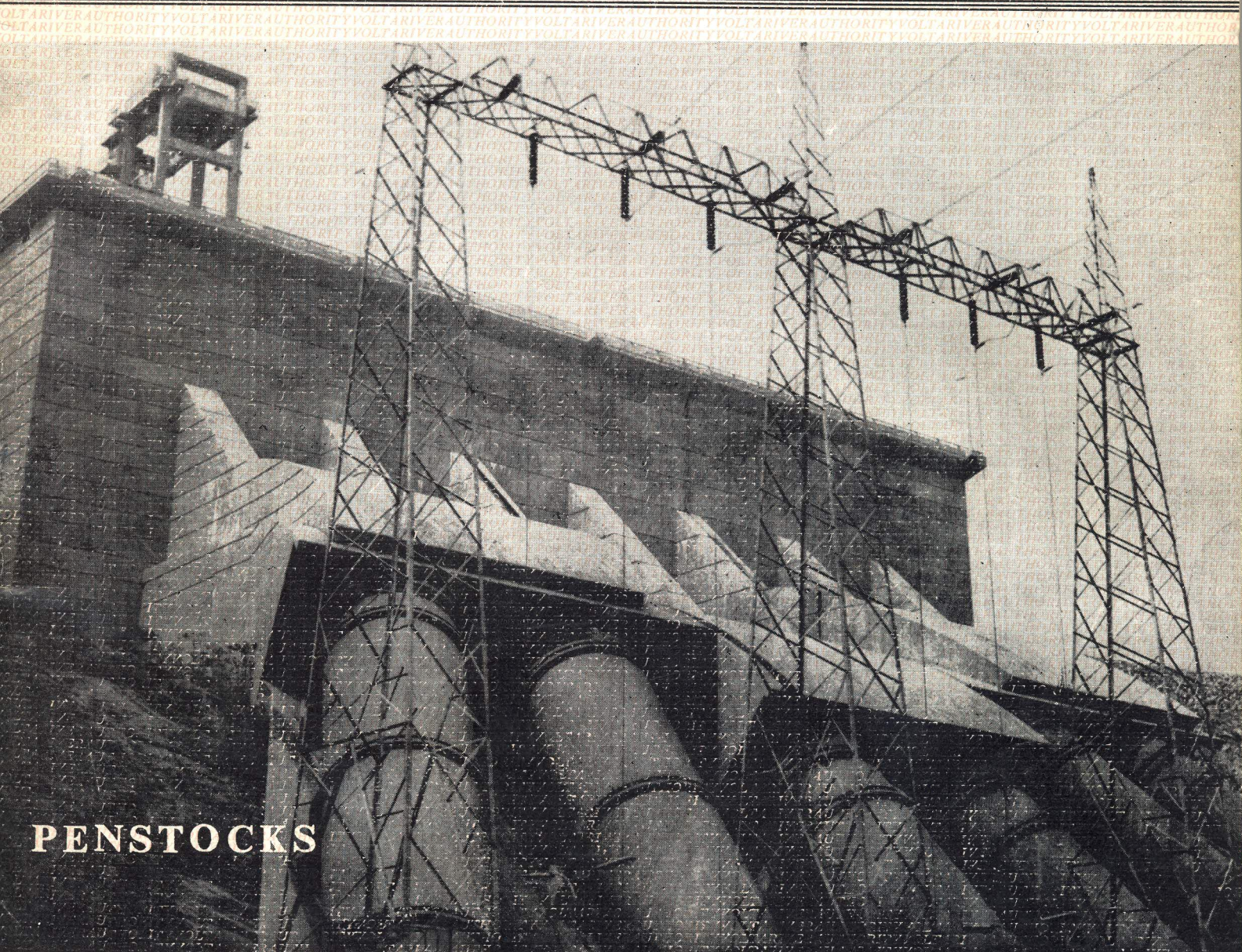
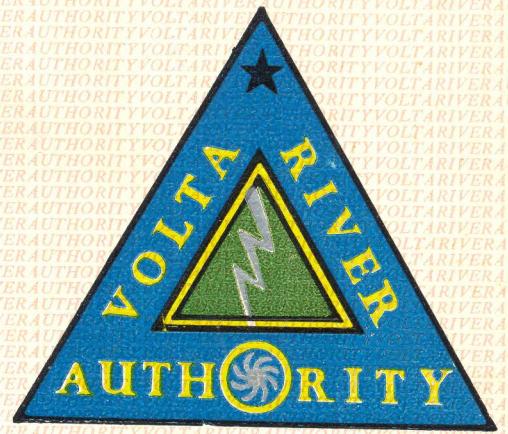


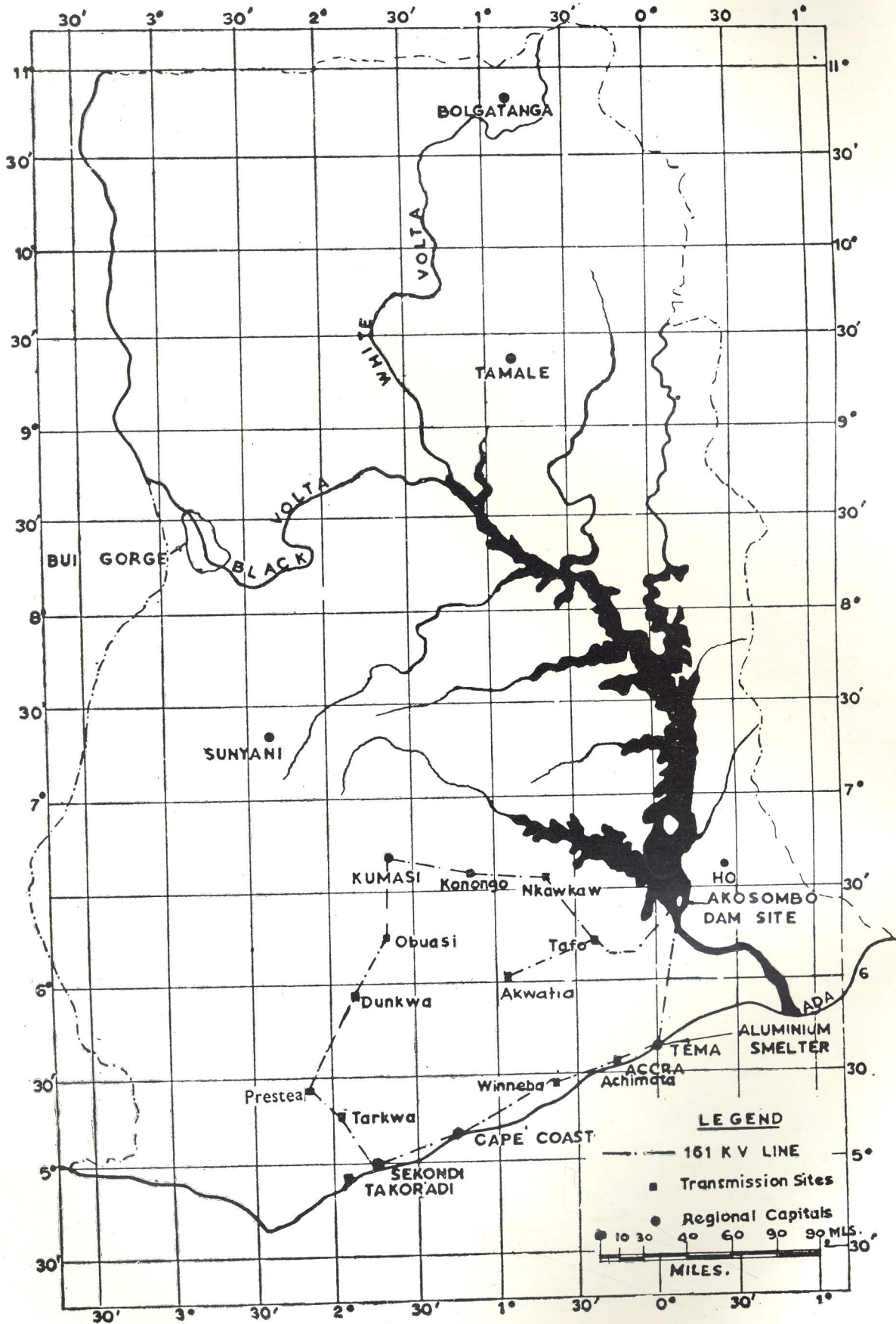
VOLTA RIVER AUTHORITY



PENSTOCKS

9th ANNUAL REPORT AND ACCOUNTS 1970

GHANA



LEGEND

- 161 KV LINE
 - Transmission Sites
 - Regional Capitals
- 10 30 40 60 90 90 MILES.
- MILES.

VOLTA RIVER AUTHORITY

DECEMBER, 1970

THE BOARD



Chairman

J.W.K. HARLEY, ESQ., o.v.*

*Deputy Chairman of the
Presidential Commission.*



E. L. QUARTEY, ESQ., G.M.
*Chief Executive
Volta River Authority*



COMMANDER SIR ROBERT
JACKSON, K.C.V.O., C.M.G., O.B.E.
*Consultant to the Volta River
Authority*



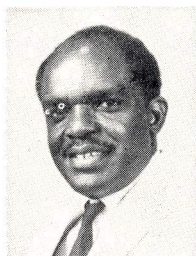
NENE AZZU MATE
KOLE, M.V., O.B.E.,
K.M.C.
Honor of Manya Krobo



R. E. KNIGHT, ESQ., G.M.
*Managing Director, Volta
Aluminium Company Limited*



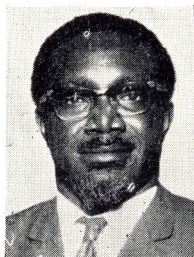
DR E. A. SACKY, O.B.E.
*Engineering Adviser,
Volta River Authority*



A. ADOMAKOH, ESQ.,
*Executive Director,
International Finance
Corporation*



E. Q. H. ACQUAH, ESQ.
*Managing Director,
Electricity Corporation
of Ghana*



Ag. Secretary
E. A. K. KALITSI, ESQ.,

* Up to 22nd July, 1970

VOLTA RIVER AUTHORITY

ANNUAL REPORT

AND

ACCOUNTS

for the year ended 31st December, 1970

(9)

REPUBLIC OF GHANA

Price: N¢1.50

*Report and Statement of Accounts
for the year ended 31st December,
1970, made by the Volta River
Authority to the Prime Minister
of Ghana, in pursuance of Section
32 of the Volta River Develop-
ment Act, 1961.*

Volta River Authority,
P. O. Box M.77,
Accra.
24th June, 1971.

The Rt. Hon. Dr. K. A. Busia,
Prime Minister,
The Castle,
Osu.

Sir,

I have the honour, on behalf of the Volta River Authority, to submit with this letter the Annual Report and Accounts of the Authority for the year ended 31st December, 1970.

I am, Sir,
Your Obedient Servant
(Sgd.) E. L. QUARTEY
Chief Executive



Mrs Naa Morkor Busia, wife of the Prime Minister, ready to strike a bottle of champagne against the 350-ton Floating Dock-"Second Republic" to mark its official launching at Akosombo.

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PRINCIPAL OFFICERS



Chief Executive
E. L. QUARTEY, ESQ., G.M.,
B.SC. (ENG.), C. ENG., F.I. MECH. E.
F.I.E.E., F.GH.I.E.



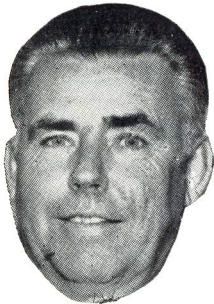
Engineering Adviser
DR E. A. SACKAY, O.B.E.,
D.F.H., C. ENG., F.I.E.E., F.GH.I.E.,
HON. D.SC. (ENG.)



Director of Finance
E. A. K. KALITSI, ESQ.,
B.SC. (ECON.) HONS (Lond.),
M.P.A. (Harvard)



*Director of Power
Operations*
E. A. MENSAH, ESQ.,
C. ENG., M.I.E.E., F.GH.I.E.



Director of Engineering
S. M. MCLEOD ESQ.,
B.SC. (ENG.) (Toronto), P. ENG.



Chief Medical Officer
DR J. ST. G. WARMANN
M.R.C.S. L.R.C.P., D.P.H.,
L.S.M.



Director of Personnel
A. B. FUTA, ESQ., LL.B.
(Lond.), M.P.A. (Harvard)



Chief Agricultural Officer
C. A. DADEY, ESQ., M.A
(Cantab), DIP. AGRIC., D.T.A



Chief Accountant
J. QUAGRAINE, ESQ.,
F.A.C.C.A., F.C.C.S.



Chief Resettlement Officer
G. W. AMARTEIFIO, ESQ.,
Cert. in Social Administration



Ag. Director of Services
J. W. B. KPOHANU ESQ.
B.SC (Econ.) (Lond.)

CHAIRMAN'S REMARKS

THE Volta River Authority's performance during the year 1970 showed that the Authority has moved from its formative stage and is progressing better than originally forecast, towards full maturity. The cash surplus which had started accumulating last year, increased by N¢262,035 over last year's surplus.

Work on the installation of the two additional generating units reached 18 per cent completion and a start was made on the construction of the transmission line to Togo and Dahomey.

Arrangements started for the design and construction of the third double-circuit line from Akosombo to Tema. The line is to be partly financed through an allocation from an Italian credit to the Government of Ghana.

A significant stride was also made in the activities relating to Lake Transportation when on 15th March, 1970, the Volta Lake Transport Company, upon inauguration, formally took over the Volta River Authority's pilot scheme. The Authority holds 51 per cent of the shares of the Company on behalf of Government. The other shareholders are Messrs. Elder Dempster Lines Limited and Scanlake S.A. in equal shares. Navigation buoys have been laid between Akosombo and Kete Krachi. A slip way has been built at Akosombo and construction of landing stages at Kete Krachi and Yapei has also started.

The problems and opportunities created by the Lake continued to be studied through the Volta Lake Research Project and measures have been taken to control the disease vectors identified, and to exploit better the potentials created in Fisheries and Agriculture.

The settlers, who for the last few years, have been leaving the settlements have started returning as a result of the significant progress achieved in the demarcation, parcellation and allocation of farming land. Work, however, on other aspects of resettlement is still slow, due to difficulties in getting the Governmental Agencies and Local Authorities to participate actively in the work of completing and running the settlements.

The Volta River Development Act (Act 46) was amended to bring it in line with the provisions of the Constitution. The Chairman and members of the Board of the Authority are now appointed by the President acting in accordance with the advice of the Prime Minister. Thus, in July 1970, Mr J. W. K. Harley, Deputy Chairman of the Presidential Commission, who had served the Authority as Chairman for four years ceased to be Chairman. Thereafter in accordance with the amendment, Nene Azzu Mate Kole, M.V., O.B.E., K.M.C., Konor of Manya Krobo, has been elected to act as Chairman at every subsequent meeting.

For the future, Consultants have been appointed to study possible future generating sources, after the full capacity of the six generating units at Akosombo have been exhausted around 1977. The Authority agrees that wherever possible, the power resources of the country should, in addition to being used for aluminium production, mining and industries in urban centres, also be extended for the development of other productive resources in the whole country. For this reason, the Authority supports Government's policy on rural electrification. As this is not

the Authority's direct responsibility, however, the Authority is considering how best it might assist. One possibility is that, perhaps, Government might consider utilising for this, dividends which the Authority expects to be able to pay in the not too distant future, after meeting all its financial commitments.

The Authority is proud to record the first official visit of the Right Honourable Dr. K. A. Busia, Prime Minister of Ghana, to the Project Site, at Akosombo, where he acquainted himself mainly with the organisation and operation of the Authority's Power activities. The Prime Minister gave his impressions of the visit in the following words inscribed in the Power House visitors' book:-

"It is most impressive and heartening to see the large and complicated machinery here being competently run by Ghanaian engineers and technicians. If any evidence is required that we can master contemporary technology, surely it is incontrovertibly given here. 'WE TOO CAN DO IT.'"

The Authority highly appreciates the compliment and commends the efforts of the Chief Executive, his staff and employees who made this possible.

J. W. K. Harlley
Chairman

Nene Azzu Mate Kole
Ag. Chairman

FOREWORD

THE Volta River Authority (VRA), a corporate body established under the Volta River Development Act 1961 (Act 46) consists of a Chairman and seven members appointed by the President and acting in accordance with the advice of the Prime Minister. One of the members is the Chief Executive, nominated by the President and appointed by the Authority. One is a Finance Member with experience in financial matters and two represent major consumers of the electrical power generated by the Authority.

The primary functions of the Authority include the generation of hydro-electrical power and the construction of a transmission system to carry the power to serve the industrial and domestic needs of Ghana. The Authority has responsibility for the development of the Volta Lake as a source of fish and a means of transportation and is charged with the development and administration of the township of Akosombo.

The main consumers of the Authority's electrical power are the Volta Aluminium Company Limited (VALCO), the Electricity Corporation of Ghana (ECG) and the Mines. Work on the construction of an 80-mile transmission line to carry power to the two neighbouring West African Republics of Togo and Dahomey has started and is expected to be completed in August, 1972.

Initially, four of the planned total of six generating units of the Authority's hydro-electric plant at Akosombo were installed and are in full operation. Installation of the additional two units is in progress and is expected to be completed in the third quarter of 1972. The two additional units are being financed with the assistance of loans from the I.B.R.D., the Government of Canada, and the U.S. AID.

In addition to the functions above, the Authority, in co-operation with Government and other agencies, has undertaken research into the environmental effects of Volta Lake, the development prospects and problems, including fisheries, shore-line agriculture, hydro-biological studies, public health, and selected aspects of resettlement. The Authority is also currently handling the programme for the resettlement of persons displaced by the formation of the Volta Lake, and is responsible for safeguarding the health and well-being of the inhabitants of Akosombo, the resettlement townships and the lake-side area. The various Resettlement services are under the supervision of a National Advisory Committee appointed by Government. This committee is assisted by Regional and District Advisory Committees.



Mr E. L. Quartey (sitting 3rd left), Chief Executive of the Volta River Authority and Mr Masino Kitani (sitting right) General Manager of International Sales Division of Messrs Hitachi Limited of Japan, pictured signing a N¢2,140,100 agreement at the offices of the Authority in Accra. With them are officials of Volta River Authority and Japanese Embassy in Ghana. Under the agreement, Messrs Hitachi will supply and install two Turbines at the Akosombo Power Station. The contract forms part of a N¢14 million expansion programme of the Akosombo Hydro-Electric Power Station.

GENERAL REVIEW

Following recommendations by a Consultant appointed by the Authority to review the power tariffs, the electricity rates are being increased for all the Authority's customers, with the exception of VALCO. The demand rate, for customers on the two-part tariff, was increased from N¢2.75 per KW to N¢3.00 per KW, and the energy rate from N¢0.00183 per KWH to N¢0.002 per KWH for Electricity Corporation of Ghana and Akosombo Textiles, and N¢0.00225 per KWH for the mines. The one - part tariff for Akosombo Township was increased from N¢0.0081 to N¢0.0092 per KWH. These rates are applied as each agreement comes up for renewal.

Overall profit rose to N¢1,816,671. This was contributed partly by some 12 per cent increase in Electricity Corporation of Ghana's energy purchases and partly by the rate increases above, which averaged some 9.1 per cent.

Demand on the power system rose from 359 MW to 378 MW this year, and overall energy production increased by 5.6 per cent to 2,881,570,000 KWhr. Generally, transmission and distribution of power was satisfactory and no major equipment breakdowns were experienced.

Preparations for the Akosombo expansion project engaged the attention of the Authority. All the contracts had been awarded by the end of the year and work had reached 18 per cent completion. For the construction of the transmission line to supply power to Togo and Dahomey, Canadian International Development Agency appointed Messrs. Demers-Ingledow, and Messrs. Hume and Rumble Limited, both of Canada, as Consultants and Contractors, respectively. Kaiser Engineers International Incorporated, were also appointed Consultants for the study of future generating sources.

There was some decline in the rate of work on the completion of settler houses as compared to last year's. An explanation for this can be found in the diversion from this work, of social workers and technicians of the Department of Social Welfare, who were responsible for organising and supervising this communal labour activity. As a way of overcoming this, it is being considered to finish off this work by using direct labour, or contracts, as opposed to communal labour as this activity has been protracted for too long.

The rate of progress in agricultural activities was, however, more satisfactory, especially in demarcation, parcellation, allocation, clearing and cropping of plots. The acreages cropped were about twice as much as last year's acreage.

A book embodying papers presented by some staff members at the 1965 Symposium was published as "Volta Resettlement Experience" edited by Dr. Robert Chambers. The publishers were Pall Mall Limited, London.

Fishery research work indicated that the 1969 estimate of 60,000 tons of fish catch would decline by about 20 per cent in 1970. Further experiments confirmed the relative superiority of nylon mono-filament nets over multi-filament nets. As a result of this, arrangements were initiated for monofilament net supplies to be imported through commercial channels. Fishermen have shown a great deal of interest in the monofilament nets due to their better catch capacity. Approval has also been given by Government for the construction of a fishery

complex at Kpandu/Tokor for some 130 fishing villages within the Kpandu district. The complex would embrace a training school, boat building yards, processing equipment, storage shelters and supply houses.

Dr. W. B. Taylor of the Food and Agricultural Organisation, who was Project Manager, from the inception of the Volta Lake Research Project since January 1968, was transferred from Ghana in November, 1970. In June, the United Nations appointed a review mission which endorsed the objectives of the Volta Lake Research Project and the manner of its operation. They therefore, recommended to Government to request an extension of the project by two years and nine months. The request was under consideration at the end of the year.

The Volta Lake Transport Company came into operation in March and took over from the Volta River Authority's Lake Transport pilot scheme. The Netherlands Government submitted a draft agreement to the Government of Ghana, whereby they would kindly donate a 60-passenger boat to the Government of Ghana for training of Ghanaian crew and for commercial transportation on the Volta Lake.

In Akosombo township, a certain amount of expansion can be observed in commercial activities as certain business organisations, such as the Ghana Commercial Bank, Ghana National Trading Corporation, and a few others, take up leases in the township.

ENGINEERING AND CONSTRUCTION

General

All the supply and installation contracts for the Akosombo Expansion Project were awarded during the year. Other contracts awarded included that for the study of future power generation source which was won by Kaiser Engineers International Inc. Work started on the construction of the transmission line to Togo/Dahomey. Negotiations for the financing and engineering for the Akosombo/Tema third double circuit transmission line were commenced.

The Authority for the first time started supplying power to the State Gold Mining Corporation at Konongo in June, bringing the number of mining customers to five. The Obuasi mines also confirmed their request for an increase in demand up to 20 MVA by mid-1973 and a full study has been commissioned to provide the service as requested.

Akosombo Expansion Project:

Contracts for the expansion scheme above were awarded to the following:

- (i) Hitachi Ltd. of Japan, for the supply of turbines and governors, (Contract XA-4);
- (ii) Canadian General Electrical Company Ltd., for the supply of generators and main transformers, (Contract XA-5);
- (iii) Newton Chambers Engineering Ltd., for hoisting cranes and civil works (Contract XA-6);
- (iv) Gruppo Industrie all'Estero and Sadelmi S. P. A. (Ghana), for the supply and installation of the Volta and Smelter substation equipment and construction of the transmission line between Volta and Smelter sub-stations, (Contracts XS-1, and XS-2);
- (v) Sadelmi S.P.A., for the installation of the turbines and governors, (Contract XA-3M);
- (vi) Canadian International Comstock Company Ltd., for the installation of generators and main transformers, (Contract XA-3E).

Both suppliers and construction contractors had started work by the end of December. Progress of work was on schedule at 18 per cent.

Future Power Study

Kaiser Engineers International Inc. were appointed in July, as consultants to undertake the study of an alternative source of future generation, after the system demand has reached the full capacity of the Akosombo plant by the end of 1977. One of their officials visited the Authority and obtained existing hydrological information on the Bul, Tano, and Senchi rivers, as well as survey data on the Kpong discharge zone.

Transmission Line to Togo and Dahomey

The Canadian International Development Agency (C.I.D.A.) appointed the firm Demers-Ingledow Ltd. as consulting engineers for construction of the transmission line to Togo and Dahomey. Later in the year, a meeting of representatives from V.R.A., the Republics of Togo and Dahomey, Canadian High Commission, Demers-Ingledow Ltd., and Hume and Rumble Ltd. discussed and reviewed the status of preparatory work as well as details of procedures for handling purchases and payments. Both the consultant (Demers-Ingledow) and the main contractors (Hume and Rumble Ltd.) assigned resident staff to Accra. By the end of the year, several shipments of construction equipment, including tower steel conductors had already started arriving in the country.

Meanwhile land evaluation and field assessment of farm land and other properties affected by the transmission line were in progress and compensation will be paid as soon as the exercise is finalised. Tenders were invited for the survey of the route in Ghana as well as clearing of the transmission line right-of-way. Similar arrangements were being made in the two other countries.

Third Double Circuit Transmission Line From Akosombo to Tema

Negotiations were started with the Italian firm of Italconculti for consulting engineering services in connection with the 3rd double circuit transmission line from Akosombo to Tema.

Minor Civil Works

Work continued on the Bunda boarding school blocks and the Madina warehouse. The Authority took over the construction of the Akosombo Port from the Contractor whose progress of work on the job turned out to be unsatisfactory.

Other construction activities carried out during the year included the completion of school blocks at Apeguso, Adukrom and Onuku. Preliminary drawings on the Akosombo hospital expansion were also completed. A contract for the construction of a 20-unit septic latrine for the township of New Senchi was also awarded to a local contractor.

Hydrology and the Volta Lake

The behaviour of the catchment as a whole with regard to the inflow was contrary to expectation. Precipitation recorded for the year was far below long term averages, as many areas experienced severe drought with associated famine. The first onslaught of rains however brought the tail of the depletion curve about three feet below the expected reservoir surface elevation of 267 feet N.L.D. in July.

Flood control spilling was commenced in October and stopped in December. Headpond control was through plant usage and regulated spilling in three places during the year. The highest spilling rate at 160,700 cusecs lasted three months from October to December. In all, a total of 13.10 MAF of water was discharged through the spillways.

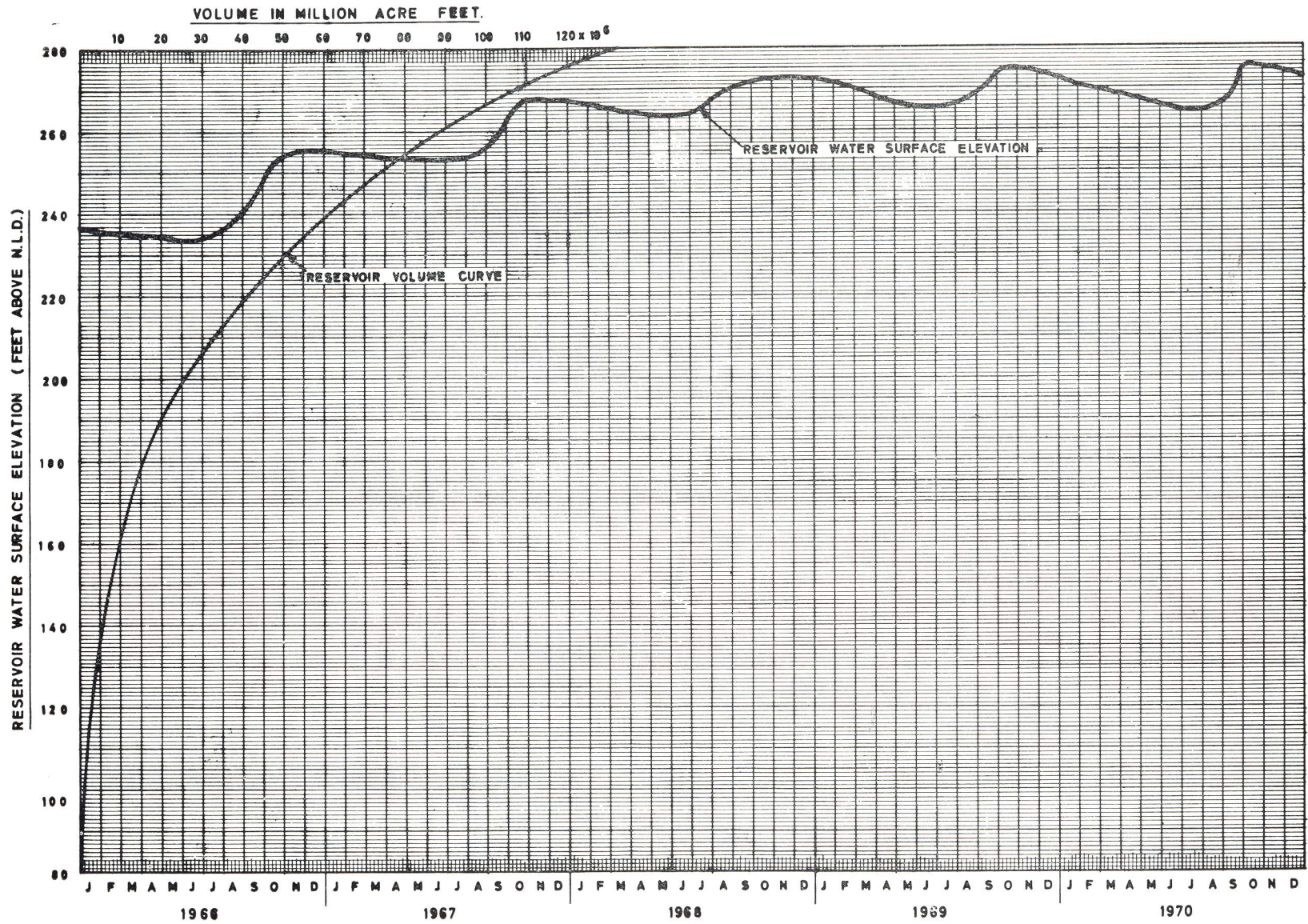
The highest elevation of 275.75 feet was reached in October. The maximum control level was 276 feet.

Total spillage throughout the year was as follows:-

(i)	During dry season	...	...	...	...	4.65 M.A.F.
(ii)	During major flood season	...	...	...	...	8.45 M.A.F.
(iii)	Storage observed stood as	...	...	...	...	19.8 M.A.F.
(iv)	Plant Consumption	...	...	...	...	15.27 M.A.F.
(v)	Estimated Total Inflow	...	...	...	...	37.6 M.A.F.

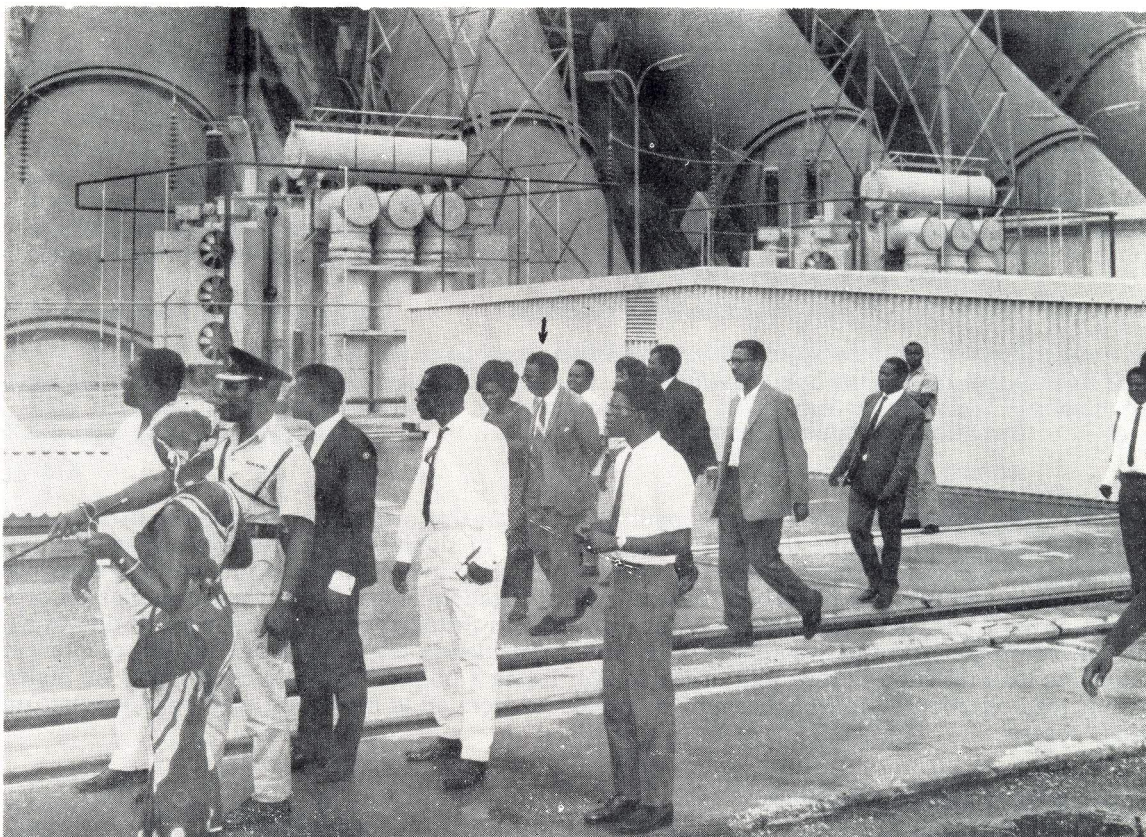
Dam Instrumentation and Observation

In July 1970, Mr J. Wilson and Mr Barry Cooke, Consultants to Kaiser Engineers and Mr A. Chan, Kaiser's Chief Design Engineer, discussed the significance of the dam safety records and inspected the spillway buckets. They endorsed the quality of the records and overall performance of the Akosombo infrastructure. They recommended the need for extensive surveys, whose results should be superimposed upon the original profiles which in turn would ascertain changes in ground formation after every spilling. Routine surveillance of dam movement and its appurtenances was maintained, and readings of all instrumentation points showed no indication of abnormal movements.



N. L. D = National level datum.

NOTE.
Reservoir water surface elevation
is read daily at 6:30 am.



Some of Ghana's Ambassadors and High Commissioners seen familiarising themselves with the Akosombo Hydro-Electric Project. Mr E. L. Quartey (arrowed) Chief Executive of V.R.A. is seen explaining the project to her Excellency Mrs Bertha Amonoo-Neizer, Ghana's Ambassador to Denmark

III

POWER OPERATIONS

The system peak demand which stood at 359 MW at the end of last year, rose gradually to a peak of 378 MW in December this year, representing a growth of about 19MW over the twelve months period. The total energy production also increased from 2,728,490,000 KW-hrs. to 2,881,570,000 i.e. by 5.6 per cent. Valco's purchases for the year, reached 2,012,400,000 KW-hrs., an increase of 2 per cent while the Electricity Corporation substantially increased their purchases by 5 per cent from 502,800,000 KW-hrs. last year, to 564,770,000KW-hrs. this year. The expansion in the E.C.G. distribution system accounted for the general increase in both the system peak demand and energy production.

Power production and transmission statistics for the year were as follows:-

Total Units Generated	2,881,570,000KWhrs
Total Units used in Power Station service	2,272,000 ,,
Total Units transmitted... ..	2,879,298,000 ,,
Total Units billed or sold	2,805,981,170 ,,
Total Units lost in transmission	73,316,830 ,,
Percentage lost in transmission	2.55%
Percentage annual increase in units generated	5.61%
Percentage annual increase in units billed or sold	5.0%
Peak demand	378MW
Increase in maximum demand... ..	5%
Annual load factor	87.0%

The inadvertent tripping on Valco's potline No. 2, causing a total system collapse in May, was the only total system collapse this year, as against three of similar disturbances last year. The improvement in the system stability was the result of intensive investigations made, and the extensive modifications and rewiring of turbine control system affecting fringe control and governor oil protection at the Akosombo Powerhouse. A microswitch was installed on the Akosombo—Volta transmission line total megawatt recorder so that voltage reduction relay would be blocked to prevent automatic load rejection in the event of the smelter losing a potline. System recovery time on Valco potline load rejection of 44 MW has now been reduced from 40 to 8 seconds, with only one unit on fringe control.

Improvement of Electrical Facilities

Expansion programmes this year included the construction and commissioning of a new sub-station at Konongo to feed, principally, the State Gold Mining Corporation and the installation of a 15/20 MVA transformer at Akosombo switchyard, as well as the provision of a second feeder bay. The work which comprised restringing of the Akosombo 11.5 KV distribution network, was necessitated by the increased load demand from the Textiles Factory at Akosombo. The construction of the 11.5 KV line to the slipway at the Akosombo Port was awarded to British Insulated Cables Company who started work in October. Other feeders placed in service during the year included a third feeder at Dunkwa to feed the State Gold Mining Corporation and a second feeder at Akwatia.

Also, a number of station service transformers were uprated by replacement of bigger capacity transformers ranging between 100 KVA and 200 KVA. Single phase station service transformers at all 5 MVA transformer stations were also converted into three phase supplies.

With the completion of the installation of the Brown Boveri SSB equipment, a short intensive orientation course on the SSB system was given to staff of the Authority who would be working on the equipment. Work on the Power Line Carrier modification was completed and successfully placed in service.

Power Station Maintenance and Repair Work

Annual station maintenance overhaul and inspection of all generation units and their auxiliaries were successfully carried out from February to May. Major works included the complete replacement of a generator stator coil which was damaged in 1968 due to loose stator iron lamination. To prevent similar occurrence, all units were treated with epoxy and hardner, after pre-torquing of stator through bolts to 400 pounds feet. On inspecting unit IG2, hairline cracks were detected at the junctions of 14 runner blades with the shroud. These, and similar cracks found on other units were refilled by arc welding with mild steel and stainless steel electrodes. Fillet radii on all blade junctions of all four units were reformed by arc welding with stainless steel to a new specification of 30 to 35 mm radius.

Calibration and test tripping of relay and protective devices on all units, as well as station electrical services and 161 KV lines between the generating station and the Akosombo switchyard were carried out. Schedule lubrication of equipment was also kept up to date.

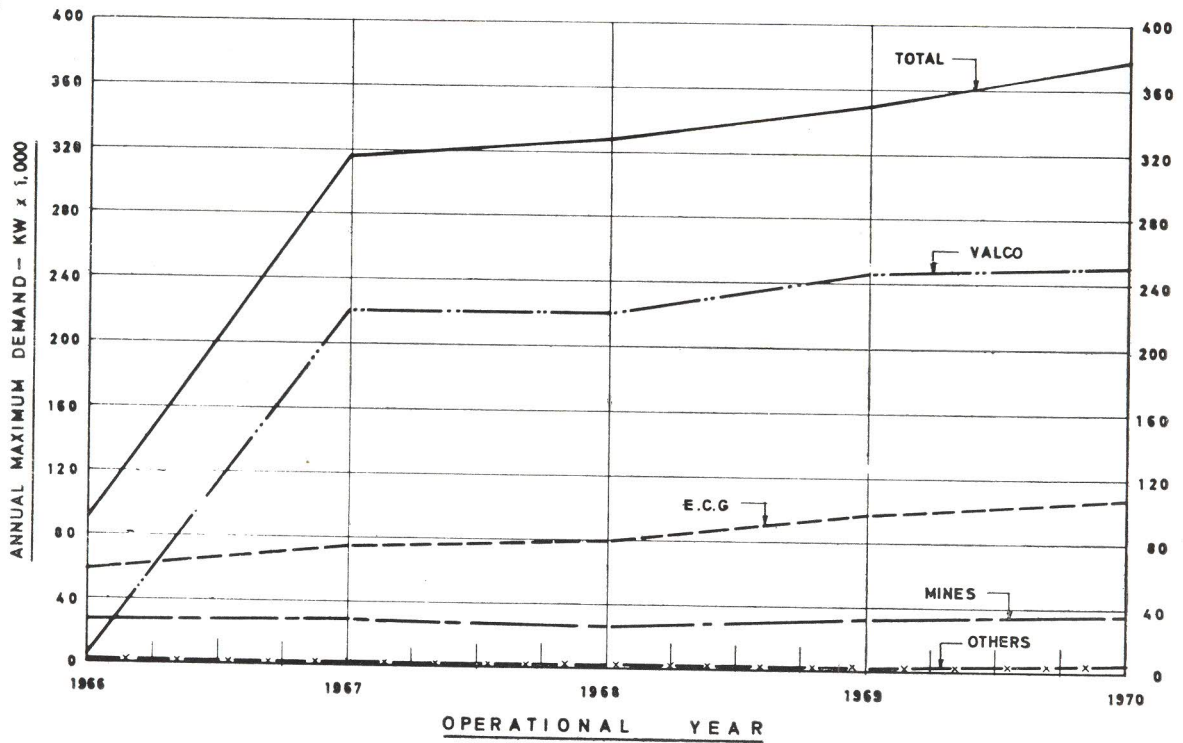
Substation Maintenance

Maintenance work at the substations included the overhaul and analysis of 161 KV oil circuit breakers and the 11 KV feeder breakers. The Jansen tap changers on the transformers at Kumasi and Obuasi substations were overhauled for the first time. A recalibration exercise of all line relays in service along the transmission loop was undertaken this year. In addition, the usual bi-monthly checks of the smelter meters were carried out to ensure that they stayed within calibrated limits. All meters were confirmed to be within the contractual allowable tolerance.

Transmission Lines Maintenance

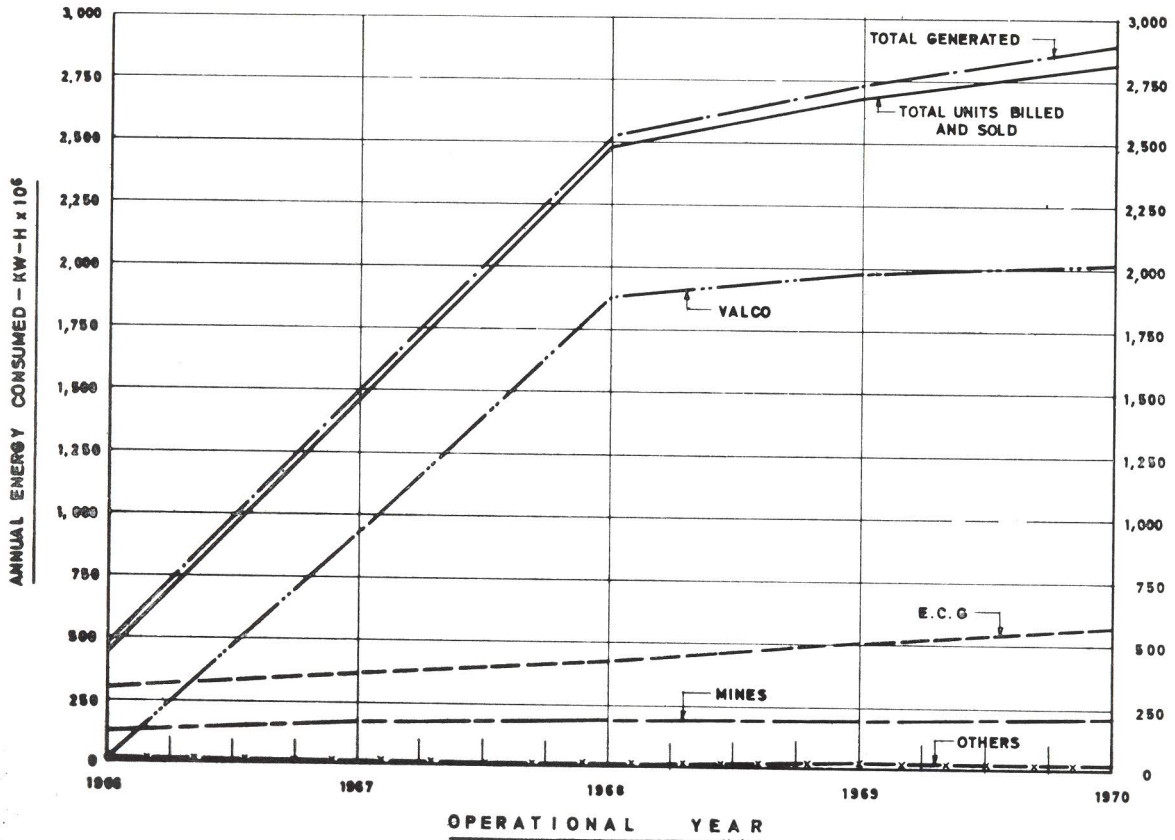
With the exception of a few momentary outages, the 500 miles of 161 KV transmission lines remained in continued service throughout the year. Ground and aerial patrols ensured that all defects were corrected, and dangerous brush were cleared. Over 250 flashed and broken insulators were changed by hot line method.

**ANNUAL MAXIMUM DEMAND
PER CLASS OF CUSTOMER**



	1966	1967	1968	1969	1970
	KW	KW	KW	KW	KW
Maximum Demand at Akosombo Generating Station ...	92,000	317,000	329,000	359,000	378,000
Customer					
Valco (Est.)	5,000	220,500	220,000	245,000	250,000
E.C.G.	58,600	73,400	75,900	95,700	106,400
Mines	26,100	27,000	28,500	31,000	33,500
Akosombo Township	1,400	1,400	1,000	1,000	1,600
Akosombo Textiles	—	—	1,000	1,800	3,200

**ANNUAL ENERGY CONSUMED
PER CLASS OF CUSTOMER**



	1966	1967	1968	1969	1970
	Kwh x 10 ³	Kwh x 10 ³	Kwh x 10 ³	Kwh x 10 ³	Kwh x 10 ³
Total Generated	475,600	1,495,400	2,523,600	2,728,500	2,881,000
Total Sold	449,700	1,454,600	2,473,400	2,673,600	2,806,000
Customers					
Valco	13,900	923,200	1,865,900	1,972,200	2,012,400
E.C.G.	300,900	360,300	420,100	502,800	564,800
Mines	127,200	164,100	177,400	185,500	206,800
Akosombo Township	7,700	6,300	6,800	6,800	7,200
Akosombo Textiles	—	—	2,000	6,300	14,840



Technicians busy at repair work on one of the turbines at Akosombo Power House

VOLTA LAKE RESEARCH

General

Through the Volta Lake Research Project, the Authority has continued to co-ordinate the efforts of International and Ghanaian agencies to carry out multi-disciplinary studies of the ecological and environmental effects of the Akosombo dam and the Volta Lake.

These studies have been mainly in the fields of fisheries, hydrobiology, public health, the socio-economic conditions and agriculture. The U.N.D.P. assisted Research Project which became operational on 29th January 1968 was to end on 28th January 1971 but as a result of the recommendations of a Mid-Term Review Mission sent by the U.N.D.P. in December 1969 a request for extension was under discussion by the end of the year.

Fishery Development

Fish catch estimates for Volta Lake given as 60,000 metric tons a year for 1969, started declining in 1970. Catch estimates for the last quarter of the year showed a decline of approximately 20 per cent over catch estimates for a similar period in 1969. As has been the case in other man-made lakes, some fluctuations have been expected in the productivity of Volta Lake, due to changes in the chemical and biological conditions of the water and the efficiency of the gear mainly used in selecting particular types of fish.

Consulting engineers started work on the design of the landing stages and shore installations required for the Kpandu/Torkor Fishery Project.

Fishery Biology and Limnology

Extensive sampling of fish species in the littoral zone provided valuable information on species which reproduce direct into the Lake and those whose reproduction depend on the tributary rivers. Life histories of the important species of the Lake such as the Tilapia, Clupeids, Nile perch and Tiger fish were also studied.

Other studies indicated that the flood waters, greatly influence the limnological condition of the Lake. An unusual feature was the near homothermal condition in August and September which indicated an overturn of the Lake. Other studies, concentrated on oxygen changes and determination of solids. Observations showed that turbidity of the Lake had a positive relationship with the rate of catch.

Bacterial studies showed a general decrease of bacteria near the surface. This decrease was attributed to the improvement in transparency of the water and deeper penetration of light. Plankton composition also decreased as the Lake became more established. The dominant organism was the blue-green algae.

Public Health Programme

Intensive studies on the three major water-borne diseases, i.e. schistosomiasis (bilharzia), onchocerciasis (river blindness) and trypanosomiasis (sleeping sickness) were continued and steps were taken to give therapeutic treatment. Insecticidal weed control and periodic spilling were some of the control measures taken. The cholera outbreak in the country posed a threat to people living in the Lake shore villages. The Public Health Department and the Project Epidemiologist organised a programme of inoculation on the Lake shores.

Socio-Economic Programme

Early in the year, a survey was undertaken to provide a statistical estimate of the fishing populations, the structure of their basic fishing units, their culture, aspirations, motivations etc. The socio-economic survey of the Resettlement sites was completed and the report was sent for review by the F.A.O. in Rome.

Agricultural Programme

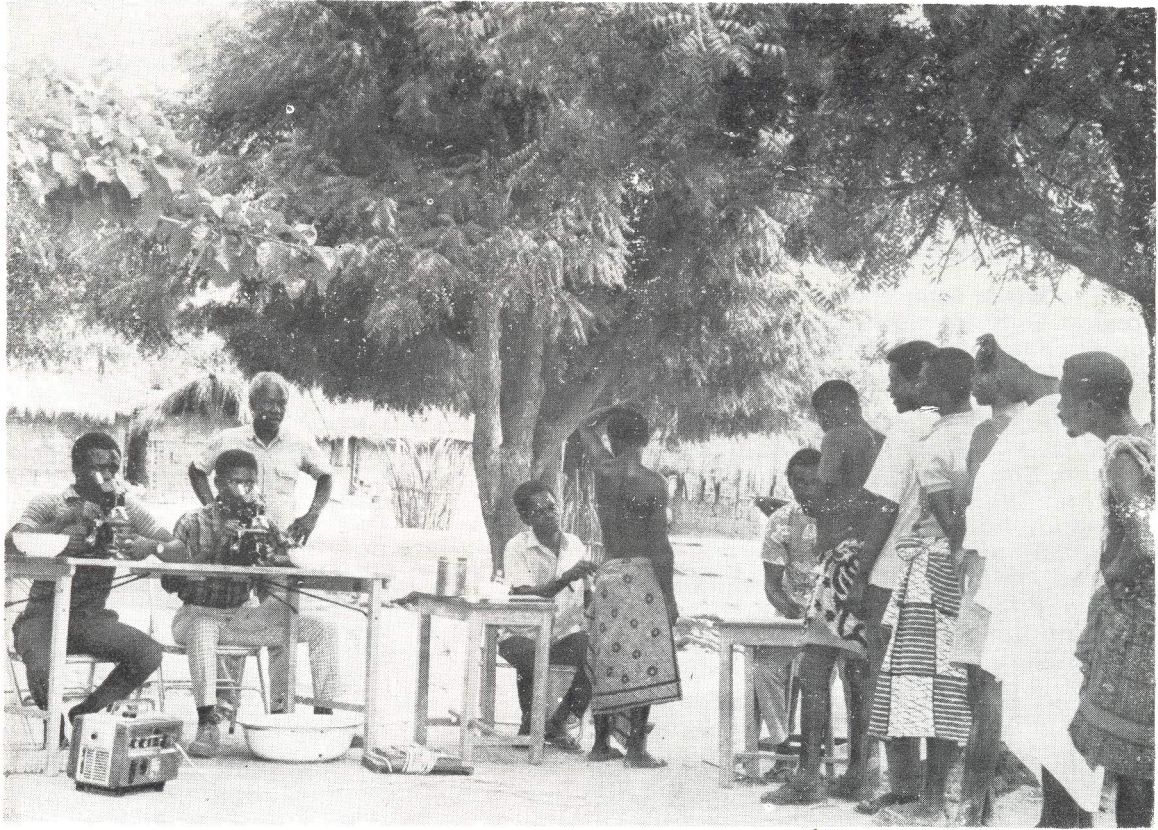
Work continued on the experiment to utilise, for farming purposes, the land exposed by fluctuations of the Lake. The Lake level is expected to vary from 8 to 14 feet a year and this could expose up to 300,000 acres. The experiments included crop trials in the draw-down area, irrigation and training of farmers. The pilot trials were conducted at Asantekrom, Vakpo and Makongo. Some of the yields were excellent. For example, sweet potatoes grown in Makongo gave an excellent yield of 14,499 lbs an acre.

Wildlife Programme

Studies of the Sene and Obosum river basins showed the presence or possible presence of various types of mammals including elephants, but excluding the large carnivores in the area. Lions are said to exist, but their presence has yet not been confirmed. Meanwhile the specie list continued to be compiled. A proposal has been prepared for establishment of a Volta Game Reserve by the Game and Wildlife Department of the Ministry of Agriculture, in the area between the Sene and the Obosum.



Picture shows a woman displaying her catch of fish from the Volta Lake.



A Survey team examine inhabitants of the Volta basin for symptoms of River Blindness (Onchocerciasis)

V

RESETTLEMENT GENERAL AND AGRICULTURE

GENERAL

The Resettlement Department's activities continued to be centred mainly around the Land Clearing Project, assisted by the World Food Programme (WFP Project 356).

The Survey Division completed cadastral survey of 6 settlement townships and farmlands. This brings to 25 the total number of surveys conducted. Work on 6 other settlements reached an advanced stage while some progress was made on 21 others.

Acquisition notices in respect of farm sites at Mem-Chemfe, Tepo, Wurupong and Mpakadan were published bringing to 27 the number of notices published so far. Enumeration and valuation of crops were also carried out at a number of settlement sites and on six newly discovered villages below the 280 feet contour.

"As-built" layout plans were completed at the following sites: Bladjai, Kajaji, Kete Krachi, Ohimankyene, Osramani, Grube, New Ntewusa and Adokwanta. This brings to 47 the number of layout plans completed. Two sites, Asukawkaw and Tokorano were under "check computation".

The House completion programme involving 11,985 nuclear houses continued to make good progress. Some 865 settler houses were completed in 1970 bringing to 6,282 the total number of houses completed to date. Further 2,877 houses were 75 per cent complete, with walls erected and door and window frames fixed. Some 2,826 remained at the nuclear stage.

New amenities provided in some settlements included the construction of a six classroom school block each at Onuku and Adukrom and the provision of a four classroom school block at Apeguso. The contract for work on the New Senchi 20-unit septic tank latrine was awarded to a local contractor. The Authority serviced water installations in 16 settlements where the local authorities were unable to maintain and operate the installations.

Cash compensation amounting to N¢302,630 was paid to 2,217 claimants during the year. This brings to N¢1,351,130 the cumulative cash compensation paid for crops and buildings inundated by the Volta Lake. An amount of N¢20,000 was paid to the land owners of Mpakadan in the Akwamu Traditional Area as part payment of the assessed compensation of N¢90,000 for land due to the owners.

AGRICULTURE

As in previous years, agricultural activities covered extension work and the WFP assisted Land Clearance Scheme.

Agricultural Extension

Extension activities carried out during the year included settler farmer education, direct services in the form of mechanisation services, practical demonstration, crop and livestock protection, anti-erosion measures and the gradual introduction of improved husbandry practices for both crops and livestock in the settlement towns. Although only 4,146 acres of land allocated to settlers for personal possession had been cleared and cropped by the end of year, considerable farming activity took place in the settlement areas on the land being acquired for allocation. The estimated value of crops cultivated, which included maize, yams, rice, tobacco, cassava and local vegetables was N¢4.7 million. Direct services in the form of mechanisation services rendered to the settlers and participating host farmers, brought in a revenue of N¢22,530. Tobacco farmers at Nkwakubew won prizes awarded by the Ghana Tobacco Products Corporation for top quality cured tobacco.

Some improvement was shown in commercial farming; sugar-cane farmers operating on both individualistic and co-operative basis had standing crops valued at N¢5,000 at the end of the year. Two co-operatives were registered at New Senchi and Anyaboni and seven more at Wurupong, Tepo, Tsohor, Ajena, Makongo and Forifori are yet to be registered.

Livestock farmers in Todome and Nkwakubew increased in numbers and cultivated a better businesslike attitude to their work. At Vakpo, some of the settlers built their own poultry houses. The broiler farmers have started prepaying for day-old chicks supplied to them instead of having the Authority pre-finance the purchase of such chicks. Some 20,000 birds raised by the broiler farmers were sold during the year and the Authority fully recovered the cost of supplies made to the farmers, amounting to N C 27,000.

There was no significant improvement in pig production in 1970 because most of the 64 sows were old and unproductive. Plans were afoot to replace these with gilts.

Land Clearance Scheme

The activities carried out under this scheme included demarcation, parcellation and allocation of subsistence farm plots, food storage and distribution.

Demarcation of subsistence farm blocks was completed in 17 settlements involving 27,600 acres. This brings to 32 the number of settlements on which subsistence farm blocks have been fully demarcated and which involves 51,400 acres. To date 40,000 acres of the demarcated blocks had been parcelled out.

During the year 375.74 metric tons of food items were received and 342.16 metric tons of this was distributed to farmers who had cleared their land.



Picture shows a large scale commercial tobacco farm at Mpakadan, one of the Resettlement townships. Encouragement is given to the farmers, in the form of mechanisation services, etc., etc., for farming above subsistence level.

VI
HEALTH AND SANITATION

Hospital Services

Hospital attendances for the year totalled 35,897 as compared with the last year's record of 48,385. The reduction of 12,488 was the result of the opening of clinics at the two textile factories in the Akosombo area and the consequent attendance of the majority of the factory workers there, who formerly attended the V.R.A. hospital. Figures of hospital attendance are as follows:

Outpatients:		<i>V.R.A. Employees and families</i>	<i>Others</i>	1970	1969
New Cases	... ..	2,683	8,200	10,883	14,312
Old Cases	... ..	13,316	11,698	25,014	34,073
Total	... ..	15,999	19,898	35,897	48,385
Admissions:					
All Cases	... ..			1,728	2,027
Males	... ..			730	845
Females	... ..			998	1,182
The following were the other major activities carried out at the hospital during the year:-					
Major Operations	... ..			332	
Deliveries	... ..			351	
X'ray Examinations	... ..			1,425	
Blood Transfusions	... ..			295	
Laboratory Examination	... ..			8,155	

Revenue collected at the hospital totalled N¢17,565 as compared with N¢21,506 in 1969. The reduction was due to the decrease in hospital attendance reported above.

Public Health Service

Sanitation at Akosombo was generally satisfactory. As the threat of cholera outbreak became alarming, special health education campaigns were mounted and vaccination teams vaccinated all inhabitants of Akosombo and its surrounded areas. A total of 10,340 cholera vaccinations were given. No cases of the disease were reported in Akosombo up to the end of the year.

Lake Side Health

Studies and control operations were continued during the year as part of the United Nations Development Programme assisted research programme on the Lake.

Tsetsefly Studies

Studies continued on the pattern of distribution of the tsetseflies and the search for the most suitable method of control. The studies showed that:

- (a) In the southern sector of the lake, where there were forests the flies were present along the lakeshores and
- (b) In the northern sector, due to absence of forests, the flies were absent from the lakeshore but were present along tributaries and side streams in the guinea savannah areas.

Glossina Palpalis continued to be the most widespread species in both the Northern and Southern sectors, with *G tachinoides* restricted to the Northern sectors only and *G neorsitans* found in the region between the Obusum and Sene rivers where game is abundant.

Studies on the bionomics of *G palpalis* and *G tachinoides* in the Ekumdiye and Daka river areas showed that the density of these species were higher in dry season.

Simulium Control

During the year, an attempt was made at an integrated control of *Simulium* by alternating periods of water releases from the reservoir with periods of chemical treatment with DDT at concentrations of 0.3 p.p.m. Spilling between 17,000 cusecs and 49,000 cusecs had little effect on the flies. In the past, the spilling had to be at 60,000 cusecs to be effective. But chemical control proved very effective. Fly incidence varied between 0.47 and 9.77 in the Akosombo area, and 0.25 and 13.34 in the Kpong area. No fly was caught in the second half of the year in any of these areas.

Aquatic Weed Control

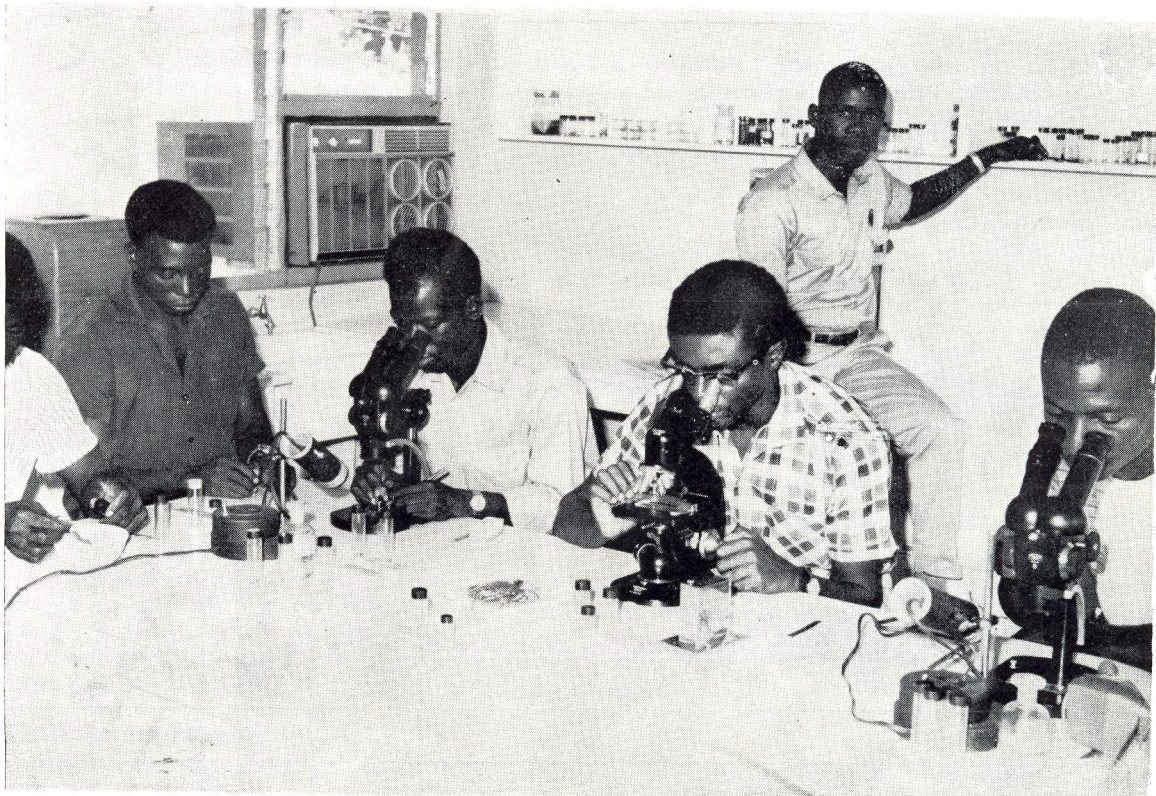
Surveys of aquatic weed distribution continued throughout the year, in addition to the pilot control work at Ampem. The Ampem pilot control work, which was started last year, was intended to provide information on whether drastic reduction of aquatic vegetation and debris in the area would reduce the snail population and consequently the incidence of bilharzia. Treatment of inhabitants could not be undertaken as planned. The test site has however, been virtually cleared of all aquatic vegetation, by manual labour, in contrast to herbicides. So far, the snail population in the area appears to have been reduced considerably.

Health Surveys

With assistance from the World Health Organisation, an Epidemiologist and a Medical Biologist from the Institute of Aquatic Biology, are continuing studies on bilharzia, onchocerciasis and trypanosomiasis.

Safety

A total of 17 accidents were reported during the year. None was fatal.



A team of laboratory technicians led by Mr F. A. S. Kuzoe, Entomologist examining dissected tsetseflies. The flies cause sleeping sickness (Trypanosomiasis)

VII
STAFF RELATIONS AND OTHER MATTERS

Personnel

The labour force as at the end of the year stood at 3,126, an increase of about 5 per cent over last year's figure. Of this, 976 were engaged on activities connected with power generation and transmission and 2,050 on non-power and agency activities.

Details of the labour force as at the end of the year are as follows:

<i>Description of Labour</i>	<i>Head- quarters</i>	<i>Other locations</i>	<i>Sub- total</i>	<i>Grand total</i>
Power Activities				
Management and Administrative	43	10	53	
Generation, Transmission and System Planning ...	11	292	303	
Civil Works Maintenance and Hydrology	15	11	26	
Clerical, Secretarial and General Services	299	274	573	
Casual Labour-Line Maintenance	368	587 21	955 21	
	368	608	976	976
Non-Power Activities				
Akosombo Township			296	
Township Maintenance and Utilities		227		
School		33		
Recreational Facilities		36		
Marine		31	31	
Health & Safety	7	119	126	
Hospital	—	142	142	
Engineering Construction		108	108	
Casual Labour	7	696	703 232	
a) Akosombo Township Maintenance and Utilities		49		
b) Engineering Construction		183		
	7	928	935	935
Agency Activities and Government Projects				
General Resettlement	188	127	315	
Resettlement Agriculture	49	729	778	
Ghana Government/United Nations Development Pro- ject—Lake Research	—	122	122	
	237	978	1,215	1,215
				3,126

Engagements

A total of 18 new senior engagements were made this year. These included 4 Engineers, 3 Graduate Teachers, a Pharmacist, a Research Assistant, an Internal Auditor, an Accountant, a Construction Superintendent and a Stenographer Secretary. In addition two C.U.S.O. volunteers, an Agronomist and a Zoologist were seconded to the Volta Lake Research Project under technical assistance programme. Two other Peace Corps volunteers—a Sociologist and a Fish Biologist, also joined the Project team.

Terminations/Resignations

Two top officials of the Authority left the service in the early part of the year as a result of an application to them by the Government of Article 9 (1) of the Transitional Provisions of the Constitution. The officers concerned occupied the positions of Director of Personnel and Counsel/Secretary. Other senior officials who resigned were an Accountant, an Accounting Assistant, a Sociologist and a Private Secretary.

Staff Training and Development

This year also, the Authority continued with its vigorous staff training and development programme. A number of classroom lectures were given to the staff and a number of staff members attended attachment courses.

Three staff members of the Authority continued to study overseas for professional accountancy qualifications. One Sociologist and a Mechanical Engineer who were pursuing post-graduate studies overseas last year returned to their posts. Other officers who attended courses overseas included the following:

- (i) a Construction Engineer who completed a 5-month course in hydrology in Prague;
- (ii) a Technical Field Officer who completed a 5-month attachment course in aquatic weed control in Florida, U.S.A.;
- (iii) an Electrical Maintenance Engineer and a Consumer Services Engineer who completed 8-months attachment with the Hydro-Electric Commission of Ontario, Canada;
- (iv) another Electrical Engineer went on an 8-months attachment with Ontario-Hydro;
- (v) a Supplies Officer and a Public Relations Officer who completed attachment courses in the United States.

The Director of Power Operations and the Design and Hydrology Engineer attended the 10th Congress of the International Conference on Large Dams in Montreal, Canada. They also, attended a course on water management and estuary control at the Tennessee Valley Authority.

Local Courses

Three Graduate Engineers, who started a 2-year in-service programme bring to 7 the total number of Graduate Engineers undergoing such training. Within the Authority a 14-week in-service training course in basic book-keeping and elementary accounting was organised for the entire junior accounting staff in Accra. Clerical and Secretarial staff in the Head Office undertook a course in English language and Office Management.

The Management Development and Productivity Institute organised a course on personnel management for over 17 supervisors in the Authority.

The Authority also provided training opportunities for students of institutions of higher learning in Ghana and abroad. A West-German mechanical engineering student undertook an 8-week course in Akosombo and two other engineers from the Ivory Coast also undertook a 2-week attachment course with Power Operations Division. Two students from the Institute of Journalism were attached to the Public Relations Section for 6 weeks.

Provident Fund Pension

A total of N¢16,162 was paid to 37 employees under the Staff Provident Fund. Of this amount N¢9,986 was paid to 28 employees who, on resigning, ceased to be members of the Fund. Some 119 employees received benefits under the Social Security Fund. Of this number, 57 were superannuation benefits, 48 emigration benefits, and 14 were invalidity benefits.

Workmen's Compensation

Of the 17 people who were involved in non-fatal accidents, 11 were paid NØ5,425 as compensation.

Court Actions

The Authority was involved in six court actions. Five of these were brought by the Authority. One was an action against the Authority for wrongful dismissal. All the six cases were decided in favour of the Authority.

The motor accident action which was brought against the Authority in 1969, was still pending in the High Court at the end of the year.

An amount of NØ33,601.63 was paid to various claimants for lands and buildings affected by the transmission line right-of-way.



The Director of Power Operations, Mr E. A. Mensah (5th left) in a gay mood with some workers of the Authority at a Christmas Party at Akosombo. On extreme right is Mr John Osei ,Publicity Officer.

VIII FINANCE

The Auditors Report and accounts of the Authority are set out on pages 27 and 28

Financial Review

The Authority's net income surplus for the year 1970 amounted to N¢1,816,671 after charging depreciation and loan interest of N¢3,577,168 and N¢3,861,159 respectively. This represents an increase of N¢262,035 over the net income surplus of the previous year due partly to increase in the number of KWH sold and partly to the higher tariff charges.

The net income surplus above represents a return of 3.1 per cent on the Ghana Government's equity investment. By the year 1974 this return on equity investment is required to be 8.00 per cent.

The following table shows the Authority's progress towards meeting the financial target:

1968	—	0.6%
1969	—	2.6%
1970	—	3.1%

It is forecast that rates for 1971, 1972, 1973 and 1974 will be 5.1 per cent, 10.7 per cent, 12.8 per cent and 12.2 per cent respectively.

Sale of Electricity:

The electricity sales produced an income of N¢11,630,624 an increase of N¢1,069,292 or 10.1 per cent on the previous year's figures.

The increase was contributed by the customers as follows:

<i>Power Sales</i>		<i>Per cent over respective sales in previous year</i>	
1969	1970		
N¢	N¢	N¢	
3,832,893	4,543,397	Electricity Corporation	710,504 18.5
5,282,732	5,388,889	Valco	106,157 2.0
1,292,957	1,469,430	Mines	176,473 13.65
		Akosombo Township and Textile Factory	76,158 49.86
152,750	228,908		
10,561,332	11,630,624		1,069,292

Other Income:

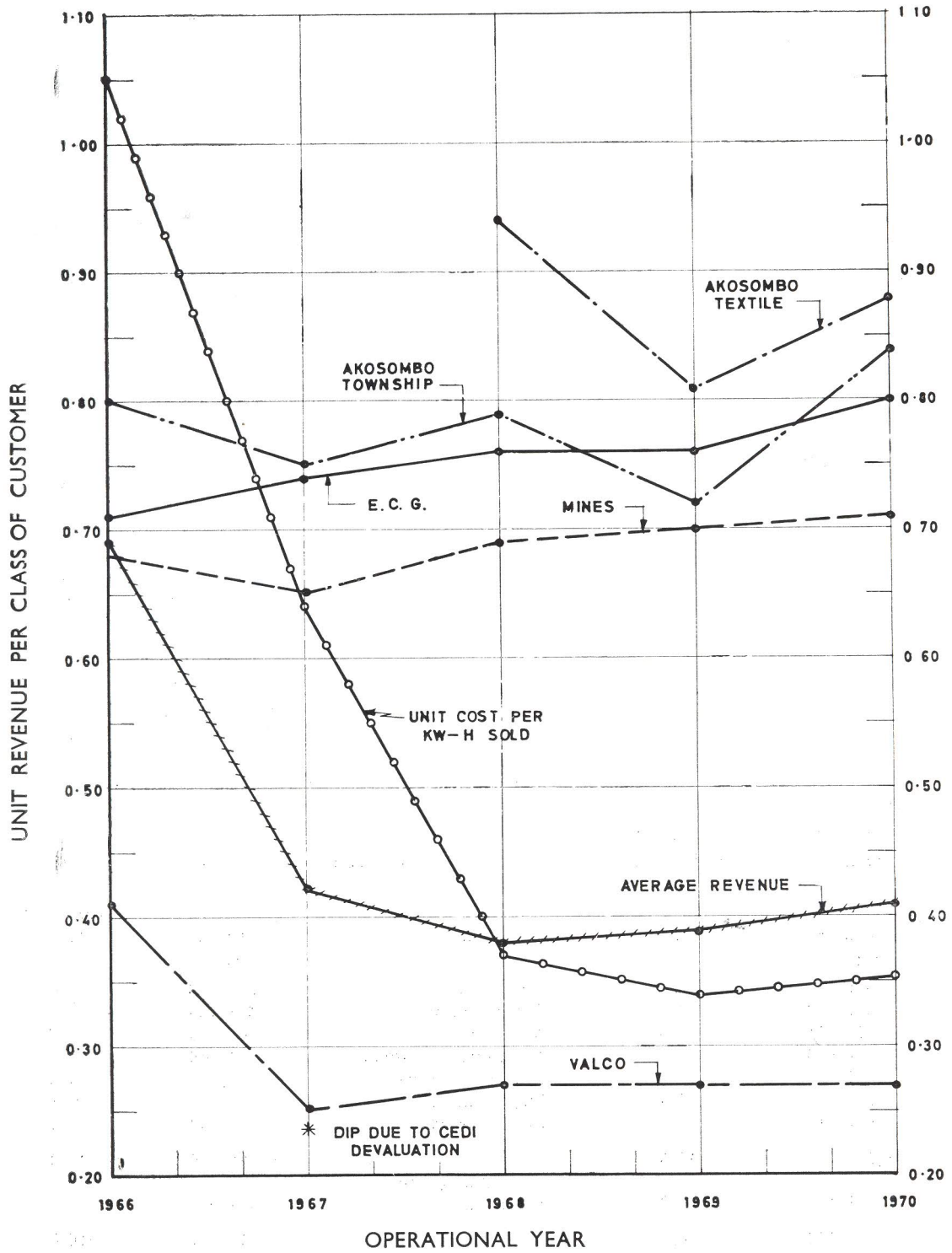
Other income including rents and proceeds from sale of assets, amounting to N¢352,665 was realised.

Operating, General and Finance Expenses:

Operating and other Expenses, as percentages of power sales are as follows:

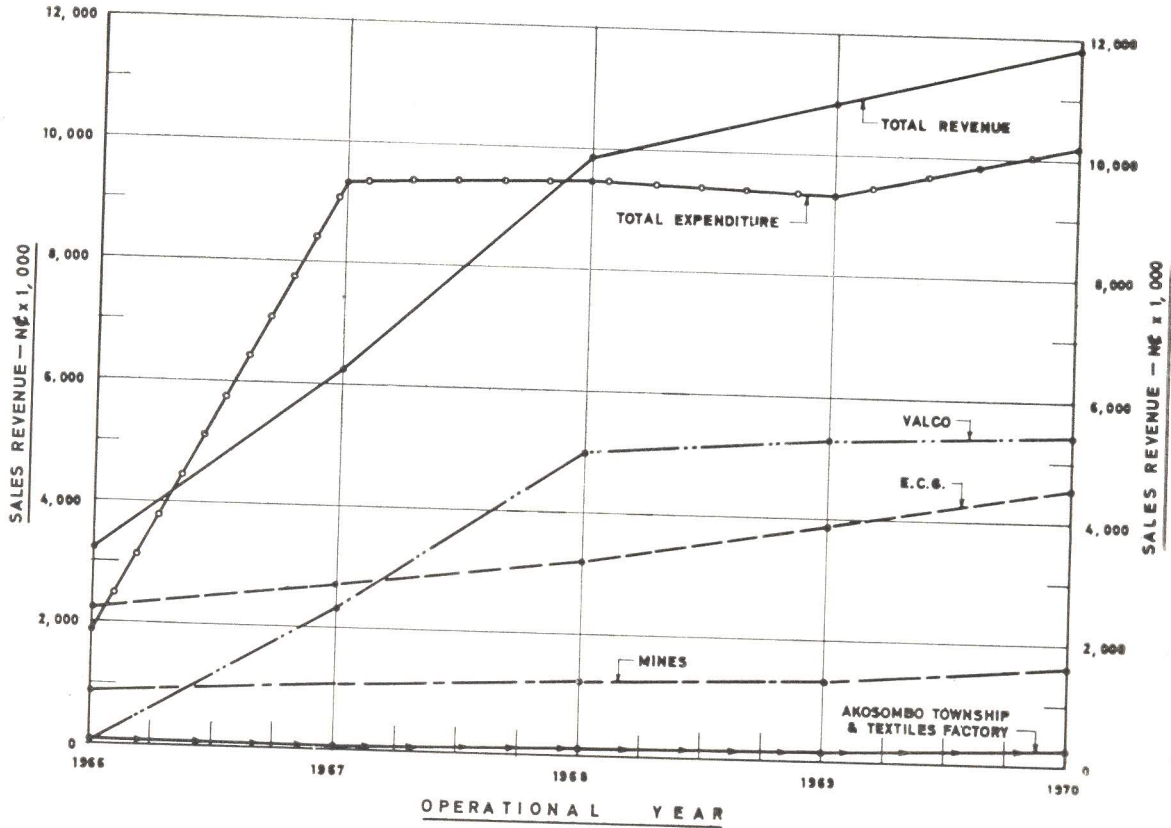
1969		1970	
<i>Amount</i>	<i>Per cent of Power Sales</i>	<i>Amount</i>	<i>Per cent of Power Sales</i>
N¢		N¢	
450,971	4.3	833,533	7.1
408,112	3.9	489,489	4.2
727,936	6.9	840,593	7.2
334,913	3.2	514,348	4.5
152,622	1.5	50,328	0.4
3,266,701	30.9	3,577,168	30.8
3,920,587	37.1	3,861,159	33.2
9,261,842	87.8	10,166,618	87.4
1,299,490	12.2	1,464,006	12.6
10,561,332	100.0	11,630,624	100.0

UNIT REVENUE PER CLASS OF CUSTOMER (NP)



* Corrected figures, different from those on page 11, have been used in plotting this graph.

**POWER SALES REVENUE
FOR EACH CLASS OF CUSTOMER**



Power sales revenue for each class of customer in N¢1,000

	1966	1967	1968	1969	1970
VALCO	56.9	2310.2	4997.9	5,282.7	5388.9
Electricity Corporation of Ghana	2122.2	2648.1	3179.0	3832.9	4543.4
Mines	861.0	1069.7	1216.7	1293.0	1469.4
Akosombo Township	61.8	47.5	53.6	45.1	52.6
Akosombo Textiles	—	—	18.4	55.0	130.3
Total	3101.9	6075.5	9465.6	10508.7	11584.6

Capital Investment Programmes:

Capital works in progress doubled from N¢1,208,458, to N¢2,491,892 as can be expected, in the light of the Akosombo power plant expansion and the transmission line to Togo and Dahomey projects both of which are under construction.

Capital Requirements and their Finance:

As shown by the sources of funds and use statement below, the capital requirements of the Authority for construction programmes and debt service during the year 1970 was N¢9,856,011 and that for working capital was N¢619,139. Internal cash generation covered 88.6 per cent of the total application.

The borrowings of N¢1,806,878 were for the Akosombo Power plant expansion i.e. 5th and 6th Generating Units and the Togo-Dahomey Transmission Line.

Sources and Application of Funds:

Sources:	N¢	N¢	N¢
Opening Cash		2,698,001	
Internal Cash Generation:			
Operating Surplus	5,677,830		
Depreciation Surplus	3,577,168		
Others	26,294		
		<hr/>	
		9,281,292	
		1,806,878	
		<hr/>	
Borrowings			13,786,171
Application:			
Construction Programmes		2,635,266	
Debt Service:			
Interest	3,861,159		
Amortisation	3,359,586		
		<hr/>	
		7,220,745	
		<hr/>	
Variation in Working Capital (other than cash)...		9,856,011	
		619,139	
		<hr/>	
			10,475,150
			<hr/>
Closing cash as per Balance Sheet			3,311,021
			<hr/>

VOLTA RIVER AUTHORITY

31st December, 1970

REPORT OF THE AUDITORS

The accounts set out on Statements A to D and AS 1 to AS 4 are in agreement with the books, which, in our opinion, have been properly kept. We obtained the information and explanations we required.

In our opinion the accounts set out on Statements A to D, amplified by the notes thereon give a true and fair view of the state of affairs of the Volta River Authority at 31st December, 1970 and of the results for the year ended on that date, and the accounts set out on Statements AS 1 to AS 4, give a true and fair view of the state of affairs of the Ghana Government Agency Services at 31st December, 1970.

ACCRA,
24th June, 1971.

COOPER BROTHERS & CO.
Chartered Accountants

**ACCOUNTS
FOR THE YEAR ENDED 31ST DECEMBER, 1970**

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AGENCY SERVICES

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VOLTA RIVER AUTHORITY
BALANCE SHEET AS AT 31ST DECEMBER, 1970

31st December, 1969 N¢		Cost or Valuation N¢	Accumulated Depreciation N¢	Net Value N¢
	FIXED ASSETS (Note 1)			
100,766,511	Dam and powerhouse civil works	105,618,719	6,329,139	99,289,580
22,882,582	Transmission network	26,291,749	3,459,253	22,832,496
2,103,887	Akosombo township	3,657,071	1,702,599	1,954,472
1,570,344	Other land and buildings	1,656,761	134,754	1,522,007
7,481,524	Generating plant and machinery	8,254,207	978,744	7,275,463
—	Floating crafts	383,027	383,027	—
320,580	Motor vehicles	981,509	615,066	366,443
1,181,633	Miscellaneous plant, equipment and furniture ...	1,668,903	827,639	841,264
<u>136,307,061</u>		<u>148,511,946</u>	<u>14,430,221</u>	<u>134,081,725</u>
1,208,458	CAPITAL WORK IN PROGRESS			2,491,892
	CURRENT ASSETS:			
1,048,490	Stocks	883,341		
2,130,619	Accounts receivable and prepayments (Note 2)	2,146,819		
123,750	Investment (at cost)	500,000		
2,698,001	Cash and bank balances	3,311,021		
<u>6,000,860</u>				<u>6,841,181</u>
	Deduct:—			
	CURRENT LIABILITIES			
1,420,611	Loan interest and commitment charges	1,427,213		
870,351	Accounts payable and accruals	507,709		
188,134	Retentions	152,336		
<u>2,479,096</u>				<u>2,087,258</u>
3,521,764	NET CURRENT ASSETS			4,753,923
<u>N¢141,037,283</u>	NET ASSETS			<u>N¢141,327,540</u>
	FINANCED AS FOLLOWS:—			
58,349,620	INVESTMENT BY THE REPUBLIC OF GHANA (Note 3)	58,349,620		
5,502,032	CAPITAL RESERVE (Note 4)	5,605,722		
572,182	REVENUE ACCOUNT (Statement B)	2,311,457		
<u>64,423,834</u>				<u>66,266,799</u>
76,613,449	LOANS (Statement C)		75,060,741	141,327,540
<u>N¢141,037,283</u>				<u>N¢141,327,540</u>

The notes referred to are shown on Statement D.

E. L. QUARTEY
Chief Executive

REVENUE ACCOUNT FOR THE YEAR ENDED 31ST DECEMBER, 1970

1969 NØ		NØ	NØ	Supporting Statements
	REVENUE			
10,561,332	Sale of electricity	11,630,624		1
168,817	Rents receivable	137,324		
36,032	Interest receivable	62,624		
(17,348)	Lake transport	(5,857)		2
67,645	Miscellaneous revenue	92,213		
—	Proceeds from sale of fixed assets ...	66,361		
<hr/>				
10,816,478			11,983,289	
	Deduct:			
	OPERATIONS AND GENERAL EXPENSES			
450,971	Generation	833,533		3
408,112	Transmission	489,489		4
727,936	Administration	840,593		5
334,913	Akosombo township	514,348		6
152,622	Health and safety	50,328		7
<hr/>				
2,074,554		2,728,291		
3,266,701	DEPRECIATION	3,577,168		8
<hr/>				
5,341,255			6,305,459	
<hr/>				
5,475,223	OPERATING SURPLUS		5,677,830	
3,920,587	LOAN INTEREST AND COMMITMENT CHARGES		3,861,159	9
<hr/>				
1,554,636	INCOME SURPLUS FOR THE YEAR		1,816,671	
(982,454)	SURPLUS BROUGHT FORWARD ...	572,182		
	<i>Less:</i>			
—	Prior years' adjustments (Note 9) ...	77,396		
			494,786	
<hr/>				
NØ 572,182			NØ2,311,457	
			<hr/>	

STATEMENTS OF LONG TERM LOANS AS AT 31ST DECEMBER, 1970

	<i>Original Loan Facility</i>	<i>Amount with- drawn to 31st December, 1970</i>	<i>Repaid Prin- cipal to 31st December, 1970</i>
	N¢	N¢	N¢
International Bank for Reconstruction and Development:-			
Loan No. 310 GH	48,310,743 (Note 1)	48,291,567	4,398,240
Loan No. 618 GH	6,120,000 (Note 2)	48,348	—
Agency for International Development	23,409,000 (Note 3)	22,723,078	1,285,338
United Kingdom Government ...	3,545,150 (Note 4)	3,545,150	2,229,500
Export-Import Bank of Washington ...	10,204,086 (Note 5)	8,440,543	1,878,976
Ghana Government	1,330,000 (Note 6)	254,000	—
Ghana Government	300,000 (Note 7)	300,000	—
Canadian Government	7,201,000 (Note 8)	1,250,109	—
	N¢100,419,979	N¢84,852,795	N¢9,792,054
Less Repayments		9,792,054	
As per Balance Sheet (Statement A) ...		N¢75,060,741	

Note:

1. U.S. \$47,000,000 (the equivalent of which is available in various currencies) converted at U.S. \$1.00 to N¢1.02 carrying commitment charge of $\frac{3}{8}$ per cent per annum, a special commitment charge of $\frac{1}{2}$ per cent per annum on the undrawn amount of the loan and $5\frac{3}{4}$ per cent per annum interest on the amount of the loan withdrawn and outstanding from time to time. The loan is repayable according to an amortization schedule attached to the loan agreement and commencing from 15th February, 1968.
2. U.S. \$6,000,000 (the equivalent of which is available in various currencies) converted at U.S. \$1.00 to N¢1.02 carrying commitment charge of $\frac{3}{8}$ per cent per annum on the principal amount of the loan not drawn and interest at $6\frac{1}{2}$ per cent per annum on the principal drawn. The loan is repayable according to an amortization schedule attached to the loan agreement and commencing from 15th June, 1979.
3. U.S. \$22,950,000 converted at U.S. \$1.00 to N¢1.02 carrying interest at $3\frac{1}{2}$ per cent per annum and repayable according to an amortization schedule attached to the loan agreement commencing from 7th February, 1964. U.S. \$4,050,000 of the original facility of U.S. \$27,000,000 has been de-obligated by the Authority. The loan includes an amount of N¢8,037,142 (U.S. \$7,876,400) in respect of local currency replacement under section 6.05 of the AID Loan.
4. £STG.1,447,000 in instalments of £STG. 130,000 each converted at £STG.1 to N¢2.45 and drawn by means of Promissory Notes, each carrying interest at the rate currently applied to U.K. Government Loan plus $\frac{1}{4}$ per cent per annum. The Loan is repayable in semi-annual instalments of £STG.130,000 commencing from 31st October, 1967. £STG.3,553,000 of the original facility of £STG.5,000,000 has been de-obligated by the Authority.
5. U.S. \$10,000,000 converted at U.S. \$1.00 to N¢1.02 carrying interest at $5\frac{3}{4}$ per cent per annum and repayable in 38 semi-annual instalments commencing from 15th September, 1967.
6. Amount made available to the Authority by the Ghana Government to meet the local cost of the erection of Togo-Dahomey Power Transmission Line and the installation of the 5th & 6th Generating Units of the Akosombo Power Plant.

7. Amount made available to the Authority by the Ghana Government carrying interest at the rate of $6\frac{1}{2}$ per cent per annum. The loan is repayable in three equal instalments, commencing from 19th October, 1971.

8. Canadian Government loans amounting to Canadian \$7,580,000 converted at Canadian \$1.00 to N¢0.95, representing amounts made available to the Ghana Government and re-lent under subsidiary agreements to the Authority and carrying interest at $2\frac{1}{2}$ per cent per annum on the principal drawn. The loans are repayable according to the amortization schedules attached to the loan agreements and commencing from 30th June, 1974.

NOTES ON THE ACCOUNTS AS AT 31ST DECEMBER, 1970

(These notes form part of the Statement of Accounts)

1. FIXED ASSETS

(A) COST

	<i>Balance as at 1st January, 1970</i>	<i>Expenditure during the year</i>	<i>Adjustments</i>	<i>Balance as at 31st December, 1970</i>
	N¢	N¢	N¢	N¢
Dam and powerhouse civil works ...	105,513,708	26,896	78,115	105,618,719
Transmission network ...	25,416,373	875,376	—	26,291,749
Akosombo township ...	3,342,859	314,212	—	3,657,071
Other land and buildings ...	1,671,055	31,547	(45,841)	1,656,761
Generating plant and machinery ...	8,212,641	41,566	—	8,254,207
Floating crafts ...	430,462	—	(47,435)	383,027
Motor vehicles ...	830,403	68,650	82,456	981,509
Miscellaneous plant, equipment and furniture ...	1,820,447	130,551	(282,095)	1,668,903
	<u>N¢147,237,948</u>	<u>N¢1,488,798</u>	<u>N¢(214,800)</u>	<u>N¢148,511,946</u>

(B) DEPRECIATION

	<i>Provision as at 1st January, 1970</i>	<i>Adjustments</i>	<i>Provisions for the year</i>	<i>Balance as at 31st December, 1970</i>
	N¢	N¢	N¢	N¢
Dam and powerhouse civil works ...	4,747,197	(2,248)	1,584,190	6,329,139
Transmission network ...	2,533,791	48,855	876,607	3,459,253
Akosombo township ...	1,238,972	2,511	461,116	1,702,599
Other land and buildings ...	100,711	—	34,043	134,754
Generating plant and machinery ...	731,117	—	247,627	978,744
Floating crafts ...	430,462	(47,435)	—	383,027
Motor vehicles ...	509,823	(75,074)	180,317	615,066
Miscellaneous plant, equipment and furniture ...	638,814	(4,443)	193,268	827,639
	<u>N¢10,930,887</u>	<u>N¢(77,834)</u>	<u>N¢3,577,168</u>	<u>N¢14,430,221</u>

The title to certain lands upon which the properties of the Authority are situated remain vested in the Government of the Republic of Ghana.

2. ACCOUNTS RECEIVABLE AND REPAYMENTS

This comprises:

<i>31st December, 1969</i>			<i>31st December, 1970</i>
N¢			N¢
1,181,489	Power sales ...		1,152,592
417,493	Sundry debtors and debit balances ...		132,336
148,264	Staff advances ...		263,641
183,646	Ghana Government agency account ...		347,161
199,727	Prepayments ...		251,089
<u>N¢2,130,619</u>			<u>N¢2,146,819</u>

STATEMENT D—Contd.

3. INVESTMENT BY THE REPUBLIC OF GHANA

This comprises:—

Capital contributions and disbursements ...	72,496,231
---	------------

Add:—

Contribution in respect of purchase of shares in Volta Lake Transport Company Limited	153,000
---	---------

 N¢72,649,231
Deduct:—

Non-project expenditure (Note 5)

Resettlement	12,984,965
---------------------	------------

Transportation system	314,756
------------------------------	---------

Irrigation water schemes	451,812
---------------------------------	---------

Headpond clearing	134,315
--------------------------	---------

Fishing industry	260,763
-------------------------	---------

 14,146,611

Purchase of shares in Volta Lake Transport Company Limited (Note 10)	153,000
--	---------

 14,299,611

 N¢58,349,620

4. CAPITAL RESERVE

This comprises:—

Balance as at 1st January, 1970	5,502,032
--	-----------

<i>Add:</i> Adjustment of oncost on overseas supplies	74,235
--	--------

Exchange rate adjustment	29,455
---------------------------------	--------

 N¢5,605,722

5. Resettlement cost of N¢7,000,000 is included in the accounts under the heading of Dam and powerhouse civil works, Note 1 (A). The non-project expenditure of N¢14,146,611 shown in Note 3 is the excess over that figure, which is required under the Volta River Development Act 1961 to be defrayed by the Ghana Government.

6. RATES OF EXCHANGE

Assets and liabilities in foreign currencies have been converted at the official rates in force on 31st December, 1970.

7. CAPITAL COMMITMENTS

Capital commitments as at 31st December, 1970 amounted to approximately N¢5,765,117.

8. CONTINGENT LIABILITIES

Contingent liabilities of N¢313,821 in respect of letters of credit and compensation on wayleave for transmission lines were not taken up in the books.

9. PRIOR YEARS' ADJUSTMENTS

These comprise:—

	N¢
(i) Depreciation under-provided in previous years	176,200
(ii) Loan interest	22,750
(iii) Stock adjustments	14,820
	<hr/> 213,770
<i>Less:</i>	
Proceeds from sale of fixed assets previously shown under accumulated depreciation	136,374
	<hr/> N¢77,396

10. INTEREST IN SUBSIDIARY (Note 3)

- (a) The Authority owns 153,000 shares, representing 51 per cent interest in the equity of Volta Lake Transport Company Limited which was incorporated on 23rd February, 1970.
- (b) Group accounts have not been prepared on the grounds that the business of the Authority and that of the Volta Lake Transport Company Limited are so different that they cannot reasonably be treated as a single undertaking.

STATEMENT 1

STATEMENT OF POWER SALES FOR THE YEAR ENDED 31ST DECEMBER, 1970

1969		
N C		N C
3,832,893	Electricity Corporation	4,543,397
5,282,732	VALCO	5,388,889
1,292,957	Mines	1,469,430
152,750	Akosombo township and Textile factory	228,908
<u>NC10,561,332</u>	As per Revenue Account (Statement B)	<u>NC11,630,624</u>

LAKE TRANSPORTATION

REVENUE ACCOUNT FOR THE YEAR ENDED 31ST DECEMBER, 1970

1969		NØ
NØ	EARNINGS	NØ
10,841	Passengers	2,368
16,894	Goods	3,633
30	Miscellaneous income	34
<u>27,765</u>	(a)	<u>6,035</u>
	Deduct:	
	MANAGEMENT GENERAL EXPENSES	
13,431	Salaries and related expenses	4,700
1,846	Transport and travelling	800
22,793	Repairs, maintenance and running costs	5,934
374	Stationery and printing	213
1,575	Depreciation	—
5,094	General expenses	245
<u>45,113</u>	(b)	<u>11,892</u>
(NØ17,348)	Loss shown in revenue account Statement (B) (a) - (b) ...	(NØ5,857)

Note: The operations of the Lake Transportation (Pilot Scheme) ceased on the commencement of business by the Volta Lake Transport Co. Ltd. on the 15th of March, 1970.

STATEMENT 3

**GENERATION EXPENSES FOR THE YEAR ENDED
31ST DECEMBER, 1970**

1969		NÇ
NÇ		NÇ
	<i>Direct Cost:</i>	
2,028,738	Operation	2,125,909
206,149	Repairs and maintenance	369,470
2,234,887		2,495,379
	<i>Less:</i>	
	Capital charges included in above:	
1,828,964	Depreciation	1,831,816
405,923	Total direct cost (excluding capital charges) (a)	663,563
	<i>Indirect cost:</i>	
36,318	Salaries and related expenses of managerial, technical and administrative staff	42,489
7,964	Transport and travelling	14,395
6,156	Storekeeping and workshop expenses	80,446
6,384	Stationery, publications, printing and advertisements ...	5,041
10,168	Postages and telephones	37,732
3,893	General expenses	906
70,883		181,009
	<i>Less:</i>	
25,835	Rechargeable on cost and miscellaneous receipts	11,039
45,048	Total indirect cost (b)	169,970
NÇ450,971	As per revenue account (Statement B) (a) + (b)	NÇ833,533

TRANSMISSION EXPENSES FOR THE YEAR ENDED 31ST DECEMBER, 1970

1969									
NØ									NØ
	<i>Direct Cost:</i>								
53,002	Operation								60,614
102,108	Repairs and maintenance								93,848
19,668	Travelling and transport								62,318
<u>174,778</u>	Total direct cost (excluding capital charges) ... ..(a)								<u>216,780</u>
	<i>Indirect Cost:</i>								
101,140	Salaries and related expenses of managerial, technical and administrative staff								115,208
82,227	Transport and travelling								45,733
6,540	Storekeeping and workshop expenses								41,302
21,481	Rents, rates and insurance								23,838
10,207	Postages and telephones								38,271
6,493	Stationery, publications, printing and advertisements								5,234
7,668	General expenses								6,823
<u>235,756</u>									<u>276,409</u>
	<i>Less:</i>								
2,422	Rechargeable on cost and miscellaneous receipt								3,700
<u>233,334</u>	Total indirect cost... ..(b)								<u>272,709</u>
<u>NØ408,112</u>	Transmission costs shown in revenue account (Statement B) (a) + (b)								<u>NØ489,489</u>

STATEMENT 5

**ADMINISTRATION AND GENERAL EXPENSES FOR THE YEAR
ENDED 31ST DECEMBER 1970**

1969 N¢		N¢
445,030	Salaries and related expenses of managerial, technical and administrative staff	477,225
163,175	Transport and travelling	149,641
9,032	Consultancy services	6,598
19,091	Public relations and publicity	19,792
14,900	Audit fees and expenses	12,541
8,427	Staff welfare and canteen service	4,175
16,469	Board members expenses	15,889
26,404	Bank charges	25,221
40,387	Stationery, publications, printing and advertisements	50,832
6,661	Postages and telephones	19,788
25,383	Repairs and maintenance of offices and buildings	38,016
37,210	Hire, maintenance, etc., of data processing equipment, office furniture, machinery and equipment	52,336
26,453	Rents, rates and insurance	44,887
25,260	Training and scholarships	39,808
1,157	Subscriptions and donations	721
5,968	Ex-gratia and staff compensation	10,088
20,014	General expenses	35,633
891,021		1,003,191
163,085	<i>Less:</i> Re-chargeable on cost	162,598
N¢727,936	As per revenue accounts (Statement B)... ..	N¢840,593

**AKOSOMBO TOWNSHIP EXPENSES FOR THE YEAR ENDED
31ST DECEMBER, 1970**

1969 N¢		N¢
204,212	Salaries and related expenses of managerial, technical and administrative staff	258,076
61,324	Transport and travelling	74,437
227,330	Repairs and maintenance of houses and other buildings ...	252,981
40,014	Repairs and maintenance of office equipment, machinery and furniture	61,578
25,765	Staff welfare and canteen service	454
9,825	Stores and workshop expenses	112,414
9,322	Stationery, publications, printing and advertisements ...	13,632
1,027	Postages and telephones	111
501	Bank charges	457
68,988	Electricity usage	81,195
8,476	General Expenses	11,999
656,784		867,334
	<i>Less:</i>	
300,833	Government subventions received ...	304,167
21,038	Rechargeable on cost and miscellaneous receipts	48,819
N¢334,913	As per revenue account (Statement B)	N¢514,348

STATEMENT 7

**HEALTH AND SAFETY EXPENSES FOR THE YEAR ENDED
31ST DECEMBER, 1970**

1969		
NØ		NØ
229,315	Salaries and related expenses of medical, technical and administrative staff	235,837
106,741	Hospital and health supplies	120,384
41,670	Travelling and transport	50,564
17,301	Repairs and maintenance of hospital buildings and grounds...	17,074
64	Repairs and maintenance of medical and office equipment and furniture	—
565	Rents, rates and insurance	—
17,364	Irrecoverable amounts written off	—
—	Stationery, publications, printing and advertisements ...	1,380
1,424	General expenses	12,509
<hr/> 414,444		<hr/> 437,748
	<i>Less:</i>	
236,017	Government subvention	357,083
21,484	Hospital earnings	21,554
4,321	Rechargeable on cost	8,783
<hr/> NØ152,622	As per revenue account (Statement B)	<hr/> NØ387,420
		<hr/> NØ50,328

**STATEMENT OF DEPRECIATION FOR THE YEAR ENDED
31ST DECEMBER, 1970**

1969 N¢		N¢
1,582,585	Dam and powerhouse civil works	1,584,190
847,212	Transmission network	876,607
441,972	Akosombo township	461,116
15,242	Other land and buildings	34,043
246,379	Generation plant and machinery	247,627
23,470	Floating craft	—
(77,819)	Motor vehicles	180,317
187,660	Miscellaneous plant, equipment and furniture	193,268
<u>N¢3,266,701</u>	As per revenue account (Statement B)	<u>N¢3,577,168</u>

STATEMENT 9

**STATEMENT OF LOAN INTEREST AND COMMITMENT CHARGES
FOR THE YEAR ENDED 31ST DECEMBER, 1970**

1969 N¢		N¢
2,629,878	International Bank for Reconstruction and Development ...	2,554,103
729,152	Agency for International Development	785,009
422,342	Export-Import Bank of Washington	392,353
139,215	United Kingdom Government	110,194
—	Ghana Government	19,500
<u>N¢3,920,587</u>	As per revenue account (Statement B)	<u>N¢3,861,159</u>

AGENCY SERVICES

BALANCE SHEET AS AT 31ST DECEMBER, 1970

31st December 1969		Resettle- ment	Lake Research	Lake Transport Government Scheme	Total
N¢		N¢	N¢	N¢	N¢
608,491	FIXED ASSETS (at cost) (Statement AS 4 (i))	636,132	77,635	73,174	786,941
668,062	CAPITAL WORKS IN PROGRESS	468,835	—	235,788	704,623
	CURRENT ASSETS				
291,421	Stock	308,517	—	—	308,517
35,179	Accounts Receivable (Statement AS 4 (ii))	32,663	—	—	32,663
(240,186)	Cash and bank balances	312,061	331,756	281,625	925,442
<u>1,362,967</u>	(a)	<u>1,758,208</u>	<u>409,391</u>	<u>590,587</u>	<u>2,758,186</u>
	<i>Deduct:</i>				
	CURRENT LIABILITIES				
195,939	Accounts Payable	309,424	1,573	—	310,997
30,572	Retention	30,546	—	—	30,546
176,174	Current account with VRA	194,572	(10,998)	163,587	347,161
<u>402,685</u>	(b)	<u>534,542</u>	<u>(9,425)</u>	<u>163,587</u>	<u>688,704</u>
<u>N¢960,282</u>	NET ASSETS (a) - (b)	<u>N¢1,223,666</u>	<u>418,816</u>	<u>427,000</u>	<u>2,069,482</u>
	FINANCED AS FOLLOWS :				
4,500,828	GRANTS FROM THE REPUBLIC OF GHANA (Statement AS 4 (iii))	5,888,503	815,260	427,000	7,130,763
57,335	CAPITAL RESERVE	57,335	—	—	57,335
<u>4,558,163</u>		<u>5,945,838</u>	<u>815,260</u>	<u>427,000</u>	<u>7,188,098</u>
	<i>Less:</i>				
3,597,881	RECURRENT EXPENDITURE ACCOUNT (Note AS 4 iv)	4,722,172	396,444	—	5,118,616
<u>N¢960,282</u>		<u>N¢1,223,666</u>	<u>418,816</u>	<u>427,000</u>	<u>2,069,482</u>

E. L. Quartey
Chief Executive

RESETTLEMENT

STATEMENT OF EXPENSES FOR THE YEAR ENDED 31ST DECEMBER, 1970

1969 N¢	MANAGEMENT AND GENERAL EXPENSES	N¢
701,586	Salaries and related expenses	632,016
123,070	Transport and travelling	160,061
7,236	Repairs and maintenance	71,061
234	Health supplies	306
215,879	Materials	63,202
125,233	Breeding of poultry and livestock	28,681
3,846	Purchases of food crops	9,875
4,176	Rents, rates and insurance	4,394
2,226	Postages and telephones	4,052
13,787	Stationery, printing and advertisements	9,444
2,607	Bank charges	1,740
—	Storekeeping and workshop expenses	(17,871)
7,310	General expenses	15,396
86,127	Headquarters expenses	70,149
—	Provision for bad debts	9,766
340,971	Compensations	363,816
<u>1,634,288</u>	(a)	<u>1,426,088</u>
	<i>Deduct:</i>	
	INCOME	
13,722	Sale of farm produce	37,184
14,386	Miscellaneous receipts	33,578
<u>28,108</u>	(b)	<u>70,762</u>
1,606,180	Net expenses for the year (a)-(b)	1,355,326
1,760,666	Total expenses brought forward 1st January, 1970	3,366,846
1,606,180	Net expenses for the year	1,355,326
<u>N¢3,366,846</u>	Total expenses shown under recurrent expenditure account in the balance sheet	<u>N¢4,722,172</u>

LAKE RESEARCH

RESEARCH EXPENSES FOR THE YEAR ENDED 31ST DECEMBER, 1970

1969									
	NØ								NØ
35,555		Salaries and related expenses	...	...	...	...	...	...	44,189
22,064		Transport and travelling	...	...	...	...	...	...	44,902
2,009		Repairs and maintenance	...	...	...	...	...	...	569
8,837		Materials	...	...	...	...	...	...	10,125
—		Health supplies	...	...	...	...	...	...	16
6,681		Stationery, printing and advertisements	...	...	...	...	...	...	5,197
18,995		Rents, rates and insurance	...	...	...	...	...	...	20,259
—		Storekeeping and workshop expenses	...	...	...	...	...	...	516
36		Postages and telephones	...	...	...	...	...	...	237
4,352		General expenses	...	...	...	...	...	...	2,163
8,955		Headquarters expenses	...	...	...	...	...	...	8,268
43,194		Payments for specific research work	...	...	...	...	...	...	28,968
<u>150,678</u>		Expenses for the year	...	...	...	...	...	...	<u>165,409</u>
80,357		Total expenses brought forward 1st January, 1970	...	...	...	...	...	...	231,035
<u>150,678</u>		Expenses for the year	...	...	...	...	...	...	<u>165,409</u>
<u>NØ231,035</u>		Total expenses shown under recurrent expenditure account in the balance sheet (Statement AS 1)	...	...	...	...	...	...	<u>NØ396,444</u>

STATEMENT AS 4

AGENCY SERVICES NOTES ON THE ACCOUNTS

(i) STATEMENT OF CAPITAL EXPENDITURE AS AT 31ST DECEMBER, 1970

A. RESETTLEMENT

	<i>Balance as at 1st January 1970</i>	<i>Expenditure during the year</i>	<i>Adjustments</i>	<i>Balance as at 31st Decem- ber 1970</i>
	NÇ	NÇ	NÇ	NÇ
Land and buildings	60,821	38,104	—	98,925
Roads	166,175	12,047	(21)	178,201
Motor vehicles	267,862	30,655	(2,928)	295,589
Plant, equipment and furniture	65,743	1,649	(3,975)	63,417
	<u>NÇ560,601</u>	<u>NÇ82,455</u>	<u>NÇ(6,924)</u>	<u>NÇ636,132</u>

B. LAKE RESEARCH

	<i>Balance as at 1st January, 1970</i>	<i>Expenditure during the year</i>	<i>Adjustments</i>	<i>Balance as at 31st Decem- ber, 1970</i>
	NÇ	NÇ	NÇ	NÇ
Land and buildings	—	19,377	—	19,377
Floating crafts	15,290	10,571	—	25,861
Plant, equipment and furniture	32,600	30	(233)	32,397
	<u>NÇ47,890</u>	<u>NÇ29,978</u>	<u>NÇ(233)</u>	<u>NÇ77,635</u>

C. LAKE TRANSPORTATION

	<i>Balance as at 1st January 1970</i>	<i>Expenditure during the year</i>	<i>Adjustments</i>	<i>Balance as at 31st Decem- ber, 1970</i>
	NÇ	NÇ	NÇ	NÇ
Land and buildings	—	35,092	—	35,092
Roads	—	5,959	—	5,959
Miscellaneous equipments	—	32,123	—	32,123
	<u>NÇ —</u>	<u>NÇ73,174</u>	<u>NÇ —</u>	<u>NÇ73,174</u>

No depreciation has been provided on Agency Services assets as at 31st December, 1970.

(ii) ACCOUNTS RECEIVABLE

This comprises:

31st December,
1969

	NÇ	NÇ
21,802 Contractors Advances... ..	15,178	
4,816 Staff advances	7,901	
1,866 Prepayments	76	
6,695 Sundry debtors and debit balances	19,273	
Less Provision for bad debts	9,765	
	<u>9,508</u>	
	<u>NÇ35,179</u>	<u>NÇ32,663</u>

(iii) GRANTS FROM THE REPUBLIC OF GHANA

This comprises:—

	<i>Resettlement</i>	<i>Lake Research</i>	<i>Lake Transportation</i>
	N¢	N¢	N¢
Total grants as at 1st January, 1970	3,861,071	505,700	—
Grants received during the year	1,893,375	309,560	427,000
	<u>5,754,446</u>	<u>815,260</u>	<u>427,000</u>
Stocks taken over from the Ministry of Agriculture	134,057	—	—
	<u>N¢5,888,503</u>	<u>N¢815,260</u>	<u>N¢427,000</u>

(iv) RECURRENT EXPENDITURE ACCOUNT

This account is made up of the cumulative revenue expenses on the Project.