

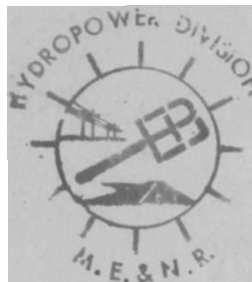
**CO-OPERATIVE REPUBLIC OF GUYANA**

**REPORT FOR THE YEAR  
1977 & 1978**

**By**

**M. VEECOCK**

**CHIEF HYDROPOWER ENGINEER**



**HYDROPOWER DIVISION  
MINISTRY OF ENERGY AND NATURAL RESOURCES  
GEORGETOWN**

**APRIL 1980**

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A C K N O W L E D G E M E N T

In preparing this report the work of the following staff members is hereby acknowledge .

M. Singh	Deputy Chief Hydropower Engineer.
B. Nero	Secretary.
G. Jones	Chief Draughtsman (ag)
Jagdeo	Assistant Draughtsman.
P.P. Singh	Senior Assistant Draughtsman.
H. Dass	Technician.
C. Carter	Typist.
P. Seymour	Office Assistant.

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## Introduction:

This report covers the period (January 1977 to December, 1978), and it will describe or illustrate the degree of involvement and works executed by the Hydropower Division of the Ministry of Energy and Natural Resources. During this period the Division's involvement was mainly directed towards the following:-

- a) Supplying technical personnel and monitoring the technical works that were executed on the Upper Mazaruni Hydropower Project.
- b) Monitoring and supervising the consolidation of the dam at Tumatumari Hydropower Stations.
- c) Preparation of pre-feasibility studies of small Hydropower projects in the Rupununi, Rockstone and Linden Highway areas.

## 2. Upper Mazaruni Hydropower Project

The Upper Mazaruni Hydropower Project was directly under the control of the Upper Mazaruni Development Authority but because of the lack of suitably trained personnel within the Authority, certain officers from Hydropower Division were called upon to perform professional and technical duties for the Authority.

The following officers were involved for a period of two years with the Authority:-

a) Cde. M. Veacock (Assistant Chief Hydropower Engineer).

Cde. M. Veacock performed the duties of Co-Project Manager of the project, and as such, his duties included the monitoring and supervision of the drilling works, surveying, and hydrometeorological works for the project.

b) Cde. R. Tung. (Engineer).

Cde. R. Tung worked for a period of one year on the said project and was mainly responsible for the field works at the Kamarang location.

c) Cdes. H. Dass and M. Jackson. (Senior Technicians)

Cdes. H. Dass and M. Jackson were directly involved in the sub-surface exploration along the transmission line route between Karuni and Sherima.

d) Cde. P.P. Singh, (Assistant Draughtsman)

Cde. P.P. Singh who worked with the Engineering Geologist (Mark King) for a period of one year and was mainly responsible for the drafting of drill log data and geological maps.

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The knowledge gained by the above officers during their attachment to the Upper Mazaruni Development Project is now being fully utilised in making the works of the Hydropower section more meaningful.

It must also be mentioned here that the officers who were attached to that said project did not receive any remuneration from Upper Mazaruni Development Authority but were paid by the Hydropower Division.

2. Consolidation of Tumatumari Dam:

During 1977 the works at Tumatumari continued to be hampered due to the lack of adequate manpower, suitable mechanical equipment and several social problems.

Between January and May, 1977 the Guyana Defence Force work force was able to dump 750 tons of boulders to further consolidate the dam; this was mainly due to the initiative taken by the Hydropower Division to station two experienced persons (D. Lashley and G. Narine) to assist the army in both the construction works and repairs to mechanical equipment. However, the Guyana Defence Force personnel lost the initiative, drive, and interest in the consolidation of the dam, mainly due to the Guyana National Service relationship towards them.

On 5th May, 1977 an agreement was reached between Guyana Defence Force, Guyana National Service and the Hydropower Division, whereby the Guyana National Service would take-over full maintenance of the dam from 15th November, 1977, since they were the sole users of electricity from the station.

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Guyana National Service on agreement with Hydropower Division was to supply the manpower and equipment, and the Hydropower Division was to give Consultant Services only, hence Cdes D. Lashley and G. Narine were removed from the site from the take-over.

During February, 1978, the Hydropower acquired a 22RB dragline and uni-float sections in order to assist Guyana National Service in carrying out maintenance of the dam, since the Guyana National Service was not in a position to supply an adequate labour force. However, the dragline was never put into use. On a whole, for most of 1978 the Guyana National Service was finding it very difficult to maintain a proper labour force and to keep close contact with the Hydropower Division, hence no substantial work was done on the dam and the effort put in by the Guyana Defence Force was nullified by them.

For 1977 the Guyana Defence Force dumped 950 tons of boulders to consolidate the dam, while during 1978, Guyana National Service only blasted and stockpiled boulders.

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4. Prefeasibility Study of Small Hydropower sites located in various interior areas.

The escalation of oil prices followed by a high increase in the generating of electricity by thermal means caused the Division to embark on a strategy to identify suitable small or mini hydropower sites to satisfy the power requirements for selected interior areas. The Division approached this work by first identifying certain built-up interior areas and estimating their existing and projected power requirements.

Short description of the various sites that the Hydropower Division studied during the period are detailed in 4.1

4.1 Hydropower Sites in the Rupununi Areas.

In the Rupununi areas the Division studied two sites in order to supply power to Lethem, St. Ignatius, etc. The two sites studied were Moco-Moco and Kuma.

4.1.1 Moco-Moco

The Moco-Moco Creek is a small tributary of the Takutu River and this creek originates from the South Western plateau of the Kanuku Mountains. Inspection of the Terra Survey maps revealed that the Moco-Moco Creek has a continuously steep gradient from its source until it reaches savannah level. A small hydropower project of about 110 kw can be constructed.

4.1.2

The Kuma project is similar to that of Moco-Moco and if developed it will only give a total of 110 kw.

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4.1.3 Wamukaru

Because the two power sites (Moco-Moco and Kuma) when grouped together were only capable of delivering approximately 240 kw, it was felt that another small scheme should be investigated so as to satisfy the areas immediate and future power demands. Below shows a breakdown of the estimated load demand for the Rupununi areas around Lethem, St. Ignatius, Bon Success, Nappi, Moco-Moco Basha and Hiawa.

Breakdown of Load Demand for the abovementioned places:-

	KW
1) Lethem main compound	30
2) Lethem (Workshop, Abbatoir, Cold Storage Plant and Tannery).	160
3) Lethem (Domestic Lighting of Village)	100
4) St. Ignatius (School and Government Compound)	50
5) St. Ignatius (Domestic Lighting of Village)	40
6) Bon Success (Government Quarters and Domestic Lighting of Village)	40
7) Nappi Village (Domestic Lighting)	20
8) Hiawa Village (Domestic Lighting)	10
10% reserve	<u>45</u>
TOTAL.....	<u>495</u>
Firm Power available	500 kw
<u>Load Demand in the Moco-Moco Creek Area</u>	
1) Moco-Moco Village	30
2) Basha Village	20
3) Eastern Section of St. Ignatius Village	40
10%	<u>10</u>
TOTAL.....	<u>100</u>

Total for the areas equal 600 KW.

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The Division decided to study in more detail a more favourable site located on the Wamakaru River which is a tributary of the Rupununi River. This scheme from our initial studies revealed that a minimum potential of 500 kw could be developed. Consequently, during the latter part of 1978 the Division advanced to the Hydrometereological Service the sum of \$18,000 to install a gauge in the Wamakaru River. This work was completed in December of 1978 and discharge observations are now being undertaken by the Hydrometereological Service.

#### 4.2 Anarika Power Site

A letter was received from Mirev Agency on 14th December, 1978 to look at the possibility of supplying cheap power to a developing settlement in the Anarika area. The Hydropower Division convened a meeting with Mirev Agency and promised to work out a suitable programme for supplying power to their proposed settlement in 1979.

#### 4.3 Hydropower Scheme at Loo Creek

The Hydropower Scheme at Loo Creek was conceived with the main idea of giving our engineers a chance of putting the Banki Turbine into operation. Cde. O'Lall, (Specialist Engineer) was given the task to undertake to develop a small Banki Turbine to satisfy the requirements of 40 KW. The design of the Banki Turbine was not completed during the period in question.

The Survey Division was contacted in July, 1978 to carry out a topographic investigation at Loo Creek. Their investigation included:

- a) longitudinal cross section of the Creek.
- b) Cross-sections at half mile intervals along the creek.
- c) detail cross-section of the proposed dam site.

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These works were completed at a cost of \$25,000.

The soil conditions at the dam site were extremely poor for dam construction and available material in the area made the construction of the dam uneconomical.

The material within the area was tested at the University of Guyana laboratory and a model dam at the University of Guyana revealed that the sand dam for the Loo Creek Micro Electric Pilot Project will stand up with the following salient dimensions.

Normal head of water	30 ft.
Top width of dam	16 ft.
Water fix slope of dam	1 - 4
Back slope of dam	1 - 8

The Division felt that because the dam at Loo Creek was over 1,000 feet long and the fill required was so high; hence the cost of the scheme was extremely uneconomical and the Division recommended that it should be shelved.

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5. Drawing Office Activities for years 1977 and 1978

5.1 Drawing Office Activities for year 1977

Cde. C. Newyear, a National Service Trainee joined the Hydropower staff on January 5, 1977.

A programme was drawn up to get the three trainees familiar with Hydropower and other drawings.

Cde. Newyear, after completing a most satisfactory one-year training period is now employed in the Survey Section of the National Service.

Technician Ganesh Naraine was stationed at Tumatumari between January 23, 1977 and June 24, 1977 on his return to the Hydropower Division he assisted the Design Engineer with work on the Wamakaru, Moco-Moco Hydroelectric Scheme. Assistant Draughtsman P.P. Singh, returned to the Hydropower Division in December after completing his assignments at Upper Mazaruni Development Authority. Cde. Singh assisted the Geologist Mark King throughout the year on Drill Log Data and Geological reports.

The Hydropower Division prepared a model of a water wheel and a 1:500,000 Map of Guyana showing Potential Hydropower Sites. The technical officers were assigned duties to work during exhibition hours. The exhibition started on Thursday May 5, 1977 and closed Sunday May 8, 1977.

At the end of November the balance of the drawing office vote was \$87.32 which meant that the drawing office spent \$912.69 in drawing office equipment and printing and photocopying paper. The volume of work was not as demanding as in the previous years. This resulted in there being a time consuming approach to assignments. In the crisis however the drawing office have tried to sustain the high standard of workmanship and attendance.

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List of Maps and plans prepared for the year 1977 for the various projects.

Tumatumari

1. Reduction of Tumatumari Power House Area from 1" - 50' to 1" - 100'
2. Tracing of the Plan showing works.
3. Present Site Plan.
4. Chart showing - Programme of Works.
5. Expenditure on Tumatumari (1973, 1974).
6. Programme chart for Tumatumari.

Matthews Ridge Area

1. Tracing of 100' contour from 1:50,000 in pencil and crayon.

Moco-Moco and Kuma

1. Tracing of Kuma and Moco-Moco Drainage Area.
2. Profile of Moco-Moco creek showing proposed layout.
3. Table of monthly rainfall at Kuma 1968 - 1976.
4. Table of monthly rainfall at Moco-Moco settlement 1964 - 1975.
5. Map showing general layout of proposed development of Moco-Moco and Kuma Hydropower Scheme.
6. Planimetric calculations of areas of Moco-Moco and Kuma drainage areas.
7. Tracing of portion of Kuma Creek profile showing proposed layout.
8. Tracing of Hyetograph settlement Moco-Moco 1964-1975.
9. Plotting and Tracing Hyetograph Kuma Station 1968-1976.
10. Diagrammatic layout of proposed installation Moco-Moco Scheme.
11. Compilation of three copies of Report on Hydroelectric Reconnaissance of the Moco and Kuma Creeks (Updated study).

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12. Cover for Hydroelectric Reconnaissance of proposed Hydro-stations.

Wamukaru.

1. Amass and prepare particulars on Eclipse falls, Itabu falls and Wamukaru.
2. Tracing of 350 contour on 1:50,000.
3. Drainage area by planimetre of Eclipse Falls, Wamukaru and Itabu.
4. Extract from 1:50,000 sheet Wamukaru drainage area and prepare tracings inserting 500, 750, 1,000, 1,250 and 1,500 contours.
5. Profile of Wamukaru River.
6. Drainage Area tracing.
7. Calculation of Drainage Area of Wamukaru Site above the intake structure.
8. General arrangement of the Headpond and penstock intake for Wamukaru Hydroelectric Scheme.
9. Layout of proposed Hydroelectric Scheme.
10. Profile of Power Canal.
11. Design Pressure Gradient for the Penstocks.

Canje River

1. Daily Discharge Hydrograph - May 1963 - August 1964.
2. Discharge Hydrograph of Irrigation and water supply.
3. Longitudinal Profile of Canje River.

St. Ignatius Lethem

1. Table of monthly rainfall at St. Ignatius 1970-1975
2. Table of monthly rainfall at Lethem 1954-1974.
3. Existing layout of underground Electric Distribution system - Lethem - St. Ignatius.
4. 1:50,000 Map of Guyana showing Lethem area and surrounding villages.



Chi-Chi

1. Planimetric calculations of areas created by 2350, 2400 and 2450 contours.
2. Traverse lines plotting.
3. Traverse lines tracing of 2350, 2400 and 2450.
4. Volume/Area curve.
5. Mass flow curve.
6. Chi-Chi/Kamarang correlation.

## General

1. Cross section through earth dam.
2. Jarnagsforsens power plant.
3. General layout.
4. Longitudinal profile of the plant.
5. Three reports of Visit to Sweden (E.L. Lee).
6. Reports and journals on Hydroelectric power and installations.
7. Sediment Survey Programme Progress Reports for 1st May - November 30, 1976.
8. Enlarge  $2\frac{1}{2}$  times Hydroelectric Unit showing control valve.
9. Expenditure graphs for 1973 and 1974 Annual Reports.
10. Expenditure on (i) Kamarie (1973)  
(ii) UN/Guyana Hydropower Survey 1974  
(iii) Upper Mazaruni Project  
(iv) 1975/1976 Annual Reports.
11. Sand Landing Geological Map showing Dam Axie and Diamond Drill Holes (done by Yugoslavia).
12. Organizational Chart for 1973/1974 Annual Report.
13. Project Area of Essequibo Harbour Studies.
14. 100,150 contours of Itabu Falls.
15. Chart showing Additional Requirements of Manpower 1978-81.
16. Available Topographical maps.
17. Soil Exploration Report (7 copies).

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18. River Profiles.
19. Reservoir Area Loo Creek.
20. Reservoir Area of Itabu (100' & 150' contour),
21. Circuit Diagram KVA.
22. Hyetograph of Dadanawa.
23. Existing underground distribution system.
24. Proposed distribution system of Rupununi District including outlying villages.
25. Detail of Scraping plate.
26. Isometric view of Sand Excavator.
27. Cycle of the Excavator.
28. Details of Sand Excavator Support.
29. Sand Excavator Power Transmission.
30. Monthly rainfall Dadawana 1953 - 1975.

5.2 Drawing Office Report for Year 1978.

The National Service Trainee, Cecil Newyear returned to the National Service after completing one (1) year of training in the Hydropower Drawing Office.

Technician Ganesh Narine assisted the Chief Hydropower Engineer throughout the year with work on Chi-Chi Project.

With effect from January 14, 1978 Cde. G. Jones did a two (2) month stint of National Service. In his absence Cde. Singh assumed duties of the Drawing Office. Cde. Jones resumed duty on March 23, 1978.

Assistant Draughtsman Ali Shaw reported for National Service on July 7, he did a two-month stint and returned to work on September 20.

From September 25 to November 25, Draughtsman G. Jones proceeded on two (2) months' vacation leave. Senior Assistant Draughtsman P. Singh acted in his absence.

The Drawing Office bought equipment to the value of three hundred and eighty dollars (\$380.00) during October and November months. The Drawing Office also required Printing and photocopying paper.

On April 12, 1978 Assistant Draughtsman Jagdeo was asked to represent the Hydropower Division on the Hydroelectric Power Station Site until the regular representative Technician Ganesh Narine was fit to take over. He returned on April 23, 1978.

The Training programme for the Drawing Office was brought over from 1977 but it was found difficult to continue as the Draughtsman had other classes to attend.

Drawings and maps completed for the year for the various projects are as follows (56) drawings.

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List of Drawing prepared for 1978  
Chi-Chi Diversion Scheme

- (i) (a) Chi-Chi/Kamarang rainfall correlation.
- (ii) (b) Area/Volume curve.
- (iii) (c) Computation of monthly discharges.
- (iv) (d) Mass/Flow Curve.
- (v) (e) Monthly Peak flow correlation of Kamarang and Chi-Chi air-strip.
- (vi) (f) Computation of storage for two (2) gates and three (3) gates spillway.
- (vii) (g) Recorded flood Hydrograph.
- (viii) (h) Longitudinal Section of Chi-Chi Dam.
- (ix) (i) Quantities of excavation and fill of Chi-Chi Dam.
- (x) (j) Checking of volume and cost of fill and excavation of Chi-Chi Dam.
- (xi) (k) Checking of gate discharge for Chi-Chi spillway.
- (xii) (l) Location and Access.
- (xiii) (m) Storage Demand Curve.
- (xiv) (n) Graph of surcharge storage elevation Chi-Chi reservoir.
- (xv) (o) Design Floor Hydrograph for spillway.
- (xvi) (p) Profile of Proposed Dam Axis.
- (xvii) (q) Plotting survey co-ordinates on Terra map, and comparing elevations.
- (xviii) (r) Traverse showing position of PM, CS from APF No. 1 along Drakang River to supply tunnel alignment.
- (xix) (s) Computation of length of Power Canal.
- (xx) (t) Power Canal, Penstock and Tailraces Tunnel showing location of Power House, Surge Tank and Intake gate.
- (xxi) (u) Profile of Marume River.

Loo Creek Project

- (i) Details of Banki Turbine.
- (ii) Water wheel.
- (iii) Detail of sluice type shutter for Banki Turbine.
- (iv) Black water River Catchment area.
- (v) Black water river profile.
- (vi) Loo Creek contour area.
- (vii) Programme of work for Loo Creek 1978.
- (viii) Enlargement of supports of Banki Turbine.
- (ix) Enlargement of supply flume.
- (x) Cutting schedule for Banki Turbine.
- (xi) Loo Creek Axis.
- (xii) Compilation of Estimates and Volume of
  - (a) 1:1.5 & 1:1.5
  - (b) 1:3 & 1:5 and
  - (c) 1:3 & 1:6

Slopes for Loo Creek Dam.

Kamarang

- (i) Recorded Flood Hydrograph for Kamarang.
- (ii) Maximum Recorded, Kamarang Hydrograph Flood period 16th June - 29th July, 1971.
- (iii) Kamarang and Apaikwa correlation (tracing)
- (iv) Extreme Probability curve.

Wamukaru Project

- (i) Programme of work for Wamukaru 1978.

Tumatumari Project

- (i) Present Site plan Tumatumari.
- (ii) Works to Date.
- (iii) Revised Drawing of Rockfill Dam.

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Towakaima Project

- (i) Tracing of Towakaima 150,200 and 250 contours.
- (ii) Calculation of Reservoir area.
- (iii) Catchment area Tracing.

General Maps and Plans.

- (1) Compilation of maximum storage 3, 4 & 5 years flood periods.
- (2) Wind propeller.
- (3) Leave rooster for Hydropower Division, 1978.
- (4) Motor starter.
- (5) Connection Diagram for a Dual Voltage Motor.
- (6) Design of 1 - 10,000 Hydrological graph sheet.
- (7) Chart for additional requirements of Manpower 1978 - 81  
Vol. 1 and No. 2 .
- (8) Programme of work for Hydropower Division.
- (9) Design and preparation of Poultry pen.
- (10) Preparing and checking of Kaburi River Discharge and Plotting  
of cumulative yearly discharge graph.
- (11) Filing Topographical Maps.

6. Staff

The staffing problems of the Hydropower Division remains the same as for previous years. Shortages of engineers and other technicians continued to hamper the division despite many efforts made by the Personnel Division of the Ministry of Energy and Natural Resources to fill them. To date these vacancies are yet to be filled and the main reasons for not attracting suitable candidates to fill the post are:-

- a) The Hydropower Division so far has not been able to get involved in the construction of a hydropower project.
- b) Only prefeasibility studies are being executed and as such an increase in staff is not warranted.

6.1 Leave Taken By Employees in the Hydropower Division during 1977

Name	Vacation	Annual	Special	Sick	Remarks
E.L.Lee	75 days	-	-	3 days	-
M.Veacock	-	11½ days	-	-	-
M. Wray	-	10 "	2 days	9 days	-
L. Mentore	-	14 "	-	6 days	-
M. Persaud	-	13½ "	-	14 days	-
Jagdeo	-	12 "	2 days	10 "	-
J.Z.A.Shaw	-	-	3 days	5½ "	-
G. Jones	-	24 days	-	2 "	12 days-deferred from 1976
M. Singh	-	12 days	-	9 days	-
G. Smith	-	14 "	-	3 "	-
J. O'Lall	-	5 "	-	4 "	-
M. Jackson	-	12 "	-	-	-

cont'd

NAME	VACATION	ANNUAL	SPECIAL	SICK	REMARKS
H. Dass	-	11 days	-	5 days	-
G. Naraine	-	13 days	-	8 days	-
P. Seymour	-	14 days	-	-	-
P.P. Singh	-	12 days	-	1 day	-
E. Thompson	-	14 days	8 days	5 days	-
S.L. Martin	-	-	-	-	-
B. Nero	-	12 days	-	13 days	-
S. Mangal	-	7½ days	-	8 days	-
A. Fraser	-	-	-	3 days	-
R. Tung	-	-	-	2 days	-
O.L. Wilson	-	-	3 days	-	-
T. McKenzie	-	5 days	-	6 days	-
H. Baksh	-	9 days	-	10 days	-
S. Bheir	-	3½ days	-	6½ days	-
F. Small	-	-	-	8 days	-
K. Lall	-	14 days	-	-	-
C. David	-	7 days	-	3½ days	-
P. Innis	-	-	-	1 day	-
J. Marshall	-	2 days	-	12 days	-
F. Thompson	-	-	-	6 days	-
M. Doobay	-	14 days	-	13 days	-
G.O. Grant	-	4 days	-	14 days	-
W. Carroll	-	-	-	5 days	-



6.2 Appointments, Transfers, Resignations, dismissals and Redeployment for 1977

6.2.1. Appointment for year 1977:

Cde. G.O. Grant, Accounts Clerk II, was appointed to act as Senior Clerk with effect from 24th March, 1977.

6.2.2 Transfers:

Cde. A. Fraser, Accounts Clerk II, was transferred to the Forest Department with effect from 17th February, 1977.

Cde. J. Marshall, Temporary Vehicle Driver, to the Head Office with effect from 5th April, 1977.

6.2.3 Resignations:

Cde. R. Tung resigned from the division with effect from 3rd March, 1977.

6.2.4 Dismissals or Termination of Services:

Cde. Innis was dismissed because of unauthorised absence from duty with effect from 5th February, 1977.

Cde. Carroll was dismissed because of unauthorised absence from duty with effect from 14th July, 1977.

6.2.5 Redeployment:

Cde. C. David, Print Room Operator, was redeployed with effect from 30th October, 1977.

Cde. S. Bheir, Expediter, was redeployed with effect from 5th November, 1977.

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6.3 Leave Taken by Employees in the Hydropower Division during 1978.

NAME	ANNUAL	SPECIAL	SICK	REMARKS
E.L. Lee	6 days	-	12 days	-
M. Veecoock	23 days	-	-	12½ days de- ferred from '77.
M. Wray	12 days	1 day	13 days	-
L. Mentore	14 days	-	3 days	-
M. Persaud	14 days	-	11 days	-
Jagdeo	12 days	2 days	9 days	-
G. Jones	12 days	-	2 days	-
J.Z.A. Shaw	12 days	3 days	6 days	-
M. Singh	11 days	1 day	23 days	-
G. Smith	14 days	-	3 days	-
J. O'Lall	19 days	-	10 days	7 days deferred from 1977.
M. Jackson	7 days	-	1 day	-
H. Dass	12 days	-	6 days	-
G. Naraine	14 days	-	14 days	-
P. Seymour	14 days	-	-	-
P.P. Singh	12 days	2 days	7 days	-
E. Thompson	6 days	-	7½ days	-
S.L. Martin	12 days	-	-	-
B. Nero	7 days	-	12 days	-
S. Mangal	13½ days	2 days	13½ days	-
A. Fraser	-	-	-	-
R. Tung	-	-	-	-
J. McKenzie	6 days	7 days	2 days	-
K. Lall	5 days	-	40 days	-
H. Elcock	11 days	-	9 days	-
F. Thompson	14 days	-	10½ days	-
M. Doobay	9 days	-	6 days	-
G.O. Grant	6 days	-	3 days	-
W. Fowler	14 days	-	9 days	-
D. Lashley	14 days	-	-	-

6.4 Appointments, Transfers, Resignations, Dismissals and Re-deployment for 1978.

6.4.1 Appointments for year 1978

During this period, there were no appointments made in the Division.

6.4.2 Transfers

Cde. W. Fowler, Vehicle Driver was transferred to Geological Surveys with effect from 3rd May, 1978 and was interdicted on 16th October, 1978 (causing death by dangerous driving).

Cde. T. McKenzie, Storekeeper II was transferred to Geological Surveys with effect from 16th December, 1978.

Cde. G.O.Grant, Accounts Clerk II was transferred to Geological Surveys with effect from 20th November, 1978.

Cde. S. Mangal, who was employed with the Project as Temporary Vehicle Driver, has been reverted to his substantive position of Office Assistant with effect from 1st March, 1978 due to the phasing down of the Project activities.

6.4.3 Resignation

Cde. M. Doobay, Trainee Draughtsman, resigned on 3rd May, 1978.

6.4.4 Dismissals

Cde. D. Lashley, Construction Foreman, was dismissed with effect from 1st May, 1978.

Cde. K. Lall was dismissed with effect from 28th August, 1978.

6.4.5 Redeployment:

Cde. H. Baksh was redeployed with effect from 1st February, 1978.

7. Stores Report

7.1 Value of Stock in Stores

- a) The value of the Stores was estimated at seventy thousand dollars (\$70,000.00) in the above-mentioned years.
- b) The value estimated on Loan was fifteen thousand dollars (\$15,000.00).
- c) The value estimated stock to be boarded was placed at three thousand dollars (\$3,000.00).

With reference to item (b) above in which it has been indicated that a total of \$15,000.00 was on loan, the Division would like to indicate the reasons for this large quantum of stores being outstanding.

Most of these 'stores on loan' were sent to U.M.D.A. in order to assist with it's vital programme of works in the field. These stores have not been returned to date and the Manager, U.M.D.A. indicated that these articles cannot be returned to Hydropower Division because they were left in the interior following the abrupt closing down of that Project.

Arrangements have been made for a stock transfer of these articles from Hydropower Division to U.M.D.A. Stores. This arrangement has not been completed because the Division was still awaiting a visit from the Auditor.

The Division would like to point out that there had been no auditor's check of the stores over a period of two years.

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8. Financial Report for the Years 1977/1978

During the year 1977 the Division expended a total of \$86,425.32 on Current Expenditure.

Details of this expenditure showing monthly expenditure is shown in Table 1. Please note that during the fiscal year of 1977, the Division was not allocated any development funds.

The expenditure for 1978 are shown on Tables 2 and 3.

## CURRENT EXPENDITURE 1977 - HYDROPOWER DIVISION

TABLE I

SUB-HEAD	TOTAL ALLOCATION FOR YEAR.	TOTAL PROJECTED ALLOCATION TO END OF YEAR	TOTAL RELEASES TO END OF YEAR	MONTHLY RELEASES												TOTAL EXPENDITURE TO END OF YEAR	
				R	MONTHLY EXPENDITURE												
				E	JAN	FEB	MARCH	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV		DEC
Transport and Travelling	8,200.00	-	8,200.00	R	-	-	-	-	-	-	-	-	-	-	-	-	7,637.80
				E	180.94	363.62	715.24	943.18	897.04	1364.80	1043.62	88.95	331.80	685.92	555.96	466.73	
Miscellaneous	3,100.00	-	2,583.00	R	-	-	-	-	-	-	-	-	-	-	-	-	2,230.03
				E	227.72	869.45	89.79	26.00	120.00	45.80	39.00	25.00	393.94	260.72	79.86	52.75	
Postage, Cable & Tel.	300.00	-	79.00	R	-	-	-	-	-	-	-	-	-	-	-	-	27.71
				E	-	-	.26	.35	4.40	10.65	2.80	1.65	-	6.80	-	.80	
Library and Publications	100.00	-	55.80	R	-	-	-	-	-	-	-	-	-	-	-	-	25.39
				E	-	-	-	25.39	-	-	-	-	-	-	-	-	
Uniforms	200.00	-	200.00	R	-	-	-	-	-	-	-	-	-	-	-	-	86.00
				E	-	-	-	-	-	-	-	-	-	-	-	86.00	
Maintenance, & Operation of Land and Water Trans.	10,000.00	-	10,000.00	R	-	-	-	-	-	-	-	-	-	-	-	-	9,406.18
				E	642.68	2380.88	1438.77	536.72	344.39	379.05	43.12	1151.50	655.25	522.63	140.00	1171.19	
Drawing Inst. Mat. Equipt.	1,000.00	-	930.00	R	-	-	-	-	-	-	-	-	-	-	-	-	842.69
				E	-	210.00	-	206.64	177.05	31.50	153.12	19.38	45.00	-	-	-	
Printing of Maps & Rep.	-	-	-	R	-	-	-	-	-	-	-	-	-	-	-	-	-
				E	-	-	-	-	-	-	-	-	-	-	-	-	
Maintenance of Tumatumari dam.	50,000.00	60,000.00	50,000.00	R	-	-	-	-	-	-	-	-	-	-	-	-	47,900.43
				E	5058.48	23753.16	1055.39	1429.04	614.54	4361.02	1336.16	-	-	8823.89	1635.93	4320.82	
Maintenance of Gauges.	28,000.00	-	17,600.83	R	-	-	-	-	-	-	-	-	-	-	-	-	17,549.09
				E	-	311.93	-	624.27	1762.68	-	103.45	-	1402.60	504.45	3993.89	8845.82	
Maintenance of Tiboku Base Camp.	4,000.00	-	3,720.00	R	-	-	-	-	-	-	-	-	-	-	-	-	720.00
				E	-	-	-	-	240.00	-	120.00	60.00	-	-	120.00	180.00	
TOTAL			93,367.80		6101.82	27899.34	3299.45	3791.59	4160.10	6192.82	3361.27	1346.48	2826.59	5804.41	6525.64	15124.11	86,425.32

CAPITAL ESTIMATES AND EXPENDITURE 1978

TABLE 2

HYDROPOWER DIVISION

SUB-HEAD	TOTAL ALLOCATION FOR YEAR	TOTAL PROJECTED ALLOCATION FOR YEAR	TOTAL RELEASES TO END OF YEAR	MONTHLY RELEASES												TOTAL EXPENDITURE TO END OF YEAR	
				R	MONTHLY EXPENDITURE												
				E	JAN	FEB	MARCH	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV		DEC
Maintenance of Tumatumari Dam	30,000.00	50,000.00	31,000.00	R	-	-	-	-	-	-	-	-	-	-	-	-	9,233.20
				E	-	-	908.25	1192.25	866.40	126.31	271.27	3702.49	301.29	30.75	640.09	1194.10	
Hydropower Surveys	200,000.00	200,000.00	57,300.00	R	-	-	-	-	44300.00	-	8000.00	-	-	-	-	5000.00	
				E	-	-	-	-	-	182.32	7238.88	-	-	-	-	-	
Development of Flume at U.G. for Loo Creek Dam.	3,000.00	-	3,000.00	R	-	-	-	-	-	-	-	-	-	-	3000.00	-	3,000.00
				E	-	-	-	-	-	-	-	-	-	-	-	3000.00	
Repairs to Land Rover for Loo Creek Surveys.	3,000.00	-	3,000.00	R	-	-	-	-	-	3000.00	-	-	-	-	-	-	3,000.00
				E	-	-	-	-	-	-	3000.00	-	-	-	-	-	
Hydropower Surveys Loo Creek	23,000.00	23,000.00	23,000.00	R	-	-	-	-	8000.00	-	-	1000.00	-	-	-	5000.00	20,946.01
				E	-	-	-	-	-	-	1129.54	4986.85	7826.15	6525.98	182.52	294.97	
Installation of Gauge at Loo Creek	7,000.00	7,000.00	7,000.00	R	-	-	-	-	7000.00	-	-	-	-	-	-	-	7,079.15
				E	-	-	-	-	-	182.32	1345.86	2552.66	32.75	2965.56	-	-	
Installation of Gauge at Wamukaru Reconnaissance	14,000.00	14,000.00	14,000.00	R	-	-	-	-	-	-	1400.00	-	-	-	-	-	13,912.99
				E	-	-	-	-	-	-	-	-	-	-	5310.06	8593.93	
Other Expenditure From Votes Ledger	-	-	6,808.38	R	-	-	-	-	-	-	-	-	-	-	-	-	6,808.38
				E	-	-	-	-	-	-	1808.38	-	-	-	5000.00	-	
TOTAL	-	-	56,808.38		-	-	-	-	-	182.32	7283.78	7539.51	7858.90	9491.54	1501.58	11888.90	54,746.53





EXPENDITURE IN GUYANA \$ X 10<sup>3</sup>

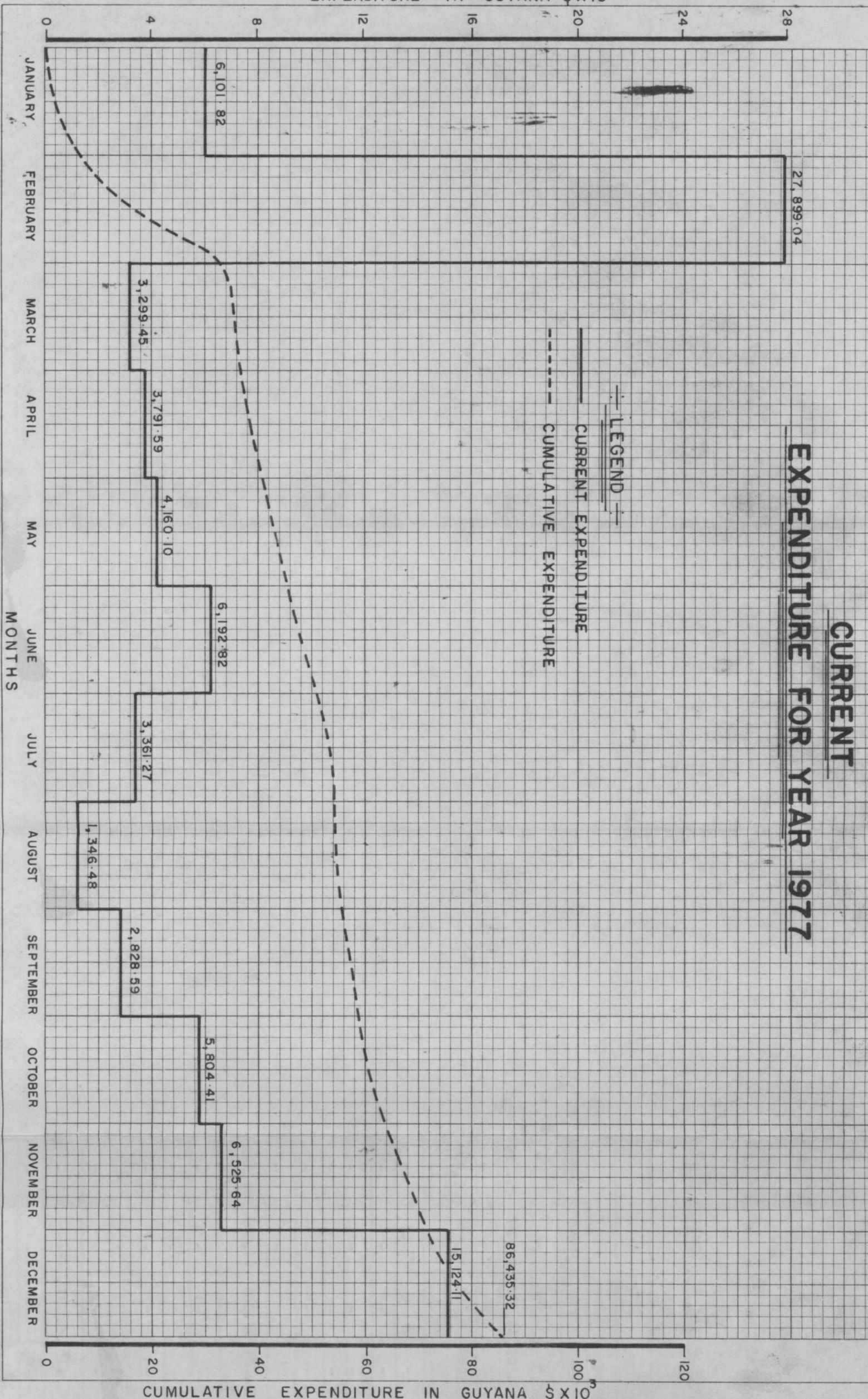


FIGURE -1-

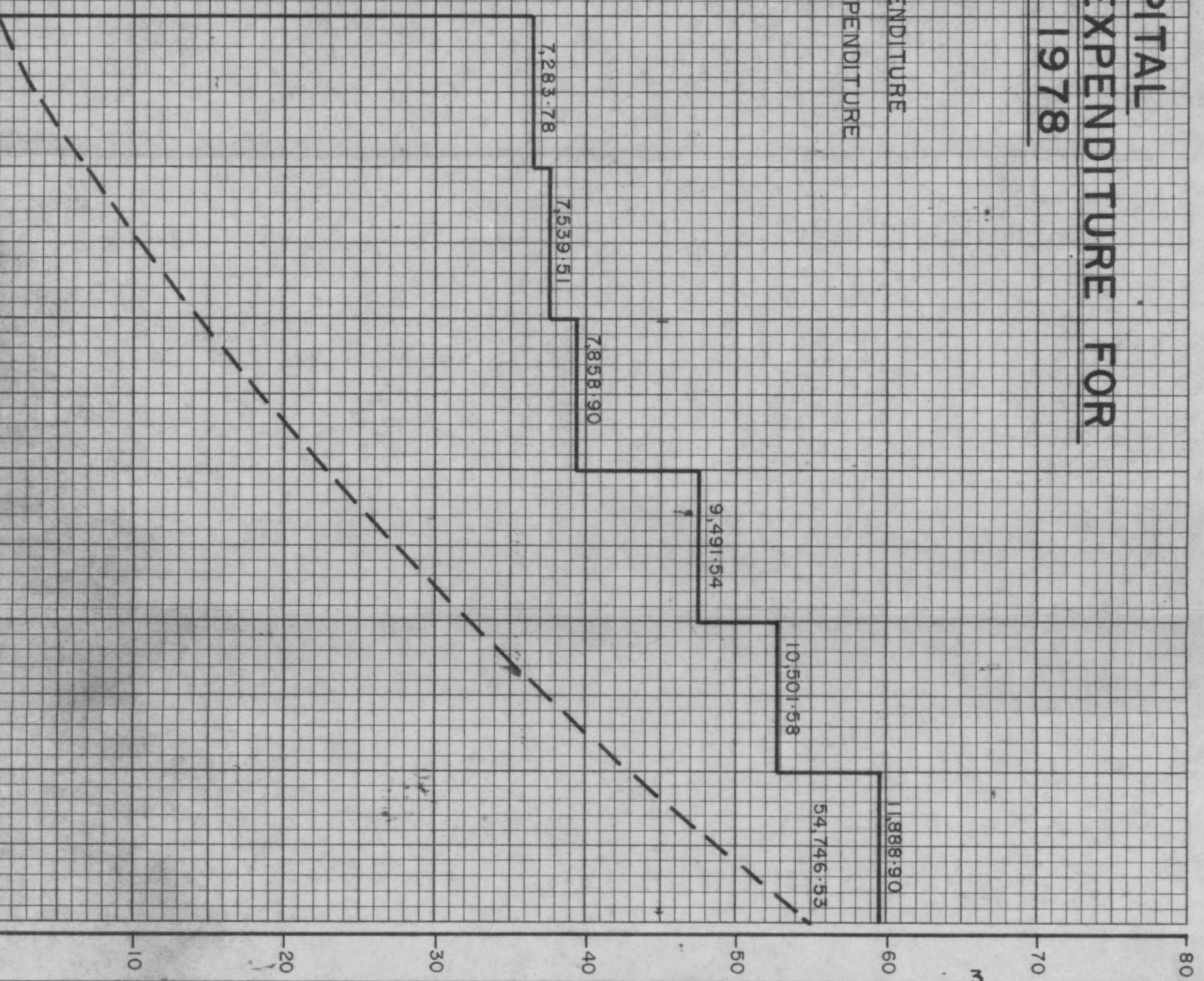
EXPENDITURE IN GUYANA DOLLARS X 10<sup>3</sup>

16  
14  
12  
10  
8  
6  
4  
2

80  
70  
60  
50  
40  
30  
20  
10

# CAPITAL ESTIMATES AND EXPENDITURE FOR YEAR 1978

LEGEND  
—— CAPITAL ESTIMATES AND EXPENDITURE  
- - - CUMULATIVE ESTIMATES AND EXPENDITURE



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EXPENDITURE IN GUYANA DOLLARS X 10<sup>3</sup>

# CURRENT EXPENDITURE FOR YEAR 1978

## LEGEND

— CURRENT EXPENDITURE

- - - CUMULATIVE EXPENDITURE

