Table 8.9 Financial Statement

No	Year	Cost	Interest	Repayment	Revenue	Balance	Accumulation
1	1992	2,519,460	196,700			-2,716,160	-2,716,160
2	1993	4,466,200	1,036,130			-5,502,330	-8,218,490
3	1994	2,660,760	1,683,280			-4,344,040	-12,562,530
4	1995	221,690	1,683,280		2,204,800	299,830	-12,262,700
5	1996	221,690	1,683,280		2,264,000	359,030	-11,903,670
6	1997	221,690		2,458,220	2,326,020	-353,890	-12,257,560
7	1998	221,690		2,458,220	2,382,340	-297,570	-12,555,130
8	1999	221,690		2,458,220	2,433,020	-246,890	-12,802,020
9	2000	221,690		2,458,220	2,475,260	-204,650	-13,006,670
10	2001	221,690		2,458,220	2,511,870	-168,040	-13,174,710
11	2002	221,690		2,458,220	2,537,220	-142,690	-13,317,400
12	2003	221,690		2,458,220	2,559,740	-120,170	-13,437,570
13	2004	221,690		2,458,220	2,576,640	-103,270	-13,540,840
14	2005	221,690		2,458,220	2,593,540	-86,370	-13,627,210
15	2006	221,690		2,458,220	2,610,430	-69,480	-13,696,690
16	2007	221,690		2,458,220	2,627,330	-52,580	-13,749,270
17	2008	221,690		2,458,220	2,644,220	-35,690	-13,784,960
18	2009	221,690		2,458,220	2,658,300	-21,610	-13,806,570
19	2010	221,690		2,458,220	2,675,200	-4,710	-13,811,280
20	2011	211,690		2,458,220	2,675,200	-4,710	-13,815,990

Table 8.10 FINANCIAL STATEMENT OF KAPIT SYSTEM (ALL DIESEL)

Unit: Million M$

Year	Fuel	O&M	Depre-ciation	Expense	Revenue I	Revenue II	Balance I	Balance II	Accumula-tion I	Accumula-tion II
1987	1.07	0.32	0.02	1.41	1.62	1.62	0.21	0.21	0.21	0.21
1988	1.29	0.31	0.07	1.67	1.75	1.75	0.08	0.08	0.29	0.29
1989	1.40	0.32	0.09	1.81	1.88	1.88	0.07	0.07	0.36	0.36
1990	1.59	0.34	0.16	2.09	2.02	2.02	-0.07	-0.07	0.29	0.29
1991	1.78	0.38	0.16	2.32	2.16	2.16	-0.16	-0.16	0.13	0.13
1992	1.98	0.40	0.19	2.57	2.30	2.30	-0.27	-0.27	-0.14	-0.14
1993	2.18	0.41	0.29	2.88	2.44	2.44	-0.44	-0.44	-0.58	-0.58
1994	2.41	0.47	0.32	3.20	2.58	2.58	-0.62	-0.62	-1.20	-1.20
1995	3.67	0.47	0.46	4.60	2.72	2.72	-1.88	-1.88	-3.08	-3.08
1996	4.16	0.51	0.57	5.24	2.87	3.05	-2.37	-2.19	-5.45	-5.27
1997	4.70	0.56	0.57	5.83	3.04	3.22	-2.79	-2.61	-8.24	-7.88
1998	5.28	0.56	0.57	6.41	3.19	3.40	-3.22	-3.01	-11.46	-10.89
1999	5.91	0.57	0.68	7.16	3.36	3.57	-3.80	-3.59	-15.26	-14.48
2000	10.50	0.58	1.00	12.08	3.52	3.74	-8.56	-8.34	-23.82	-22.82
2001	11.00	0.62	1.02	12.64	3.69	3.92	-8.95	-8.72	-32.77	-31.54
2002	11.48	0.63	1.16	13.27	3.85	4.09	-9.42	-9.18	-42.19	-40.72
2003	11.98	0.69	1.22	13.89	4.01	4.27	-9.88	-9.62	-52.07	-50.34
2004	12.48	0.72	1.24	14.44	4.18	4.44	-10.26	-10.00	-62.33	-60.34
2005	12.98	0.73	1.28	14.99	4.35	4.62	-10.64	-10.37	-72.97	-70.71
2006	13.53	0.75	1.39	15.67	4.53	4.82	-11.14	-10.85	-84.11	-81.56
2007	14.13	0.81	1.40	16.34	4.74	5.04	-11.60	-11.30	-95.71	-92.86
2008	14.75	0.82	1.44	17.01	4.95	5.26	-12.06	-11.75	-107.77	-104.61
2009	15.35	0.84	1.55	17.74	5.16	5.48	-12.58	-12.26	-120.35	-116.87
2010	16.00	0.91	1.54	18.45	5.36	5.70	-13.09	-12.75	-133.44	-129.62

Remarks: Revenue I is calculated based on present tatiff (M$0.31/kWh).
Revenue II is calcualted based on the tariff of M$0.33/kWh.

Table 8.11 FINANCIAL STATEMENT OF KAPIT SYSTEM (ALL DIESEL)

Unit: Million M$

Year	Fuel	O&M	Depre-ciation	Expense	Revenue I	Revenue II	Balance I	Balance II	Accumula-tion I	Accumula-tion II
1987	1.07	0.32	0.02	1.41	1.62	1.62	0.21	0.21	0.21	0.21
1988	1.29	0.31	0.07	1.67	1.75	1.75	0.08	0.08	0.29	0.29
1989	1.40	0.32	0.09	1.81	1.88	1.88	0.07	0.07	0.36	0.36
1990	1.59	0.34	0.16	2.09	2.02	2.02	-0.07	-0.07	0.29	0.29
1991	1.78	0.38	0.16	2.32	2.16	2.16	-0.16	-0.16	0.13	0.13
1992	1.98	0.40	0.19	2.57	2.30	2.30	-0.27	-0.27	-0.14	-0.14
1993	2.18	0.41	0.29	2.88	2.44	2.44	-0.44	-0.44	-0.58	-0.58
1994	2.41	0.47	0.32	3.20	2.58	2.58	-0.62	-0.62	-1.20	-1.20
1995	2.64	0.47	0.46	3.57	2.72	2.72	-0.85	-0.85	-2.05	-2.05
1996	2.99	0.51	0.57	4.07	2.87	3.05	-1.20	-1.02	-3.25	-3.07
1997	3.39	0.56	0.57	4.52	3.04	3.22	-1.48	-1.30	-4.73	-4.37
1998	3.80	0.56	0.57	4.93	3.19	3.40	-1.74	-1.53	-6.47	-5.90
1999	4.25	0.57	0.68	5.50	3.36	3.57	-2.14	-1.93	-8.61	-7.83
2000	4.73	0.58	1.00	6.31	3.52	3.74	-2.79	-2.57	-11.40	-10.40
2001	4.95	0.62	1.02	6.59	3.69	3.92	-2.90	-2.67	-14.30	-13.07
2002	5.16	0.63	1.16	6.95	3.85	4.09	-3.10	-2.86	-17.40	-15.93
2003	5.39	0.69	1.22	7.30	4.01	4.27	-3.29	-3.03	-20.69	-18.96
2004	5.61	0.72	1.24	7.57	4.18	4.44	-3.39	-3.13	-24.08	-22.09
2005	5.84	0.73	1.28	7.85	4.35	4.62	-3.50	-3.23	-27.58	-25.32
2006	6.09	0.75	1.39	8.23	4.53	4.82	-3.70	-3.41	-31.28	-28.73
2007	6.36	0.81	1.40	8.57	4.74	5.04	-3.83	-3.53	-35.11	-32.26
2008	6.64	0.82	1.44	8.90	4.95	5.26	-3.95	-3.64	-39.06	-35.90
2009	6.91	0.84	1.55	9.30	5.16	5.48	-4.14	-3.82	-43.20	-39.72
2010	7.20	0.91	1.54	9.65	5.36	5.70	-4.29	-3.95	-47.49	-43.67

Table 8.12 FINANCIAL STATEMENT OF KAPIT SYSTEM (HYDRO + DIESEL)

Unit: Million M$

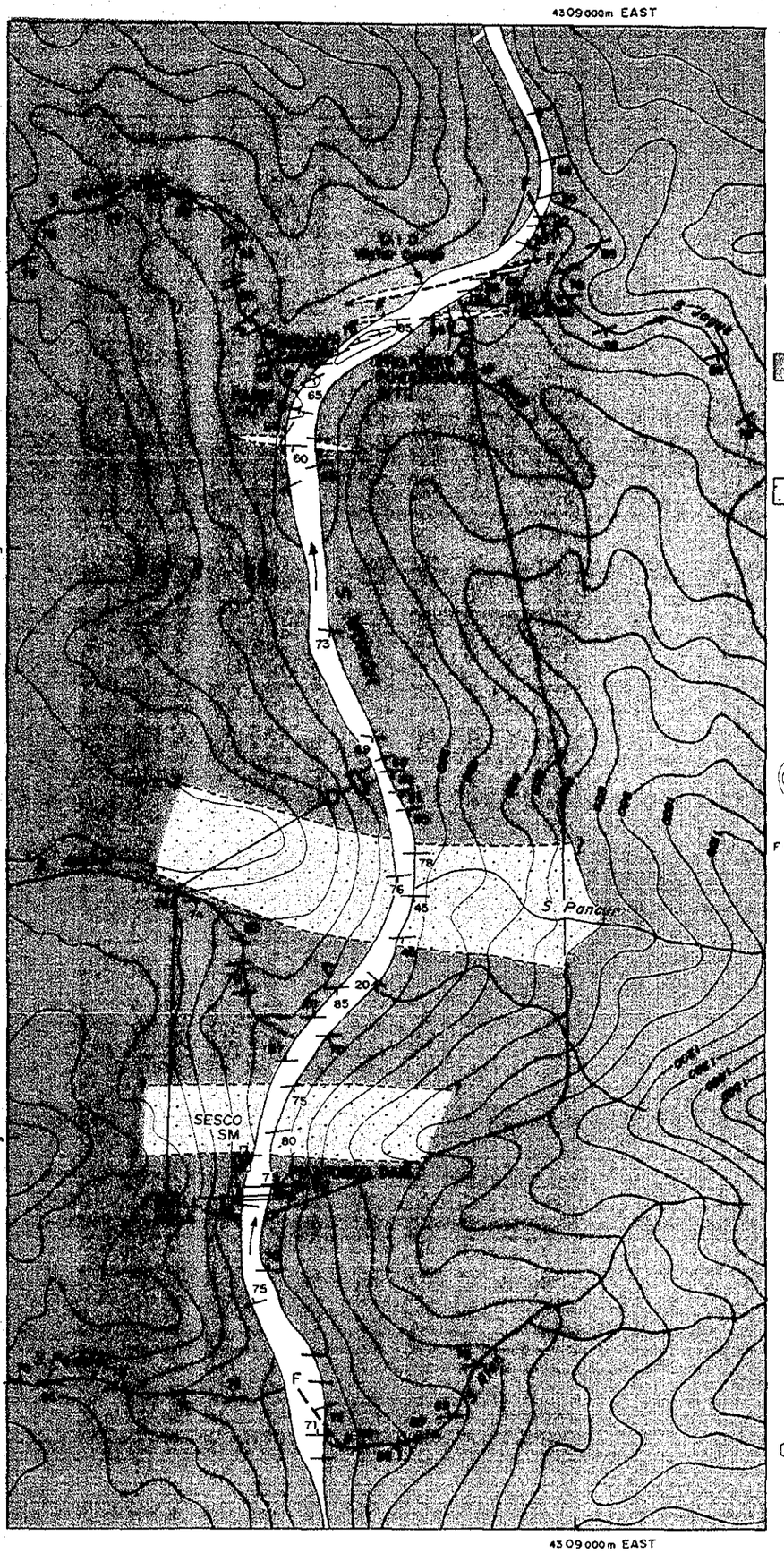
Year	Fuel	O&M	Depreciation Payment	Expense	Revenue I	Revenue II	Balance I	Balance II	Accumula-tion I	Accumula-tion II
1987	1.07	0.31	0.02	1.40	1.62	1.62	0.22	0.22	0.22	0.22
1988	1.29	0.31	0.07	1.67	1.75	1.75	0.08	0.08	0.30	0.30
1989	1.40	0.32	0.09	1.81	1.88	1.88	0.07	0.07	0.37	0.37
1990	1.59	0.34	0.16	2.09	2.02	2.02	-0.07	-0.07	0.30	0.30
1991	1.78	0.38	0.16	2.32	2.16	2.16	-0.16	-0.16	0.14	0.14
1992	1.97	0.40	0.34	2.71	2.30	2.30	-0.41	-0.41	-0.27	-0.27
1993	2.18	0.41	0.95	3.54	2.44	2.44	-1.10	-1.10	-1.37	-1.37
1994	2.41	0.47	1.32	4.20	2.58	2.58	-1.62	-1.62	-2.99	-2.99
1995	0.69	0.44	1.32	2.45	2.72	2.72	0.27	0.27	-2.72	-2.72
1996	0.88	0.45	1.32	2.65	2.87	3.05	0.22	0.40	-2.50	-2.32
1997	1.09	0.46	1.32	2.87	3.04	3.22	0.17	0.35	-2.33	-1.97
1998	1.34	0.49	1.32	3.15	3.19	3.40	0.04	0.25	-2.29	-1.72
1999	1.63	0.50	2.25	4.38	3.36	3.57	-1.02	-0.81	-3.31	-2.53
2000	3.13	0.52	2.57	6.22	3.52	3.74	-2.70	-2.48	-6.01	-5.01
2001	3.50	0.53	2.57	6.60	3.69	3.92	-2.91	-2.68	-8.92	-7.69
2002	3.93	0.54	2.59	7.06	3.85	4.09	-3.21	-2.97	-12.13	-10.66
2003	4.35	0.56	2.65	7.56	4.01	4.27	-3.55	-3.29	-15.68	-13.95
2004	4.78	0.58	2.67	8.03	4.18	4.44	-3.85	-3.59	-19.53	-17.54
2005	5.23	0.60	2.71	8.54	4.35	4.62	-4.19	-3.92	-23.72	-21.46
2006	5.73	0.63	2.75	9.11	4.53	4.82	-4.58	-4.29	-28.30	-25.75
2007	6.30	0.66	2.83	9.79	4.74	5.04	-5.05	-4.75	-33.35	-30.50
2008	6.88	0.68	2.77	10.33	4.95	5.26	-5.38	-5.07	-38.73	-35.57
2009	7.43	0.69	2.88	11.00	5.16	5.48	-5.84	-5.52	-44.57	-41.09
2010	8.00	0.73	2.88	11.61	5.36	5.70	-6.25	-5.91	-50.82	-47.00

Table 8.13 FINANCIAL STATEMENT OF KAPIT SYSTEM (HYDRO + DIESEL)

Unit: Million M$

Year	Fuel	O&M	Depreciation Repayment	Expense	Revenue I	Revenue II	Balance I	Balance II	Accumulation I	Accumulation II
1987	1.07	0.31	0.02	1.40	1.62	1.62	0.22	0.22	0.22	0.22
1988	1.29	0.31	0.07	1.67	1.75	1.75	0.08	0.08	0.30	0.30
1989	1.40	0.32	0.09	1.81	1.88	1.88	0.07	0.07	0.37	0.37
1990	1.59	0.34	0.16	2.09	2.02	2.02	-0.07	-0.07	0.30	0.30
1991	1.78	0.38	0.16	2.32	2.16	2.16	-0.16	-0.16	0.14	0.14
1992	1.97	0.40	0.34	2.71	2.30	2.30	-0.41	-0.41	-0.27	-0.27
1993	2.18	0.41	0.95	3.54	2.44	2.44	-1.10	-1.10	-1.37	-1.37
1994	2.41	0.47	1.32	4.20	2.58	2.58	-1.62	-1.62	-2.99	-2.99
1995	0.50	0.44	1.32	2.26	2.72	2.72	0.46	0.46	-2.53	-2.53
1996	0.63	0.45	1.32	2.40	2.87	3.05	0.47	0.65	-2.06	-1.88
1997	0.79	0.46	1.32	2.57	3.04	3.22	0.47	0.65	-1.59	-1.23
1998	0.97	0.49	1.32	2.78	3.19	3.40	0.41	0.62	-1.18	-0.61
1999	1.17	0.50	2.25	3.92	3.36	3.57	-0.56	-0.35	-1.74	-0.96
2000	1.41	0.52	2.57	4.50	3.52	3.74	-0.98	-0.76	-2.72	-1.72
2001	1.58	0.53	2.57	4.68	3.69	3.92	-0.99	-0.76	-3.71	-2.48
2002	1.77	0.54	2.59	4.90	3.85	4.09	-1.05	-0.81	-4.76	-3.29
2003	1.96	0.56	2.65	5.17	4.01	4.27	-1.16	-0.90	-5.92	-4.19
2004	2.15	0.58	2.67	5.40	4.18	4.44	-1.22	-0.96	-7.14	-5.15
2005	2.35	0.60	2.71	5.66	4.35	4.62	-1.31	-1.04	-8.45	-6.19
2006	2.58	0.63	2.75	5.96	4.53	4.82	-1.43	-1.14	-9.88	-7.33
2007	2.84	0.66	2.83	6.33	4.74	5.04	-1.59	-1.29	-11.47	-8.62
2008	3.09	0.68	2.77	6.54	4.95	5.26	-1.59	-1.28	-13.06	-9.90
2009	3.34	0.69	2.88	6.91	5.16	5.48	-1.75	-1.43	-14.81	-11.33
2010	3.60	0.73	2.88	7.21	5.36	5.70	-1.85	-1.51	-16.66	-12.84

FIGURES



SCALE

0 250 500m

Shale : Hard, fresh, slightly metamorphosed, thinly and steeply bedded with a minor amount of thin sandstone intercalations Tightly folded, faulted and fractured

Sandstone : Hard, fresh fine grained, slightly metamorphosed, thickly bedded, faulted and fractured

75 Attitude of beds in degrees

Vertical beds

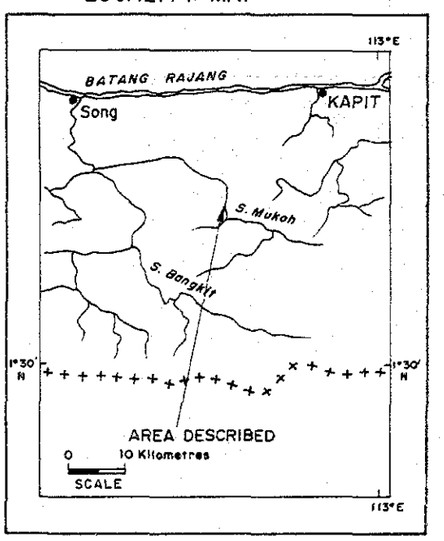
Landslide

Contour at 100 feet interval

F —— F Fault

River flow direction

LOCALITY MAP



[Base Map (scale 1:10,000) is an enlargment of Topographic map sheet 1/112/4 (scale 1:50,000) published by the Director of Survey, Ministry of Defence, United Kingdom, 1968]

Fig. 3.1 GEOLOGICAL MAP OF SUNGAI MUKOH - A PROPOSED SITE FOR SMALL SCALE HYDROELECTRIC PROJECT.

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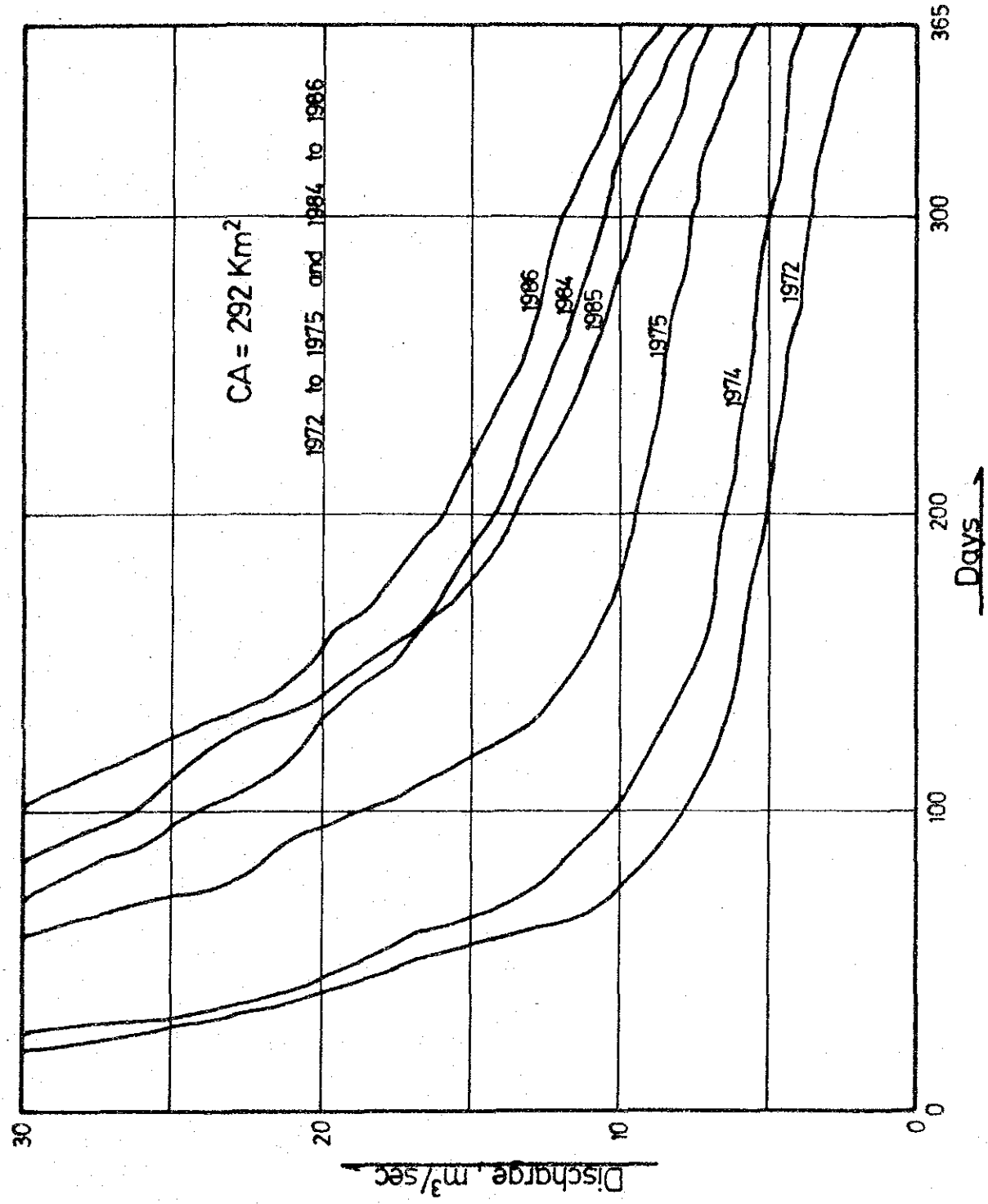

Fig.3.2. Flow Duration Curves at the Mukoh Intake Site.

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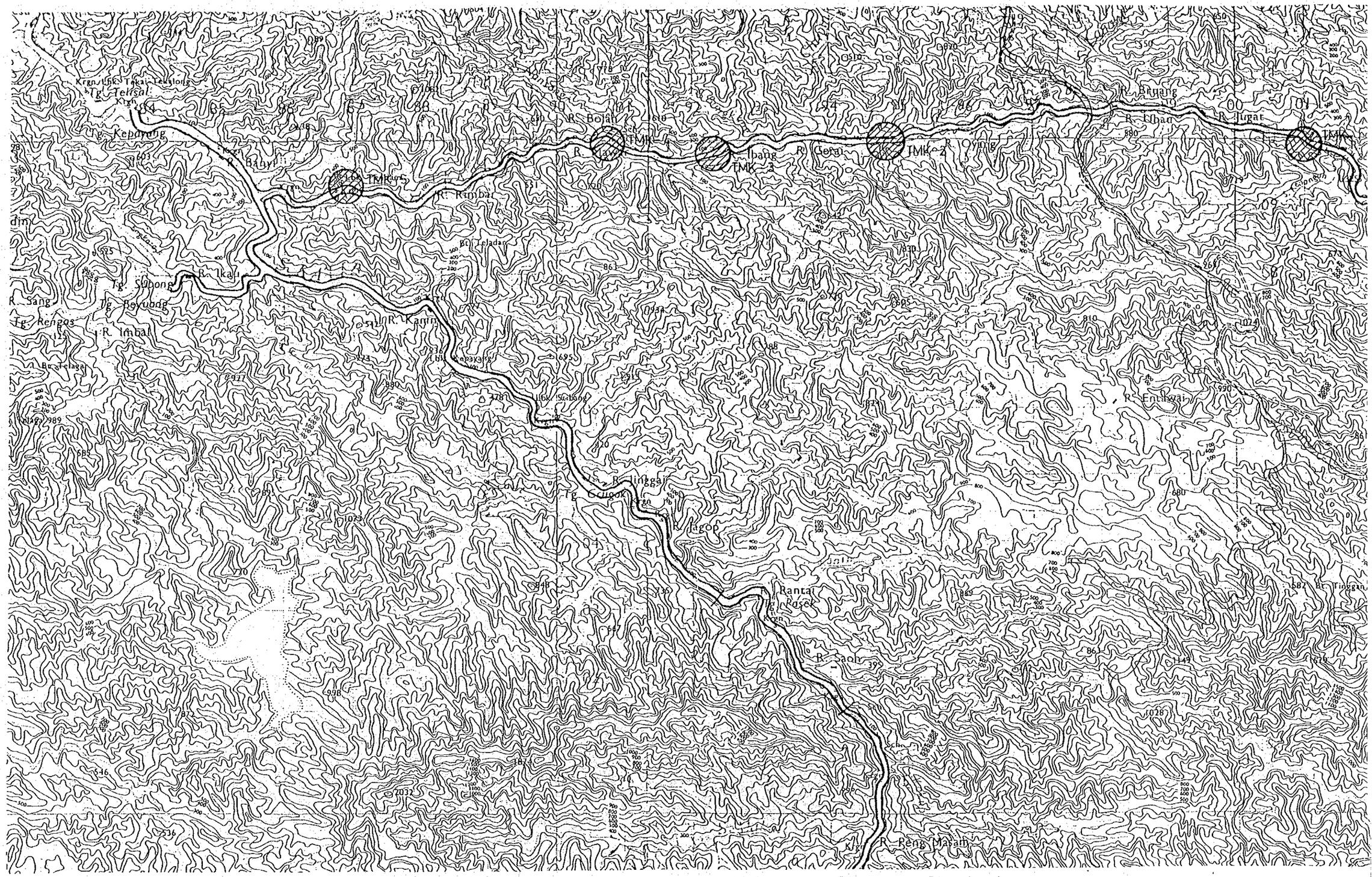
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Tg. Kepayang
R. Bajau
R. Bojah
TMK-5
TMK-4
TMK-3
TMK-2
Ibang
R. Gerai
R. Rimbai
Bkt. Teladan
R. Ikan
Tg. Subong
Tg. Boyubdg
R. Sang
Tg. Rengas
R. Imbai
R. Kanin
Kpg. Subong
R. Tinggai
Tg. Gelook
Kpg. Gelook
R. Lagoi
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R. Saoh
R. Batuang
R. Ibau
R. Jugat
R. Enuhwai
R. Reng Masam

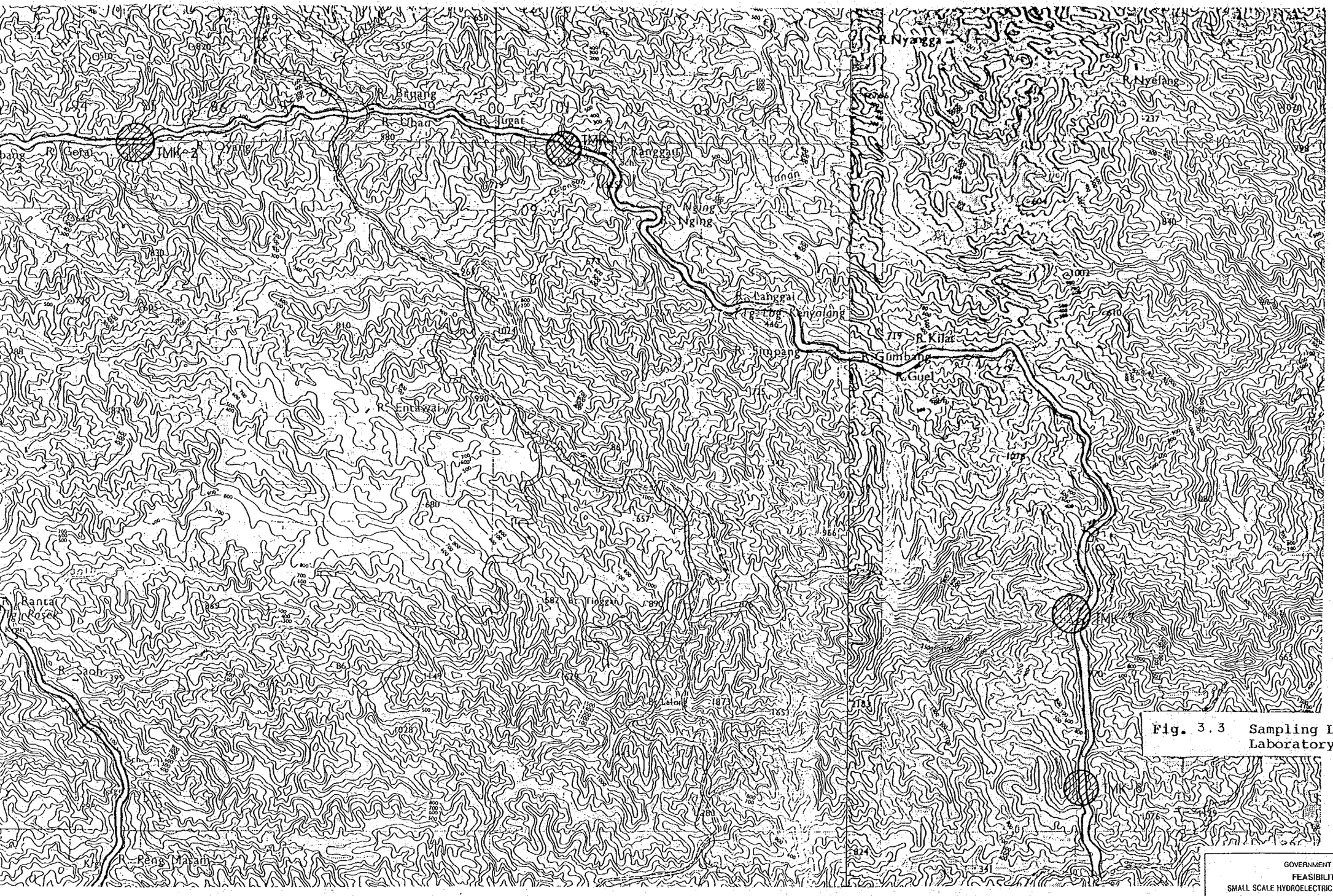

Fig. 3.3 Sampling Locations for Laboratory Test

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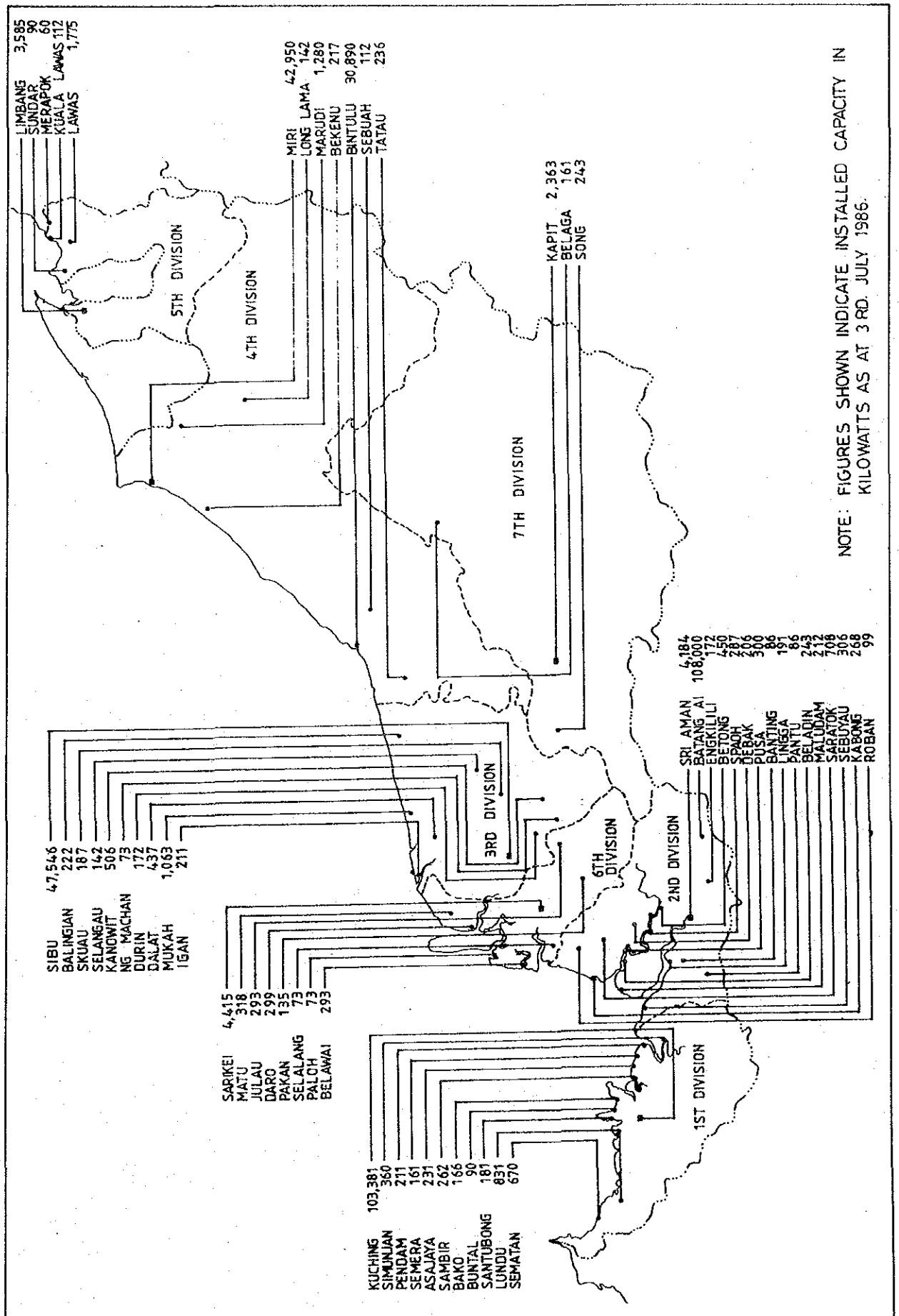

Fig.4.1. SESCO Administrative Region and Stations.

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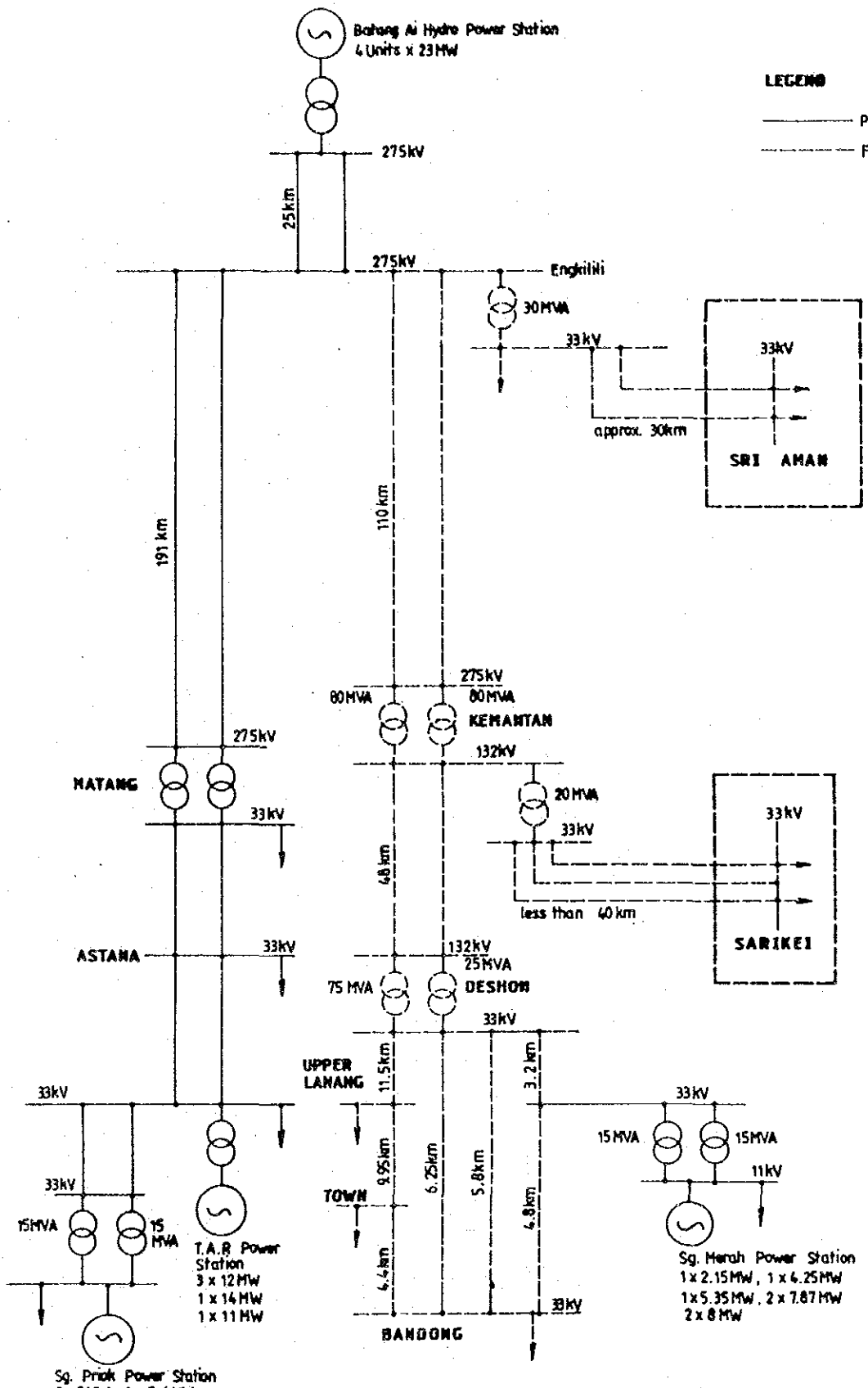

Figure 4.2 Kuching / Sibu System Line Diagram

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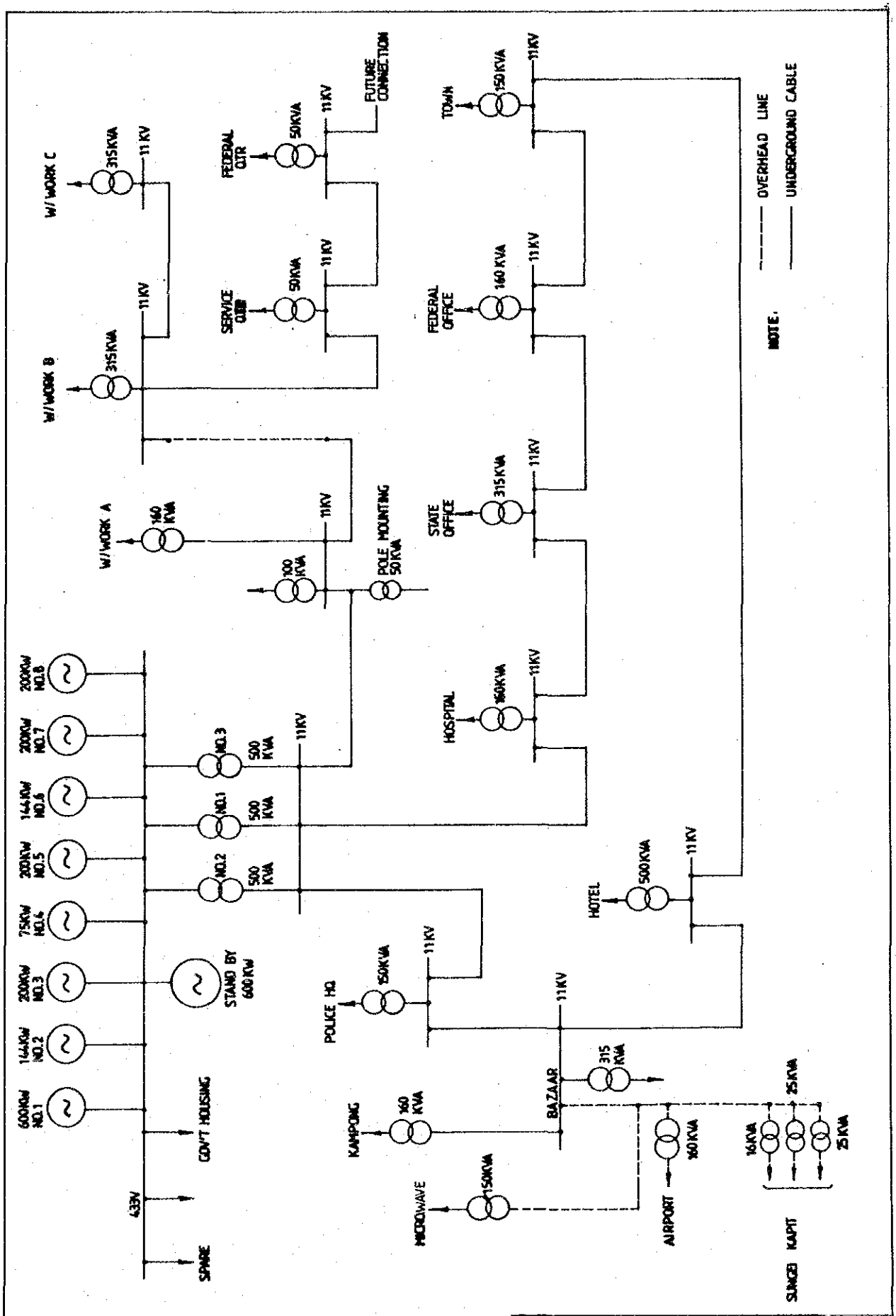

Fig.4.3 Single Line Diagram of Kapit System.

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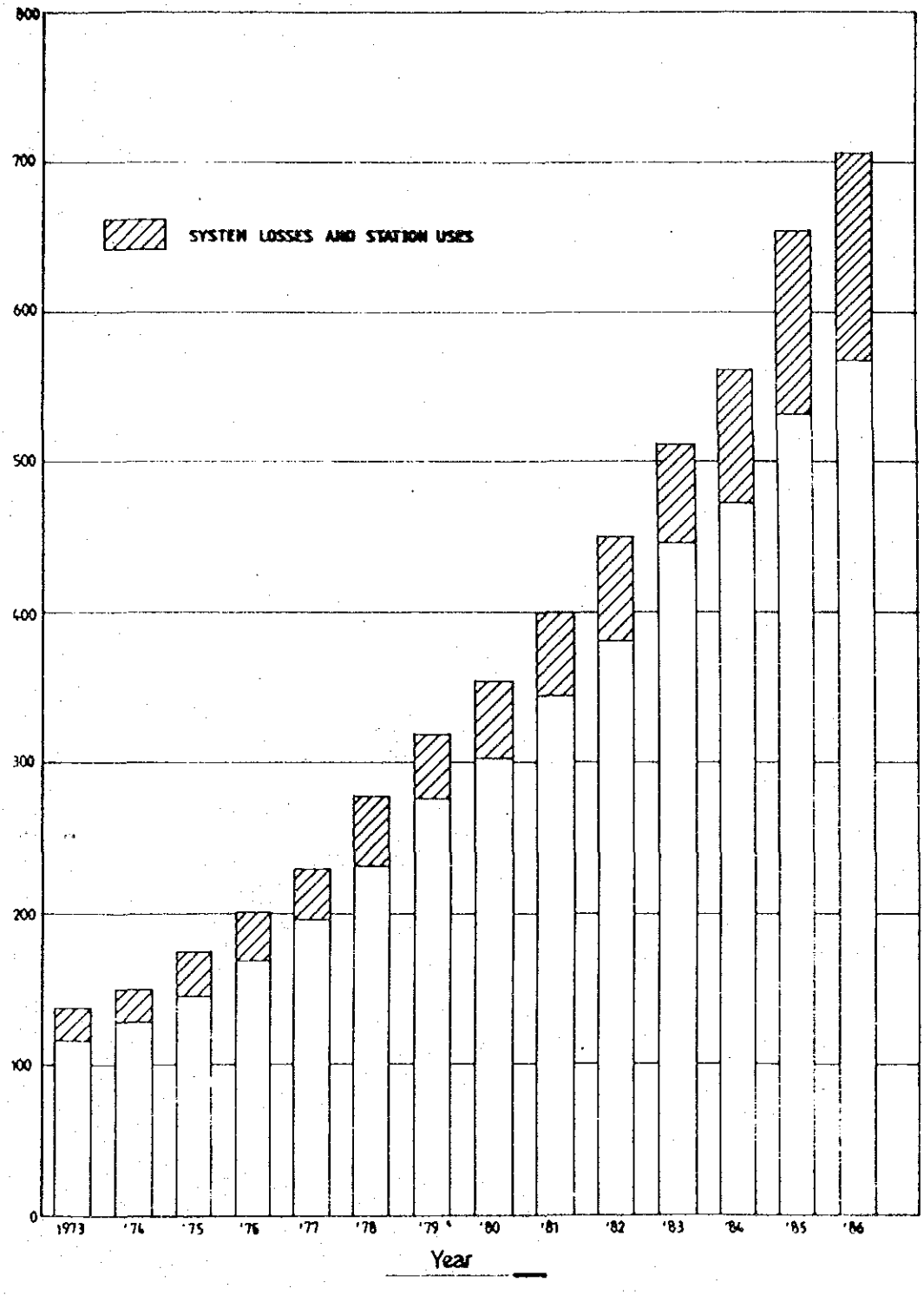

Figure 4.4 Energy Generated and Sold in the Whole of Sarawak

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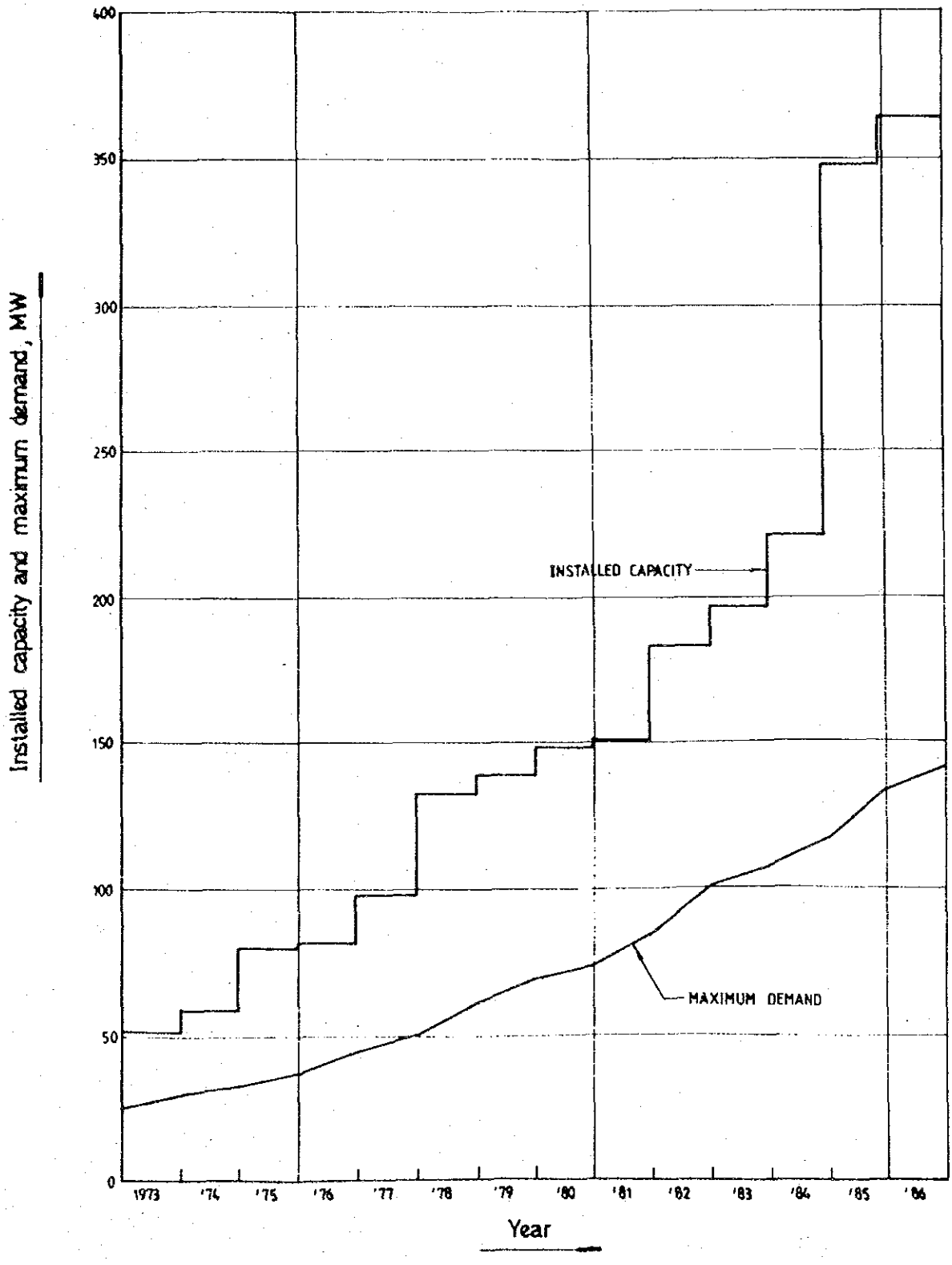

Figure 4.5 Installed Capacity and Maximum Demand In the Whole of Sarawak

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SMALL SCALE HYDROELECTRIC POWER PROJECT IN SARAWAK
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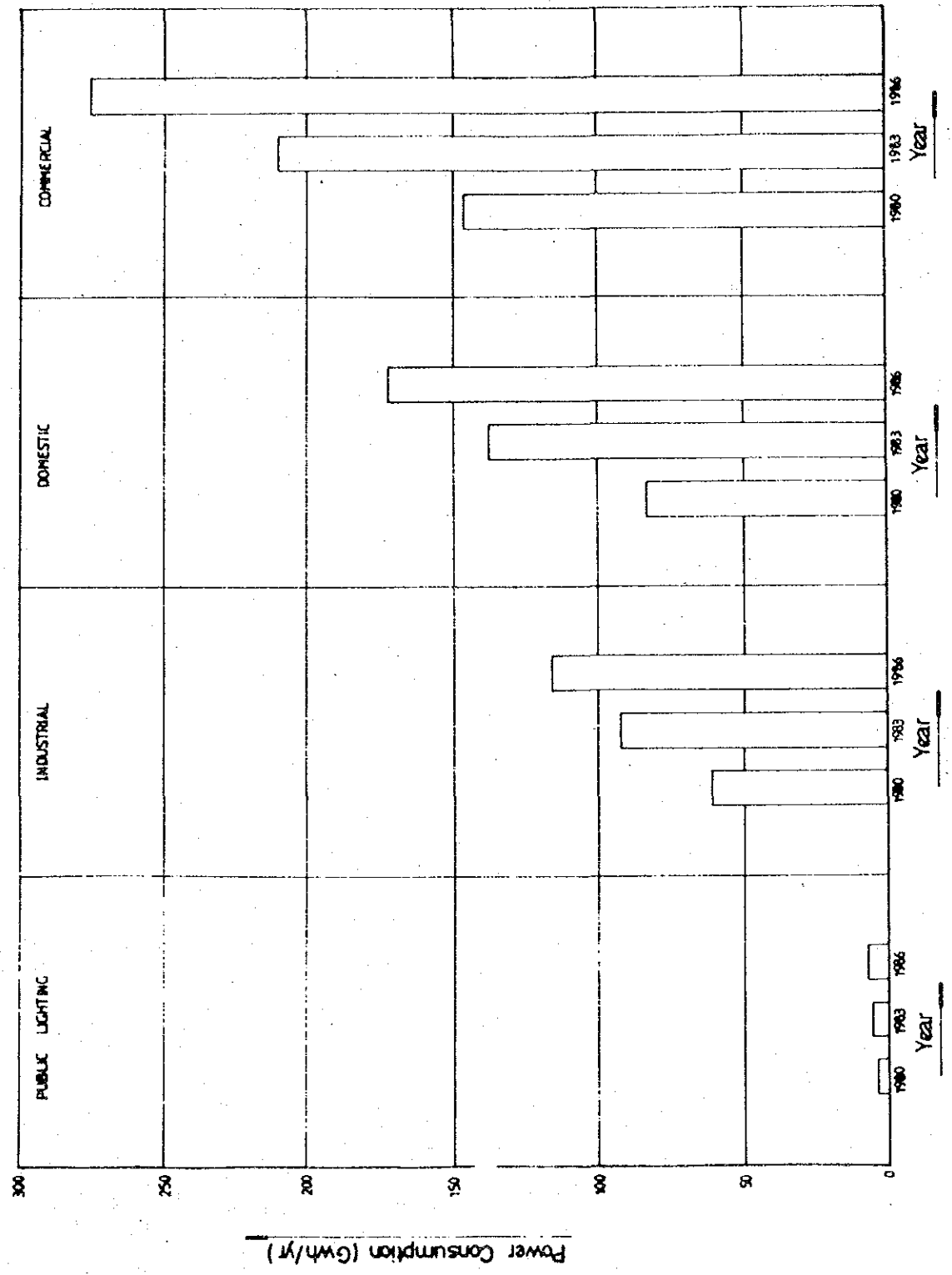

Fig.4.6. Power Consumption by Category in the Whole of Sarawak.

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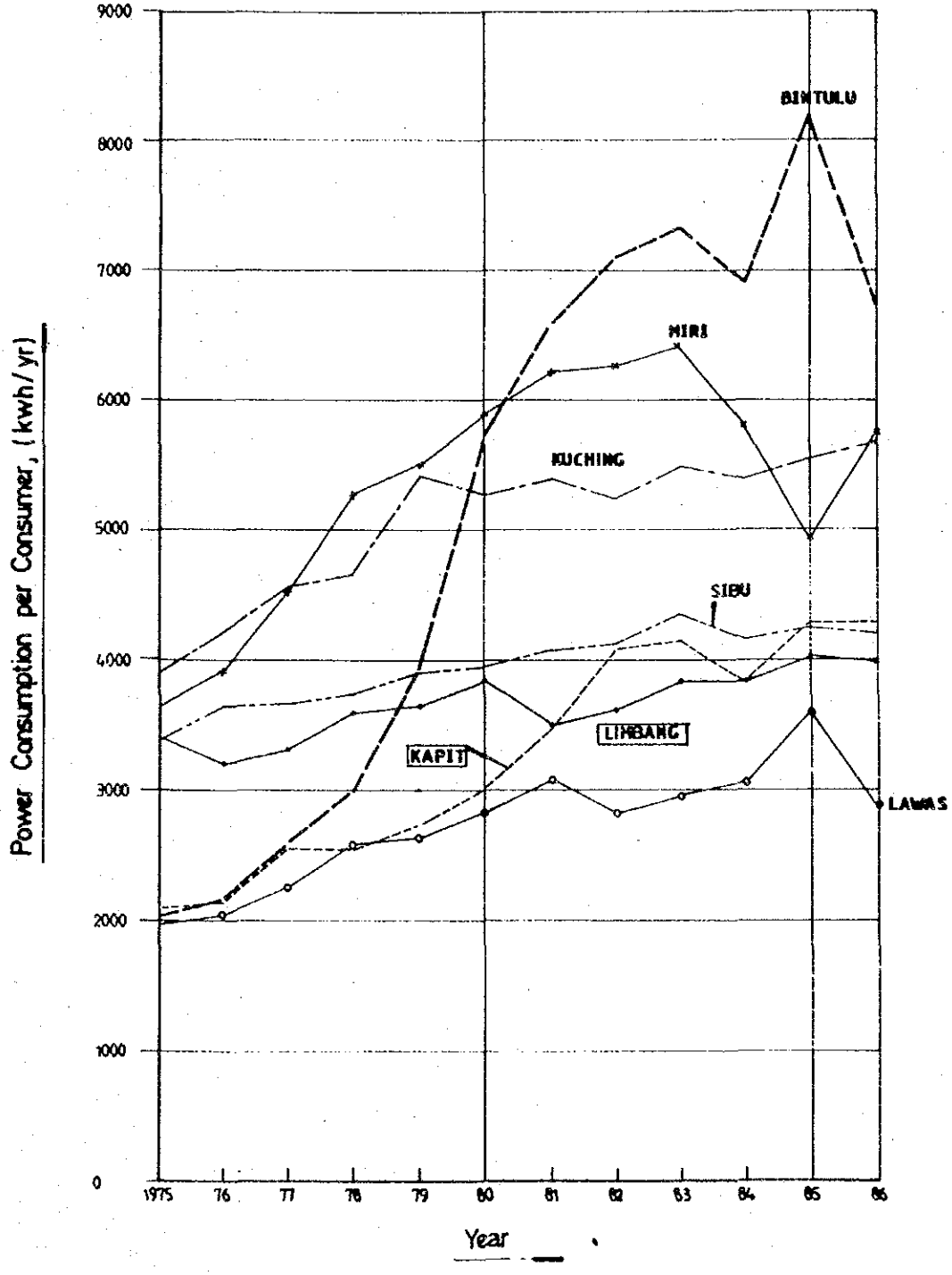

Figure 4.7 Annual Power Consumption per Consumer in Sarawak

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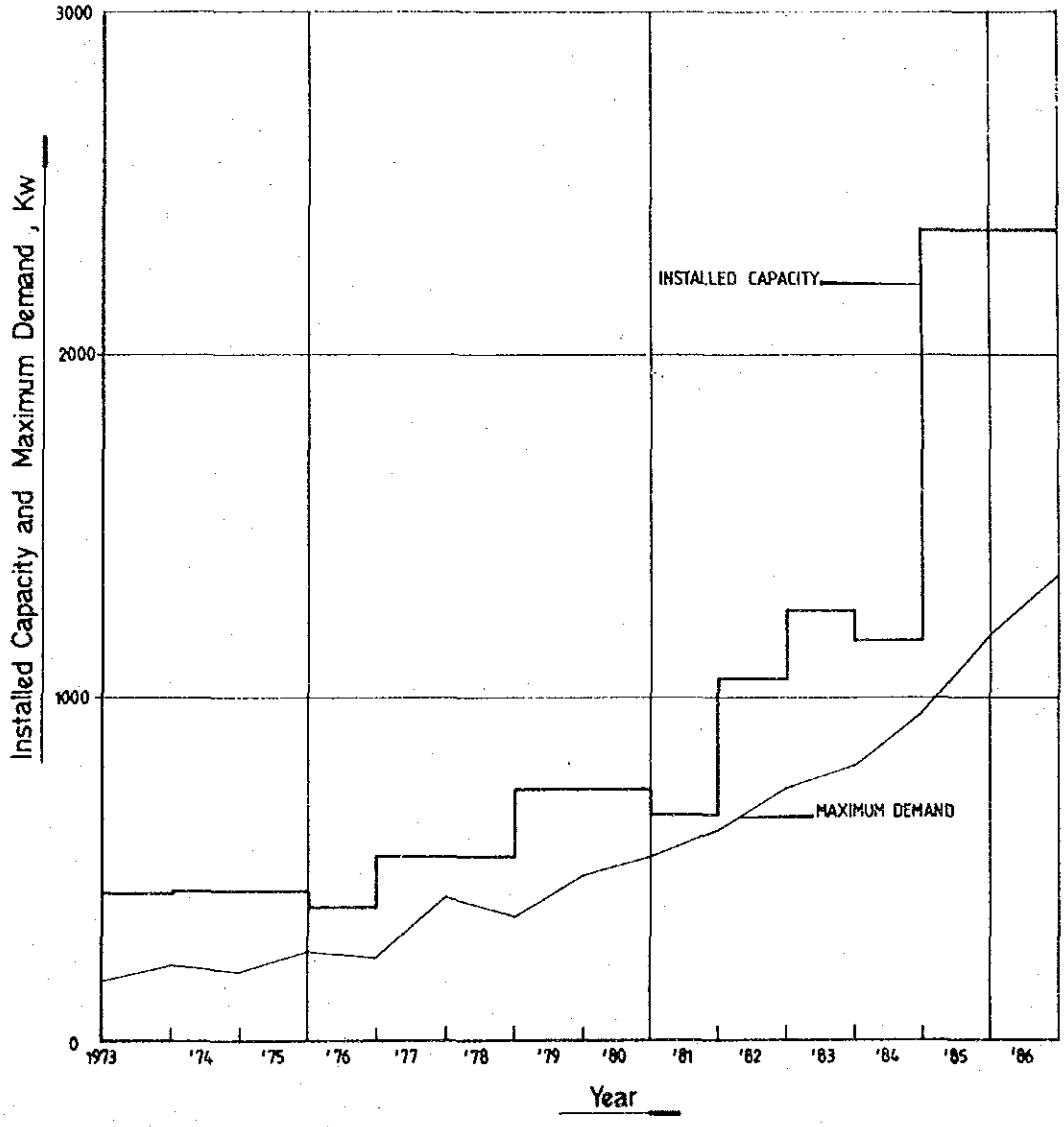

Figure 4.8 Installed Capacity and Maximum Demand in Kapit

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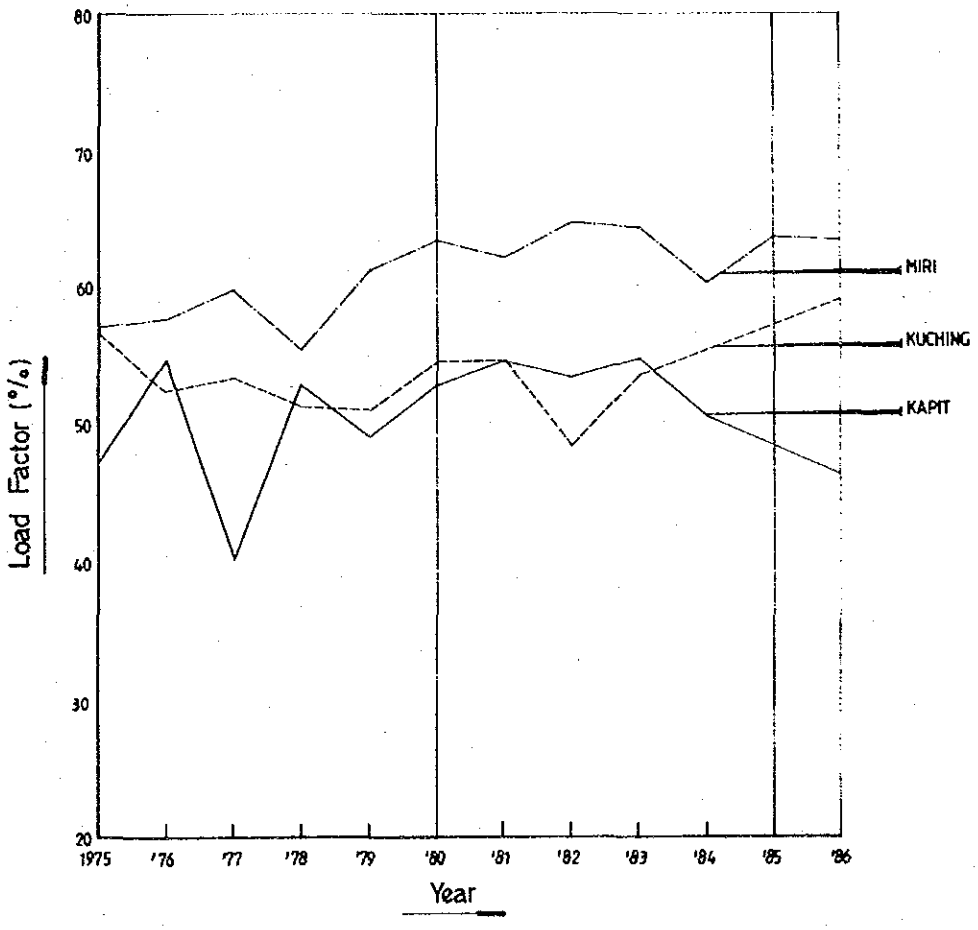

Figure 4.9 Variation of Annual Load Factor in Kapit

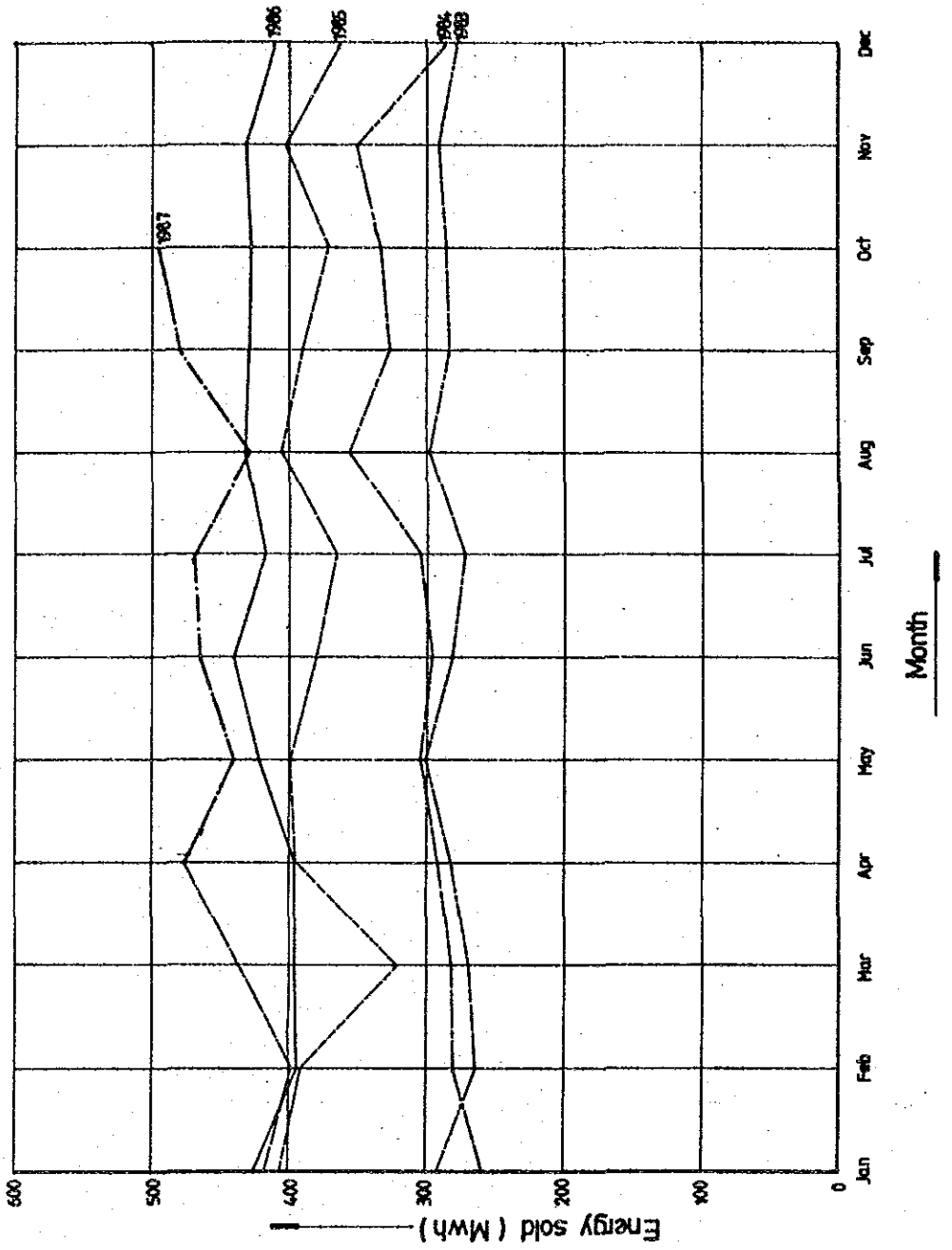

Fig.4.10. Monthly Variation of Power Consumption in Kapit.

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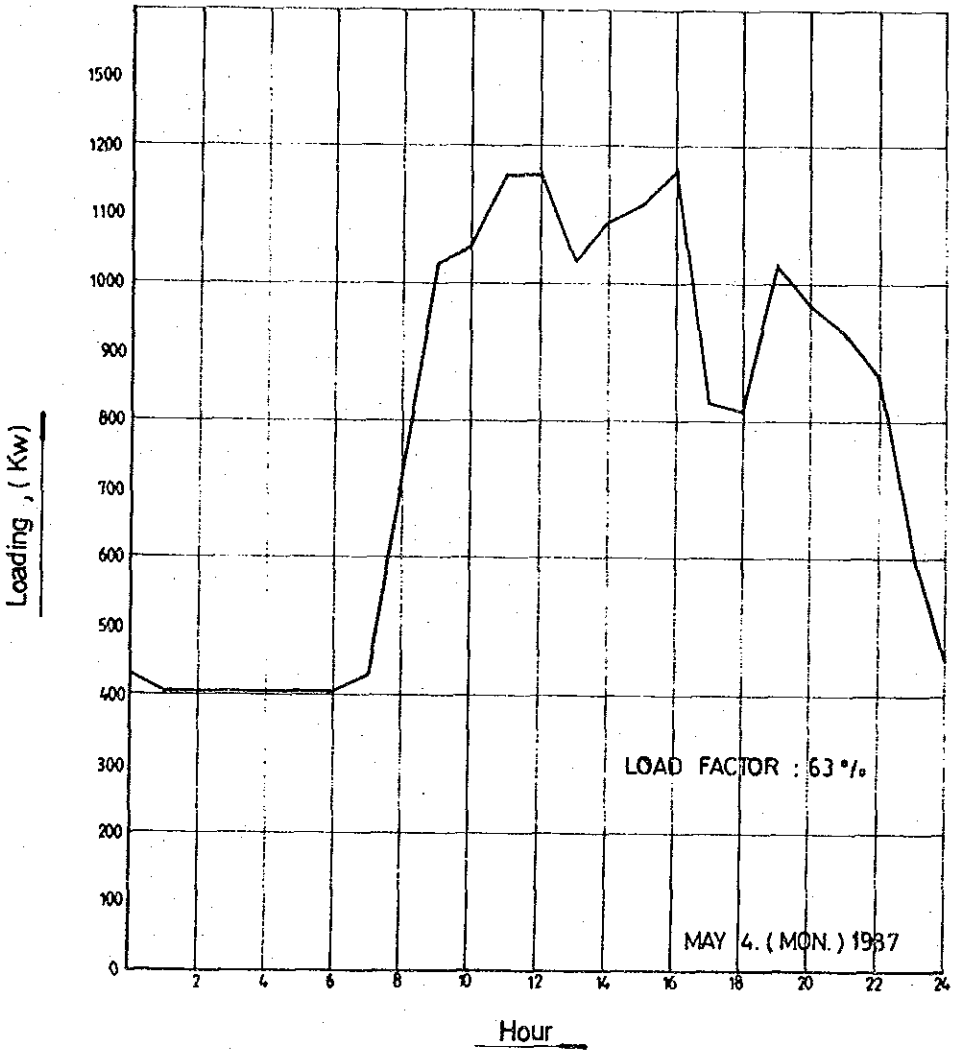

Figure 4.11 Daily Load Curve in Kapit

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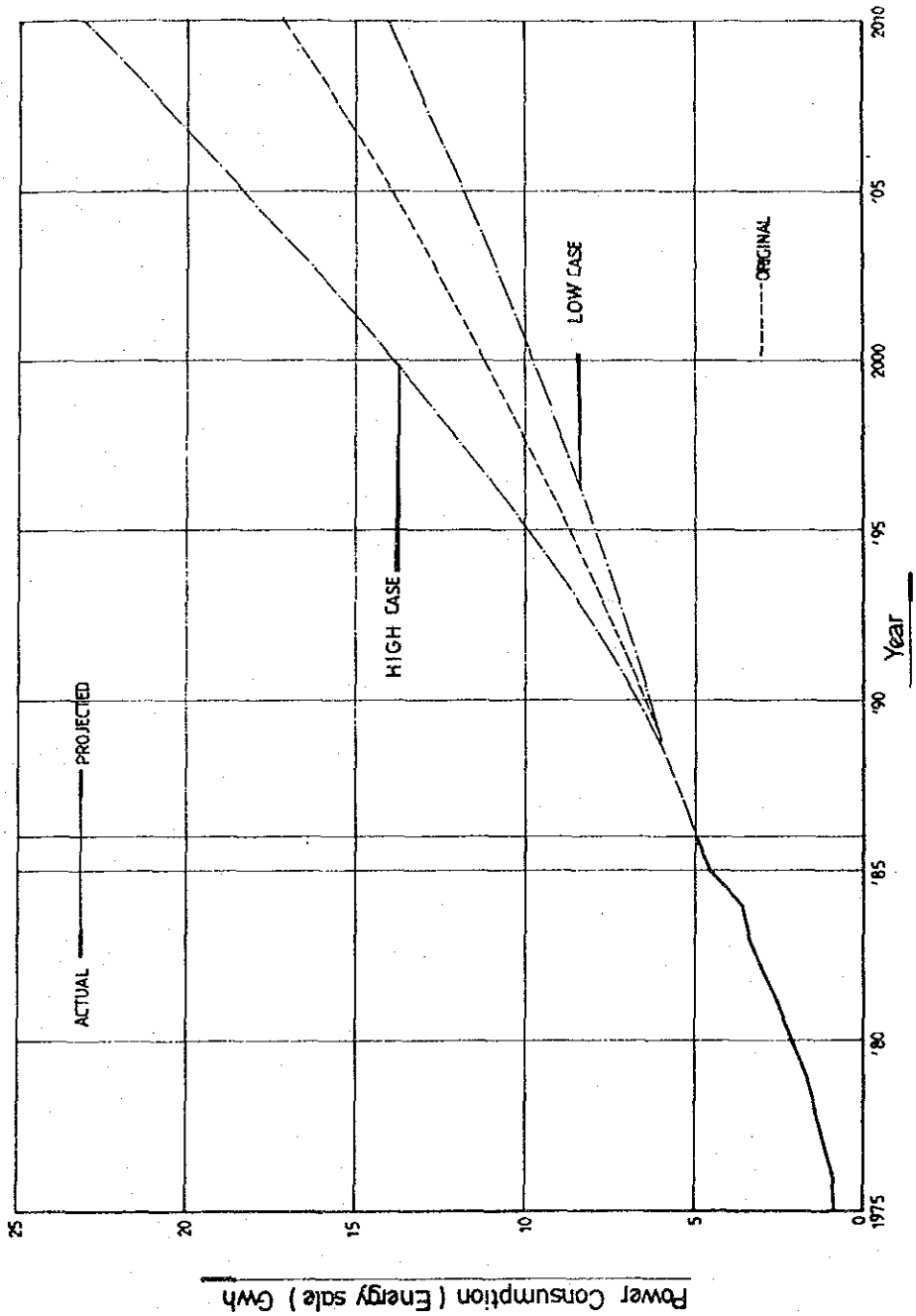

Fig.4.12. Forecasted Power Consumption in Comparison with High and Low Cases.

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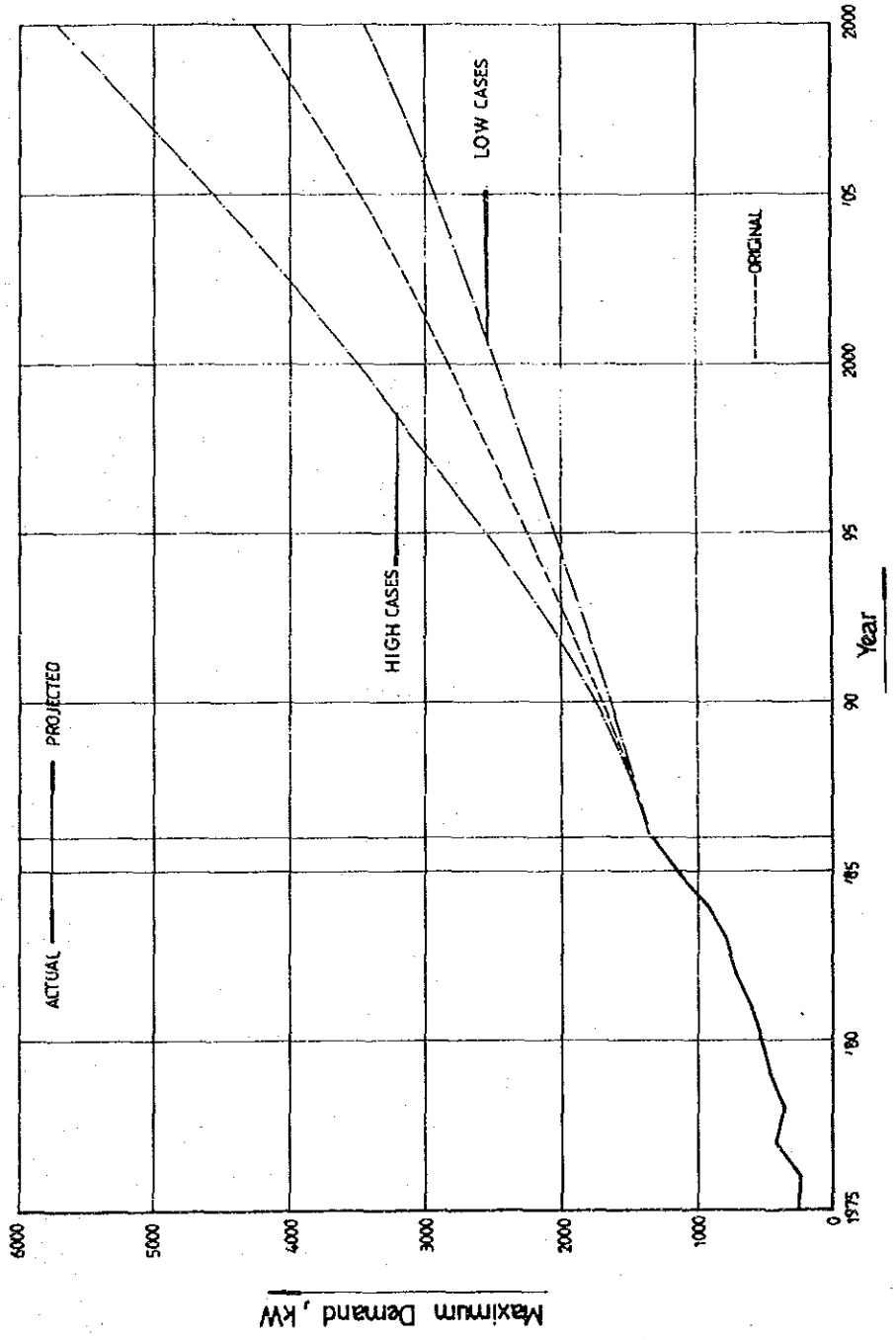

Fig.4.13. Forecasted Maximum Demand in Comparison with High and Low Cases.

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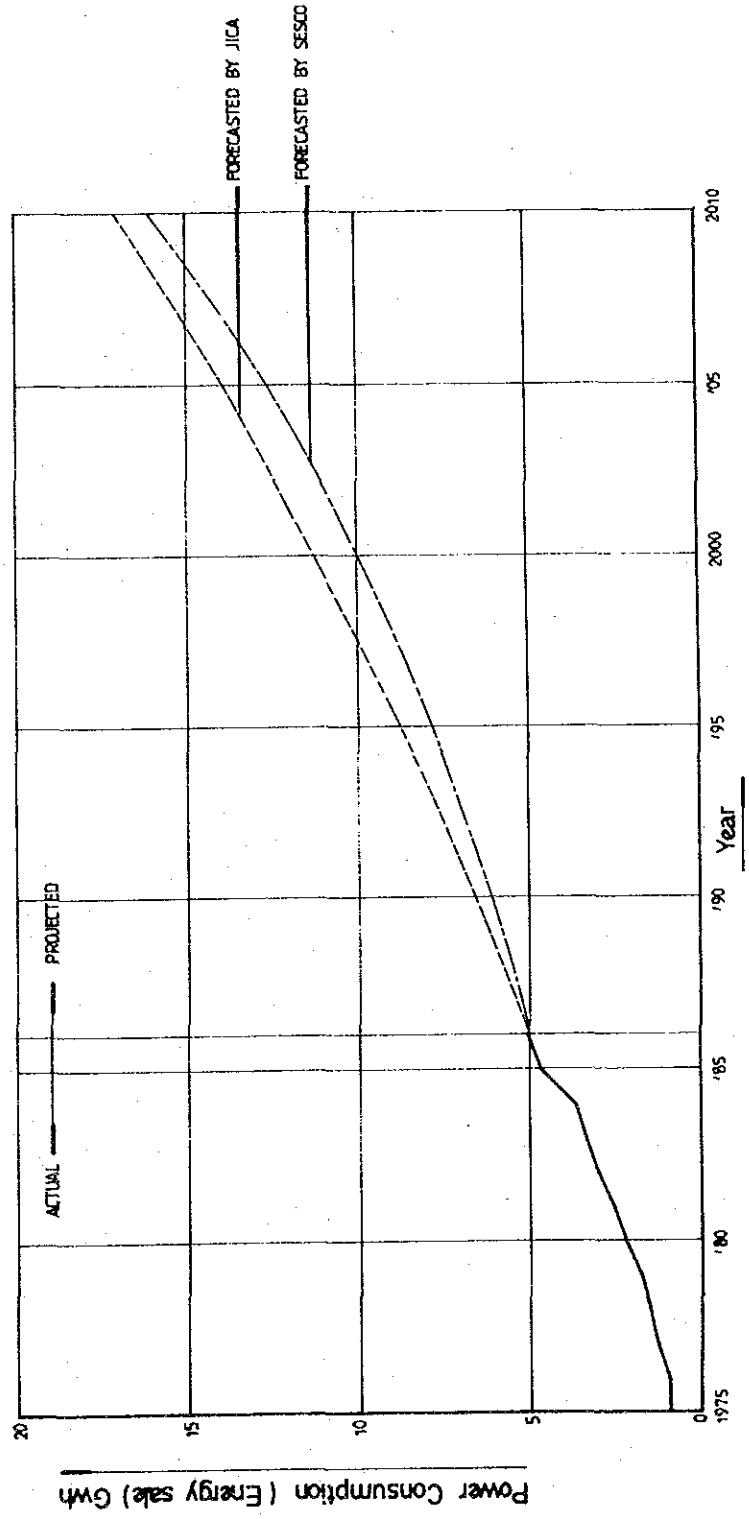

Fig.4.14. Comparison of Power Consumption between Previous Study and Present One

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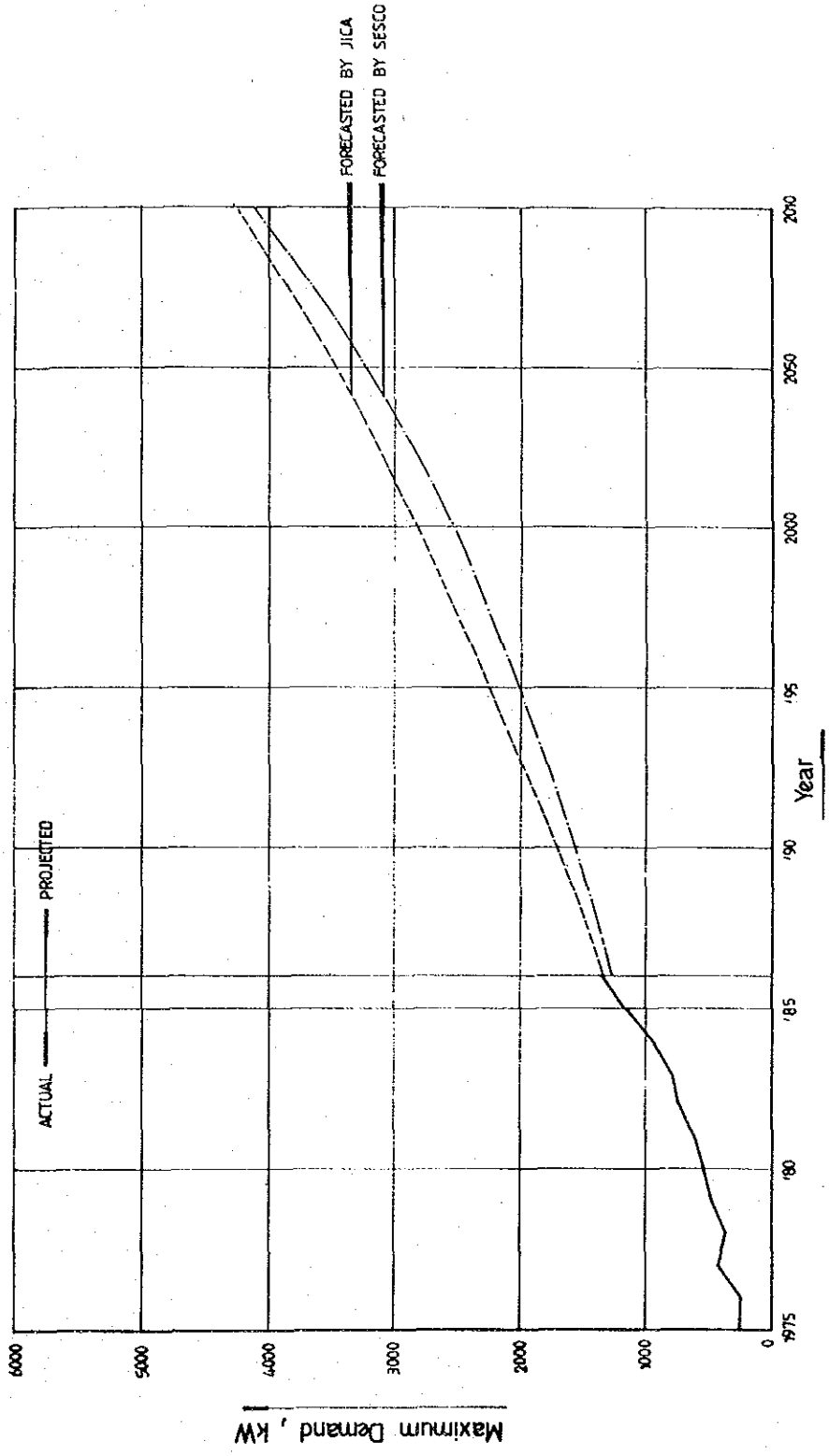

Fig.4.15. Comparison of Maximum Demand between Previous Study and Present One.

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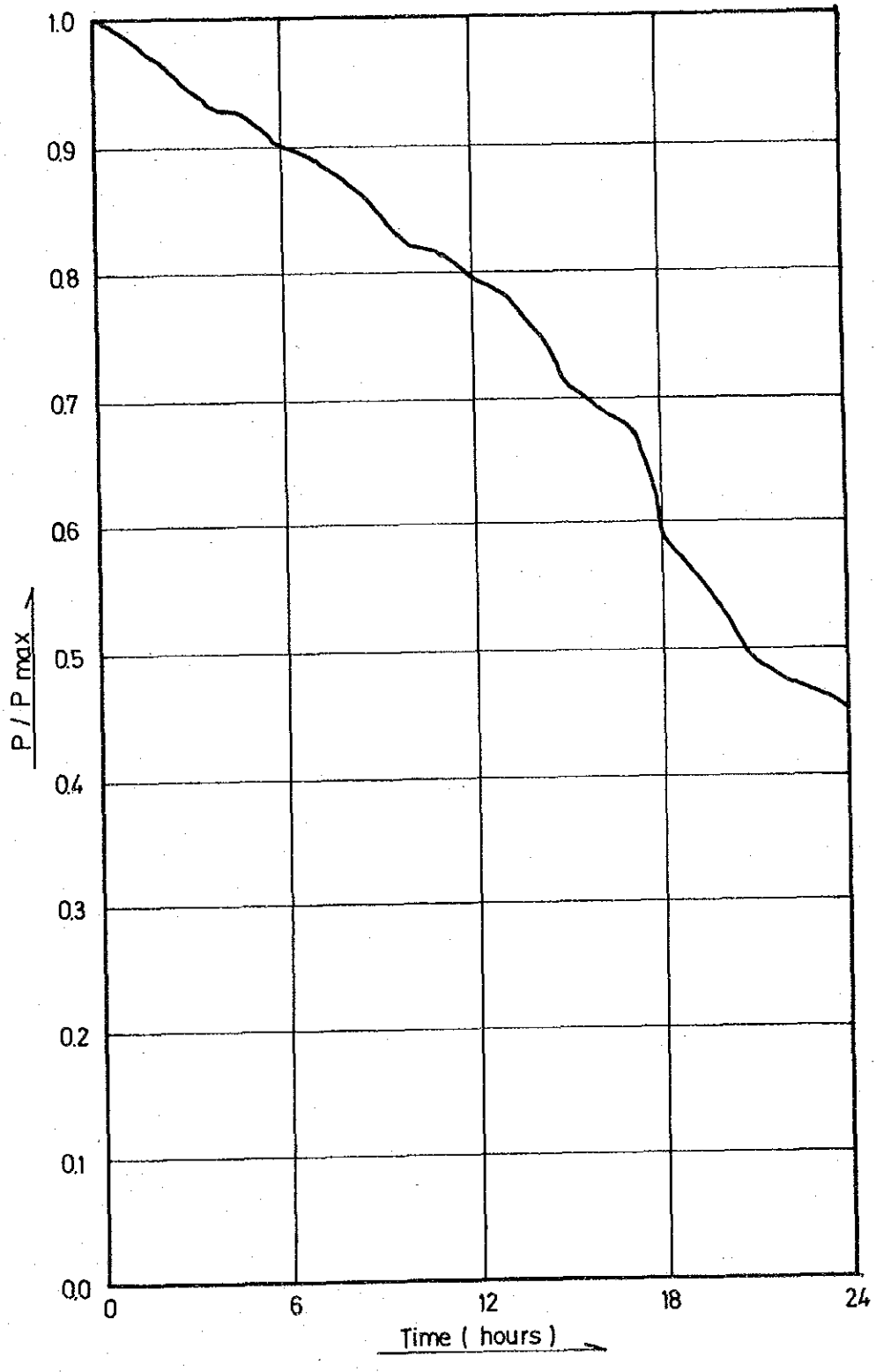

Fig. 5.1 Daily Load Curve at Kapit

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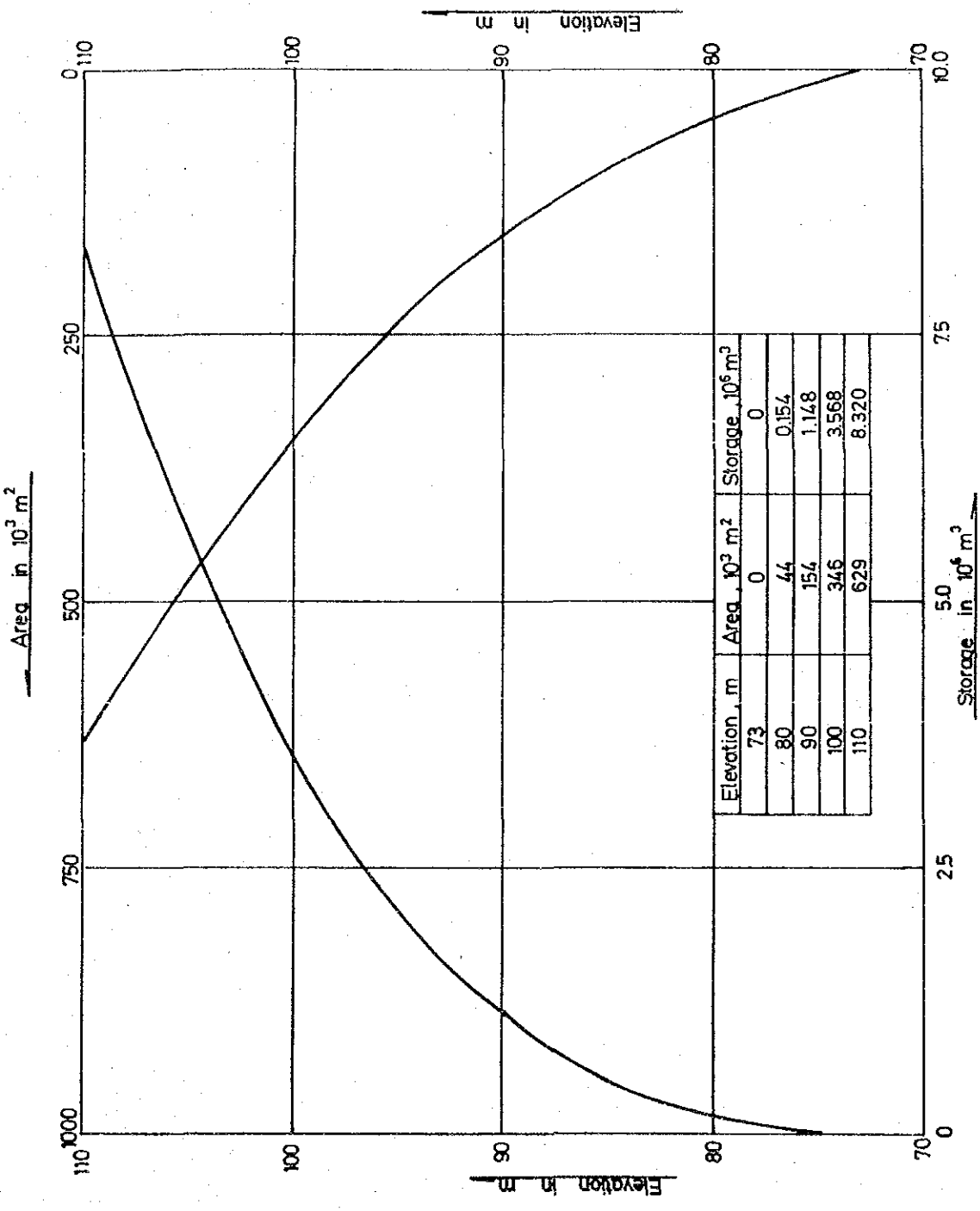

Fig. 5.2 Area Storage Curve for Mukoh

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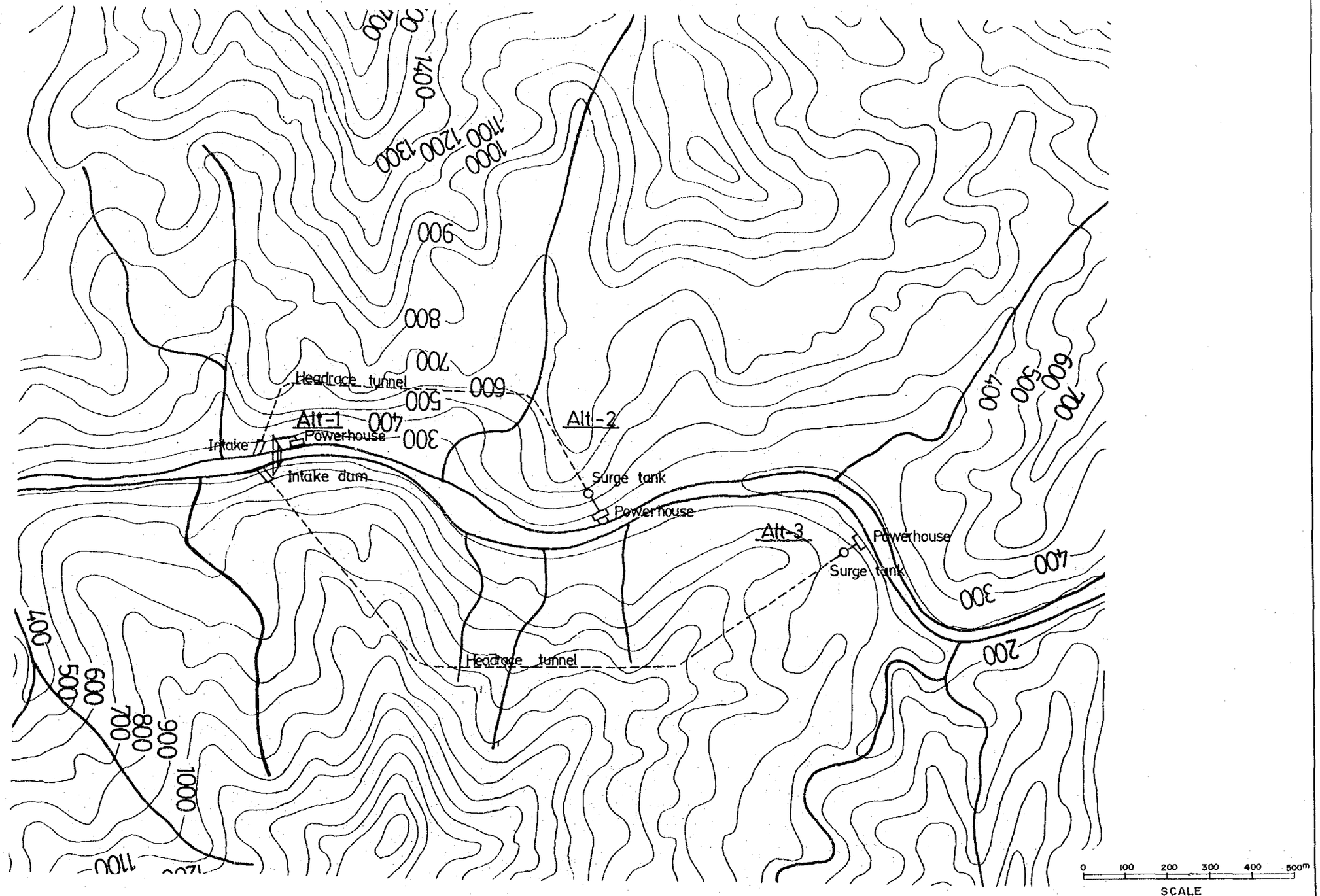
JAPAN INTERNATIONAL COOPERATION AGENCY



Note : Contour in feet

Fig.5.3. Alternatives of Mukoh.

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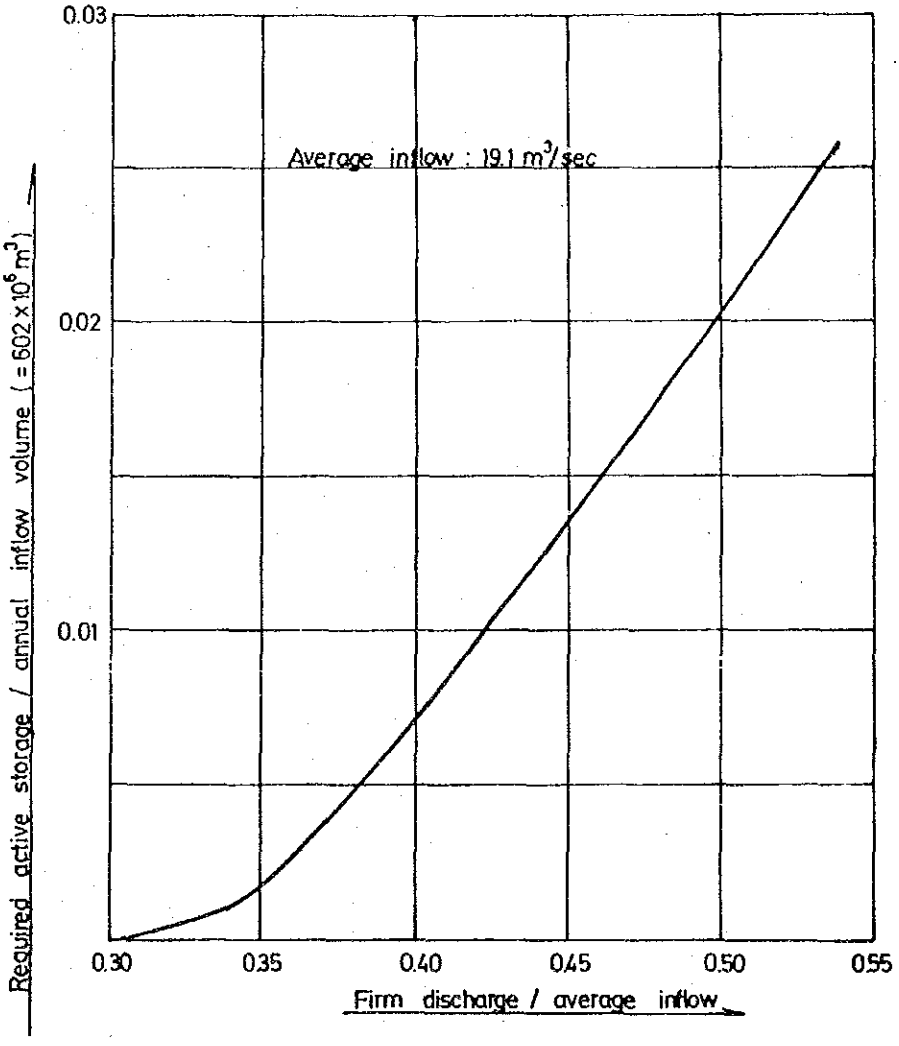

Fig. 5.4 Storage Draft Curve for Mukoh

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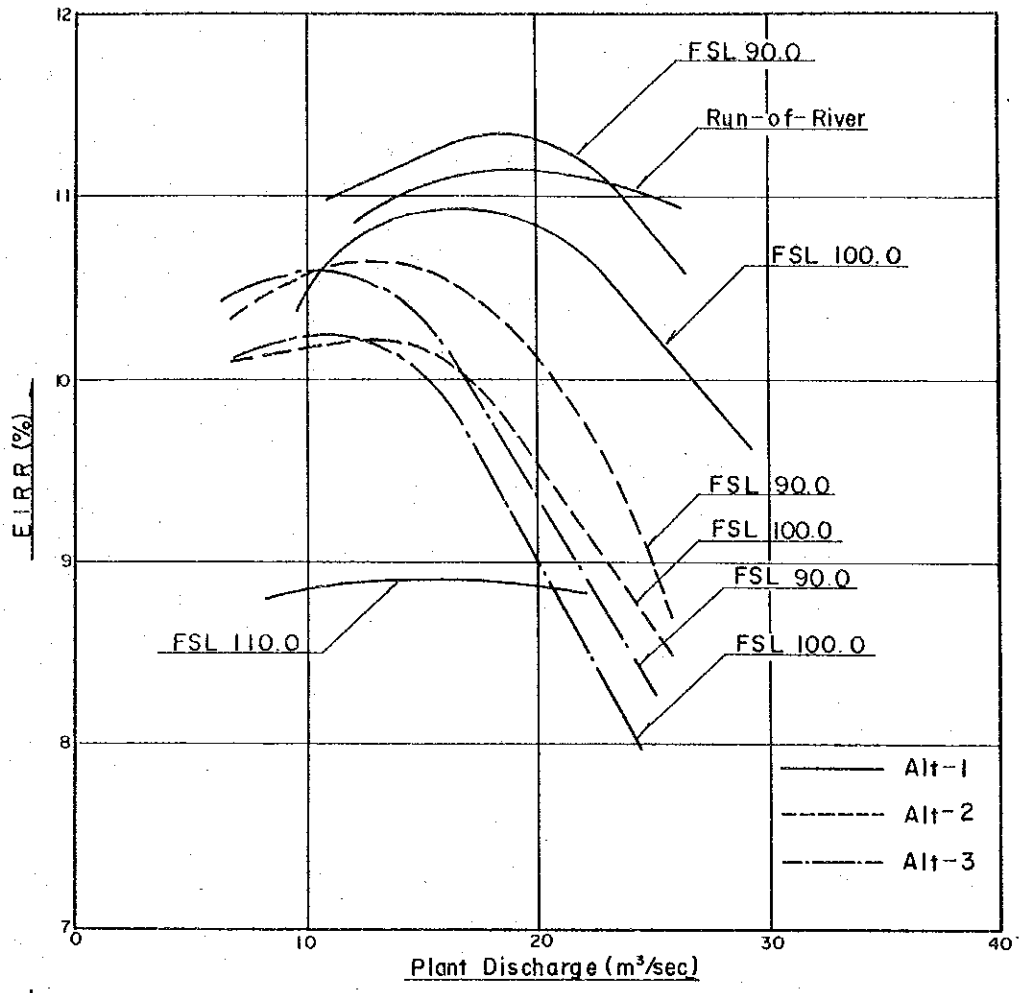

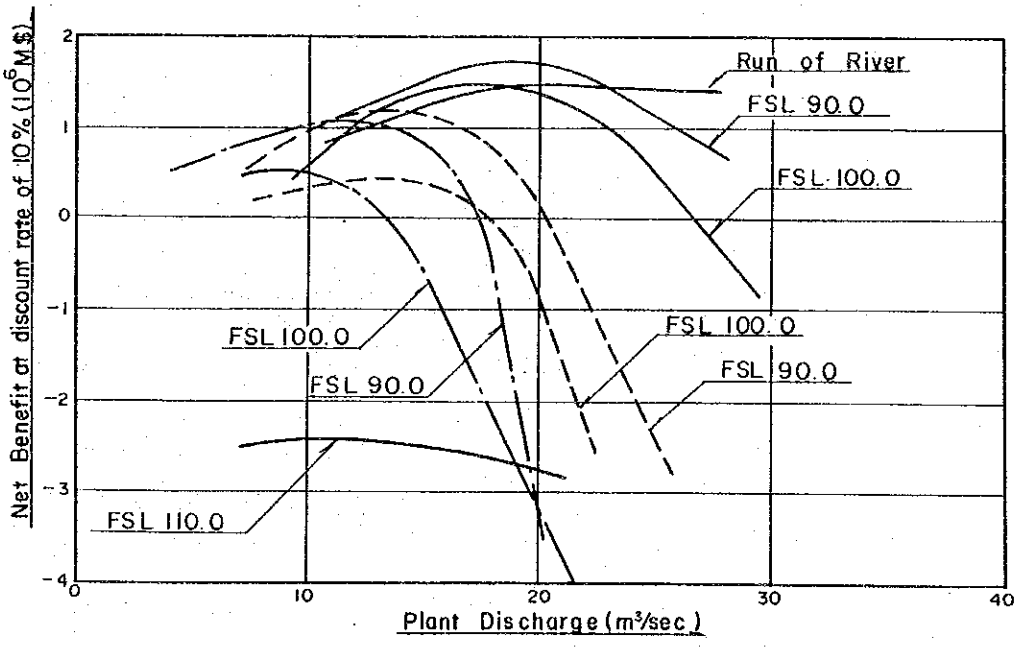

Fig. 5.5 Net Benefit and EIRR of Mukoh

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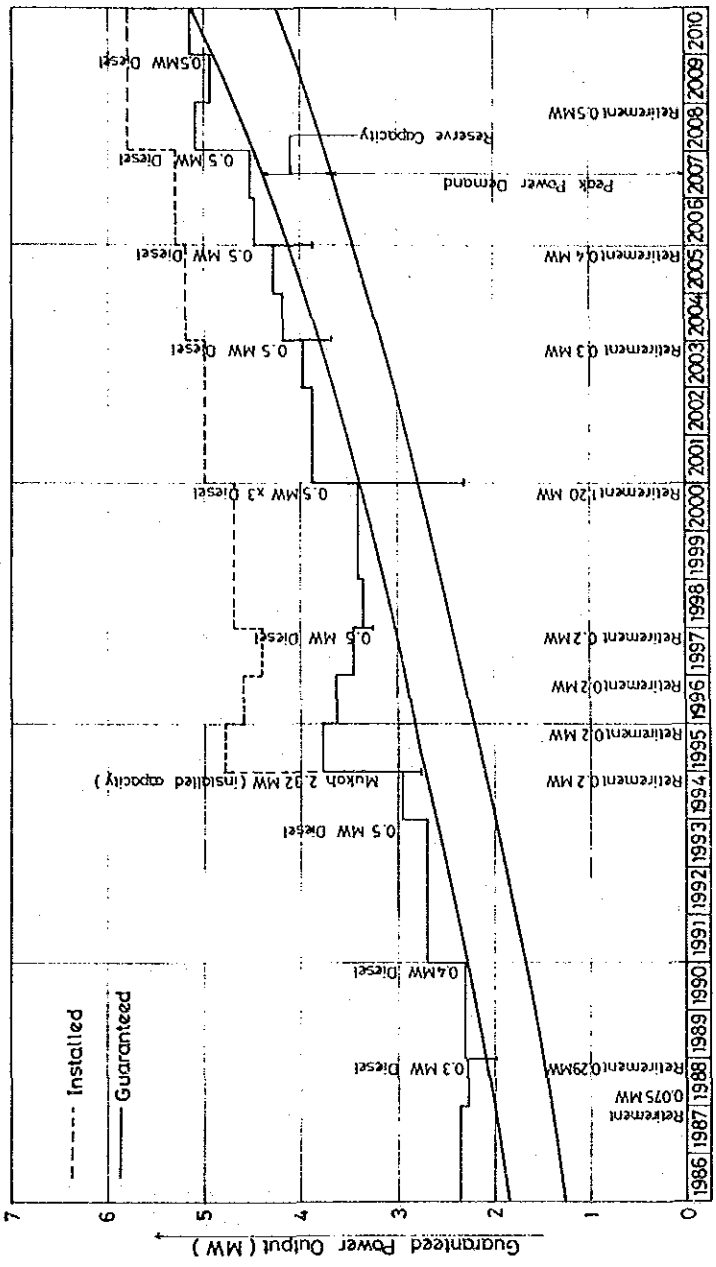

Fig. 5.6. Power Balance in the Kapit System.

GOVERNMENT OF MALAYSIA
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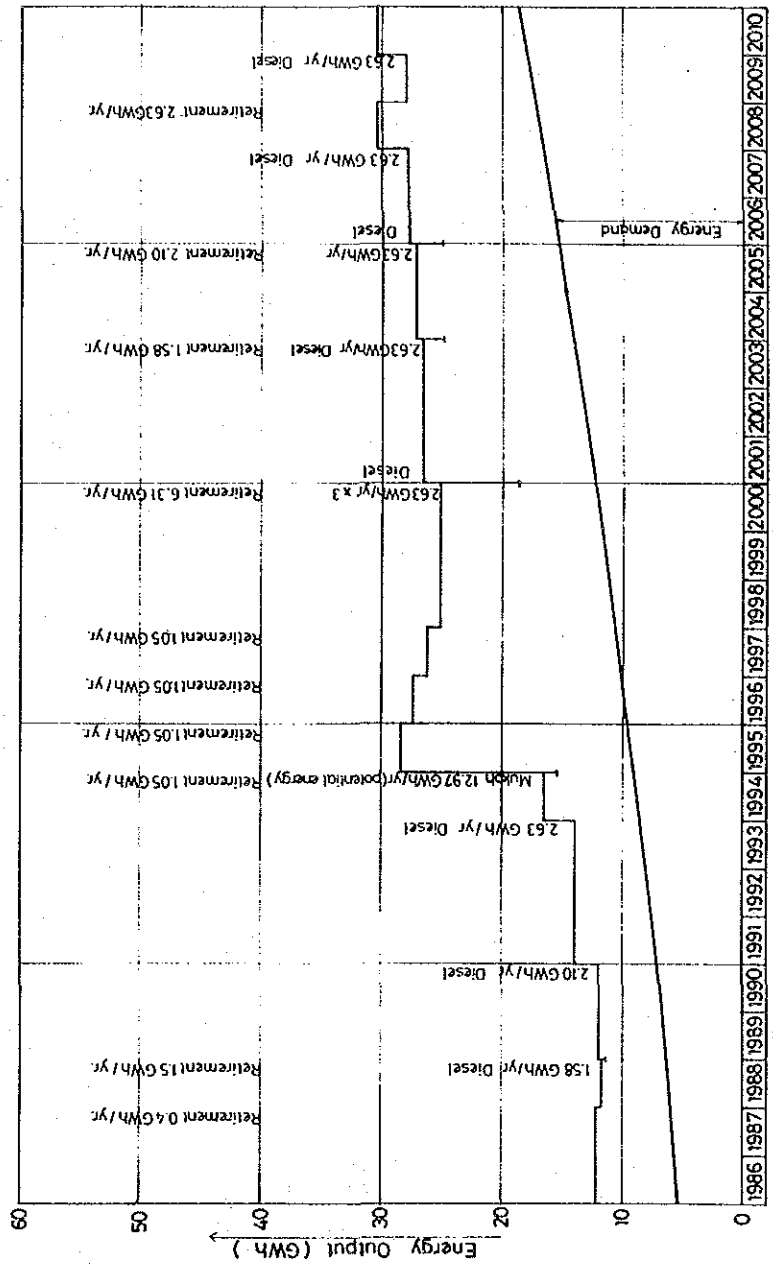

Fig.5.7. Energy Balance in the Kapit System.

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JAPAN INTERNATIONAL COOPERATION AGENCY

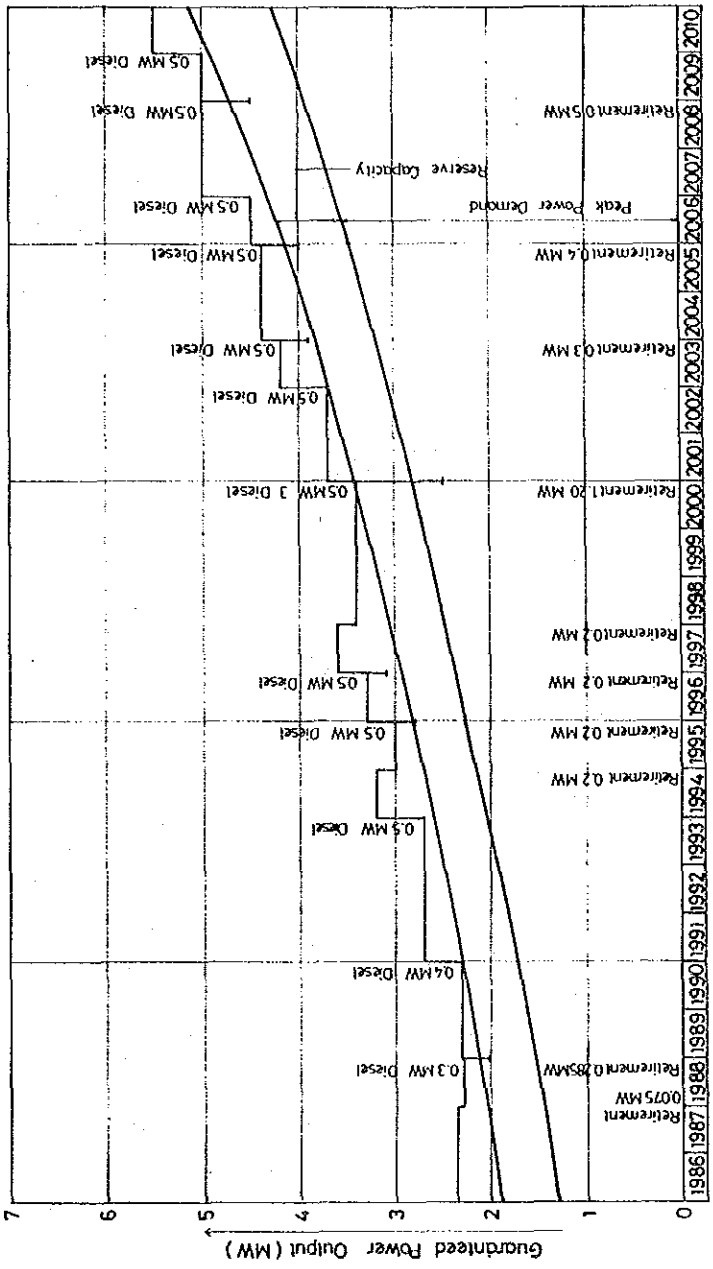

Fig.5.8. Power Balance in the Kapit System (By all Diesel)

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SMALL SCALE HYDROELECTRIC POWER PROJECT IN SARAWAK
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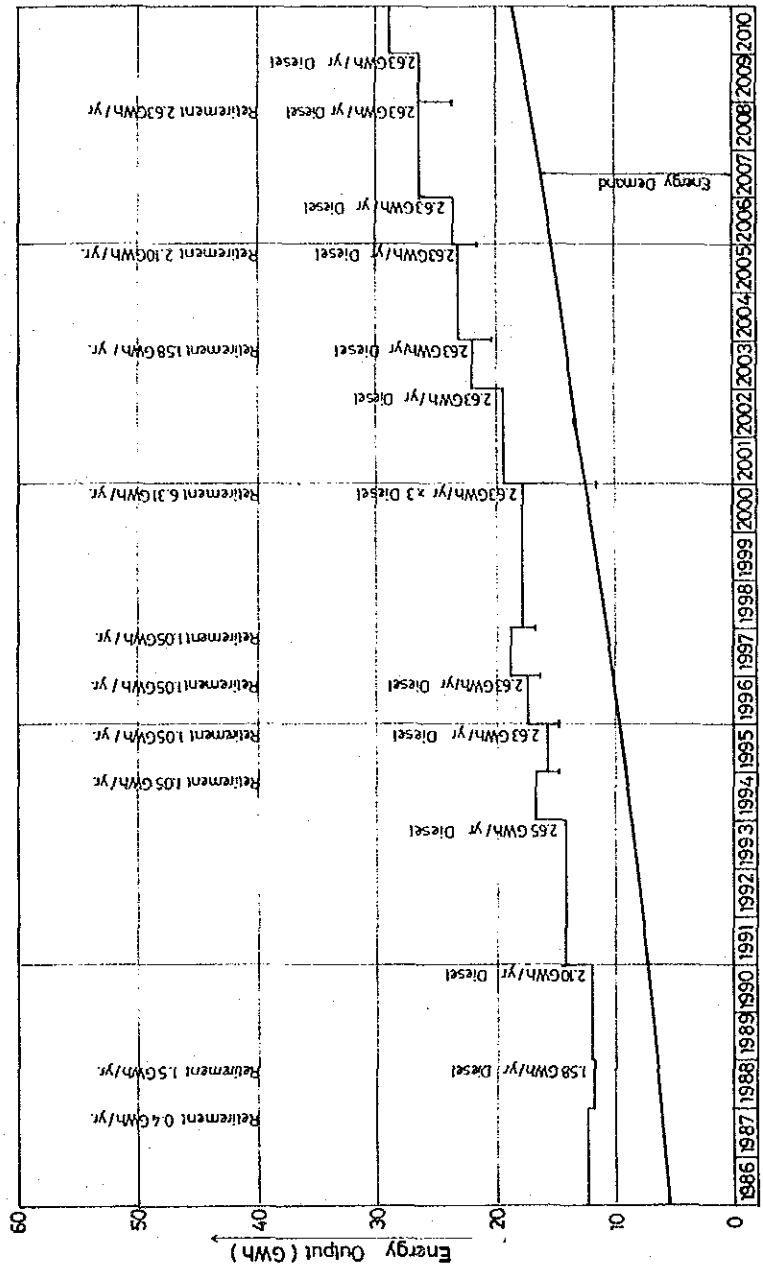

Fig.5.9. Energy Balance in the Kapit System.(By all Diesel)

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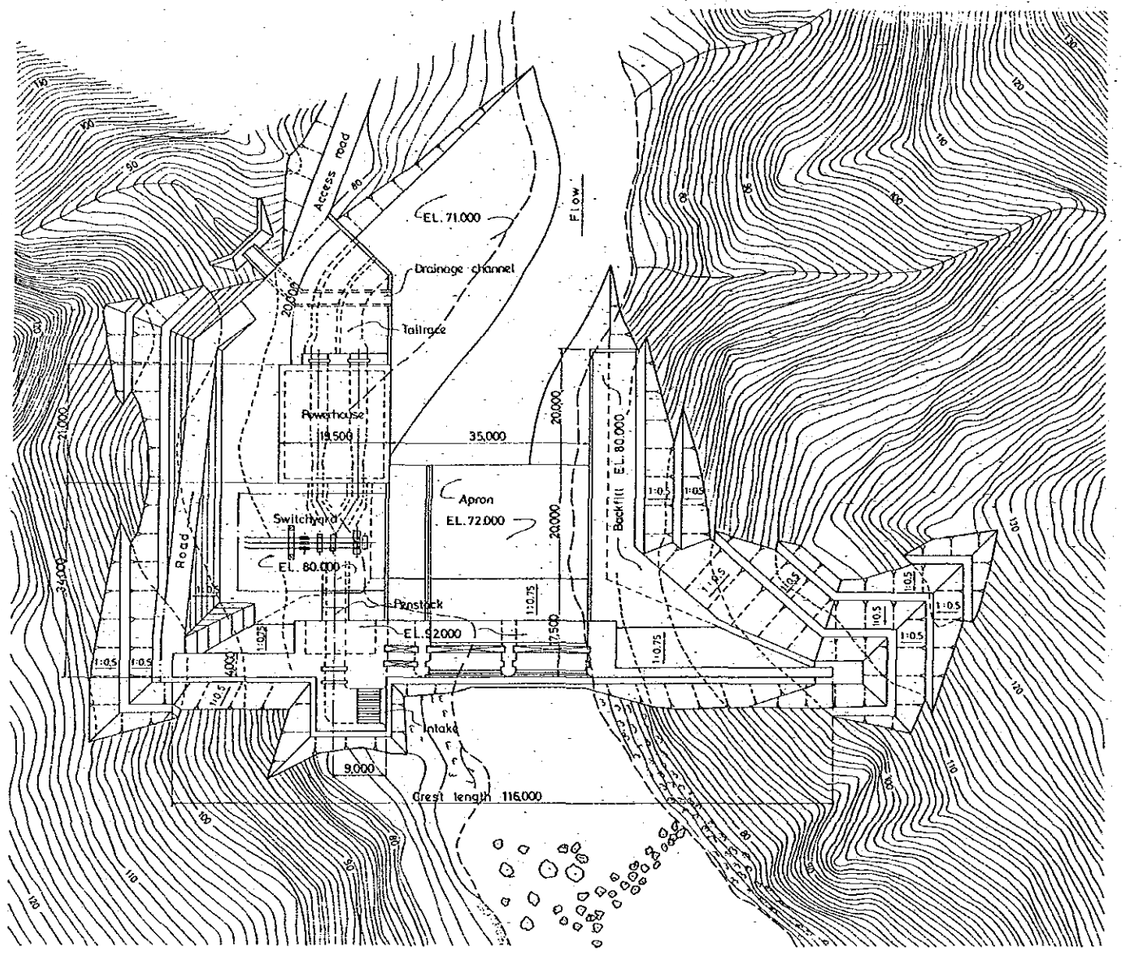
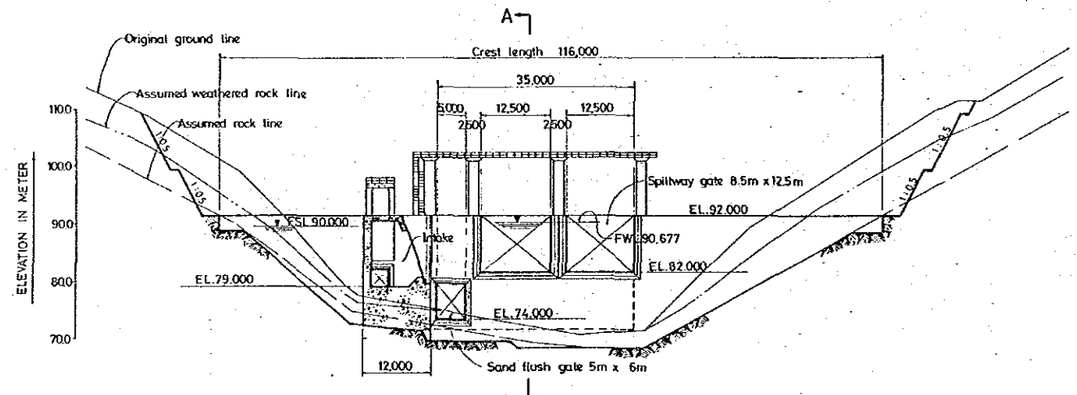
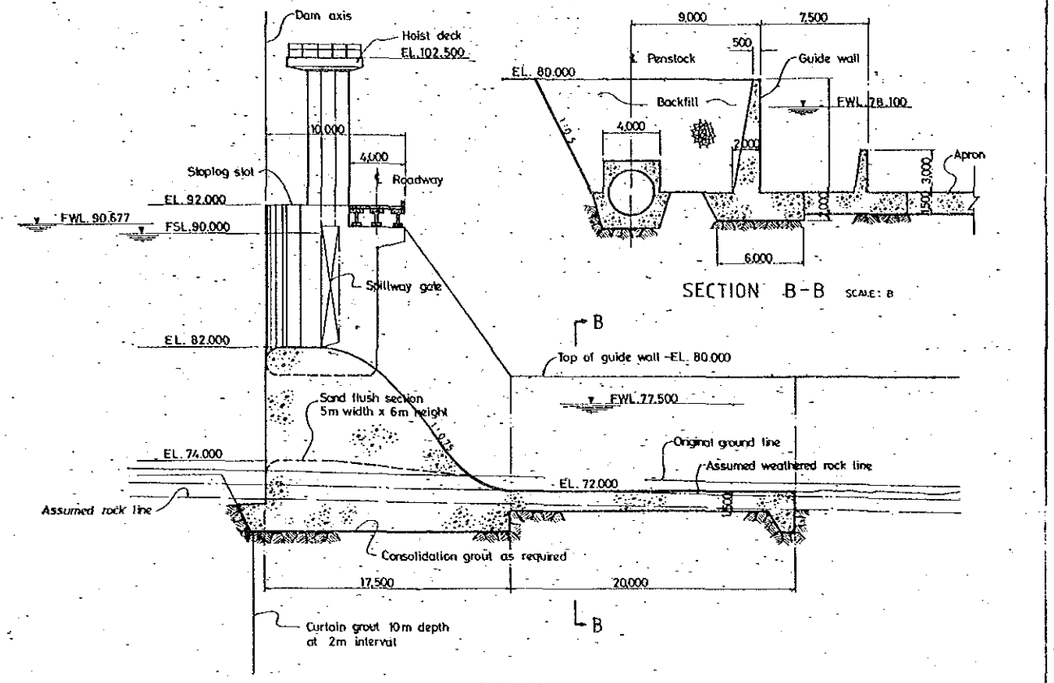


GENERAL PLAN SCALE : A

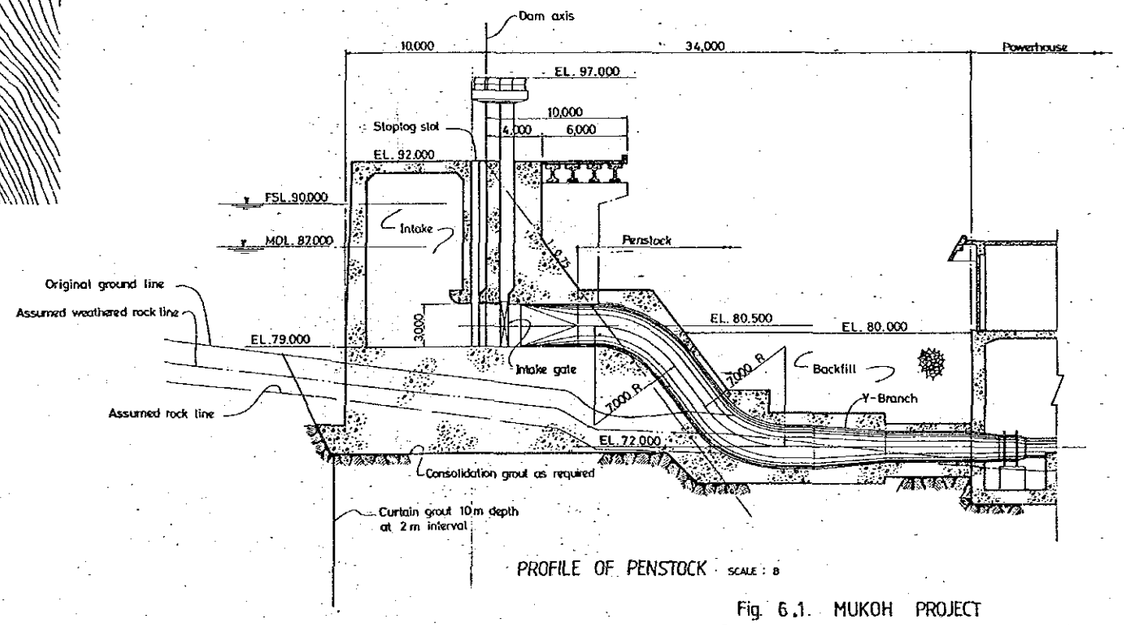


ELEVATION OF INTAKE DAM SCALE : A



SECTION B-B SCALE: B

SECTION A-A SCALE : B



PROFILE OF PENSTOCK SCALE : B

Fig. 6.1. MUKOH PROJECT
INTAKE DAM AND PENSTOCK

SCALE : A 0 50m

SCALE : B 0 10 20m

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FEASIBILITY STUDY
SMALL SCALE HYDROELECTRIC POWER PROJECT IN SARAWAK

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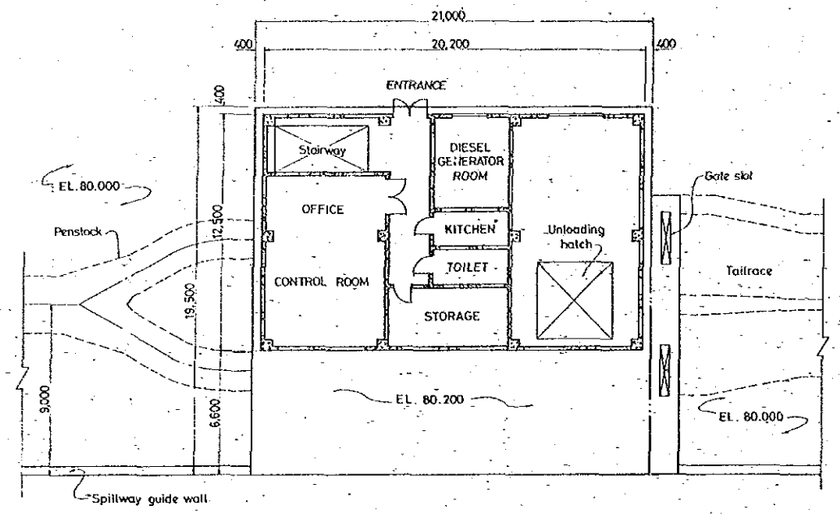
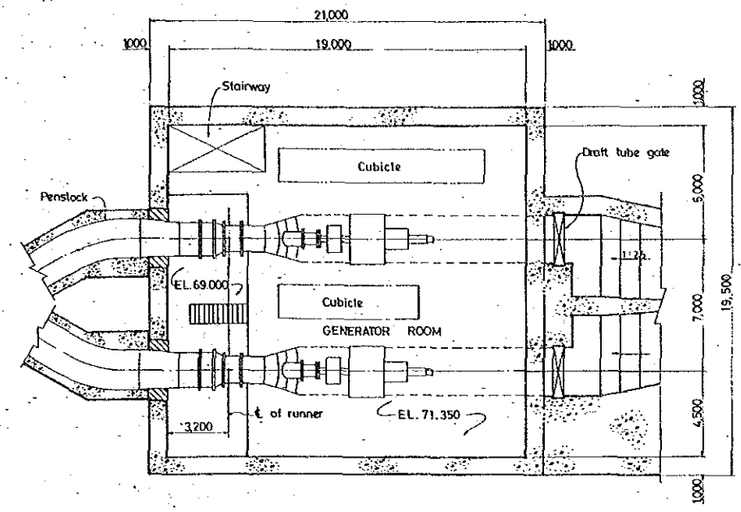
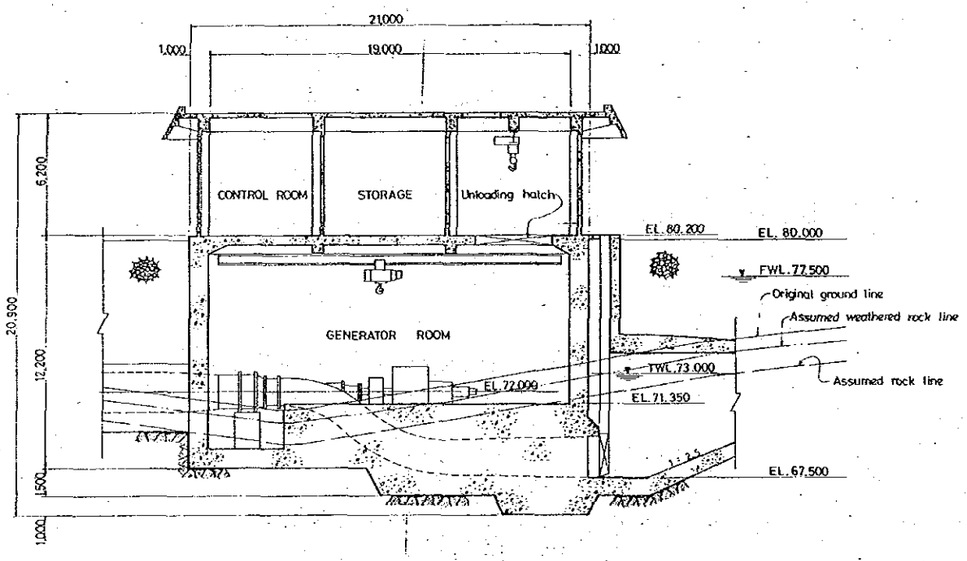


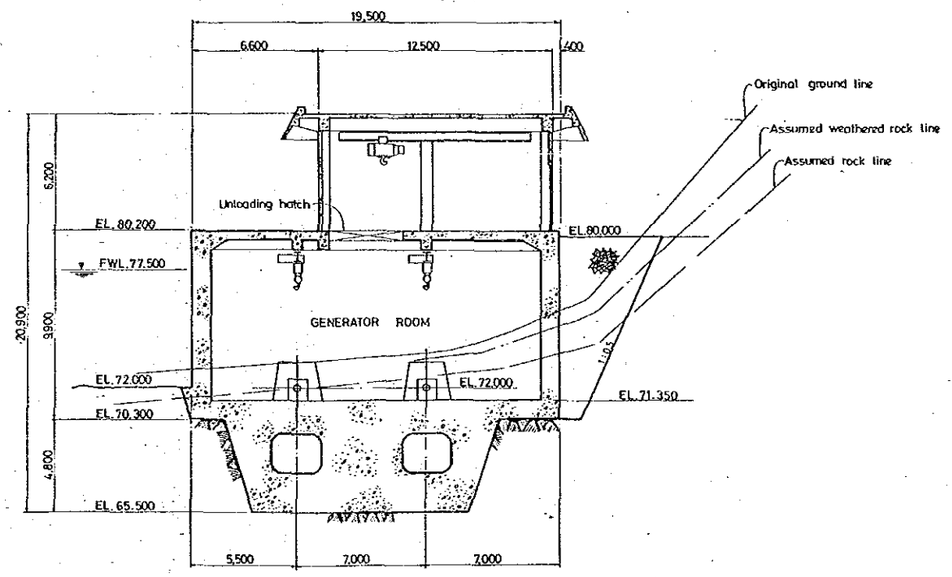
PLAN (EL. 80.200)



PLAN (EL. 71.350)



TRANSVERSE SECTION



LONGITUDINAL SECTION

Fig. 6.2. MUKOH PROJECT
POWERHOUSE

SCALE : 0 5 10 15m

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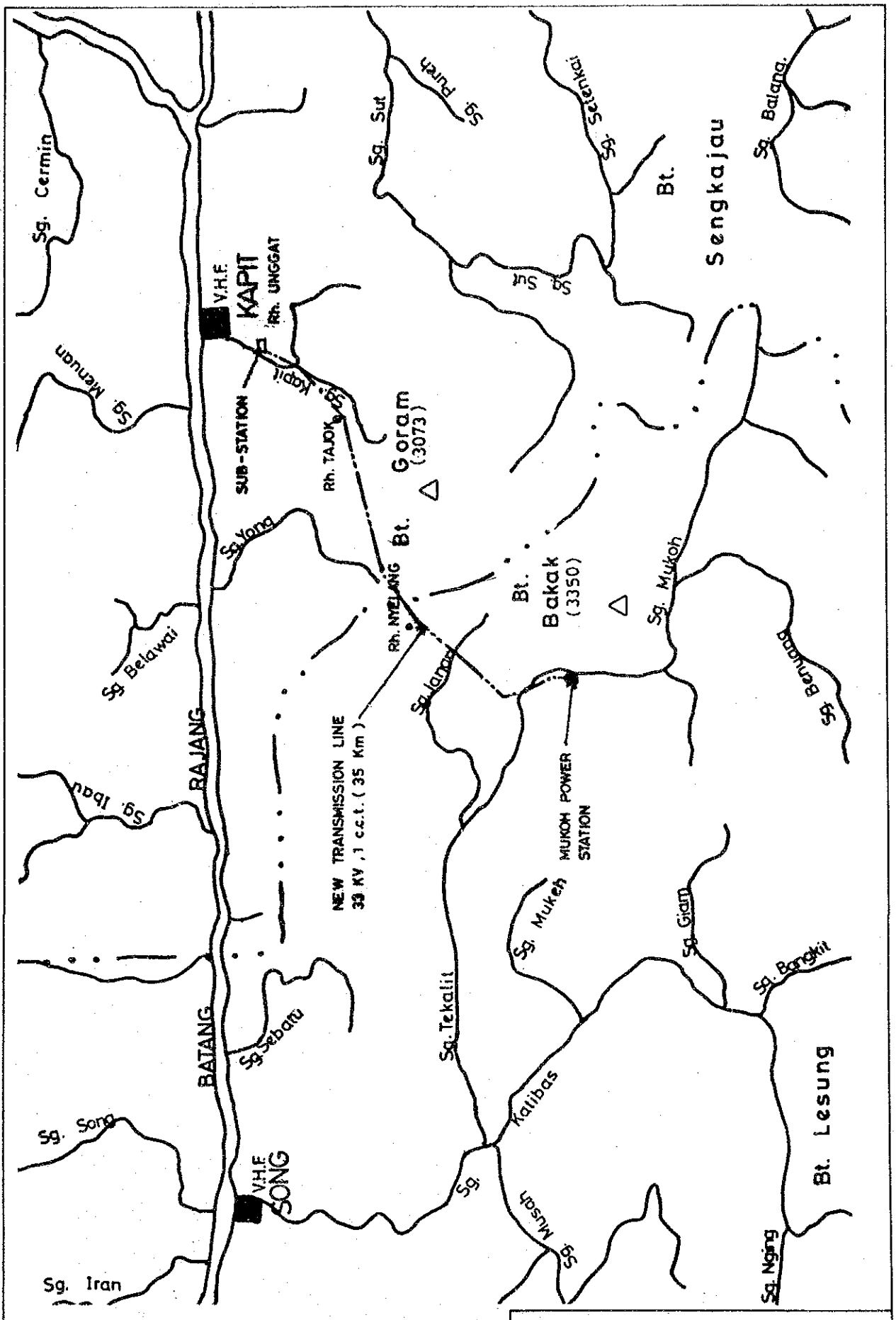

Fig.6.3. Transmission Line Route (Mukoh)

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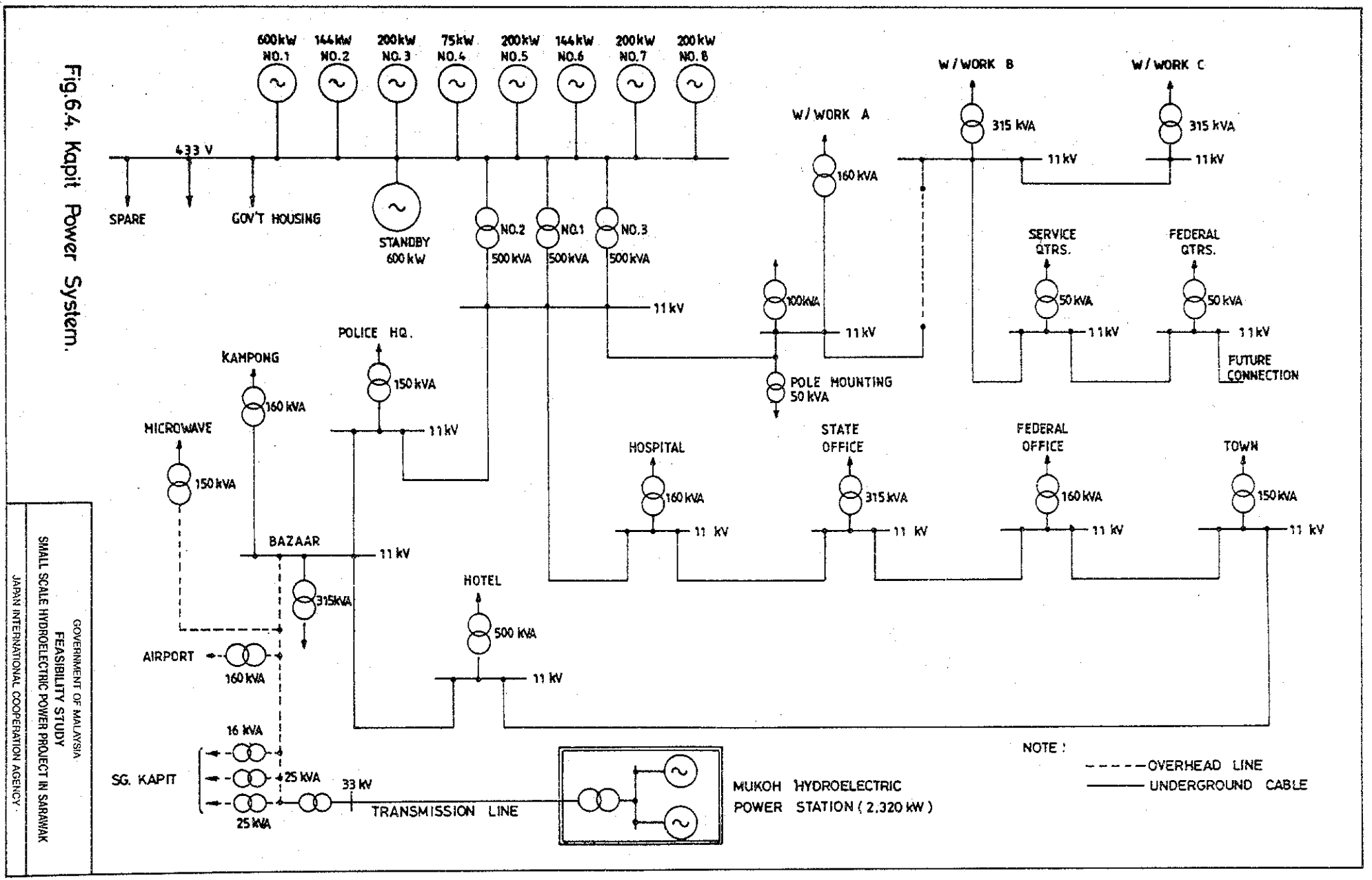

Fig.6.4. Kapit Power System.

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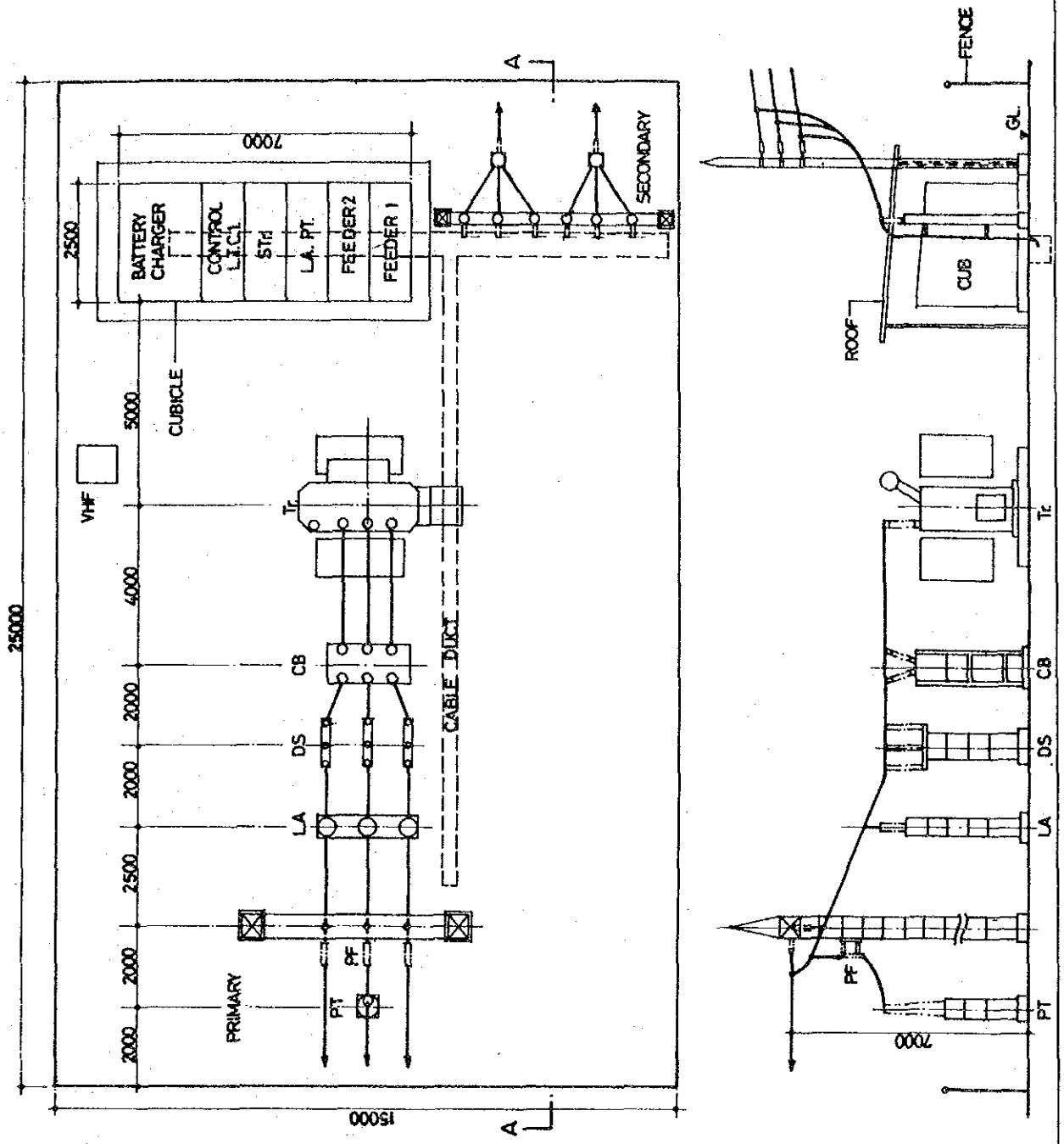

Fig.6.5. Arrangement of Step-down Substation

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FEASIBILITY STUDY
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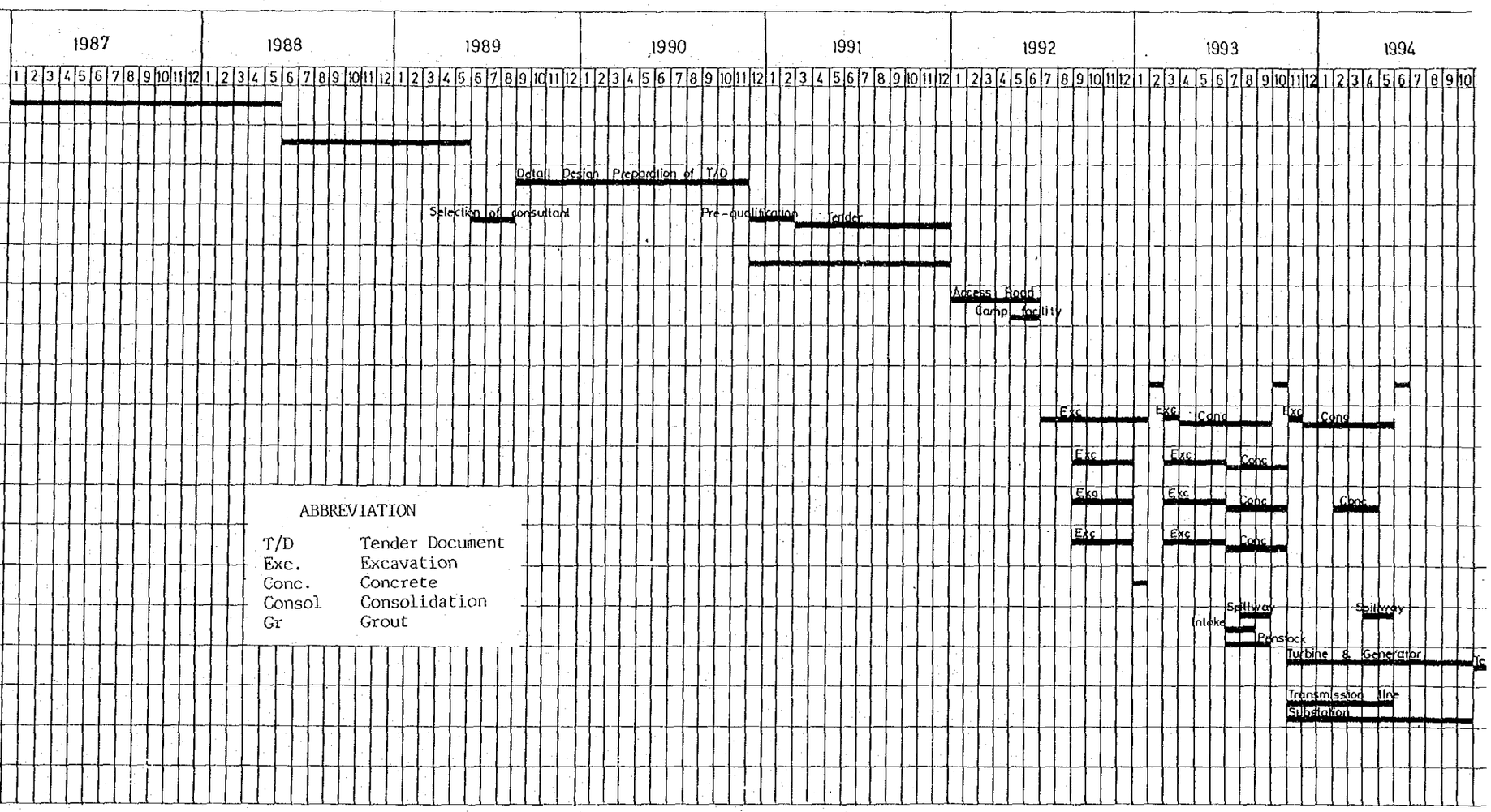
DESCRIPTION
1. Feasibility Study
2. Financial Arrangement
3. Detail Design
4. Tender and Contract
5. Land Acquisition and Compensation
6. Preparatory Works
7. Civil Works
7.1 River Diversion
7.2 Intake Dam
7.3 Penstock Line
7.4 Powerhouse
7.5 Tailrace
7.6 Drainage Channel
8. Metal Work
9. Generating Equipment
10. Transmission Line and Substation



ABBREVIATION

T/D	Tender Document
Exc.	Excavation
Conc.	Concrete
Consol	Consolidation
Gr	Grout

Fig.7.1. Construction Schedule

GOVERNMENT OF MALAYSIA
FEASIBILITY STUDY
SMALL SCALE HYDROELECTRIC POWER PROJ
JAPAN INTERNATIONAL COOPERATION

DESCRIPTION
1. Feasibility Study
2. Financial Arrangement
3. Detail Design
4. Tender and Contract
5. Land Acquisition and Compensation
6. Preparatory Works
7. Civil Works
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7.6 Drainage Channel
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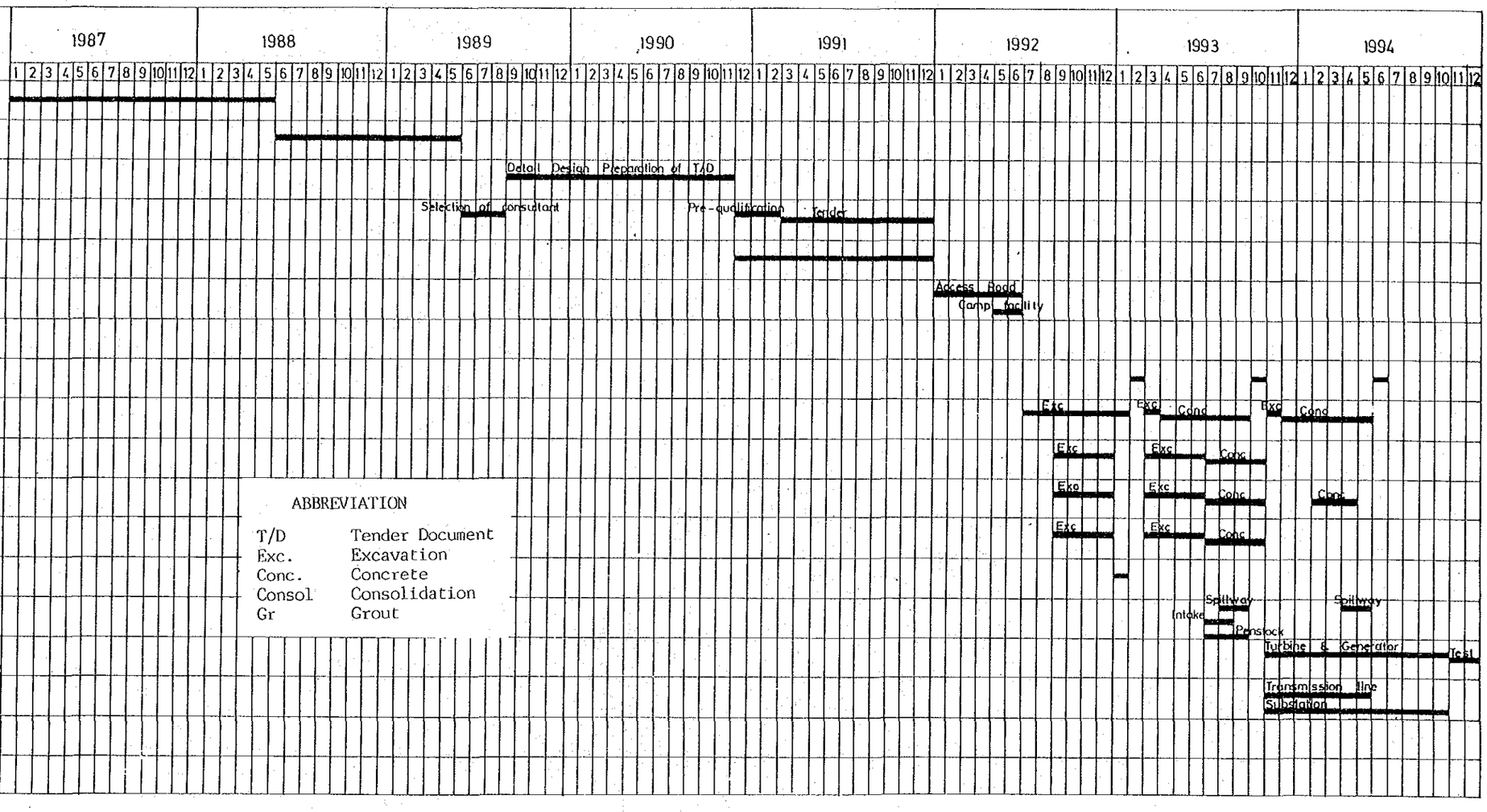

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Fig.7.1. Construction Schedule.

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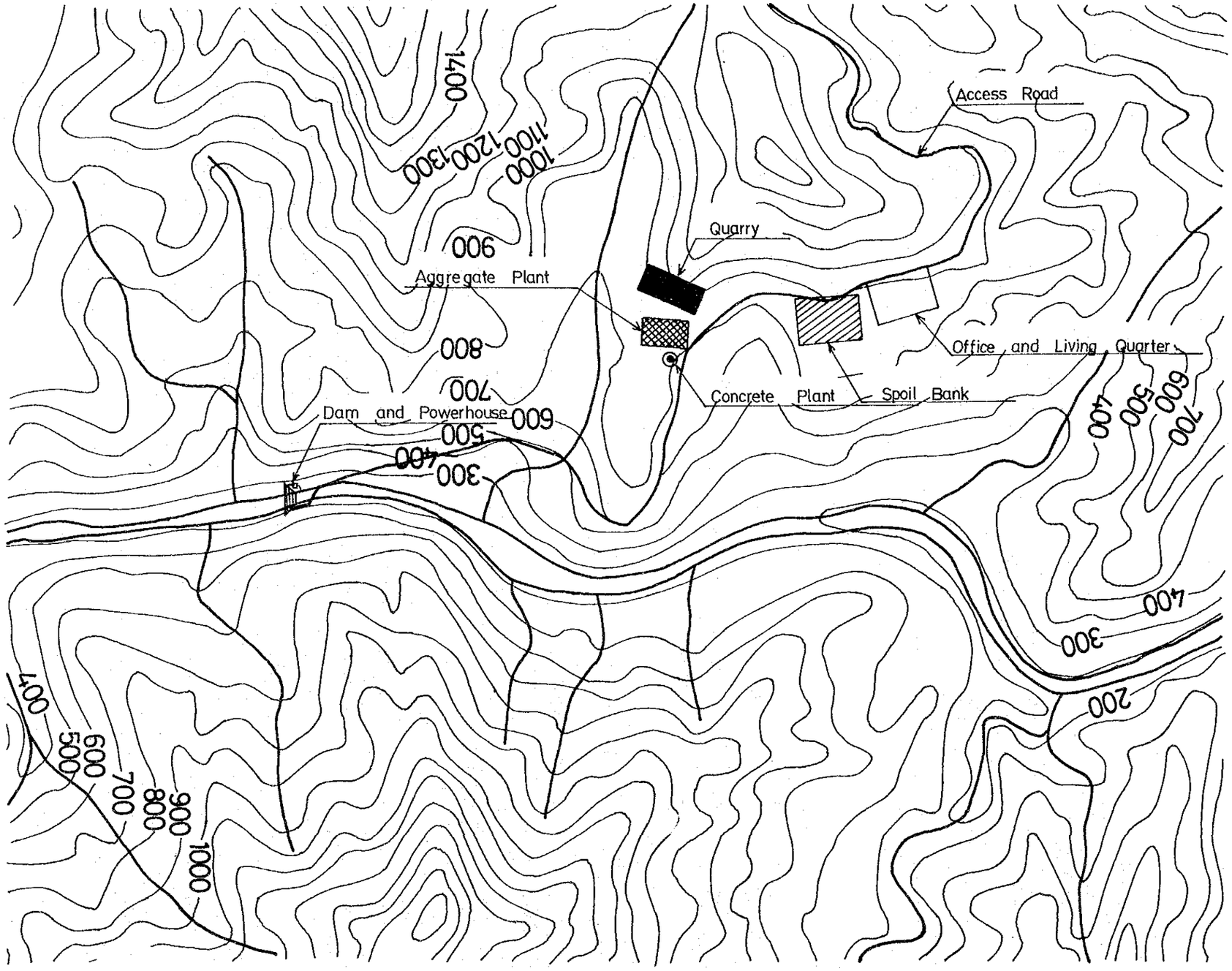

Fig. 7.2 General Plan

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FEASIBILITY STUDY
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Fig.7.3. Care of River.

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