Tables

Table S.1 Results of IEE

Major Causes	Major Impacts	Number of People Affected	Intensity of Impacts	Difficulty of Prevention/ Alleviation
I. Pre-construction Stage				
1. Land Acquisition	• Displacement of people	+	++	++
	• Loss of land	?	++	++
II. Construction Stage				
1. Influx of Labours	• Social frictions	? (++)	++	+
	• Occurrence of diseases	(To be assessed in Natural Environmental Study)		
2. Generation of Job Opportunities	• Improving living standards	? (++)	+	-
	• Influence on farming	?	+	++
3. Increase in Traffic volume	• Disturbance of transportation	? (++)	+	+
III. Impounding of the Reservoir				
1. Displacement of the People	• Decrease in living standards	++	++	++
	•Damages on social aspects	++	++	++
2. Inundation of Land & Structures				
2.1 Roads	• Disturbance to socio-economic activities	? (++)	++	+
2.2 Trading Centres	• - do -	? (++)	++	++
2.3 Public Facilities	• - do -	? (++)	++	+
2.4 Cultural/Historical Sites	• Spiritual damages on people	?	++	? (++)
2.5 Lands	• Rise in land value	?	++	++
	• Shortage of agricultural products	? (+)	+	+
IV. Operation Stage				
1. Reduction of Flow Downstream	• Influence on water use	(To be assessed in Natural Environmental Study)		
2. Fluctration of Flow Downstream	• Disturbance to socio-economic actirities	? (+)	+	+
3. Provision of Water Supply	• Improving living standards	? (++)	++	-
4. Provision of Electricity	• - do -	? (++)	?	-
5. Generation of Job Opportunities	• - do -	? (+)	++	-
6. Possibility of Fishery	• - do -	? (+)	?	-

Note: ++ = Significant, + = Not significant, - = No need to consider, ? = Unknown
Signs in parentheses stand for inference.

Table S.2 Summary of Preliminary Investigation on Possible Resettlement Sites

Areas investigated \ Criteria	(1) Displaced people's preference	(2) Vicinity of the reservoir areas	(3) Land conditions	(4) Similarity of agro-ecological zone	(5) Availability of non-farm employment opportunities	(6) Social affinity	(7) Availability of water sources and accessibility	(8) Land ownership	(9) Value of lands	(10) Side-effects of the resettlement	(11) Remarks
1. Settlement schemes in Kericho and Nyamira/Kisii districts	–	–	–	–	–	–	–	Government	–	–	No plans both in Kericho and Nyamira/Kisii districts.
2. Swamp/Marsh areas in Kericho and Nyamira/Kisii districts	?	△	X	○	?	○	○	County councils	?	Negative effects on those living around the areas	Soil and topographic conditions are not good.
3. Ngoina and other adjacent tea estates in Kericho and Nyamira districts	◎	◎	?	◎	?	◎	○	Private company (Partly Govern-ment land)	?	Negative effects on some workers at estate	1,350 ha (Ngoina estate)
4. Simbauti farm in Nyamira district	○	△	?	○	?	○	?	A Co-operative union	?	?	The land appears earmarked for other use. 300 ha
5. Government land in Kericho district	?	△	?	○	?	○	?	Government	?	?	No investigation was carried out.
6. ADC farms in Trans Nzoia district	△	X	?	○	?	△	?	Government	?	Possible negative effects on some workers at farms	Some 35,000 ha

Notes : ◎ = Excellent
○ = Good
△ = Fair
X = Bad
? = Unknown
– = No need to assess

Table S.3 Loan Repayability

(Unit : million US$)

	FOREIGN LOAN						EXPENDITURE BY GOVERNMENT		TOTAL EXPENDITURE	ANNUAL REVENUE	SURPLUS OR DEFICIT	CUMULATIVE SURPLUS (DEFICIT)
	Loan Disbursement			Repayment								
Year	Capital	IDC*	Cumulative Debt	Interest	Principal	Total	Capital Costs	OMR* Costs				
1	0.81	0.02	0.83				0.01		0.01	0.00	-0.01	-0.01
2	4.09	0.12	5.04				0.04		0.04	0.00	-0.04	-0.05
3	3.35	0.21	8.60				0.04		0.04	0.00	-0.04	-0.09
4	0.00	0.22	8.82				21.50		21.50	0.00	-21.50	-21.59
5	0.00	0.22	9.04				35.50		35.50	0.00	-35.50	-57.09
6	41.65	1.28	51.97				7.00		7.00	0.00	-7.00	-64.09
7	38.51	2.29	92.77				7.11		7.11	0.00	-7.11	-71.20
8	77.97	4.32	175.06				11.09		11.09	0.00	-11.09	-82.29
9	87.49	6.64	269.19				15.51		15.51	0.00	-15.51	-97.80
10	100.43	9.35	378.98				16.23		16.23	0.00	-16.23	-114.03
11	25.65	10.24	414.87	10.37	16.24	26.61	5.08		31.70	0.00	-31.70	-145.73
12			398.63	9.97	16.65	26.61		4.99	31.60	40.16	8.56	-137.17
13			381.98	9.55	17.06	26.61		4.99	31.60	40.16	8.56	-128.61
14			364.92	9.12	17.49	26.61		4.99	31.60	40.16	8.56	-120.05
15			247.43	8.69	17.93	26.61		4.99	31.60	40.16	8.56	-111.49
16			329.50	8.24	18.37	26.61		4.99	31.60	40.16	8.56	-102.93
17			311.12	7.78	18.83	26.61		4.99	31.60	40.16	8.56	-94.37
18			202.20	7.31	19.31	26.61		4.99	31.60	40.16	8.56	-85.81
19			272.98	6.82	19.79	26.61		4.99	31.60	40.16	8.56	-77.25
20			253.20	6.33	20.28	26.61		4.99	31.60	40.16	8.56	-68.69
21			232.91	5.82	20.79	26.61		4.99	31.60	40.16	8.56	-60.13
22			212.12	5.30	21.31	26.61		4.99	31.60	40.16	8.56	-51.57
23			190.82	4.77	21.84	26.61		4.99	31.60	40.16	8.56	-43.01
24			168.97	4.22	22.39	26.61		4.99	31.60	40.16	8.56	-34.45
25			146.58	3.66	22.95	26.61		4.99	31.60	40.16	8.56	-25.89
26			123.64	3.09	23.52	26.61		4.99	31.60	40.16	8.56	-17.33
27			100.12	2.50	24.11	26.61		4.99	31.60	40.16	8.56	-8.77
28			76.01	1.90	24.71	26.61		4.99	31.60	40.16	8.56	-0.21
29			51.29	1.28	25.33	26.61		4.99	31.60	40.16	8.56	8.35
30			25.96	0.65	25.96	26.61		4.99	31.60	40.16	8.56	16.91
31			0.00					4.99	4.99	40.16	35.17	52.08
32								4.99	4.99	40.16	35.17	87.25
33								4.99	4.99	40.16	35.17	122.42
34								4.99	4.99	40.16	35.17	157.59
35								4.99	4.99	40.16	35.17	192.76
36								4.99	4.99	40.16	35.17	227.93
37								4.99	4.99	40.16	35.17	263.10
38								4.99	4.99	40.16	35.17	298.27
39								4.99	4.99	40.16	35.17	333.44
40								4.99	4.99	40.16	35.17	368.61
41								4.99	4.99	40.16	35.17	403.78
42								4.99	4.99	40.16	35.17	438.95
43								4.99	4.99	40.16	35.17	474.12
44								4.99	4.99	40.16	35.17	509.29
45								4.99	4.99	40.16	35.17	544.46
46								4.99	4.99	40.16	35.17	579.63
47								4.99	4.99	40.16	35.17	614.80
48								12.59	12.59	40.16	27.57	642.37
49								9.76	9.76	40.16	30.40	672.77
50								31.39	31.39	40.16	8.77	681.54
51								11.94	11.94	40.16	28.22	709.76
52								4.99	4.99	40.16	35.17	744.93
53								4.99	4.99	40.16	35.17	780.10
54								4.99	4.99	40.16	35.17	815.27
55								4.99	4.99	40.16	35.17	850.44
56								4.99	4.99	40.16	35.17	885.61
57								4.99	4.99	40.16	35.17	920.78
58								4.99	4.99	40.16	35.17	955.95
59								4.99	4.99	40.16	35.17	991.12
60								4.99	4.99	40.16	35.17	1,026.29
61								4.99	4.99	40.16	35.17	1,061.46

Notes: * Interest during construction
** O & M cost and Replacement cost

Figures

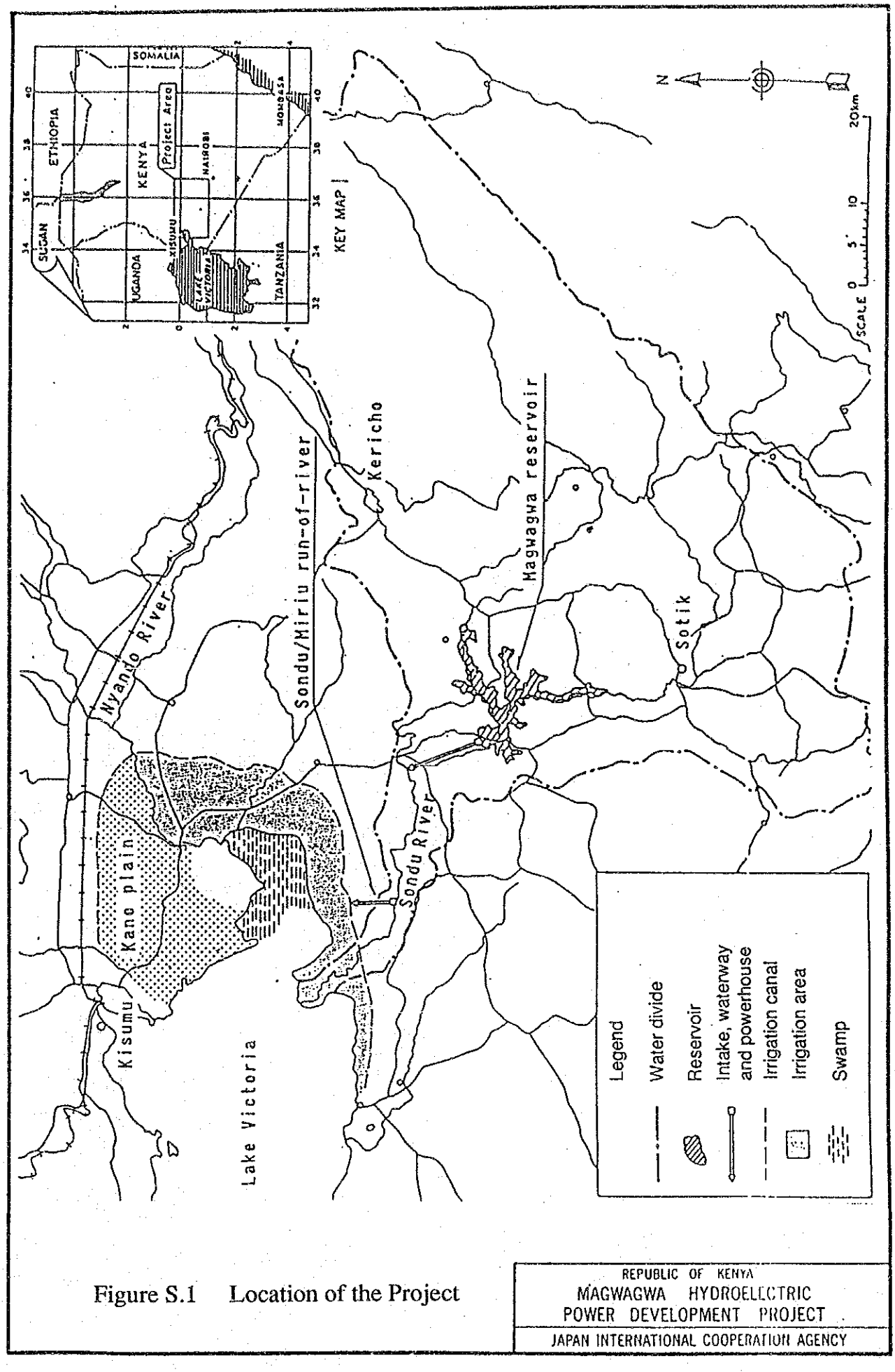

Figure S.1 Location of the Project

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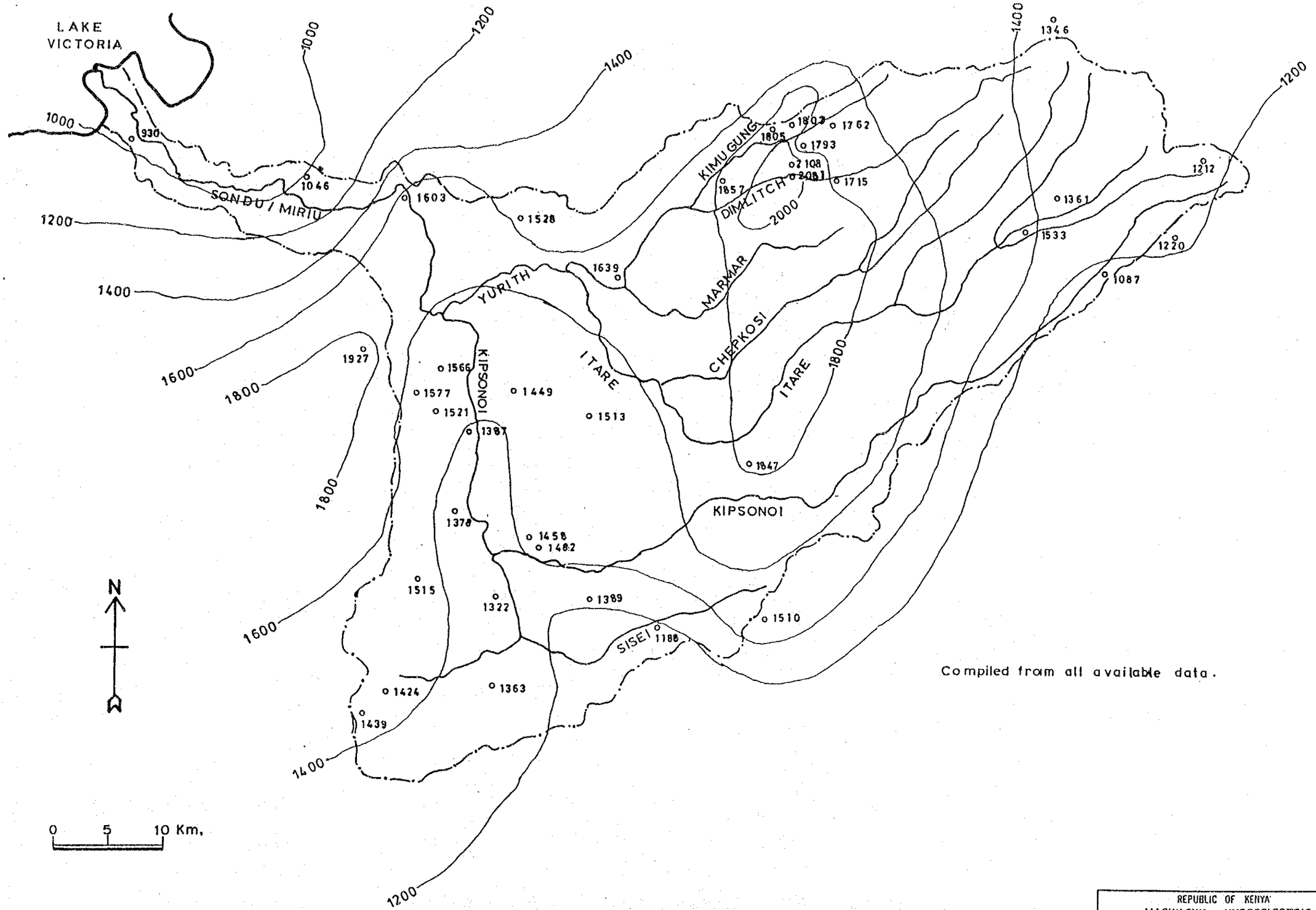

Compiled from all available data.

Figure S.2 Isohyetal Map of Mean Annual Rainfall in the Sondu River Basin

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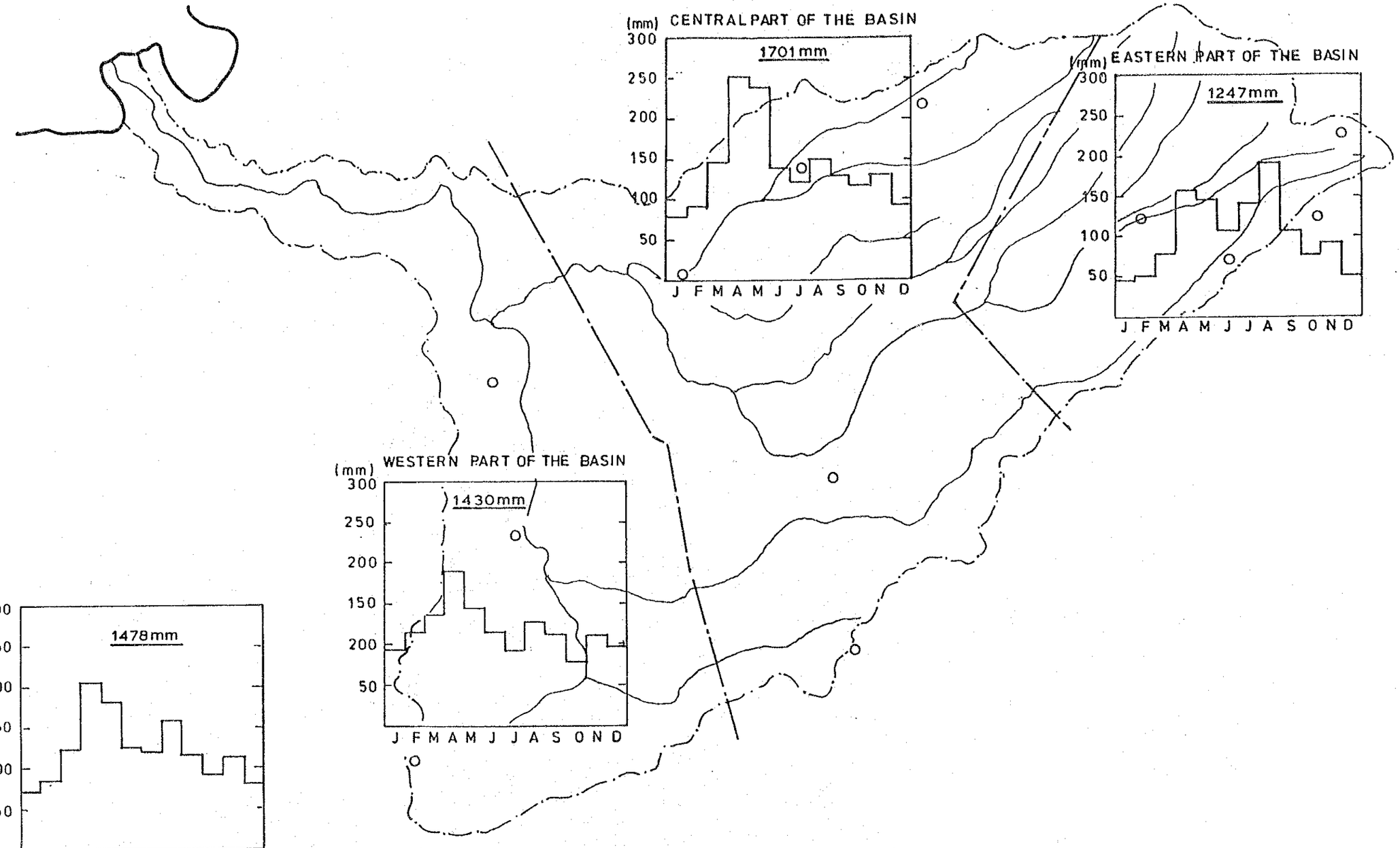

Figure S.3 Monthly Rainfall Patterns at the Rain Gauges in the Sondu River Basin

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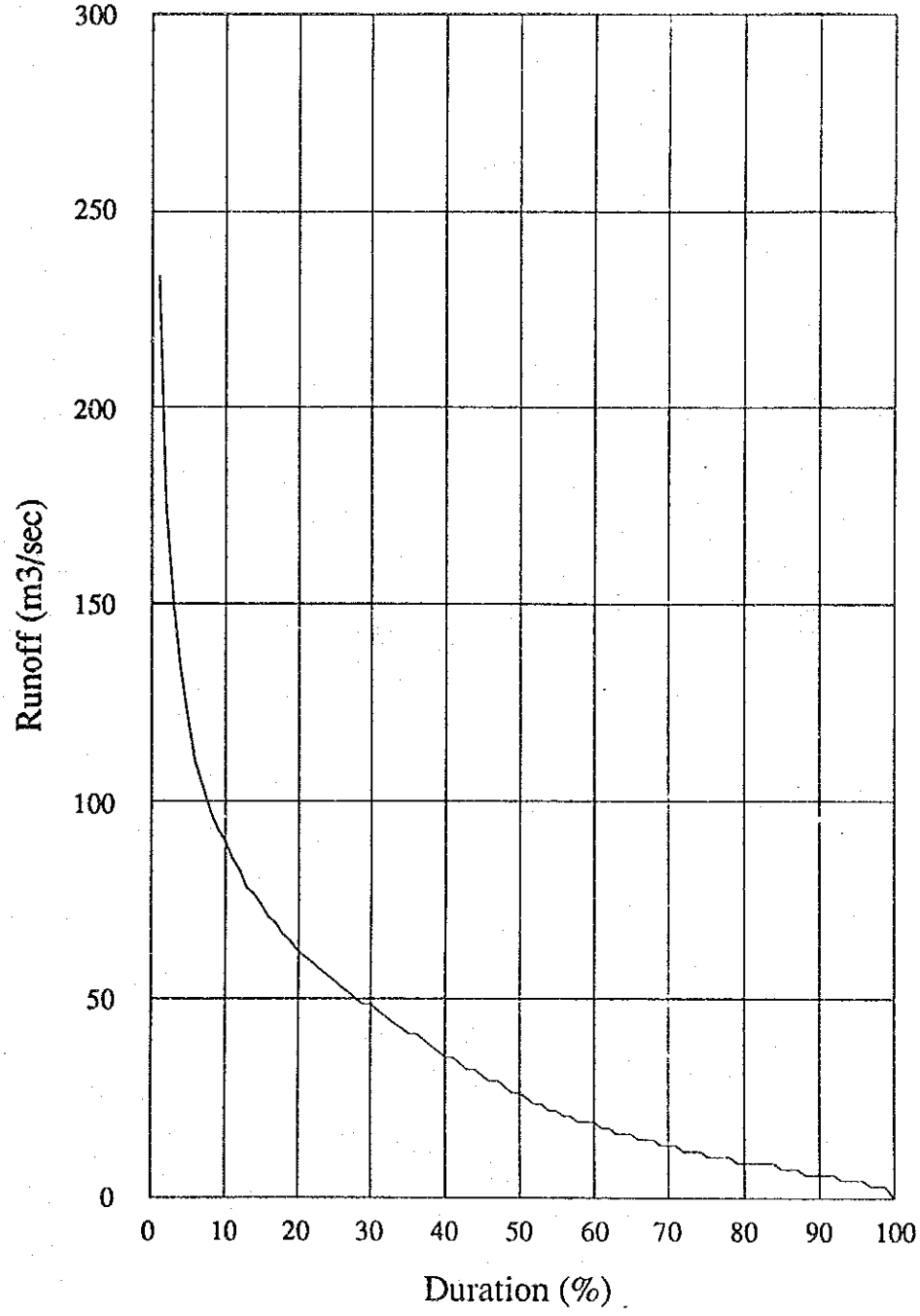

Figure S.4 Flow duration Curve at the 1JG1 Station by the Series Method

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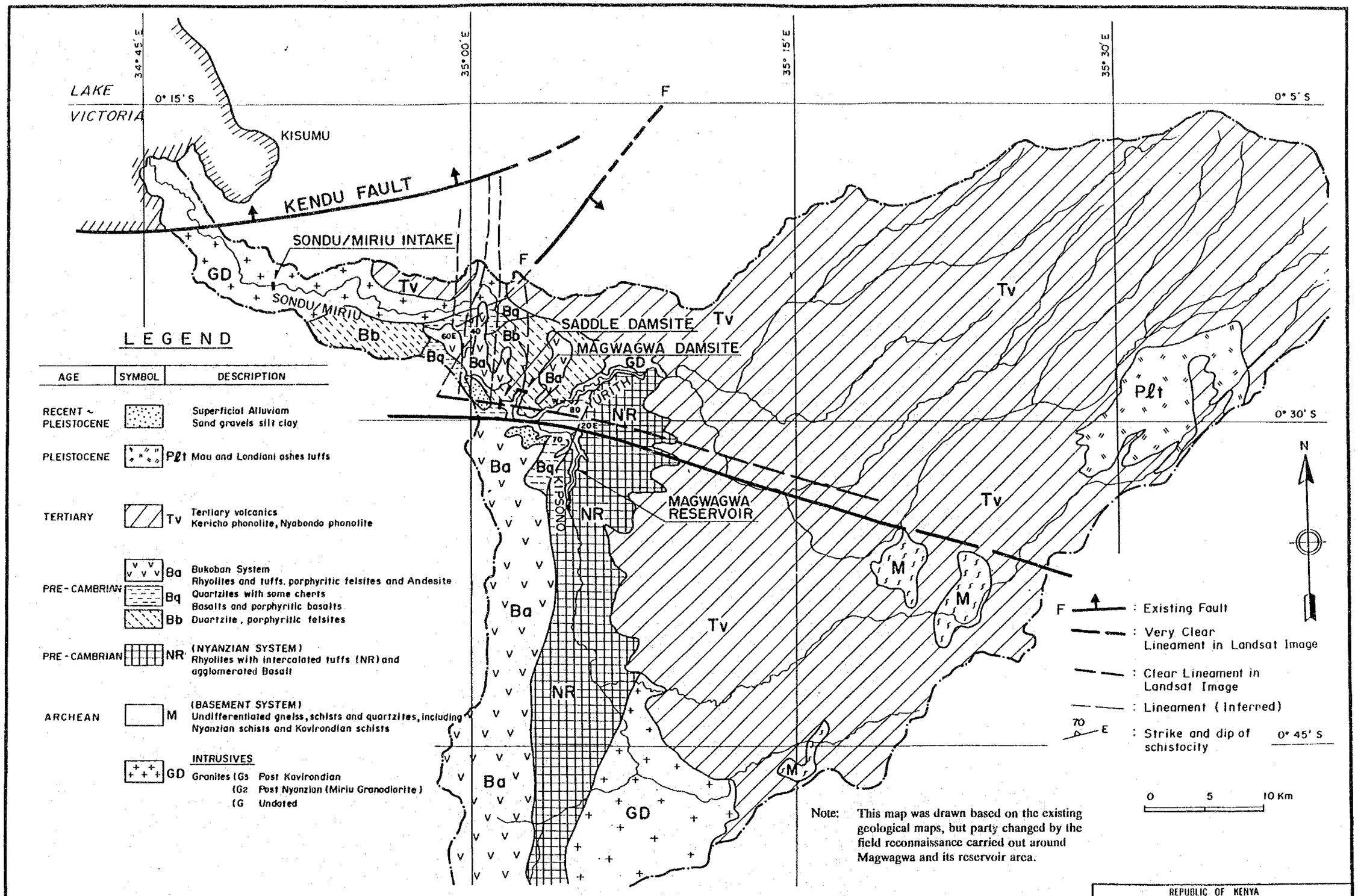

Figure S.5 Regional Geology in the Sondu River Basin

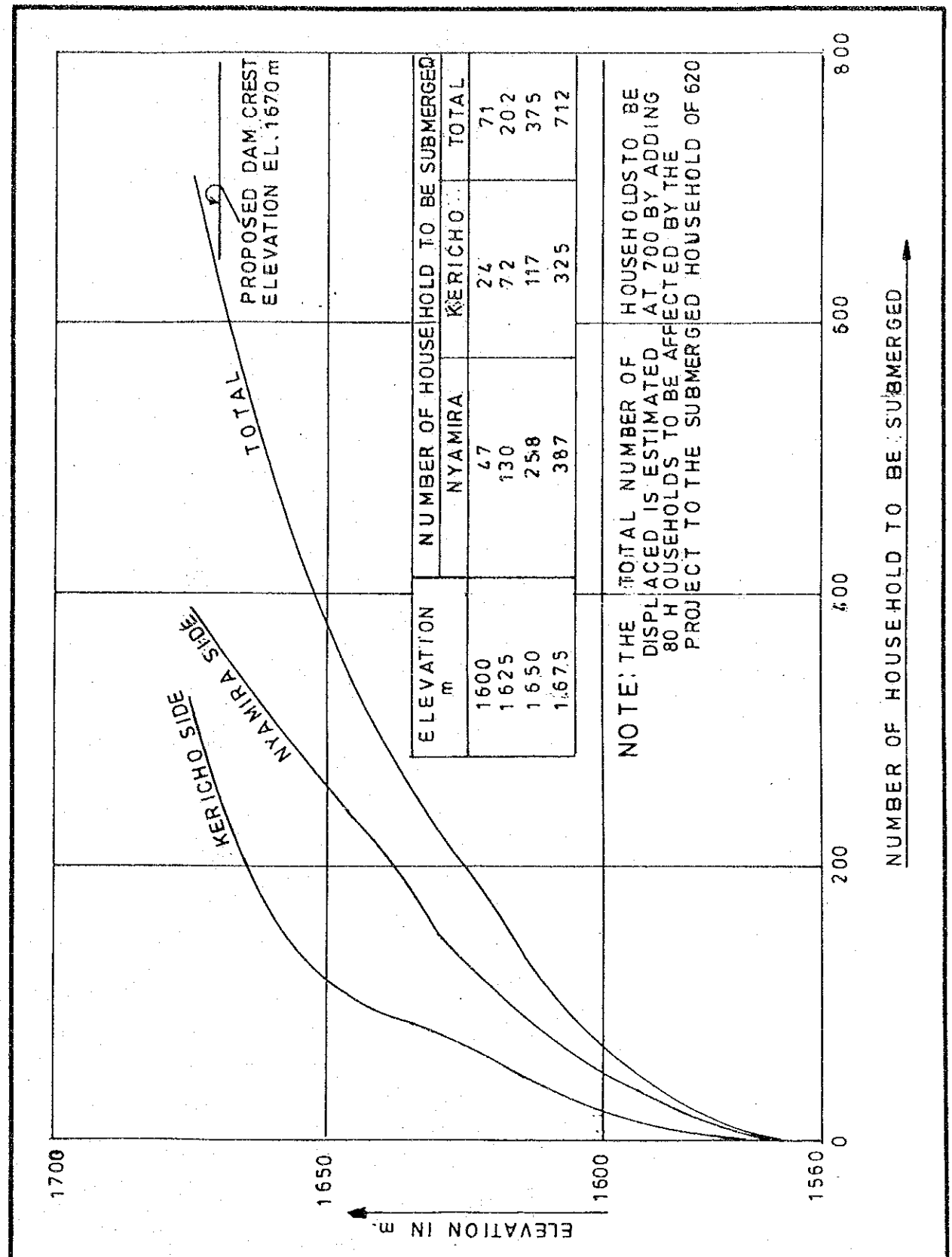

Figure S.6 Number of Households in the Reservoir

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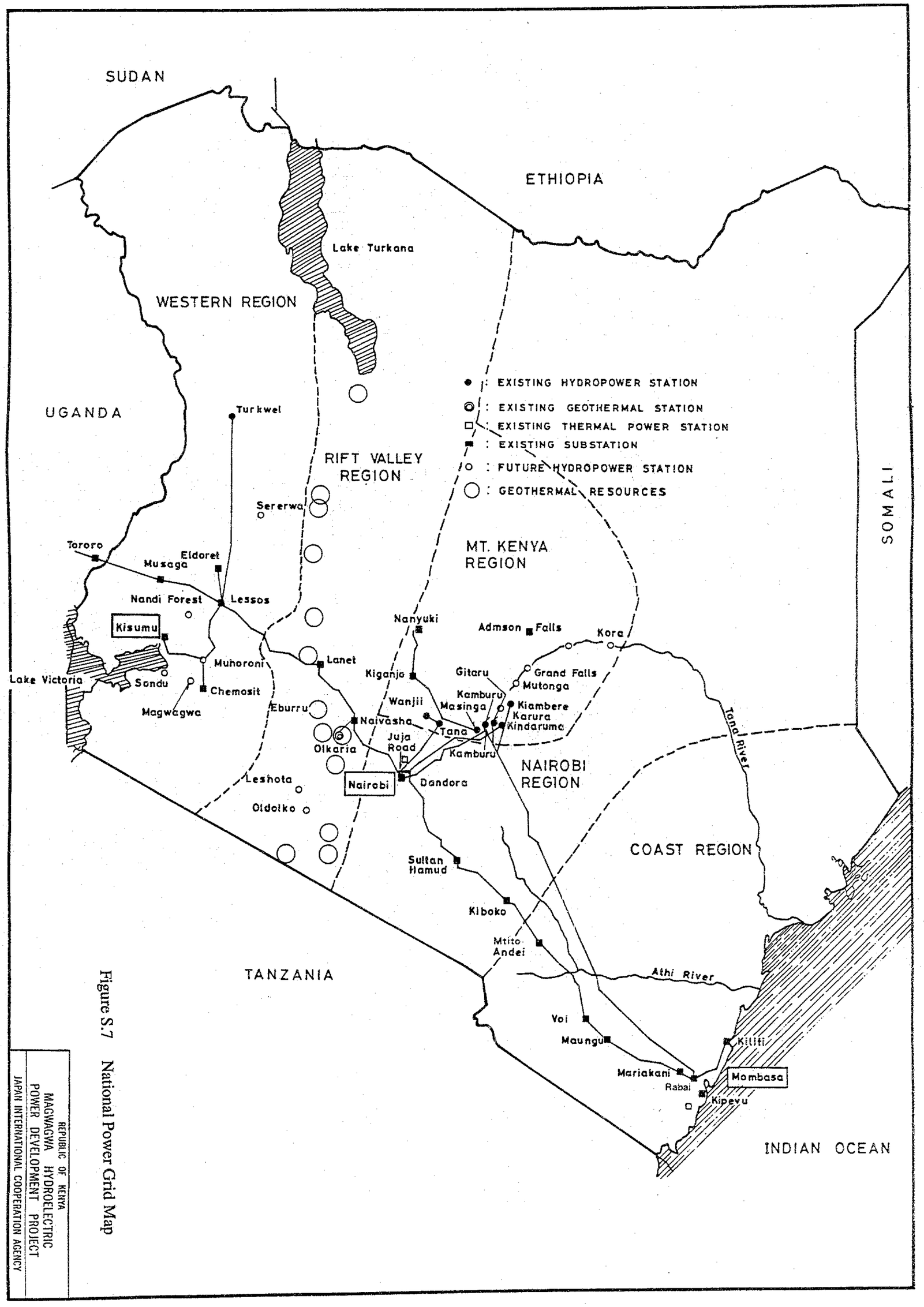

Figure S.7 National Power Grid Map

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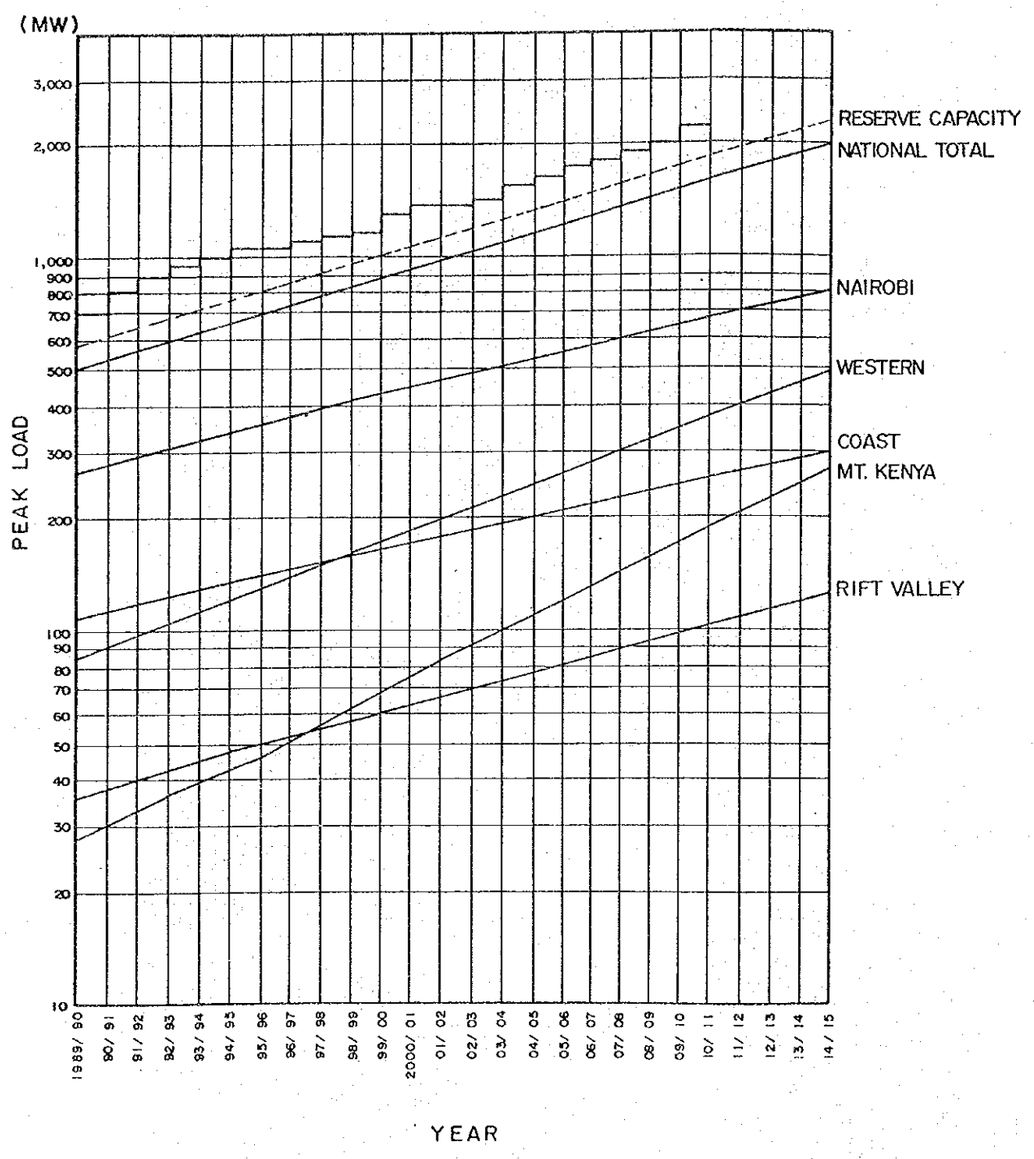
JAPAN INTERNATIONAL COOPERATION AGENCY



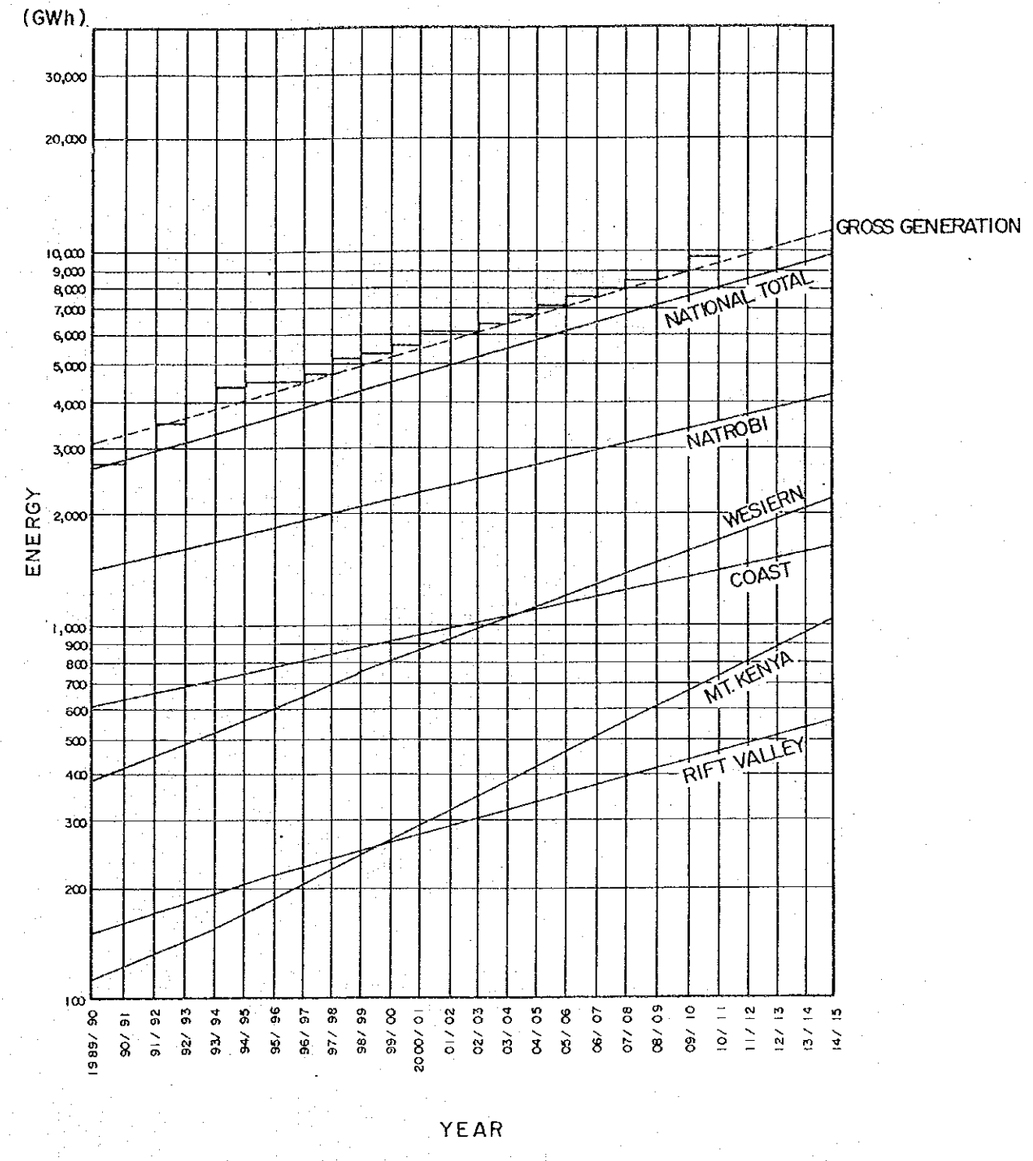


Figure S.8 Demand Forecast (Mediam)

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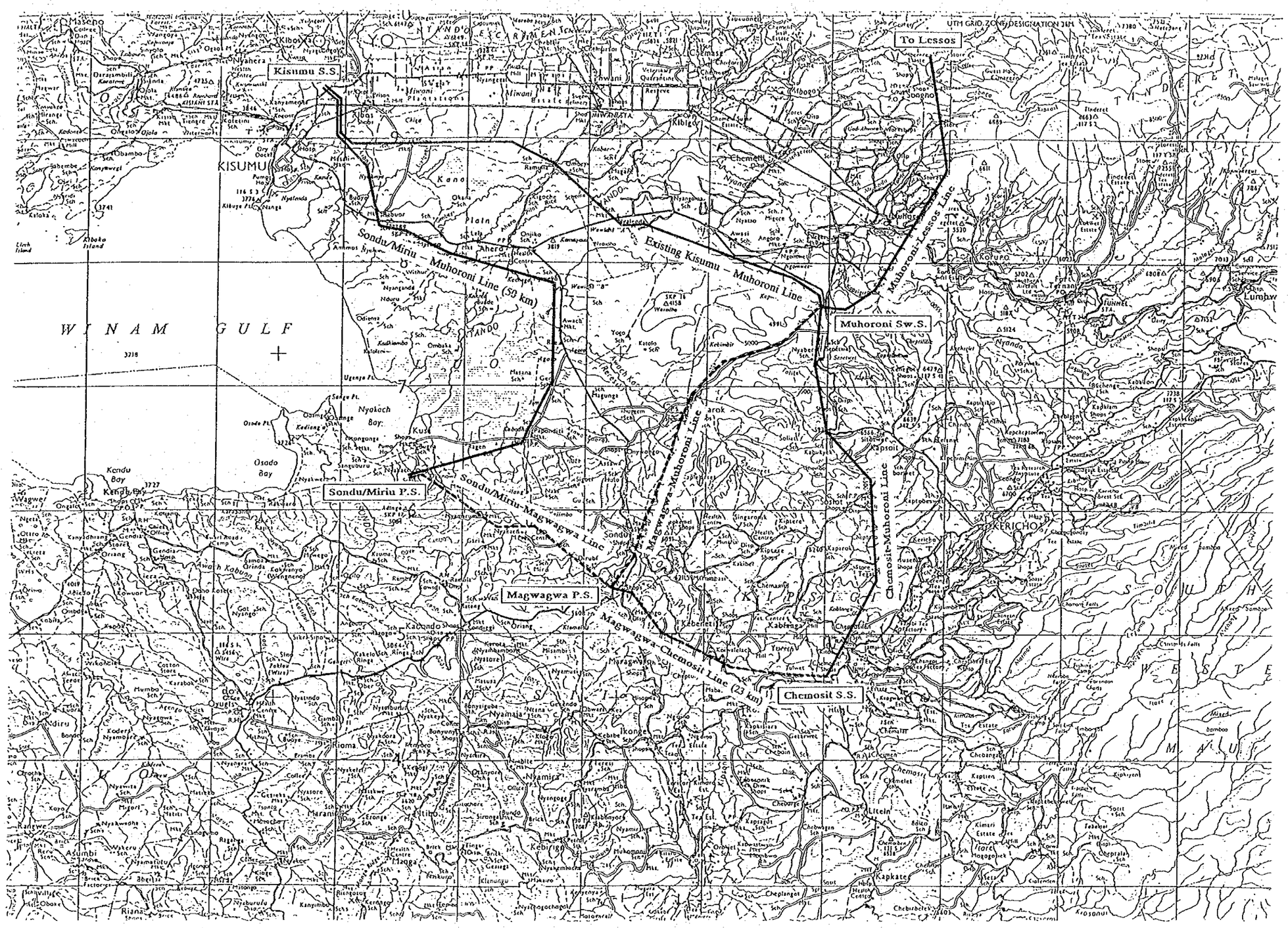

Figure S.9 132 kV Transmission Line Routes

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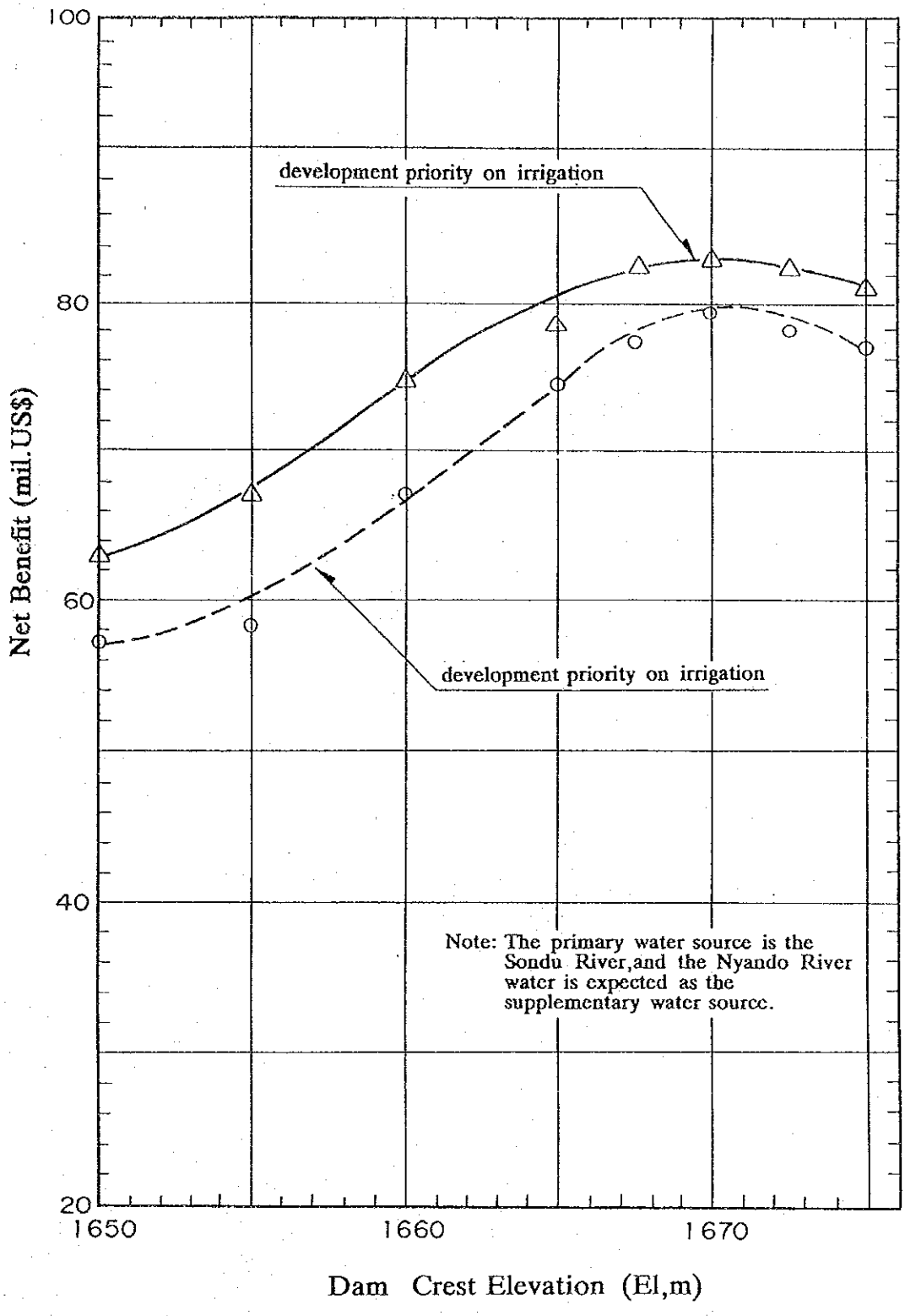

Figure S.10 Optimization of the Magwagwa Dam

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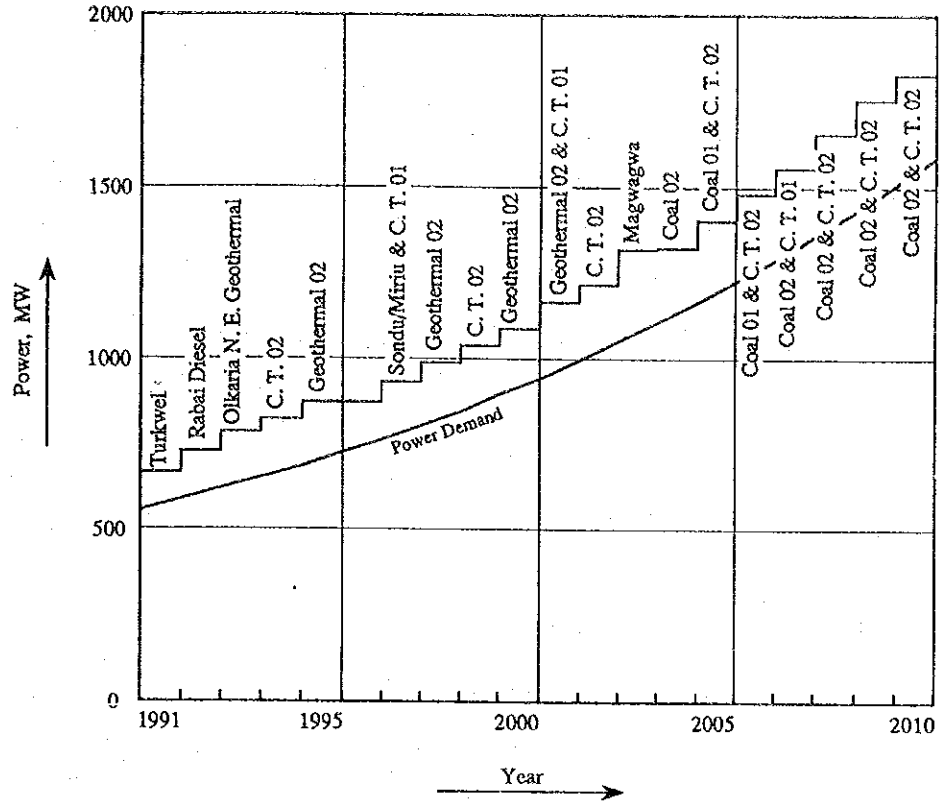

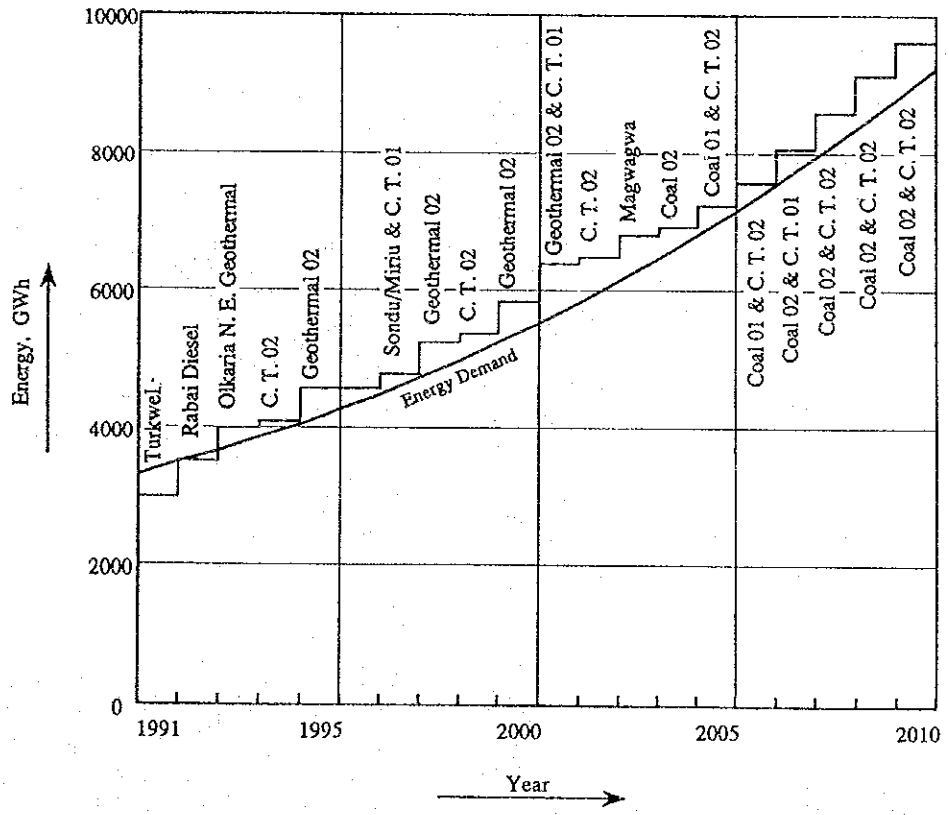

Figure S.11 National Power Development Plan in Kenya

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Figure S.12 General Layout of Project

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POWER DEVELOPMENT PROJECT
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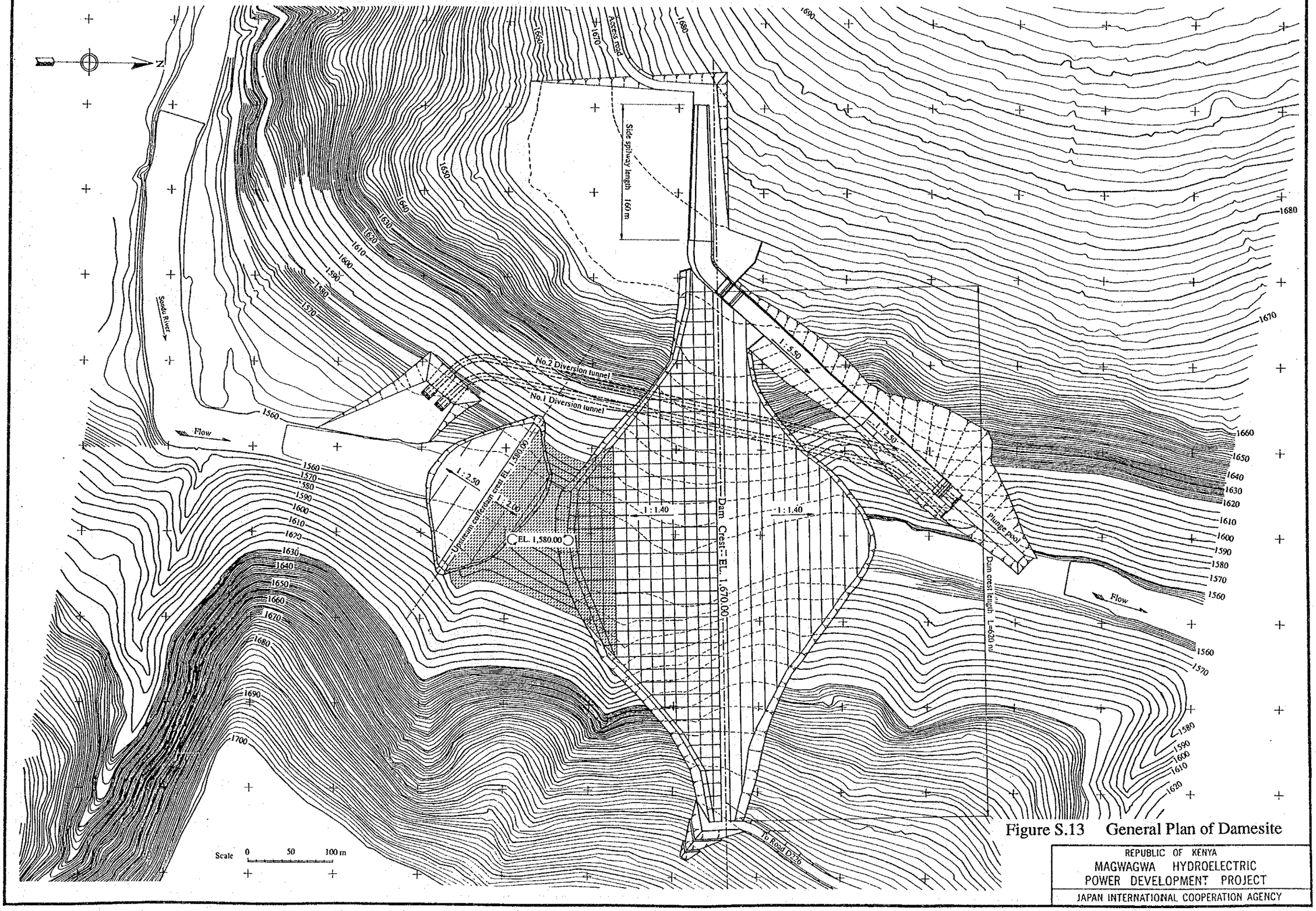

Figure S.13 General Plan of Damesite

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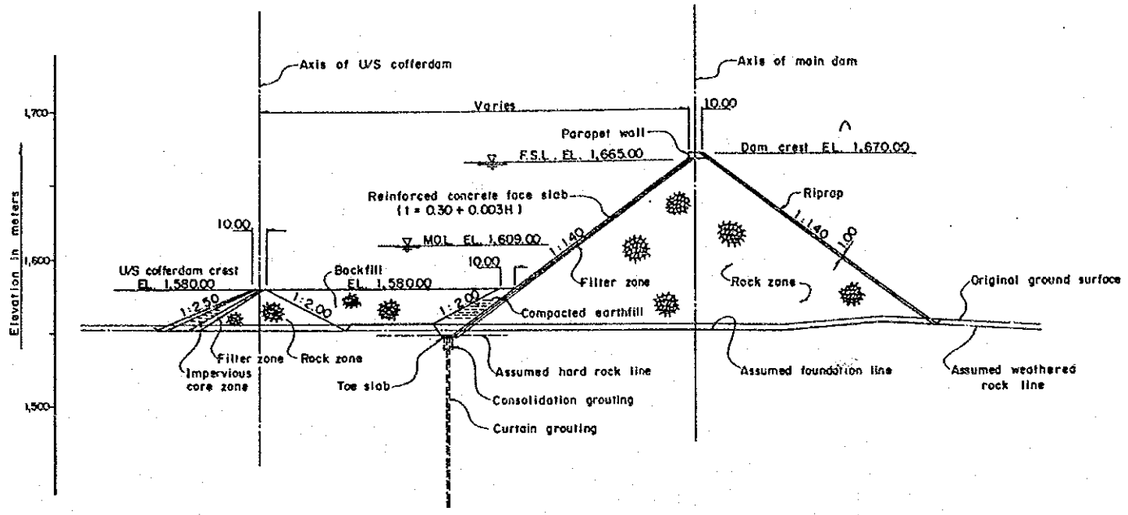
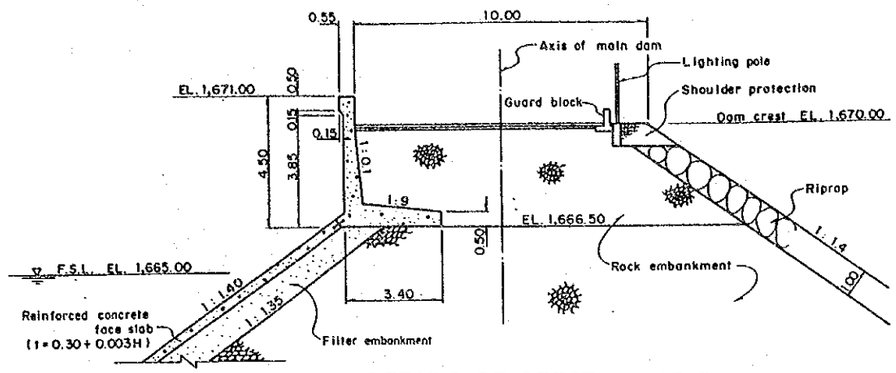
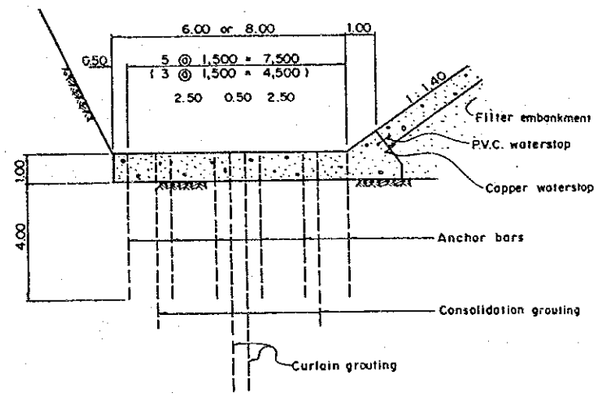


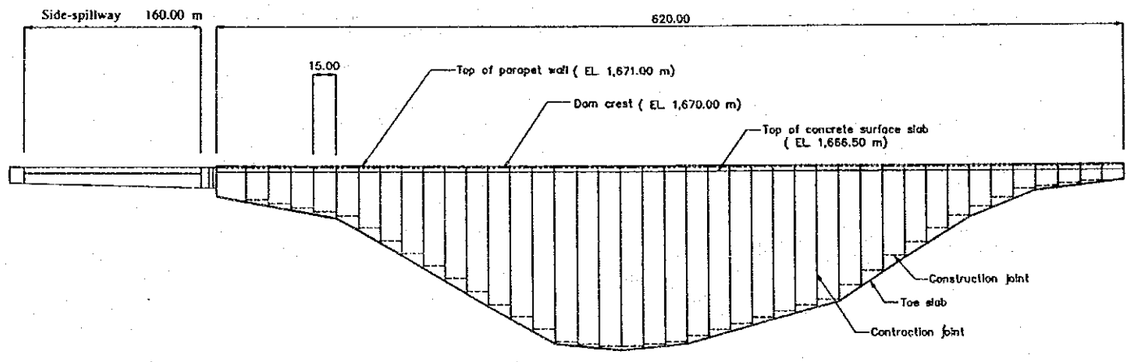
TYPICAL CROSS SECTION SCALE A



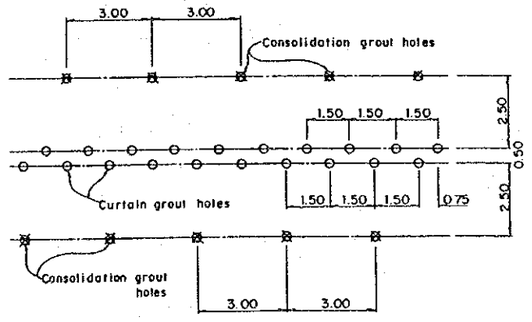
DETAILS OF CREST SCALE B



DETAILS OF TOE SLAB SCALE B



FRONT VIEW SCALE A



ARRANGEMENT OF GROUT HOLES SCALE B

Figure S.14 Structural Details of Main Dam

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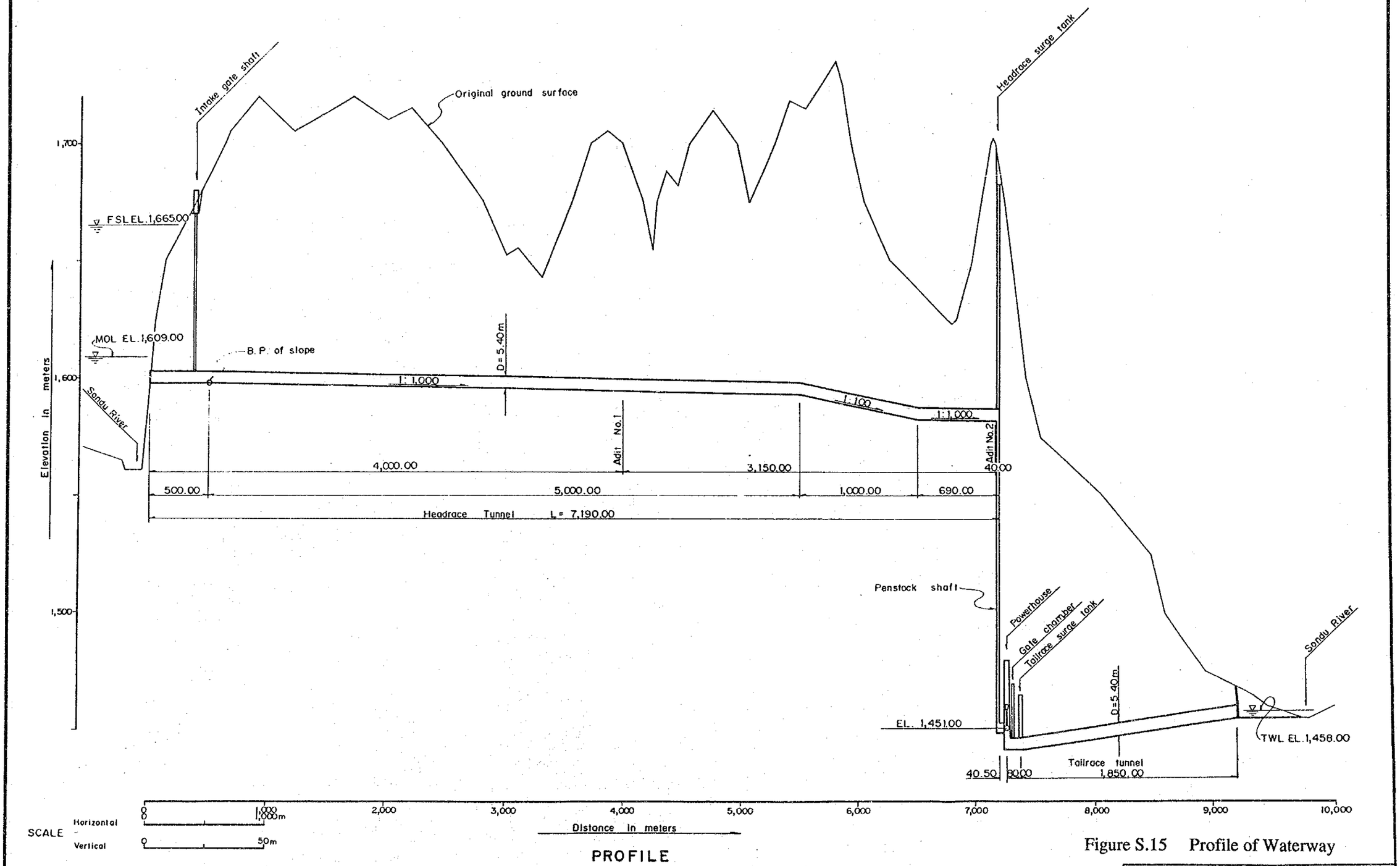

PROFILE

Figure S.15 Profile of Waterway

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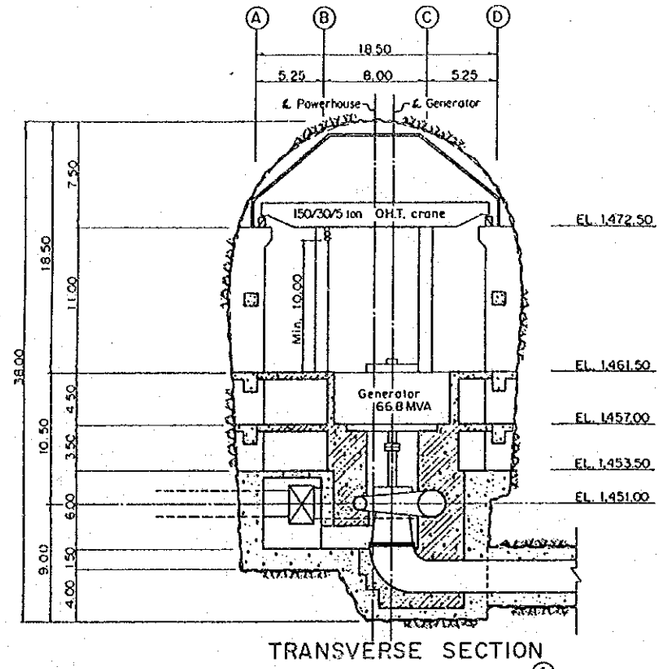
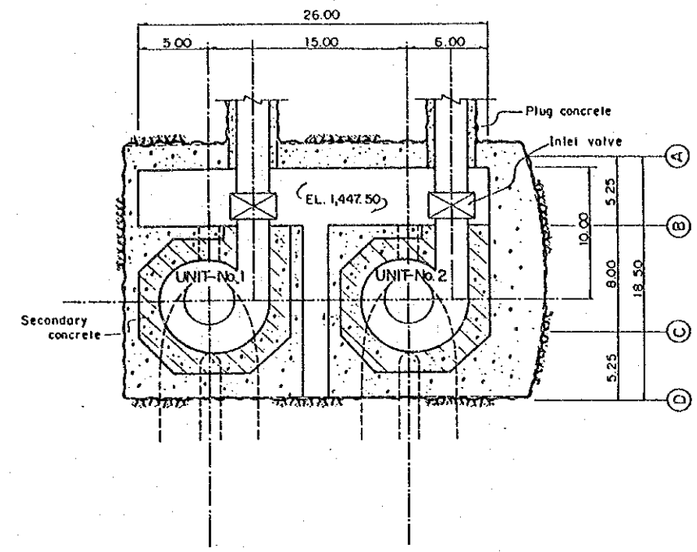
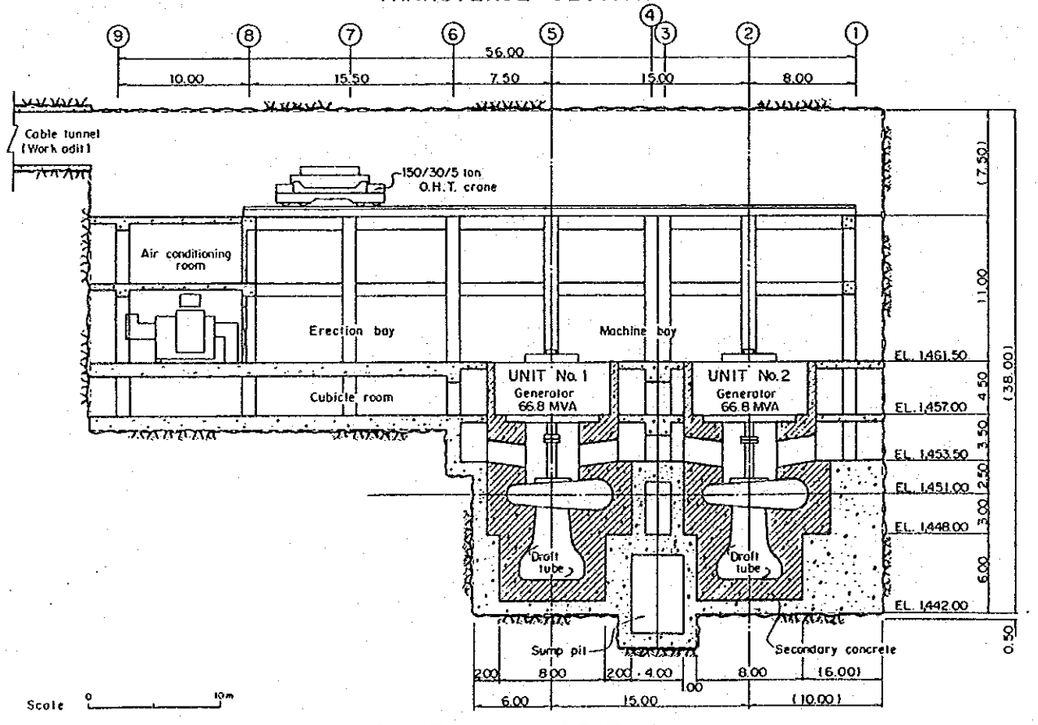


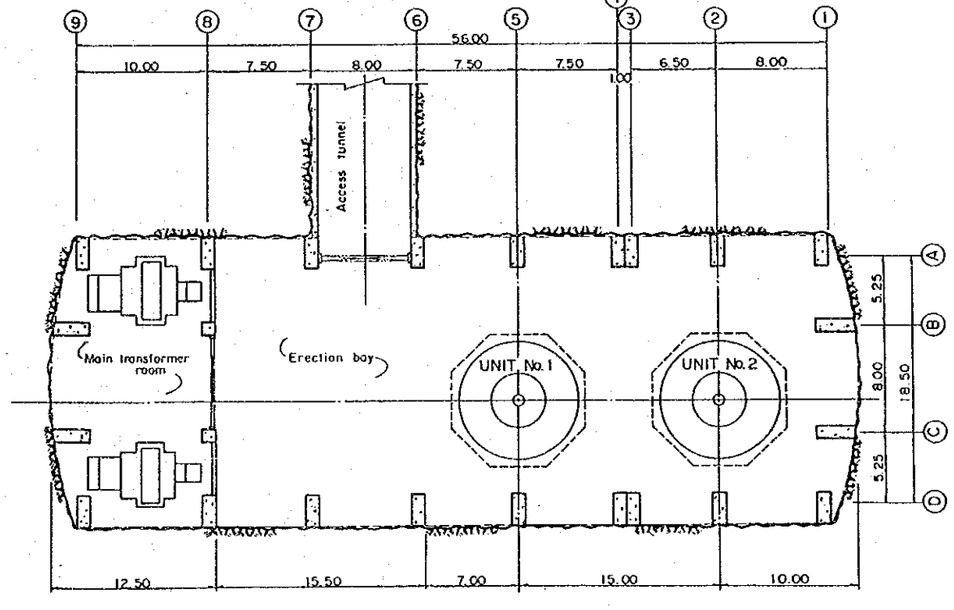
TRANSVERSE SECTION



PLAN AT EL. 1,451.00



LONGITUDINAL SECTION



PLAN AT EL. 1,461.50

Figure S.16 Structural Details of Powerhouse

REPUBLIC OF KENYA
MAGWAGWA HYDROELECTRIC POWER DEVELOPMENT PROJECT
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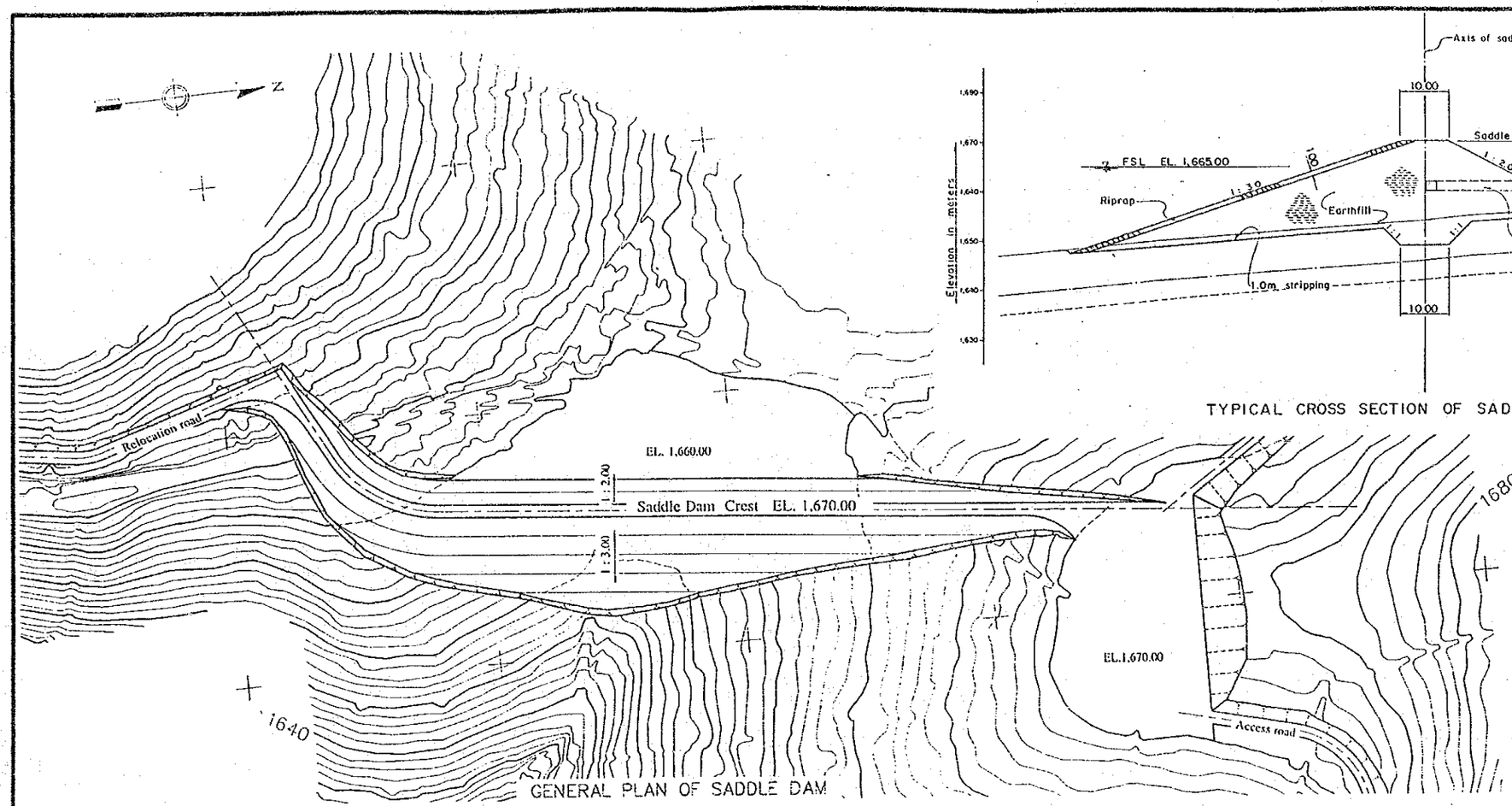
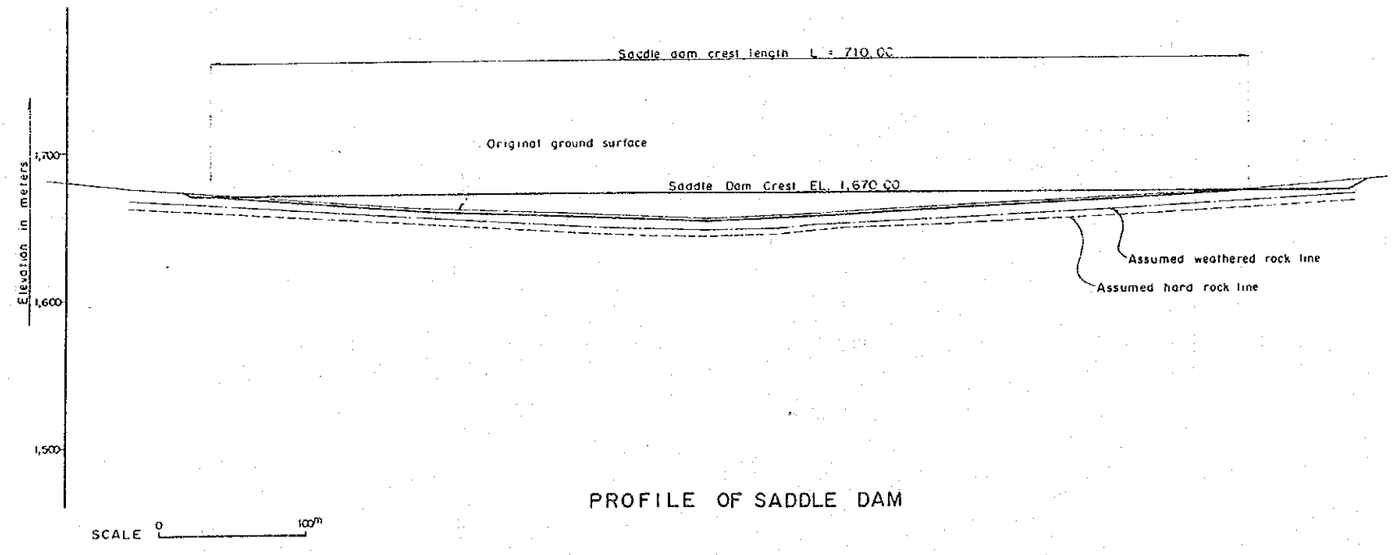


GENERAL PLAN OF SADDLE DAM

TYPICAL CROSS SECTION OF SADDLE DAM



PROFILE OF SADDLE DAM

Figure S.17 Plan, Profile and Section of Saddle Dam

REPUBLIC OF KENYA
MAGWAGWA HYDROELECTRIC
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JAPAN INTERNATIONAL COOPERATION AGENCY

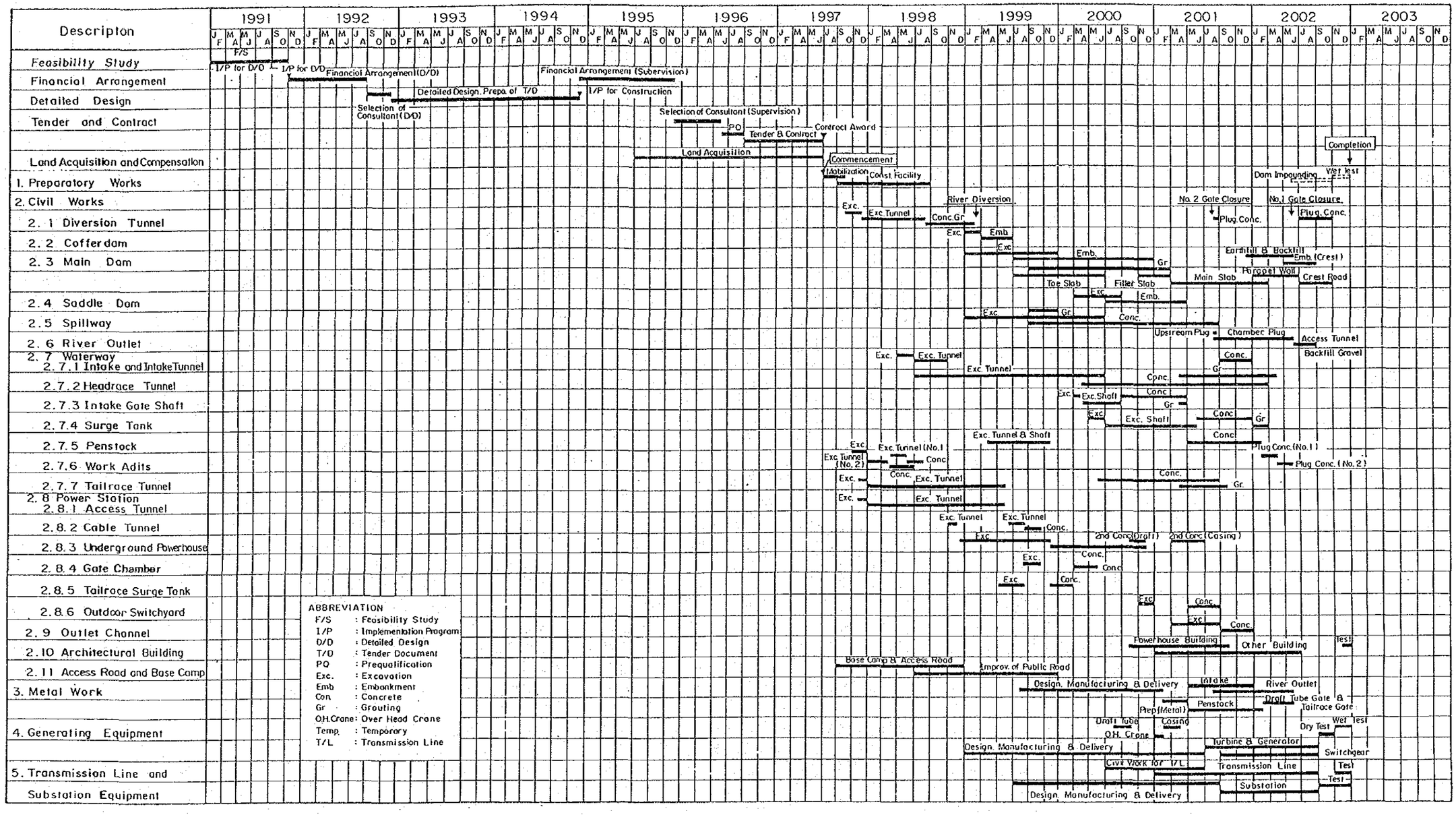

Figure S.18 Construction Schedule

REPUBLIC OF KENYA
MAGWAGWA HYDROELECTRIC
POWER DEVELOPMENT PROJECT
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