombo power plant to its ultimate installed capacity of 882 MW, thereby enabling VRA to meet its market requirements until 1977, when new sources of power will be needed.

Summary and Conclusions

2.01 Project construction is proceeding on schedule, and is expected to be completed in December 1972.

2.02 The consultants' study of VRA's operations, organization and staffing has not yet been fully studied by the management. The Chief Executive has agreed to instruct his department heads to study relevant portions of the full report and implement those recommendations that are useful and workable.

2.03 The consultants' study of VRA's future expansion plans has been completed. It recommends construction of a hydroelectric plant at Kpong on the Volta River, a few miles downstream of Akosombo.

2.04 The Government has decided to re-cast the VRA Board of Directors. The new Board is likely to be competent enough to carry out its duties.

2.05 VRA recently reorganized its management structure, aiming at reducing the number of personnel reporting to the Chief Executive. Mr. Kalistsi, Director of Finance, has been appointed Executive Secretary; this leaves vacant the position of Director of Finance. The positions of Assistant Director of Finance and Chief Accountant are also vacant. VRA is continuing its recruitment efforts; in the meantime it may request the Bank to second a finance expert for a few months.

2.06 The rate of return on investment by the Government of Ghana increased from 2.3% in 1969 to 2.9% in 1970. While the 1970 return is low, it is higher than the 2.3% estimated for that year at the time of appraisal. VRA is required in the Loan Agreement to earn 8% or better in 1974 and thereafter.

2.07 The Government has imposed import duty, excise tax, sales tax, purchase tax and surcharges on procurement made by VRA. A 25% levy on transfer of interest payments abroad has also been introduced. VRA is approaching the Government for a waiver of these taxes and levies.

2.08 Sales of energy are expected to increase at 7% a year through 1975. Revenues at present tariffs are expected to increase at 9.6% a year. With the assumption that the new taxes will be withdrawn, operating expenses are estimated to increase at 6.6% a year. In that case, the rate of return on the Government's investment will increase to 3.2% in 1971, 6.4% in 1972, 7.5% in 1973, 7.2% in 1974 and 7.7% in 1975. With some effort, however, VRA has a good chance to earn the required 8% by 1974. During the forecast period VRA is expected to accumulate large cash surpluses and should be able to pay about N¢ 2 million a year in dividends to the Government.

2.09 On the other hand, if the new taxes are not withdrawn the operating expenses are expected to increase at 7.7% a year and the rate of return on the Government's investment is likely to be 2.3% in 1971, 4.8% in 1972, 6.0% in 1973,

5.8% in 1974 and 6.6% in 1975. The new taxes are expected to result in smaller internal cash generation and substantially higher interest charges and construction expenses. As a result, VRA is expected to have a cash deficit in each of the forecast years. In order for VRA to achieve the required 8% rate of return (after taxes) and have sufficient cash available, the Government would have to allow either a substantial tariff increase, a tariff increase combined with some reduction in duty, or a tariff increase combined with a Government local currency loan to finance the duty on imported construction materials.

2.10 The Managing Director of the Electricity Corporation of Ghana (ECG) has resigned for reason of health, but is expected to remain at his post until December 1971.

2.11 Credit 256-GH is not likely to be effective before mid-October due to delay in finalizing the KfW loan "satisfactory arrangements" for which is a condition of effectiveness of Credit 256-GH. The Credit Agreement specifies the date as October 1, 1971.

Action Recommended

3.01 The Bank should write to the Government, advising it of the impact on VRA and ECG of its new taxation measures and requesting that early action be taken to ensure that they will continue to be financially viable (Annex 1).

3.02 The time limit for making Credit 256-GH effective should be extended to October 30, 1971.

Physical Execution of the Project

4.01 Project construction is proceeding on schedule. As of July 31, 1971, the project was about 57% completed. Actual progress on various contracts as compared with the schedule for end of July is as follows:

<u>Contract</u>	<u>Actual</u>	<u>Schedule</u>
Supply of turbines and governors	65%	68%
Supply of generators, transformers and major electrical equipment	68%	66%
Supply of intake gate hoists and trash rack	97%	97%
Supply of substation equipment	93%	90%
Power plant installation of mechanical equipment	33%	33%
Power plant installation of electrical equipment	24%	23%
Installation of substation equipment and transmission line	75%	75%
Consulting engineering services	72%	74%
Overall	57%	57%

Project construction is expected to be completed on schedule in December 1972. The latest revised disbursement schedule is shown in Annex 2.

4.02 Ontario Hydro (Canada), VRA's consultants, for the study on operations, organization and staffing, submitted their report in draft form about 20 months ago. At that time the Chief Executive of VRA, Mr. E. L. Quartey, read only the report summary (Annex 3), which contains the consultants' principal findings; these were discussed informally at departmental level and were considered to be of limited value. Since then no action has been taken with respect to the report because VRA had been preoccupied with a Government mission that was making an enquiry into its affairs. The mission pointed out to Mr. Quartey that the report makes a detailed review of each department and contains very useful recommendations, which are not part of the summary, for improving departmental operations. He agreed to instruct his department heads to study the relevant portions of the full report and implement those recommendations that are useful and workable. It should be noted that the Loan Agreement does not set a timetable for discussion of the report with the Bank or its implementation.

4.03 The Kaiser Engineering's study on future expansion plans, submitted to VRA in late August 1971, recommends construction of a hydroelectric plant at Kpong on the Volta River, a few miles downstream of Akosombo. ^{1/} The study recommends that construction start in 1974, with two 47 MW units to be commissioned by 1979; another two 47 MW units could be installed at the same time or later, depending on the demand for power. The cost of the initial phase, including installation of the first two units, is estimated at US\$67.4 million and installation of the second two units is estimated at US\$14.6 million. An additional US\$2.5 million would be required for related transmission lines. The report also recommends that VRA should acquire gas turbines or diesels, if they are needed to meet the increasing demand in the period 1974-1979. The report states that up to 100 MW peaking capacity costing about US\$16.7 million may be required but that most probably the requirement will be much less than 100 MW. The consultants feel that a decision on the thermal units could be put off until 1974 or even later. They specifically reject the alternative of interconnection with Nigeria, on grounds that (a) there will be a power capacity shortage in that country by 1982; and (b) the 161-kV Ghana-Togo-Dahomey transmission line now being built will prove too "weak" electrically to be reliable and therefore a new 330-kV line will be required.

VRA Board and Management

5.01 The Government has decided to re-cast the VRA Board of Directors. Of the present eight members, only three are expected to remain: the Chief Executive of VRA and the Managing Directors of ECG and the Volta Aluminum Company Limited (VALCO). The proposed new Chairman, a prominent local doctor, has considerably less status than the previous two Chairmen -- President of

^{1/} The mission had access to the study for only a few minutes. VRA has now authorized its consultants to forward copies of the report to the Bank.

the Republic and Deputy Chairman of the Presidential Commission. The Board is expected to include the Governor of the Bank of Ghana and a professor at the London School of Economics (UK). The new Board is expected to be competent enough to carry out its duties.

5.02 VRA recently announced a reorganization of its management structure aimed at reducing the number of personnel reporting to the Chief Executive. Under the new arrangement, only the Executive Secretary, Chief Engineer, Adviser (Engineering) and Internal Auditor report to the Chief Executive. Mr. Mensah, Director of Power Operations, has been named Chief Engineer and the Directors of Engineering and Power Operations report to him. Mr. Kalitsi, Director of Finance, has been appointed Executive Secretary and the Directors of Finance and Personnel Services, Chief Medical Officer, Chief Counsel, Chief Agricultural Officer, Marine Superintendent and Town Manager-Akosombo report to him. As a result of these personnel changes and taking into account already vacant positions, VRA now has the following key vacancies: Director of Power Operations, Assistant Director of Personnel Services, Chief Agricultural Officer, Chief Resettlement Officer, Director of Finance, Assistant Director of Finance, and Chief Accountant.

5.03 With the three vacancies in the Finance Department, its staffing problem is particularly acute. The situation was under control at the time of the mission, however, because Mr. Kalitsi was continuing to spend most of his time supervising the Finance Department and the Assistant Chief Accountant has been made Acting Chief Accountant. VRA has been trying, without much success, to recruit an expatriate expert in financial matters through various UN agencies and UK electricity boards. VRA feels that with the passage of time the Acting Chief Accountant will be able to function effectively as Chief Accountant, but that for some time to come the position of Director of Finance and even that of Assistant Director of Finance will have to be filled by expatriates. The UN has advised VRA that it will not be able to provide a finance expert until early 1973; hence VRA is likely to ask the Bank to provide one for at least part of the time until then. For the remaining vacancies, VRA is expected to promote personnel within its organization.

Tariffs

6.01 Following recommendations by Preece, Cardew & Rider, the consultants appointed by VRA to review the power tariffs, the tariffs are being increased for all VRA's customers except VALCO. For those on the two-part tariff, the demand rate was increased from N\$ 2.75 to N\$ 3.0 per kW and the energy rate from N\$ 0.00183 to N\$ 0.002 per kWh for ECG and Akosombo Textiles and to N\$ 0.00225 for the mining enterprises. The flat rate tariff for Akosombo Township was increased from N\$ 0.0081 to N\$ 0.0092 per kWh. The ECG tariff was increased as of January 1, 1970; the other increases are being applied as each bulk sales agreement comes up for renewal. All the new tariffs will be effective by the end of 1971.

9.1%
9.3%
13.6%

PCR conclusions: Mining disagrees.

In their last report, PCR recommended 3 mills/kwh to VALCO.

VALCO is under pressure by Govt. to undertake baseload mining.

10%

Operating Results

7.01 Revenues from sales of electricity increased from N $\text{\$}$ 10.56 million in 1969 to N $\text{\$}$ 11.63 million in 1970, or 10.1%; total revenue (including interest receipts, rents, lake transport and proceeds from sale of fixed assets) increased from N $\text{\$}$ 10.82 million to N $\text{\$}$ 11.98 million, or 10.8%. Operating expenses increased from N $\text{\$}$ 5.34 million in 1969 to N $\text{\$}$ 6.31 million in 1970, or 17.7%. Approximately N $\text{\$}$ 970,000 of this increase is accounted for by N $\text{\$}$ 34,000 (3%) increase in salaries and wages, N $\text{\$}$ 143,000 (59%) increase in materials, N $\text{\$}$ 381,000 (500%) increase in general charges, N $\text{\$}$ 179,000 (53%) increase in Akosombo administration (net), N $\text{\$}$ 310,000 (9%) increase in depreciation, and N $\text{\$}$ 102,000 (67%) decrease in hospital and health administration. The 59% increase in materials is due to the importation of a large quantity of spare parts and charging all of it to 1970 operating expenses. The 500% increase in general charges is due to adjustments for previous year and increased storekeeping expenses. The 53% increase in Akosombo administration (net) is due to the fact that the Government subvention for that purpose during the year remained almost the same while the actual expenses increased, thus forcing VRA to absorb all of the increase. The 67% decrease in hospital and health administration is due to the fact that the increase in the Government subvention for that purpose more than offset the increase in expenses. The 9% increase in depreciation is due to acquisition of new fixed assets. With regard to the Akosombo administration, the mission found that it includes several expense items (e.g., salaries and wages, transport, maintenance, electricity usage) that should be at least partially charged to power operations in general rather than to the township. The figures for 1970 shown in the Income Statement (Annex 4) include the appropriate adjustments. VRA has agreed to allocate the costs more rationally in the future; accordingly, the forecasts discussed below take the adjustments into account.

7.02 Net operating income increased from N $\text{\$}$ 5.5 million in 1969 to N $\text{\$}$ 5.7 million in 1970. Interest charges net of the capitalized amount declined from N $\text{\$}$ 3.9 million to N $\text{\$}$ 3.8 million. Thus the income surplus for the year which is used to compute the rate of return on the Government's equity, increased from N $\text{\$}$ 1.6 million to N $\text{\$}$ 1.9 million. The rate of return on the Government's investment increased from 2.3% in 1969 to 2.9% in 1970. While the 1970 return of 2.9% is low, it is higher than the 2.3% estimated for the year at the time of appraisal. VRA is required to earn 8% or higher in 1974 and thereafter.

7.03 Accounts receivable for power sales decreased from N $\text{\$}$ 1.18 million or 5.7 weeks of sales in 1969 to N $\text{\$}$ 1.15 million or 5.2 weeks of sales in 1970.

7.04 Cooper Bros. & Co., the external auditors, reported that VRA's general standard of accounting improved very considerably in 1970, with the exception of stores accounting and minor lapses in the internal control system. Major weaknesses in accounting procedures that had been the subject

of adverse comment in previous external audit reports have been overcome. The major store centers were reorganized during the year and this has brought about improved storekeeping. However, the stores accounting, which was transferred to the computer in 1969, continues to present "teething" problems; an IBM representative recently spent several weeks studying and trying to solve them. VRA has also employed a new programmer to assist its computer programmer.

7.05 Despite these improvements, VRA continues to be late in preparing its quarterly annual accounts. The 1969 annual report was sent to the Bank in September 1970, and the 1970 report in July 1971. While the latter was received only a few days after the six-month period allowed under Loan 618-GH, the time taken is too long for an entity of VRA's caliber. Realizing this, VRA is taking the following steps to make it possible for the 1971 statements to be audited by end of March 1971: agreement with the external auditors to conduct part of their audit before the final accounts are ready; revision of the accounts manual to simplify it; use of IBM assistance to achieve smoother computer operation; increase in staff in the stores accounts section; and additional employment of several qualified bookkeepers.

7.06 Under various Executive Orders, VRA has been exempt from all duties and taxes since it was established in 1961. But following the advice of the Bank's recent Economic Mission to Ghana that the list of organizations exempt from import duty be narrowed down, the Government has imposed import duty, excise tax, sales tax, purchase tax and surcharges on procurement made by VRA. This is expected to result in a 30 to 50% increase in the cost of imported materials. VRA is in the process of preparing a case for presentation to the Prime Minister to grant it an exemption from these taxes. Since the outcome of this is not yet known and in order to assess the full implications of the new taxes, two alternative forecasts have been prepared: the first one assumes that the new taxes will be waived (Annexes 4 and 5), and the second assumes that the taxes will not be waived (Annexes 6 and 7). The import duty schedules not being completely clear with regard to the equipment imported by VRA, the exact project cost will depend on how the various items are classified for purpose of import duty. Also, the effect on other prices of locally obtained materials is not known. Accordingly, an increase of 30% in the total construction program is assumed for the purpose of the second forecast.

7.07 Sales of energy in GWH are expected to increase from 2,809 in 1970 to 3,940 in 1975, or 7% a year. It is assumed that VALCO will buy the minimum amount of energy required under its contract with VRA (267 MW at 95% load factor beginning in April 1972, and 300 MW at the same load factor beginning in April 1973). Sales to ECG and other consumers are based on their demand as foreseen. Average revenue per kWh is expected to increase gradually from 0.414 NP in 1970 to 0.475 NP in 1975, reflecting an increasing share of sales to ECG and the mining enterprises. Revenues are expected to increase from N $\text{\$}$ 11.98 million in 1970 to N $\text{\$}$ 19.02 million in 1975 or 9.6% a year. It is assumed that salaries and wages will increase at the rate of about 6% a year. Spare parts for plant, fuel and maintenance materials are

assumed to increase by 5% in 1971, 25% in 1972 when the 5th and 6th generating units at Akosombo will be completed, 10% decrease in 1973 when a more normal level of purchasing will be restored, and 5% annual increase in 1974 and 1975. Transportation expenses, which include fuel for vehicles, insurance, licensing, maintenance and staff travel allowances, are assumed to increase at 4% a year. General charges, which include all remaining expenses for power operations, are assumed to increase at 5% a year. Expenses for Akosombo administration and for hospital and health administration are expected to rise substantially in 1971 when subventions from Government for these activities are expected to become only a fraction of those in previous years. These expenses are assumed to increase at 5% a year in each of the subsequent years. Depreciation is expected to remain at about 2.6% of gross fixed assets for each year. On the basis of the above assumptions, which are reasonable, operating expenses are expected to increase from N $\text{\$}$ 6.3 million in 1970 to N $\text{\$}$ 8.7 million in 1975, or 6.6% a year. The rate of return on the Government's average investment is expected to be 3.2% in 1971, 6.4% in 1972, 7.5% in 1973, 7.2% in 1974, and 7.7% in 1975, as compared with the required 8% or higher beginning in 1974.

7.08 As details of the report on VRA's expansion plans (paragraph 4.03) are not known to the mission and as it is too early to know whether the seemingly costly course of action recommended by the consultants will be taken, the forecast assumes that the link with Nigeria will be undertaken. The construction expenses shown in the Sources and Applications of Funds Statement (Annex 7) include therefore (a) expenses to complete the project now under way, (b) approximately N $\text{\$}$ 3 million a year for VRA-financed minor works, and (c) N $\text{\$}$ 1.6 million a year in 1974 and 1975 for the transmission link with Nigeria. On the above basis and not counting dividends to Government, VRA is expected to accumulate a sizeable cash surplus from 1972 to 1975. The cash balance is expected to increase from N $\text{\$}$ 2.3 million in 1971 to N $\text{\$}$ 15.8 million in 1975. This should enable VRA to pay a substantial amount in dividends, say N $\text{\$}$ 2.0 million a year (approximately 3% return on Government equity) or N $\text{\$}$ 10.0 million over the forecast period. Debt service coverage is expected to improve from 1.3 in 1971 to 2.0 in 1975.

7.09 The second forecast, which takes into account increased cost of materials and construction program as well as a 25% levy on interest payments to be transferred abroad, is shown in Annexes 6 and 7. Operating expenses are expected to increase from N $\text{\$}$ 6.3 million in 1970 to N $\text{\$}$ 9.1 million in 1975, or 7.7%. Rate of return on the Government's average investment is estimated at 2.3% in 1971, 4.8% in 1972, 6.0% in 1973, 5.8% in 1974, and 6.6% in 1975.

7.10 The Sources and Applications of Funds Statement (with taxes) (Annex 7) shows approximately N $\text{\$}$ 1.0 million in smaller internal cash generation, N $\text{\$}$ 12.0 million for higher cost of the construction program, and N $\text{\$}$ 4.0 million for higher interest charges. The result is that the cash surplus shown without taxes is entirely wiped out and there is a cash deficit

in each forecast year. The deficit is estimated to vary from N¢ 4.8 million in 1972 to N¢ 1.3 million in 1975. Debt service coverage improves from 1.2 in 1971 to 1.8 in 1975.

7.11 The above forecasts were prepared with the help of VRA's staff. The VRA management is aware of the lower than required rate of return, even without the taxes, but feels that without the taxes it has a good chance of achieving the 8% rate of return required by 1974, with no tariff increase, if it can (a) sell VALCO somewhat more than the minimum power, (b) reduce operating expenses, or (c) persuade the Government to continue subventions for Akosombo Township and the health facilities. All three possibilities are feasible; hence VRA may be considered likely without the taxes to achieve the 8% rate of return.

7.12 But if the Government decides to stand by its new taxation measures, there will be a low rate of return and a cash deficit in each forecast year, as shown in paragraph 7.10. There are only a few means of avoiding this and enabling VRA to achieve the required rate of return and have sufficient cash available: (a) a substantial tariff increase, (b) a smaller tariff increase combined with some reduction in import duties, and (c) a tariff increase combined with a Government local currency loan to finance duties on imported construction materials. VRA is not able to charge VALCO higher tariffs because of its long-term contractual obligations with respect to the company. Therefore, if tariffs are to be adjusted, then ECG (which is similarly affected by the new tax ruling) would have to provide VRA with all of the required additional revenue. To offset the impact of the taxes on ECG and VRA, it is estimated that an increase in ECG's tariffs as high as 30% will be needed. On the other hand, if a tariff increase is combined with lesser taxes or with Government financing of import duties, the required tariff increase would be less.

7.13 As indicated by VRA's cash deficit in 1971, the impact of the new taxes will soon be felt. It is therefore recommended that the Bank write to the Government, advising it of the impact of the new taxes on VRA and ECG and requesting that it take early action to ensure their continued financial viability.

Electricity Corporation of Ghana (ECG)

8.01 ECG, the beneficiary of Credit 256-GH, is responsible for general distribution of power throughout the country and for generation in areas that cannot be connected economically to the VRA system. The Credit Agreement, dated June 21, 1971, is for an IDA credit of US\$7.1 million to help finance ECG's second power distribution project, covering the period 1971-73. ECG was also the beneficiary of Credit 118-GH for US\$10 million, which helped finance the 1968-70 distribution program.

8.02 ECG's Managing Director, Mr. Acquah, has resigned for reason of ill

health and it is understood that the Government has accepted his resignation; however, he is expected to remain at his post until December 1971. Under the terms of Credits 118-GH and 256-GH, the Government is required to consult IDA before appointing a new Managing Director. The appointment of Mr. Acquah's successor is expected to be made some time in October or November.

8.03 Since the import duty, taxes, and surcharges mentioned in paragraph 7.06 have been imposed on ECG as well as on VRA, ECG is now revising the cost estimates for the project financed under Credit 256-GH. The Chief Accountant told the mission that the cost of the distribution expansion program for the 1971-73 period may increase from N¢ 14.75 million to as high as N¢ 22 million. The revised cost estimate will be sent to the Bank in due course. ECG is not likely to be seriously affected by the 25% levy on interest payments to be transferred abroad, since its two largest borrowings to date have been from IDA, with interest at commercial rates to be paid by ECG to the Government in local currency. ECG's rate of return is therefore likely to be affected to the extent of higher tariffs charged by VRA, higher cost of materials imported for maintenance, and higher charge for depreciation due to the increased cost of new construction. The precise effect on the rate of return, which is expected to be around the required 8%, is not yet known.

8.04 The Government is the borrower in Credit 256-GH, and the Subsidiary Loan Agreement between the Government and ECG has been signed. The Credit documents were expected to be presented to the Parliament for ratification during the last week in August. The Government is finalizing arrangements for Accounts Receivable from State Corporations; there may still be some question as to ECG's authority to disconnect delinquent governmental customers so as to be able to collect the amounts they owe for power consumption. This point will be scrutinized carefully when the Government conveys to IDA the arrangements it proposes for settling the accounts in arrears.

8.05 The loan agreement with the Federal Republic of Germany for the loan for US\$2.0 million equivalent from Kreditanstalt fur Wiederaufbau (KfW) is almost completed, with only minor changes in wording to be worked out. Parliament has to ratify and sign the agreement before the KfW loan can become effective. The loan is not likely to be effective until the first week in October. Since "satisfactory arrangements" for provision of the KfW loan is a condition of effectiveness of Credit 256-GH and there may still be some problems to arise with respect to the Accounts Receivable from State Corporations, it is not likely that Credit 256-GH can become effective before mid-October. It is therefore recommended that the time limit for making it effective be extended from October 1 (in the Credit Agreement) to October 30, 1971

List of Annexes

- Annex 1 Proposed Letter to the Minister of Finance
- Annex 2 Revised Disbursement Schedule
- Annex 3 Summary of Ontario Hydro Study
- Annex 4 Income Statement 1970-75 - Without Taxes
- Annex 5 Sources & Applications of Funds Statement 1971-75 - Without Taxes
- Annex 6 Income Statement 1970-75 - With Taxes
- Annex 7 Sources & Applications of Funds Statement 1971-75 - With Taxes
- Annex 8 List of Persons Met

ANMemon:ssst
IERD

cc: Messrs. Chadenet, Baum, Ripman, Rovani, John King, Engelmann, Lee,
Lithgow, Weiner, Armstrong, Howell, Berrie, Jennings, White,
Saeed, Bmani, J. Elliott, Minnig, Nissenbaum (Western Africa),
Reitter (Western Africa), Scott (Legal), Bennett (Controller's)

Central Files (4)
Division Files (2)

PROPOSED LETTER

Minister of Finance

Ghana

Gentlemen:

Re: Loan 618-GH - Volta River Authority (VRA)
Credit 118/256 - Electricity Corporation
of Ghana (ECG)

I am taking this opportunity to bring to your attention the effect of newly imposed import duties, sales tax, purchase tax, excise tax and 25% levy on transfer of interest payments abroad, on VRA and ECG. In order to assess the impact of the above duties, the recent supervision mission to VRA prepared two alternative forecasts (attached) - the first one assuming that the new taxes will be waived and the second assuming that the new taxes will not be waived. We regret that we do not have similar forecasts for ECG showing the impact of the new taxes on that organization. However, the impact on its finances is likely to be just as significant.

With the taxes, the rate of return on the Government's average investment is likely to be 2.3% in 1971, 4.8% in 1972, 6.0% in 1973, 5.8% in 1974, and 6.6% in 1975, as compared with 8% or higher beginning in 1974 as agreed under Loan Agreement 618-GH. The new taxes over the forecast period will result in approximately N¢ 1.0 million less internal cash generation, N¢ 12.0 million additional cost for the construction program and N¢ 4.0 million for higher interest charges. The result is that the present cash surplus of VRA is entirely wiped out and a cash deficit is expected in each of the forecast years. The deficit is estimated to vary from N¢ 4.8 million in 1972 to N¢ 1.3 million in 1975. Thus there will be a low rate of return as well as a cash deficit in each year. Should your Government decide not to waive its new taxation measures in their entirety the following alternatives are available to VRA in its efforts to achieve the required rate of return and have sufficient cash available:

- (a) A substantial tariff increase;
- (b) a smaller tariff increase combined with some reduction in import duties; and
- (c) a tariff increase combined with a Government local currency loan to finance duties on imported construction materials.

Since VRA is not able to charge VALCO higher tariffs due to its long-term contractual obligations, if tariffs are to be adjusted, then ECG which is also similarly affected by the new tax rulings would have to provide VRA with all of the required additional revenues. To offset the impact of the taxes VRA will have to charge as much as 40% higher tariffs to ECG. In order to offset the higher price of the purchased power and the direct effect of the new

taxes, ECG will need to increase its tariffs by as much as 30%. If a tariff increase is combined with lesser taxes or with Government financing of import duties, the required tariff increase should be less.

On the other hand if the taxes are waived the rate of return on the Government's average investment is expected to be 3.2% in 1971, 6.4% in 1972, 7.5% in 1973, 7.2% in 1974 and 7.7% in 1975 as compared with the required 8% or higher beginning in 1974 under the Loan 618-GH. VRA feels, that without the new taxes, it can meet the 8% return requirement if it can (a) sell VALCO somewhat more than minimum power; or (b) reduce operating expenses; or (c) persuade the Government to continue subventions for Akosombo township and health facilities. Without taxes, VRA is expected to accumulate substantial amounts of cash during the forecast period (1971-75) and should be able to pay appropriate amount of dividends to the Government each year.

As indicated by VRA's cash deficit by end of year 1971, the impact of the new taxes will be felt by both VRA and ECG soon. It is therefore requested that the two cases be considered simultaneously and an early action be taken to ensure continued financial viability of VRA and ECG.

Yours sincerely,

Western Africa

GHANA
VOLTA RIVER AUTHORITY (VRA)
LOAN 618-GH

SCHEDULE OF DISBURSEMENTS AS OF AUGUST 31, 1971

CALENDAR YEAR AND QUARTER	ACCUMULATED DISBURSEMENTS IN MILLIONS OF US DOLLARS EQUIVALENT			ACTUAL DISBURSEMENTS AS A PERCENTAGE OF APPRAI- SAL ESTIMATE (UP TO LA- TEST QUARTER) OR NEW ESTIMATE OF DISBURSE- MENTS AS A PERCENTAGE OF APPRAISAL ESTIMATE (FOR FUTURE QUARTERS) (1*2)x100 or (3*2)x100
	ACTUAL TOTAL DISBURSEMENTS 1	APPRAISAL ESTIMATE 2 ^{a/}	NEW DISBURSEMENT ESTIMATE (if required) 3	
1969	-	0.330		0%
1970				
1st				
2nd	.017			
3rd	.017			
4th	.047	2.432		12%
1971				
1st	.672			
2nd	.954			
3rd			2.491	
4th		4.818	3.925	81%
1972				
1st			5.052	
2nd			5.385	
3rd			5.420	
4th		6.00	5.466	91%
1973				
1st			5.480	91%
2nd			5.710	95%
3rd			5.745	96%
4th			6.000	100%
Closing Date:		12/31/73	12/31/73	

a/ Appraisal report did not contain quarterly figures.

GHANA
VOLTA RIVER AUTHORITY (VRA)
Summary of the Ontario Hydro Study

1. The operational units at Akosombo can be restructured into two Divisions - a Power Division and a Volta Lake Division, each under a Chief Administrative Officer with full authority to execute programs approved in the Revenue Budget. This should relieve him of responsibility for supervising day-to-day activities and allow him to concentrate on longer range growth and development and on political aspects.
2. The Authority should either merge its Power Division with the Electricity Corporation or request the Government to establish an independent Board to review electric power rates for both it and the Electricity Corporation. Otherwise, achievement of financial targets by both entities will be fortuitous due to the natural conflict of interest.
3. If the Authority intends to set up a viable Engineering Department ultimately capable of doing all its engineering design work it will have to change its policies by channeling most and subsequently all its engineering work to its own staff. This might be done by arranging with an outside engineering firm to provide consulting supervision and training for Ghanaian staff over an interim period of perhaps seven years, together with plan modification so that smaller projects within their capability are given priority over major projects until their competence has been demonstrated.
4. In addition to Engineering, the Authority requires a capable Financial Planning and Analysis Group reporting to the Director of Finance if adequate regard is to be given to future developments. This should be separate from the Chief Accountant's task of providing a proper Accounting and Financial Reporting service.
5. The Volta River Development Act is clear on what the Authority's responsibilities are, and continuing Resettlement problems are clearly not included. Unless the Authority can regularize its financial arrangements with the Government on this matter it should decline further involvement except the statutory minimum, and limit its activities to Power Operations and the Akosombo Township - Volta Lakeside areas.
6. The Accounting System is basically sound, past problems mainly arising from lack of adequate supervision in communicating the changes being implemented and in training field staff in their proper execution. This gap continues and cannot be bridged by a computer so that Personnel should be asked to develop a training program. Other desirable adjustments should include:

- (a) responsibility for proper charging and coding should be vested in the operating units, and fixed assets segregated between them.
 - (b) allocation of administrative overheads needs to be set up on a basis which demonstrates that allocation basis is reasonable to all parties and does not lead to instability in the achievement of financial targets.
7. On computerization, the information available was sufficient to indicate that a computer was required, but insufficient to determine whether the IBM 1130 configuration would be adequate or whether the plan for computerizing the Accounting System was the best. The plan for converting the Stock Control System to what is basically a punched card system is excellent and should be carried through to completion. The subsequent plans appear too ambitious to complete in the time allotted with the Authority's present staff. The next step should be to carry out a proper System Analysis, Specification and Evaluation and, using standards based on actual experience with the Stock Control System, to develop a more realistic plan which could then be carried through to completion without further changes. This should include a review of the Authority's General Ledger (Nominal Ledger) so that it can be computerized and used to integrate and control the computerized systems. An experienced Section Head reporting to the Chief Accountant should be seconded to take charge of the Project until conversion from the manual system is nearly complete.
8. On staffing, the Authority's management are quite aware of where they are overstaffed but under the circumstances reducing staff is not that simple a matter. An initial step could be to place the authorization and the execution of work under different managements until standards can be built up with experience.

GHANA
VOLTA RIVER AUTHORITY (VRA)
INCOME STATEMENT 1970-1975
(N¢ '000)

WITHOUT TAXES

Fiscal year ending December 31	Actual	Forecast				
	1970	1971	1972	1973	1974	1975
Energy sold in GWh	2,806	2,963	3,265	3,711	3,883	3,940
Average revenue per kWh in NP	.414	.431	.465	.450	.457	.475
<u>Operating Revenue</u>						
Sales of energy	11,631	12,761	15,183	16,870	17,740	18,717
Other	352	300	300	300	300	300
Total	11,983	13,061	15,483	17,170	18,040	19,017
<u>Operating Expenses</u>						
Salaries & Wages	1,195	1,270	1,340	1,425	1,505	1,595
Materials X	460	483	604	544	571	598
Transportation	345	359	374	390	406	423
General charges X	456	479	503	527	553	579
Akosombo Administration (Net)	222	460	483	507	532	557
Hospital & Health Administration (Net)	50	300	315	331	346	362
Depreciation	3,577	3,903	3,945	4,465	4,507	4,548
Total	6,305	7,254	7,564	8,189	8,420	8,662
Net Operating Income	5,678	5,807	7,919	8,981	9,620	10,355
Interest	3,841	3,776	3,800	3,789	3,623	3,425
Less: Interest charged to Plant	(45)	(122)	(464)	(659)	-	-
Total	3,796	3,654	3,336	3,130	3,623	3,425
Income surplus for the Year	1,882	2,153	4,583	5,851	5,997	6,930
Return on Average Net Fixed Assets in Operation plus Working Capital Allowance: %						
Average Equity	65,345	67,887	72,128	77,769	83,786	90,249
Return on Ghana Government Average Equity - %	2.9	3.2	6.4	7.5	7.2	7.7

September 17, 1971

GHANA
VOLTA RIVER AUTHORITY (VRA)
SOURCES & APPLICATION OF FUNDS STATEMENT
1971-1975
(In '000)

Fiscal Year Ending December 31	1971	1972	1973	1974	1975	TOTAL 1971-1975
<u>Internal Cash Generation</u>						
Operating Income	5,807	7,919	8,981	9,620	10,355	42,682
Depreciation	<u>3,903</u>	<u>3,945</u>	<u>4,465</u>	<u>4,507</u>	<u>4,548</u>	<u>21,368</u>
TOTAL	<u>9,710</u>	<u>11,864</u>	<u>13,446</u>	<u>14,127</u>	<u>14,903</u>	<u>64,050</u>
<u>Equity</u>						
Canadian Grant	<u>832</u>	<u>661</u>	<u>186</u>	-	-	<u>1,679</u>
<u>Borrowings</u>						
IBRD Loans GH-310	-	-	-	-	-	-
IBRD Loan GH-618	2,600	2,972	500	-	-	6,072
USAID	450	477	-	-	-	497
Canadian Loan	4,488	1,350	264	-	-	6,102
Italian Loan	<u>680</u>	<u>901</u>	-	-	-	<u>1,581</u>
TOTAL	<u>8,218</u>	<u>5,270</u>	<u>764</u>	-	-	<u>14,252</u>
TOTAL SOURCES	<u>18,760</u>	<u>17,795</u>	<u>14,396</u>	<u>14,127</u>	<u>14,903</u>	<u>79,981</u>
<u>Application of Funds</u>						
Construction Program	<u>13,668</u>	<u>6,600</u>	<u>3,011</u>	<u>3,832</u>	<u>3,837</u>	<u>30,948</u>
<u>Debt Service</u>						
<u>Interest</u>						
IBRD Loans GH-310	2,480	2,285	2,179	2,067	1,949	10,960
IBRD Loans GH-618	44	269	381	398	398	1,490
IBRD Loans GH-618 (Commitment Charge)	46	4	-	-	-	50
USAID	744	680	651	621	589	3,285
US Ex-Im Bank	362	331	300	269	238	1,500
US ECGD	53	40	-	-	-	93
Canadian Loan	37	140	173	176	172	1,998
Italian Loan	<u>10</u>	<u>51</u>	<u>105</u>	<u>92</u>	<u>79</u>	<u>337</u>
TOTAL	<u>3,776</u>	<u>3,800</u>	<u>3,789</u>	<u>3,623</u>	<u>3,425</u>	<u>18,413</u>
<u>Amortization</u>						
IBRD GH-310	1,642	1,737	1,838	1,946	2,059	9,222
IBRD GH-618	-	-	-	-	-	-
USAID	780	808	837	866	897	4,188
US Ex-IM Bank	537	537	537	537	537	2,685
UK ECGD	637	679	-	-	-	1,316
Ghana Government Loan	100	100	100	-	-	300
Canadian Loan	-	-	-	143	151	294
Italian Loan	-	-	-	<u>219</u>	<u>219</u>	<u>438</u>
TOTAL	<u>3,696</u>	<u>3,861</u>	<u>3,312</u>	<u>3,711</u>	<u>3,863</u>	<u>18,443</u>
TOTAL DEBT SERVICE	<u>7,472</u>	<u>7,661</u>	<u>7,101</u>	<u>7,334</u>	<u>7,288</u>	<u>36,856</u>
<u>Variation in Working Capital</u>						
Cash (Deficit)	(1,526)	3,254	3,859	2,782	3,571	11,940
Other Items (Net)	<u>(854)</u>	<u>280</u>	<u>425</u>	<u>179</u>	<u>207</u>	<u>237</u>
TOTAL APPLICATIONS	<u>18,760</u>	<u>17,795</u>	<u>14,396</u>	<u>14,127</u>	<u>14,903</u>	<u>79,981</u>
<u>Debt Service Coverage</u>	1.3	1.5	1.9	1.9	2.0	
<u>Cash at the End of Year</u>	2,285	5,539	9,398	12,180	15,751	

GHANA
VOLTA RIVER AUTHORITY (VRA)
INCOME STATEMENT 1970-1975
(NC '000)

WITH TAXES

Fiscal year ending December 31	Actual	Forecast				
	1970	1971	1972	1973	1974	1975
Energy sold in GWh	2,806	2,963	3,265	3,711	3,883	3,940
Average revenue per kWh in NP.	.414	.431	.465	.450	.457	.475
<u>Operating Revenues</u>						
Sales of energy	11,631	12,761	15,183	16,870	17,740	18,717
Other	352	300	300	300	300	300
Total	<u>11,983</u>	<u>13,061</u>	<u>15,483</u>	<u>17,170</u>	<u>18,040</u>	<u>19,017</u>
<u>Operating Expenses</u>						
Salaries & Wages	1,195	1,270	1,340	1,425	1,505	1,595
Materials	460	580	784	707	742	777
Transportation	345	359	374	390	406	423
General charges	456	502	553	580	608	638
Akosombo Administration (Net)	222	460	483	507	532	557
Hospital & Health Administration (Net)	50	300	315	331	346	362
Depreciation	<u>3,577</u>	<u>3,911</u>	<u>3,965</u>	<u>4,642</u>	<u>4,696</u>	<u>4,750</u>
Total	<u>6,305</u>	<u>7,382</u>	<u>7,814</u>	<u>8,582</u>	<u>8,835</u>	<u>9,102</u>
Net Operating Income	<u>5,678</u>	<u>5,679</u>	<u>7,669</u>	<u>8,588</u>	<u>9,205</u>	<u>9,915</u>
Interest	3,841	4,248	4,750	4,736	4,529	4,281
Less: Interest charges to Plant	(45)	(122)	(464)	(659)	-	-
Total	<u>3,796</u>	<u>4,126</u>	<u>4,286</u>	<u>4,077</u>	<u>4,529</u>	<u>4,281</u>
Income surplus for the Year	1,882	1,553	3,383	4,511	4,676	5,634
Return on Average Net Fixed Assets in Operation plus Working Capital Allowance - %						
Average Equity	65,345	67,587	70,928	75,299	79,985	85,140
Return on Ghana Government Average Equity - %	2.9	2.3	4.8	6.0	5.8	6.6

September 17, 1971

GHANA
VOLTA RIVER AUTHORITY (VRA)
SOURCES & APPLICATION OF FUNDS STATEMENT
1971-1975
(N~~o~~ 000's)

Fiscal Year Ending December 31	1971	1972	1973	1974	1975	TOTAL 1971-1975
Internal Cash Generation						
Operating Income	5,679	7,669	8,588	9,205	9,915	41,056
Depreciation	<u>3,911</u>	<u>3,965</u>	<u>4,642</u>	<u>4,696</u>	<u>4,750</u>	<u>21,964</u>
TOTAL	<u>9,590</u>	<u>11,634</u>	<u>13,230</u>	<u>13,901</u>	<u>14,665</u>	<u>63,020</u>
Equity						
Canadian Grant	<u>832</u>	<u>661</u>	<u>186</u>	-	-	<u>1,679</u>
Borrowings						
IBRD Loans GH-310	-	-	-	-	-	-
IBRD Loans GH-618	2,600	2,972	500	-	-	6,072
USAID	450	47	-	-	-	497
Canadian Loan	4,488	1,350	264	-	-	6,102
Italian Loan	<u>680</u>	<u>901</u>	-	-	-	<u>1,581</u>
TOTAL	<u>8,218</u>	<u>5,270</u>	<u>764</u>	-	-	<u>14,252</u>
TOTAL SOURCES	<u>18,640</u>	<u>17,565</u>	<u>14,180</u>	<u>13,901</u>	<u>14,665</u>	<u>78,951</u>
Application of Funds						
Construction Program	<u>16,900</u>	<u>12,116</u>	<u>3,915</u>	<u>4,981</u>	<u>4,988</u>	<u>42,900</u>
Debt Service						
Interest						
IBRD Loans GH-310	2,480	2,285	2,179	2,067	1,949	10,960
IBRD Loans GH-618	44	269	381	398	396	1,488
IBRD Loans GH-618 (Commitment Charge)	46	4	-	-	-	50
USAID	744	680	651	621	589	3,285
US Ex-Im Bank	362	331	300	269	238	1,500
UK ECGD	53	40	-	-	-	93
Canadian Loan	37	140	173	176	172	698
Italian Loan	10	51	105	92	81	339
Add additional Interest due to taxes	<u>472</u>	<u>950</u>	<u>947</u>	<u>906</u>	<u>856</u>	<u>4,131</u>
TOTAL	<u>4,248</u>	<u>4,750</u>	<u>4,736</u>	<u>4,529</u>	<u>4,281</u>	<u>22,544</u>
Amortization						
IBRD GH-310	1,642	1,737	1,838	1,946	2,059	9,222
IBRD GH-618	-	-	-	-	-	-
USAID	780	808	837	866	897	4,188
US Ex-Im Bank	537	537	537	537	537	2,685
UK ECGD	637	679	-	-	-	1,316
Ghana Govt. Loan	100	100	100	-	-	300
Canadian Loan	-	-	-	143	151	294
Italian Loan	-	-	-	<u>219</u>	<u>219</u>	<u>438</u>
TOTAL	<u>3,696</u>	<u>3,861</u>	<u>3,312</u>	<u>3,711</u>	<u>3,863</u>	<u>18,443</u>
TOTAL DEBT SERVICE	<u>7,944</u>	<u>8,611</u>	<u>8,048</u>	<u>8,240</u>	<u>8,144</u>	<u>40,987</u>
Variation in Working Capital						
Securities, Banks and Cash	(5,414)	(3,173)	1,661	487	1,304	(5,135)
Other Items (Net)	<u>(790)</u>	<u>11</u>	<u>556</u>	<u>193</u>	<u>229</u>	<u>199</u>
TOTAL APPLICATIONS	<u>18,640</u>	<u>17,565</u>	<u>14,180</u>	<u>13,901</u>	<u>14,665</u>	<u>78,951</u>
Debt Service Coverage	1.2	1.4	1.6	1.7	1.8	
Cash at the End of Year (Deficit)	(1,603)	(4,776)	(3,115)	(2,628)	(1,324)	

September 16, 1971

GHANA
List of Persons Met

Mr. Menzies	UNDP Resident Representative
Mr. Nelson	Principal Secretary, Development Planning Secretariat
Mr. Quartey	Chief Executive VRA
Mr. Kalitsi	Executive Secretary VRA
Mr. Duker	Director of Engineering VRA
Mr. Quansah	Acting Chief Accountant VRA
Mr. Donkoh	Financial Accountant VRA
Mr. Acquah	Managing Director ECG
Mr. Lewis	Chief Accountant ECG

September 22, 1971

ARRANGEMENT OF SECTIONS

PART I—THE VOLTA RIVER AUTHORITY

Section

1. Establishment of the Authority.
2. Status of the Authority.
3. Constitution of the Authority.
4. Members of the Authority.
5. Chief Executive.
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THE FORTY-SIXTH

ACTOF THE PARLIAMENT OF THE REPUBLIC
OF GHANA

ENTITLED

THE VOLTA RIVER DEVELOPMENT ACT, 1961

AN ACT to provide for the establishment of an Authority charged with the duties of generating electricity by means of the water power of the river Volta, and by other means, and of supplying electricity through a transmission system; for the construction of a dam and power station near Akosombo, and for the creation of a lake by the damming of the river; for giving the Authority power to administer certain lands liable to be inundated and lands adjacent thereto, and for dealing with the resettlement of people living in the lands to be inundated; for charging the Authority with certain incidental responsibilities; and for purposes connected with the matters aforesaid.

DATE OF ASSENT: *26th April, 1961*

BE IT ENACTED by the President and the National Assembly in this present Parliament assembled as follows:—

PART I—THE VOLTA RIVER AUTHORITY

1. There shall be established an authority to be called the Volta River Authority (referred to in this Act as the Authority) charged with the duties and responsibilities hereinafter specified.

Establishment of the Authority.

Status of the Authority.

2. The Authority shall be a body corporate with perpetual succession and a common seal which shall be officially and judicially noticed, and may sue and be sued in its corporate name, and for and in connection with the purposes of this Act may acquire and dispose of land and personal property and enter into contracts and other transactions.

Constitution of the Authority. Amended by N.L.C.D. 268.

3. (1) The Authority shall consist of a Chairman, the Chief Executive appointed under section 5 of this Act and six other persons appointed by the National Liberation Council of whom one, who shall have had experience in financial matters may be appointed as Finance Member, and two shall be appointed to represent major consumers of the electrical power to be generated by the Authority.

Amended by Act 338

(2) Subject to section 5 of this Act, the Chairman and other members of the Authority shall be appointed by the President acting in accordance with the advice of the Prime Minister.

M of A

(3) At every meeting of the Authority at which he is present, the Chairman shall preside and in his absence a member elected by the members present from among themselves shall preside."

Provided that the first such members to be appointed, other than those appointed to represent major consumers of electrical power, shall serve for the following periods, which shall be specified when they are appointed, that is to say, two such members shall serve for two years and the remaining two for one year.

(2) The appointment of any such member may be terminated at any time by the President if he is of opinion that it is necessary in the interests of the Authority to do so.

(3) Subject to the provisions of this Act, the terms and conditions of appointment of such members shall be determined by the President from time to time.

Chief Executive. Amended by N.L.C.D. 268.

5. (1) The Authority shall have an officer to be known as the Chief Executive.

(2) The Chief Executive shall be a person nominated by the National Liberation Council and appointed by the Authority, and shall hold office upon such terms and conditions as the Authority may determine.

(3) The Chief Executive shall devote his full time to the affairs of the Authority.

(4) Subject to the general control of the Authority on matters of policy, the Chief Executive shall be charged with the direction of the business of the Authority, and of its administration and organisation, and with the employment, control and dismissal of all the Authority's staff and workpeople.

6. (1) Any member, other than the Chief Executive, may at any time resign his appointment by notice in writing to the President.

Resignation and re-appointment of members. Amended by Act 95.

(2) Every member shall, on ceasing to be a member, be eligible for re-appointment.

7. (1) The Authority may make, add to, amend and revoke standing orders, not being inconsistent with this Act, to provide for the application of the Authority's seal to legal documents, the proper conduct of the business and of the meetings of the Authority or any committee thereof, including the manner in which any matter is to be determined on behalf of the Authority, and the standing orders for the time being in force shall be observed by the Authority and its committees and members.

Proceedings of the Authority.

(2) A quorum of the members of the Authority shall be four. The Chairman shall have an original and a casting vote.

(3) The validity of any proceedings of the Authority shall not be affected by any vacancy amongst the members thereof, or by any defect in the appointment of a member thereof.

8. (1) The Authority shall employ such staff and workpeople as may be necessary for the discharge of its functions, on such terms and conditions as it may think fit.

Employees of the Authority.

(2) It is hereby declared that the terms and conditions referred to in subsection (1) need not be the same as those relating to the Civil Service.

9. The Authority shall, so far as may be consistent with the proper discharge of its functions, institute arrangements for the training of Ghanaians in administrative, technical, managerial and other capacities, with a view to securing the benefit of their knowledge and experience in the conduct of the Authority's operations, and with a view to all branches of the Authority's activities being, in due course, in Ghanaian hands.

Authority to institute training programme.

PART II—FUNCTIONS AND DUTIES OF THE AUTHORITY

10. (1) Subject to the provisions of this Act it shall be the duty of the Authority to plan, execute and manage the Volta river development which comprises—

Primary functions of the Authority.

(a) the generation of electrical power for the operation of an aluminium industry, and for general industrial and domestic uses in Ghana, by such means as the Authority may think fit, and in particular in the first instance, by the construction and operation of a dam and hydro-electric generating station in the vicinity of Akosombo;

(b) the construction and operation of a transmission system for the distribution of the electrical power generated by the Authority;

(c) the supply of the electrical power generated by the Authority to—

(i) any Government department or public corporation responsible for the supply of electrical power to the public;

(ii) the township of Akosombo; and

(iii) any other consumer, at voltages not lower than 11 kilovolts, and in quantities not less on the average in any period of twenty-four hours than 48,000 kilowatt-hours or its equivalent in terms of energy;

(d) the provision, when and so far as practical, of facilities and assistance for the development of the lake as a source of fish, and as a route for the transportation of goods and passengers, and in any other manner; and

(e) the development of the lakeside area for the health and well-being of the inhabitants, and people living adjacent thereto.

(2) The Authority may also own, maintain, and operate vessels or craft of any kind and size for the purpose of transporting goods and passengers along the lake and may charge fares for the said services.

Amended by N.L.C.D. 211.

Flow of water and flooding.

11. (1) The Authority shall so control the dam as to prevent, so far as is practicable—

(a) the harmful penetration of salt water up the River Volta to a greater degree than was normal at minimum river flow preceding the construction of the dam;

(b) the level of the lake from rising to a height greater than 280 feet above mean sea level; and

(c) such a flow of water past the dam as may cause flooding downstream from the dam above the levels which were normal preceding the construction of the dam.

(2) The Authority shall take all reasonable measures to give warning of possible flooding from the lake or from the River Volta downstream from the dam.

Powers in relation to transmission system.

12. For the purposes of constructing and operating the transmission system referred to in paragraph (b) of section 10 of this Act, or of preventing damage or obstruction thereto, the Authority shall have all the powers of the Chief Engineer set out in section 3

Cap 66 repealed by Act 48 (S. 24) also repealed by N.L.C.D. 125

of the Electricity Supply (Control) Ordinance (Cap. 66), to be exercised by itself, its workmen and agents, and be subject to the limitations and the duties there provided; and every person who has any estate or interest in any lands injuriously affected by exercise of the powers conferred by this section shall be entitled to compensation to be settled, awarded and paid in accordance (as nearly as may be) with the provisions relating to compensation which are contained in the State Property and Contracts Act, 1960 (C.A. 6).

13. (1) It shall be the duty of the Authority to take all reasonable measures, in co-operation with the Minister responsible for health, and with local authorities, to safeguard the health and safety of its employees and persons engaged on the construction of works referred to in section 10 of this Act and their families and dependents, and the inhabitants of Akosombo township and the lakeside area.

Health safeguards.

(2) The Authority shall, in and over the lake and the lakeside area, and in the township of Akosombo, be the authority for executing the provisions of the Mosquitoes Ordinance (Cap. 75), and shall have the powers referred to in section 3 of that Ordinance; and all amounts recovered under that Ordinance by the Authority shall be paid to the credit of the Authority.

14. (1) The President may by executive instrument make such provision as he thinks fit for constituting the Authority as the local authority for the township of Akosombo and the lakeside area, and for applying to the Authority, in its capacity as such, and with such modifications as may be expedient, the enactments relating to local government.

Authority to have local government functions and planning powers over Akosombo township and lakeside area.

(2) The Authority may, in consultation with the Minister responsible for town and country planning, exercise all the powers of that Minister in relation to town and country planning in the township of Akosombo and the lakeside area.

(3) The Authority shall take measures to enhance the natural beauty of the lakeside area by the planting of trees and otherwise; and shall be responsible for the development of Akosombo township in such a manner as to prevent the growth of slum or other conditions likely to be injurious to the health or well-being of the inhabitants.

15. The President may on terms to be agreed between the Government and the Authority and for the better discharge by the Authority of its functions under this Act require the Authority for such period as he may specify to perform any function of a Minister or any public authority or any body of which the Government is in control or over which it has powers of direction, in relation to the township of Akosombo and the lakeside area.

Additional powers.

Research and records.

16. The Authority shall with a view to facilitating present or future research or planning, maintain and preserve such records relating to its functions as it shall consider proper; and shall have power to engage in research, and to assist others to engage in research, in respect of any matter relating to those functions and to publish such records and the results of any research in which it may engage.

Incidental powers.

17. The Authority may carry on any activity which is reasonably requisite or convenient for or in connection with the discharge of its functions under this Act.

Authority to co-operate with other public authorities.

18. In the discharge of its functions the Authority shall co-operate fully with all Government departments and agencies and other public authorities.

Statutory powers to be exercised consistently with this Act.

19. No person shall exercise any statutory power or duty inconsistently with the exercise of any powers or duties conferred on the Authority by or under this Act.

Directions to the Authority.

20. The President may after consultation with the Authority, give to the Authority in any matter of exceptional public importance, directions of a general character not being inconsistent with the provisions of this Act nor with the contractual or other legal obligations of the Authority as to the exercise by the Authority of its functions under this Act, and the Authority shall give effect to any such directions.

PART III—FINANCE

Authority to aim at making profit.

21. (1) It shall be the duty of the Authority to conduct its affairs on sound commercial lines, and in particular, so to carry out its functions under this Act as to ensure that, taking one year with another, its revenues are greater than its outgoings properly chargeable to revenue account.

(2) The Authority shall charge to revenue account all charges which in the normal conduct of a business are proper to be charged to revenue account, including in particular, proper provision for depreciation of assets, or for renewal of assets, and in addition all interest on borrowings, repayments to be made each year in respect of loans incurred by the Authority to the extent that such repayments exceed provision for depreciation, and proper allocations to reserve.

(3) Without prejudice to the power of the Authority to establish appropriate reserves for replacements or other purposes, the Authority shall establish and out of its profits make payments to a reserve for the purpose of expending its activities.

(4) The Authority shall fix the rates at which it supplies the electrical power generated by it so as to ensure that it is able to comply with the requirements of this section.

22. (1) In order to enable the Authority to meet expenditure of a capital nature (including provision for working capital) for the discharge of its functions under this Act, and in particular for the financing of the operations referred to in section 10 of this Act, the Authority may borrow on such terms and in such currencies as may be agreed between it and any lender, such sums as it may require.

Borrowing powers.

(2) The Authority may borrow temporarily, by way of overdraft or otherwise, such sums as it may require for meeting its current obligations or discharging its functions.

(3) The Authority may charge its assets, undertakings and revenues with the repayment of any money borrowed together with interest thereon and may issue debentures, bonds or other securities in order to secure the repayment of any money so borrowed together with interest thereon and may do all other things necessary in connection with or incidental to such borrowings as are authorised by this section.

(4) The President may, from time to time, prescribe the maximum sums which the Authority may borrow under either or both of subsections (1) and (2).

23. (1) During the ten years following the commencement of this Act the Republic shall invest in the Volta River development such sums, not exceeding thirty-five million pounds, as the Authority may require for the discharge of its functions under this Act.

Investment by the Republic.

(2) The payment of the said thirty-five million pounds is hereby charged on the Consolidated Fund, and shall be made to the Authority in such instalments and at such times as may be agreed between the Minister responsible for finance and the Authority.

Amended by Act 95.

(3) By way of return on the said investment the Authority may pay to the Accountant-General, out of income remaining available when the charges referred to in subsections (2) and (3) of section 21 of this Act have been provided for, such sums as the Authority after consulting the Minister responsible for finance, thinks proper having regard to its future financial requirements.

(4) When the Authority is of the opinion that its financial position justifies it the Authority may, by agreement with the Republic, repay in such amounts and at such times as may be agreed part or all of the capital sum invested by the Republic under the provisions of this section.

Amended by Act 95.

(5) Sums received under subsections (3) and (4) shall be paid in the Consolidated Fund.

Exemption from income tax.

24. The Authority shall be exempted from the tax imposed by the Income Tax Ordinance, 1943 (No. 27).

Government to reimburse Authority for certain measures.

25. The Republic shall pay to the Authority the net cost of any measures undertaken by it under sections 13 to 15 of this Act the necessity for which is not attributable to the creation of the lake or other activities of the Authority.

Accounts and audit.

26. (1) The Authority shall—
 (a) cause proper accounts and other records in relation thereto to be kept;
 (b) prepare an annual statement of accounts in such form and containing such particulars as the Auditor-General may from time to time direct, or as may be required to satisfy its undertakings or engagements.

(2) The accounts of the Authority shall be audited by an independent auditor to be appointed annually by the Authority subject to the approval of the Auditor-General, and the auditor shall make a report in each year on the accounts audited by him. The remuneration of the auditor shall be determined by the Minister responsible for finance and shall be paid out of the funds of the Authority.

Amended by Act 95.

(3) The Authority's financial year shall end on the last day of December in each year, and the period between the commencement of this Act and the last day of December, 1962 shall be the Authority's first financial year.

PART IV—ACQUISITION OF LAND AND RESETTLEMENT MEASURES

Filling of the lake and acquisition of land.

27. (1) The Authority shall, upon the completion of the dam, so operate the dam as to cause the lake to fill by the accumulation of water in the area upstream of the dam.

Amended by N.L.C.D. 211.

(2) The National Liberation Council shall cause to be acquired lands which in the opinion of the Authority:—

(a) may require to be inundated by the filling of the lake together with any other land not extending beyond one mile from the shores of the lake at its maximum fill;

- (b) may be required for the development of Akosombo township;
- (c) may be required for the use of persons being resettled as a result of the inundation of their lands by the filling of the lake;
- (d) are necessary to acquire for the proper discharge of the Authority's functions.

(3) All lands acquired under paragraphs (a), (b) and (d) of subsection (2) of this section shall immediately after their acquisition vest in the Authority without any further assurance than this subsection free from any incumbrances whatsoever and the Authority shall have power to sell, transfer, exchange, let or demise or otherwise dispose of all or any of them to or with any person and on such terms as it shall consider necessary for the proper discharge of its functions.

(4) Notwithstanding the provisions of any enactment under which the same were acquired all lands falling under both or either of the descriptions set out in paragraphs (b) and (d) of subsection (2), of this section being lands which have been acquired at any time before the commencement of this Decree and vested in the National Liberation Council immediately before such commencement are hereby vested in the Authority and shall be subject to the powers conferred on the Authority by subsection (3) of this section.

(5) Any land acquired under paragraph (c) of subsection (2) of this section may be transferred, exchanged, let, demised or otherwise disposed of by the National Liberation Council to or with any person whether or not that person is included among the persons being resettled and upon such terms as may be necessary for the promotion of the well-being of the resettlement areas and the inhabitants of those areas.

(6) No legal proceedings shall lie against the Authority as a result of the inundation of any lands caused by the filling of the lake.

28. The provisions of the State Lands Act, 1962 (Act 125) (relating to the acquisition of land) shall, subject to the following and such other modifications as may be required by the provisions of this Act, apply to all lands acquired under subsection (2) of section 27:—

- (a) the market value of any property so acquired shall be the amount which that property might have been expected to realise if sold in the open market by a willing seller to a willing buyer on the sixth day of March, 1957;

Compensation.
Amended by
N.L.C.D.
211.

(b) compensation may be paid in money or in the case of lands acquired under paragraph (a) of subsection (2) of section 27 in non-monetary assistance towards settlement or both and no person shall be entitled to dispute the compensation offered to him by reason only that it is not in money, whether in whole or in part;

(c) lands subject to the Administration of Lands Act, 1962 (Act 123) may be acquired under this Act."

Resettle-
ment
measures.
Amended by
N.L.C.D.
211.

29. The Minister responsible for social welfare (referred to in this section as the Minister) shall be charged with the duty of taking all reasonable measures to assist in the resettlement of the people inhabiting lands liable to be inundated and lands adjacent thereto which are needed by the Authority for the discharge of its functions, and it shall be the responsibility of the Minister to ensure, so far as is practicable, that no person suffers undue hardship or is deprived of necessary public amenities, as a result of his resettlement.

Defraying
expenses
incurred
under this
Part.

30. Expenses incurred in pursuance of this Part of this Act shall be defrayed, as to the first three million pounds by the Authority, as to the next million pounds by the Authority and the Government equally, and as to any excess over four million pounds by the Government.

PART V—MISCELLANEOUS

Guarantees.

31. (1) In the name and on behalf of the Republic, the President may in writing guarantee the performance of any obligation undertaken by the Authority.

(2) Moneys payable under any such guarantee are hereby charged on the Consolidated Fund.

Annual
report.

32. The Authority shall annually, not later than six months after the end of its financial year, present to the President a report dealing generally with the activities and operations of the Authority during the preceding financial year and containing:—

- (i) such information with regard to the proceedings and policy of the Authority as the Authority considers may properly be given without detriment to the interests of the undertaking of the Authority; and
- (ii) a copy of the statement of accounts referred to in section 26 of this Act, together with a copy of the report made by the auditor on that statement or on the accounts,

and the report shall not later than seven months after the end of the Authority's financial year be laid before the National Assembly.

33. (1) The Authority may, by legislative instrument, make regulations—

Power to make regulations.

- (a) prohibiting, restricting or regulating the use of the lake and the lakeside area;
- (b) prohibiting, restricting or regulating the abstraction of water from the River Volta or the lake otherwise than for the purpose only of obtaining water for domestic use in any village, town or house situate within the catchment area of the River Volta;
- (c) for the protection of any transmission lines erected by the Authority or any works or apparatus connected therewith;
- (d) imposing penalties on persons trespassing on any land in the ownership or possession of the Authority;
- (e) prohibiting, restricting or regulating the movement of motor or other traffic on or in the vicinity of the dam;
- (f) for the better discharge of the Authority's duties under section 13 of this Act; and
- (g) generally for the purpose of enabling the better discharge by the Authority of its functions under this Act.

(2) Any regulations made under this section may, in addition to the penalties which can be imposed by virtue of section 9 of the Statutory Instruments Act, 1959 (No. 52), impose in the case of continuous offences, a fine of £G5 for each day during which the offence continues.

(3) In lieu of prohibiting, restricting or regulating any activity, regulations made under this section may prohibit, restrict or regulate such activities without a licence to be granted by the Authority. Such regulations may prescribe the forms to be used and fees to be paid for such licences, and may provide for the delegation of the power to grant licences to a local authority.

(4) Proceedings for offences against any regulations made under this section shall not be instituted except by the Attorney-General, or by, or with the consent of, the Authority.

34. No matter or thing done by any officer or employee of the Authority shall, if the matter or thing be done bona fide for the purpose of executing any provision of this Act, subject such officer or employee or any person acting by his directions, personally, to any civil liability.

Protection of officers.

Interpretation.

35. (1) In this Act unless the context otherwise requires—
 “abstract” includes divert, or by any means cause to flow;
 “Akosombo township” means such area as the President may by executive instrument specify in that behalf;
 “the dam” means the dam referred to in paragraph (a) of section 10 of this Act;
 “the lake” means the lake to be created as a result of the construction of the dam, as the waters thereof extend from time to time (including any islands therein);
 “the lakeside area” means such of the lands referred to in paragraph (a) of subsection (2) of section 27 of this Act as are not for the time being comprised in the lake;
 “the river Volta” means the following rivers so far as they are within Ghana, that is to say, the Volta, the Black Volta, the White Volta, the Red Volta, and the Oti river, and includes all rivers, streams and watercourses which are tributaries whether direct or indirect of any of the aforesaid rivers, or whose waters flow directly or indirectly into the lake, but does not include any part of the lake;
 “supply” in relation to electrical power includes maintaining potential, whether or not the power so supplied is taken.

(2) For the purposes of the Rivers Ordinance (Cap. 226), and any other enactment the lake shall not be deemed to be a river; and section 10 of the Rivers Ordinance shall not apply to any part of the River Volta upstream of the lake.

(3) Officers of the Authority shall, for the purposes of the Criminal Code, 1960 (Act 29) and the Criminal Procedure Code, 1960 (Act 30) be deemed to be public officers.

Commencement.

36. This Act shall come into force on such day as the President may, by legislative instrument, appoint.

ARRANGEMENT OF SECTIONS

Section

1. Sections 5 and 6 of Act 25 not to apply to certain agreements.
2. Financial agreements.
3. Validity of certain agreements.
4. Interpretation.
First Schedule.
Second Schedule.



THE NINETY-SIXTH

ACT

OF THE PARLIAMENT OF THE REPUBLIC
OF GHANA

ENTITLED

THE VOLTA RIVER PROJECT (SUPPLEMENTARY PROVISIONS) ACT, 1962

AN ACT to exempt certain agreements relating to the Volta River Project from the provisions of sections 5 and 6 of the Contracts Act, 1960 (Act 25) and to provide for certain financial matters connected with the Project.

DATE OF ASSENT: *20th January, 1962*

BE IT ENACTED by the President and the National Assembly in this present Parliament assembled as follows:—

Sections 5
and 6 of Act
25 not to
apply to
certain
agreements.

1. The provisions of sections 5 and 6 of the Contracts Act, 1960 (Act 25) shall not apply to the agreements specified in the First Schedule hereto, except as otherwise expressly provided therein.

Financial
agreements.

2. (1) In the name and on behalf of the Republic, the President may in writing so far as may seem to him expedient in the public interest to do so—

(a) enter into agreements providing for the guarantee of any obligations undertaken by the Volta Aluminium Company Limited; and

(b) enter into agreements providing for loans by the Government of Ghana to the Volta Aluminium Company Limited, as provided in Article 8 of the Master Agreement.

(2) Moneys payable under any agreement referred to in subsection (1) are hereby charged on the Consolidated Fund.

3. No provision of any agreement specified in the Second Schedule hereto shall be illegal or void by reason of any existing provision or rule of the laws of Ghana other than the Constitution. Validity of certain agreements.

4. (1) In this Act, the "Master Agreement" means the Master Agreement entered into between the Government of Ghana and the Volta Aluminium Company Limited in the terms approved by the National Assembly in January, 1962. Interpretation.

(2) The Agreements specified in the Schedules hereto shall have the same meanings as in the Master Agreement.

FIRST SCHEDULE

- The Master Agreement.
- The Power Contract.
- The Smelter Site Lease.
- The Water Agreement.
- The Port Agreement.
- The Currency Agreement.
- The Voting Trust Arrangements.
- The Subscription Agreement.

SECOND SCHEDULE

- The Master Agreement.
- The Power Contract.
- The Smelter Site Lease.
- The Water Agreement.
- The Port Agreement.
- The Currency Agreement.
- The Voting Trust Arrangements.
- The Subscription Agreement.
- The Long Term Tolling Contracts.

- The Valco Current Accounts Trust.
- The Management and Technical Assistance Agreement.
- The Exim-Valco Loan Agreement.
- The IBRD. Loan Agreement.
- The AID. Loan Agreement.
- The Exim-Authority Loan Agreement.
- The U.K. Loan Agreement.

Any guarantee of any of the preceding Agreements specified in this Schedule or of any part of such Agreements by the Government of Ghana.

FIRST SCHEDULE

- The Mesta Agreement.
- The Power Contract.
- The Smelter Site Lease.
- The Water Agreement.
- The Pan Agreement.
- The Contract Agreement.
- The Volta Project Agreements.
- The Subscription Agreement.

SECOND SCHEDULE

- The Mesta Agreement.
- The Power Contract.
- The Smelter Site Lease.
- The Water Agreement.
- The Pan Agreement.
- The Contract Agreement.
- The Volta Project Agreements.
- The Subscription Agreement.

**VOLTA RIVER AUTHORITY (TRANSMISSION LINE
PROTECTION) REGULATIONS, 1967**

IN exercise of the powers conferred on the Volta River Authority by section 33 of the Volta River Development Act, 1961 (Act 46), these Regulations are made this 18th day of April, 1967.

1. It shall be an offence for any person whether by himself or in co-operation with others to do or assist in doing any of the following acts in relation to the transmission line:—

- (a) to drill, mine or excavate or carry on any similar operation within the transmission line right of way;
- (b) to place any combustible material inside the right of way;
- (c) to cause any fire to burn within two hundred feet of the transmission line right of way;
- (d) to climb on to, attach to or hang any object on or from any tower or transmission line;
- (e) to cause anything to come into contact with the transmission line;
- (f) to place, drive, tow, pull or carry any crane, jig, boom or any object, under, over or near the transmission line, unless the minimum distance from the conductors or any of them of such object is not less than eighteen feet;
- (g) except with the previous consent of the Authority obtained in writing and subject to any condition that the Authority may impose in relation to such consent:
 - (i) to carry on any form of blasting within one thousand five hundred feet of any transmission line; or
 - (ii) to construct any building or structure or carry on any kind of cultivation, farming or farming activity within the transmission line right of way.

2. Any person committing any of the above offences may be tried summarily and shall on conviction be liable to a fine not exceeding two hundred New Cedis or imprisonment for a term not exceeding twelve months or both.

3. In these regulations—

“right of way” or “transmission line right of way” shall include the area extending for a distance of fifty feet on each side from the centre line of the transmission towers;

**VOLTA RIVER AUTHORITY (TRANSMISSION
LINE PROTECTION) REGULATIONS, 1967**

“transmission line” shall include all or any part of the towers and conductors forming the 161 kV transmission line from the main switchyard at Akosombo to any part of Ghana; and

“tower” or “towers” refer to the towers carrying and forming part of the transmission lines.

E. L. QUARTEY
*Chief Executive of the Volta
River Authority*

Date of Gazette notification: 5th May, 1967.

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	1966	1967	1968	1969	1970
	N\$ million				
VRA:					
Net Fixed Assets in Operation	114.6	140.9	137.9	136.3	133.8
Sales Revenues: Total	3.8				11.6
of which:					
Valco					5.4
E.C.G.					4.5
Mines					1.5
Akosombo Township					0.0098
Akosombo Textiles					0.0130
Togo & Dahomey					N.A.
Other					
Operating Expenses (physical exclude taxes and interest)					2.2
Depreciation					3.7
Amortization					3.4
Indirect taxes on power consumption					N.A.
Number of employees of VRA					3,126
" " customers of ECG					
" " " in country					
" " households in "					

Sources of application of funds

1966, 1967, 1968, 1969, 1970

use format of page 26 of 1969 annual report, also give breakdown of items included under "Borrowings" and state interest rate, grace period and amortization period

Cost of Project

use format on p.14 and 15 of 1966 Annual Report

	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>
MW Installed Capacity;					
Total in VRA	588	588	588	588	588
of which E.C.G.					
Captive Plants (Mines)					
Other (not VRA)					
MW VRA Maximum Peak demand:					
Total					
of which VALCO					250.0
ECG					106.4
Mines					33.5
Togo and Dahomey					N.A.
Akosombo Township					1.6
Akosombo Textiles					3.2
VRA Monthly peak demand					
VRA monthly Average					
capacity out of service					
of which due to:					
Programme and Maintenance					
Breakdowns					
Water level					
GWH VRA Gross generation					2,882
VRA generation sent out					2,879
VRA total energy sales					2,806
of which: VALCO					2,012
ECG					565
Mines					206
Akosombo township					7
Akosombo Textiles					14
Togo & Dahomey					N.A.
Others					N.A.
GWH Gross generation in					
Ghana:					
Total					
of which					
ECG					
Captive Plants					
Other (not VRA)					
GWH Total energy sales:					
of which:					
ECG					
Captive Plants					
Other (not VRA)					
MWA Total transformer capacity					

REPUBLIC OF GHANA
VOLTA RIVER AUTHORITY (V.R.A.)
ACTUAL SOURCES & APPLICATION OF FUNDS 1966-1970
(N¢' 000)

<u>Fiscal Year Ending</u> <u>December 31</u>	1966	1967	1968	1969	1970 Provi- sional	1966-1970
<u>Internal Cash Generation</u>						
Operating Income	1,325	921	4,444	5,475	6,047	18,213
Depreciation	127	3,455	3,439	3,267	3,657	13,945
Others	-	5,975	350	104	117	6,546
Total	1,453	10,351	8,233	8,846	9,821	38,704
Borrowings & Equity	9,472	25,989	1,126	206	1,807	38,600
Total Sources	10,925	36,340	9,359	9,052	11,628	77,304
<u>Application of Funds:</u>						
Construction Programme	7,438	30,061	1,075	1,354	2,753	42,681
<u>Debt Service</u>						
Interest	3,312	4,003	4,090	3,920	3,842	19,167
Amortization	107	684	2,610	3,032	3,360	9,793
Total Debt Service	3,419	4,687	6,700	6,952	7,202	28,960
<u>Variation in Working Capital</u>						
Securities, Banks and Cash	(1,655)	979	876	553	989	1,742
Other Items (Net)	1,723	613	708	193	684	3,921
Net Increase/Decrease	68	1,592	1,584	746	1,673	5,663
Total Application	10,925	36,340	9,359	9,052	11,628	77,304
Times Total Debt Service Covered Annually by Internal Cash Generation	.4	2.2	1.2	1.3	1.4	1.3

Date: 28th May, 1971

LOANS	PERIOD OF REPAYMENT	MORATORIUM	INTEREST RATE
IBRD 310 GH	25	6 years	5 $\frac{3}{4}$ %
IBRD 618 GH	25	10 "	6 $\frac{1}{2}$ %
U.S. AID	30	2 "	3 $\frac{1}{2}$ %
U.S. ExIm Bank	19	5 "	5 $\frac{3}{4}$ %
CIDA	25	5 "	2 $\frac{1}{2}$ %
U.K. E.C.C.D.	19	5 "	$\frac{1}{4}$ % above current rate at time of drawing

V A L C O

LOCAL PAYMENTS

From Start Up (March 1967) thru 1980

	(A)	(B)	(C)	
	<u>Power</u> \$000's	<u>Payroll</u> \$000's	<u>Other</u> \$000's	<u>Total</u> \$000's
<u>Actual</u>				
1967	\$2,102	\$ 987	\$1,126	\$4,215
1968	4,898	1,561	3,100	9,559
1969	5,177	1,710	2,299	9,186
1970	5,287	1,964	2,655	9,906
<u>Estimate</u>				
1971	\$5,256	\$2,101	\$2,866	\$10,223
1972	6,857	2,248	2,952	12,057
1973	6,899	2,405	3,041	12,345
1974	6,899	2,574	3,132	12,605
1975	6,899	2,754	3,226	12,879
1976	6,899	2,947	3,322	13,168
1977	6,899	3,153	3,422	13,474
1978	6,899	3,373	3,525	13,798
1979	6,899	3,610	3,631	14,140
1980	6,899	3,862	3,739	14,500

Note:

1. All figures above are expressed in U.S. dollars.

EXHIBIT III

Controll
B-2 Chas
B-0-P

Received May 28, 71

V A L C O

EXPORTS OF ALUMINUM

From Start Up (March 1967) thru 1980

Net-Foreign Exch. //
Earnings

	Actual	Quantities in 000'S Lbs. <i>mtons</i>	Tolling Revenue in \$000'S
8 million \$	1967	85,791 <i>38,915</i>	\$ 11,464 .1336
8	1968	255,874 <i>116,064</i>	\$ 35,022 .1368
8	1969	249,409 <i>113,132</i>	\$ 36,882 .1478
	1970	226,540 <i>102,758</i>	\$ 37,880 .1672
	<u>Estimate</u>		
8	1971	244,000	\$ 39,028
8	1972	322,000	\$ 51,050
9	1973	324,000	\$ 51,364
11	1974	324,000	\$ 51,364
11	1975	324,000	\$ 51,364
11	1976	324,000	\$ 51,364
11	1977	324,000	\$ 51,364
20	1978	324,000	\$ 51,364
20	1979	324,000	\$ 51,364
20	1980	324,000	\$ 51,364

note from the accounting in telephone conversation. He was saying this is 56¢ per lb. published world price of aluminum and it is currently 28 cents/lb. To get an approximate 2 lb value of exports based on published price, we divide all tolling revenue figures by .56

50 63,133

Notes:

1. The above values are expressed in U.S. Dollars.
2. The revenue column represents the income to Valco per the long term tolling contracts.

V A L C O

IMPORTS AND CONSUMPTION OF RAW MATERIALS

From Start Up (March 1967) thru 1980

	Alumina in Short Tns.	Other Raw Materials in Short Tns.	Total Value in \$000's		Local Payments \$	= Total Inputs	Output Value	Value Added
<u>Actual</u>	156,516	28,088	\$13,186	67	4,215	17401	11464	- 5937
	251,102	62,025	21,815	68	9,559	31374	35022	3648
	217,963	62,215	19,362	69	9,186	29548	36882	8334
	262,690	62,676	25,030	70	9,906	34936	37880	2944
<u>Estimate</u>	315,900	83,268	30,935	71				
	315,900	83,268	30,935	72				
	315,900	83,268	30,935	73				
	315,900	83,268	30,935	74				
	315,900	83,268	30,935	75				
	315,900	83,268	30,935	76				
	315,900	83,268	30,935	77				
	315,900	83,268	30,935	78				
	315,900	83,268	30,935	79				
	315,900	83,268	30,935	80				

Notes:

1. Total value includes value of Alumina.
2. Quantities of Alumina represent actual imports for 1967 thru 1970.
3. Quantities and values of other Raw Materials are based on consumption statistics, as actual imports are too difficult to determine without extensive reviews.
4. In the event the partners of Valco construct an Alumina plant in Ghana, Alumina imports will cease.

V A L C O
EXPANSION PROGRAM

Step II

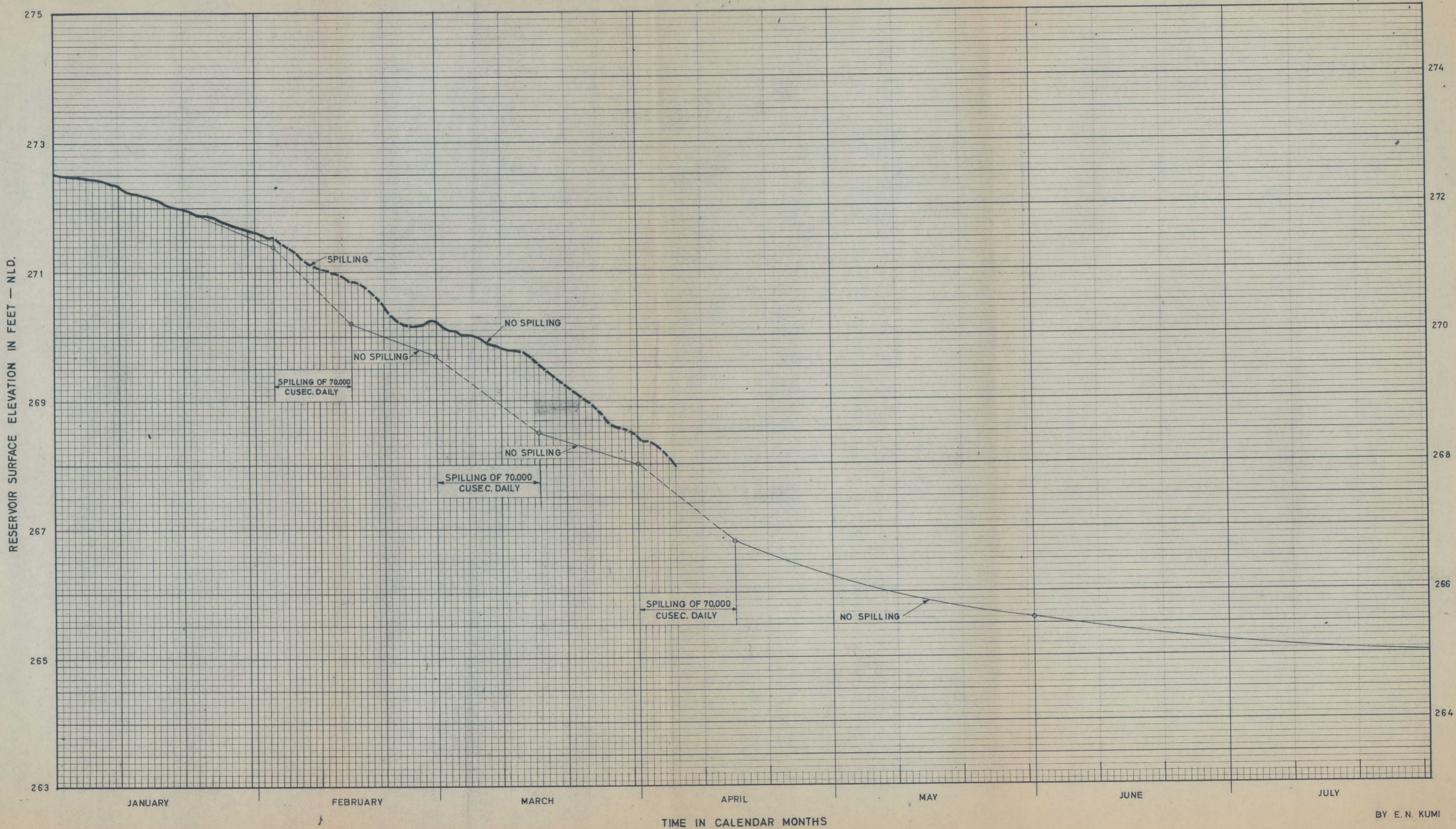
<u>Year</u>	<u>Dollars Outside Ghana</u>	<u>Dollars in Ghana</u>	<u>Total</u>
1970	\$ 6,903	\$ 958	\$ 7,861
1971	10,997	3,942	14,439
1972	800	---	800
Total	\$ 18,700	\$ 4,900	\$ 23,600

Note:

1. All figures above are expressed in thousands of U.S. dollars.

EXHIBIT IV

RESERVOIR REGULATION: JANUARY — JULY 1971
GUIDE CURVE



RESERVOIR REGULATION: JANUARY — JULY 1971
GUIDE CURVE

