

付 図



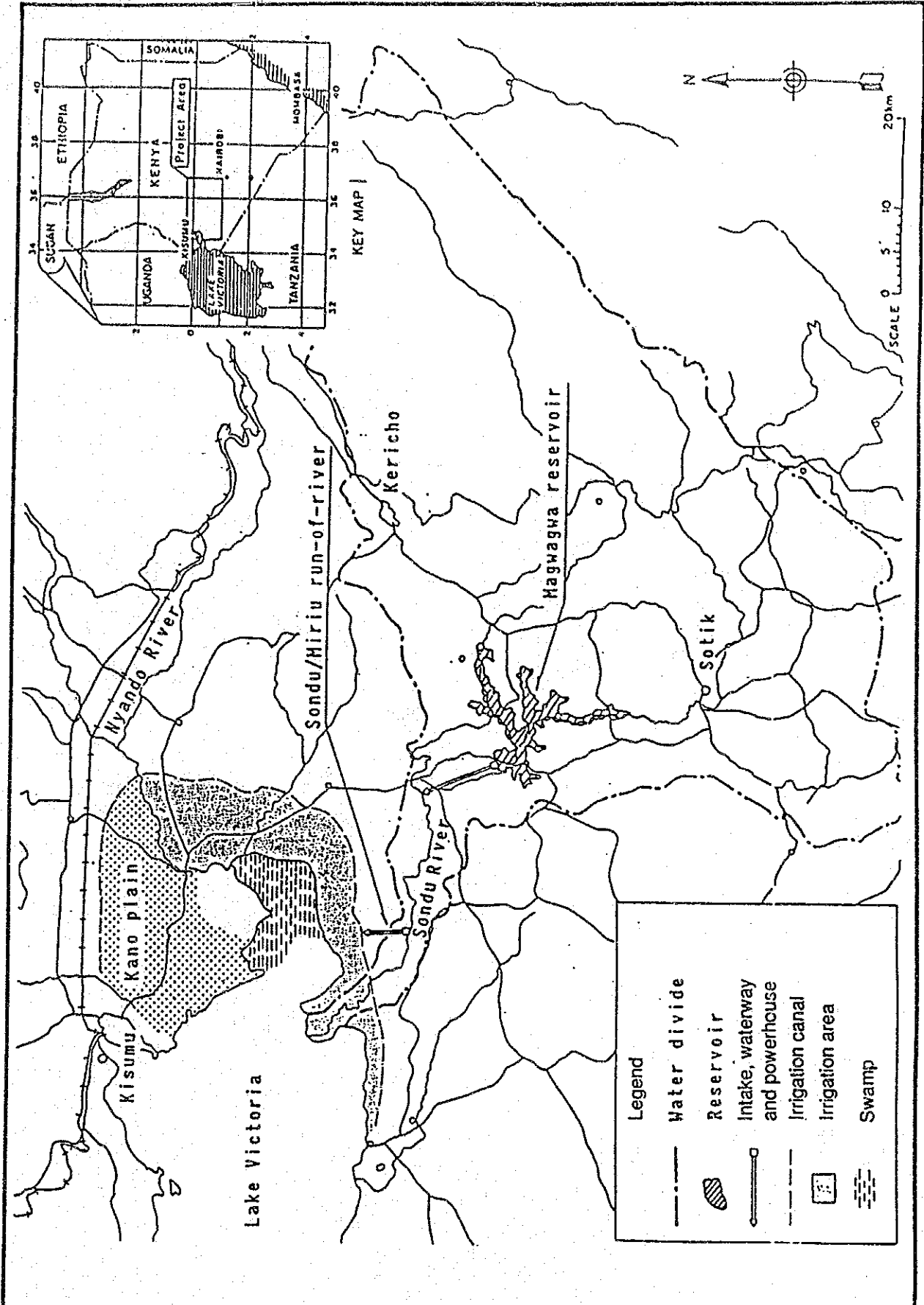


図 1.1 ソンドウ川及びカノー平野開発案

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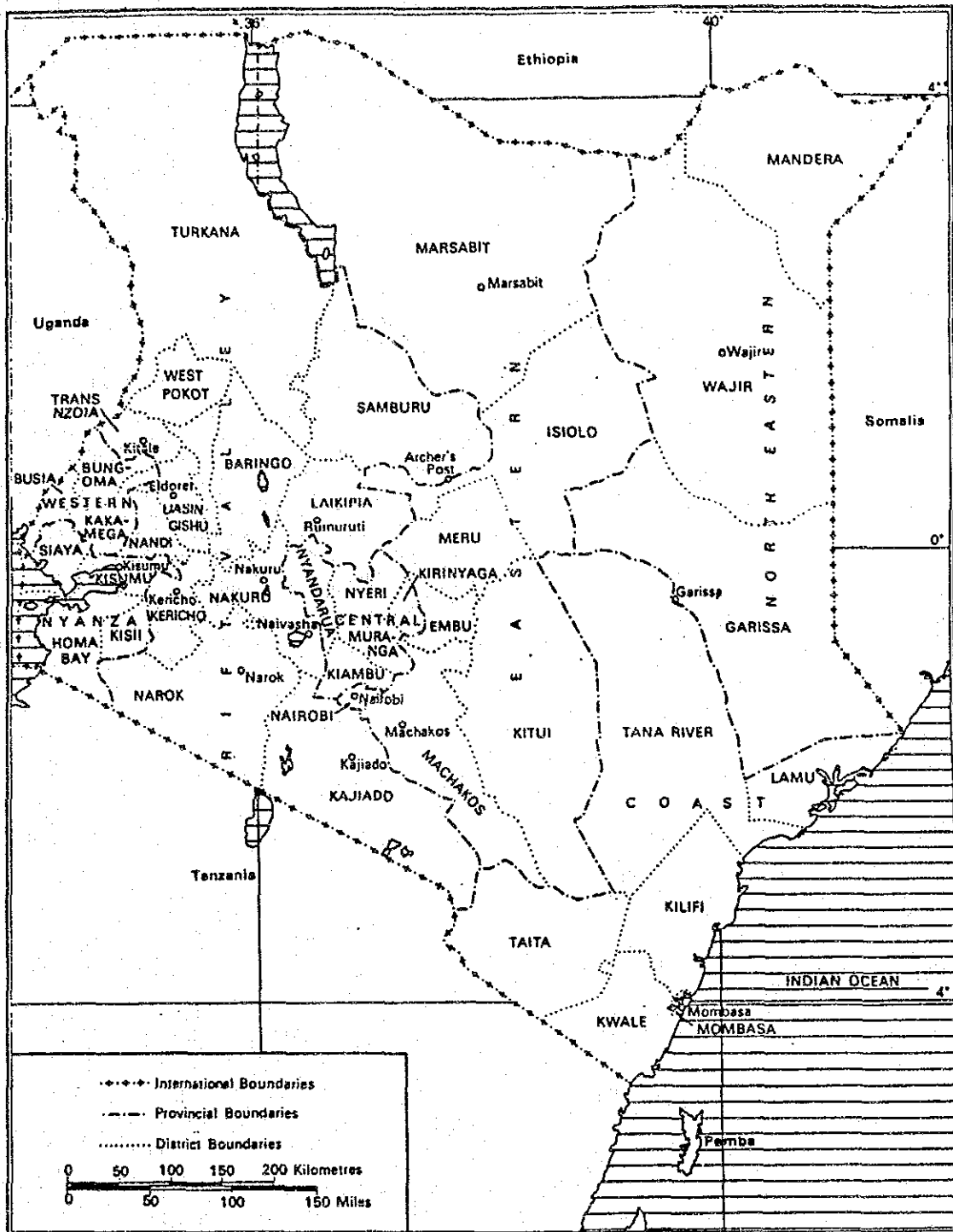
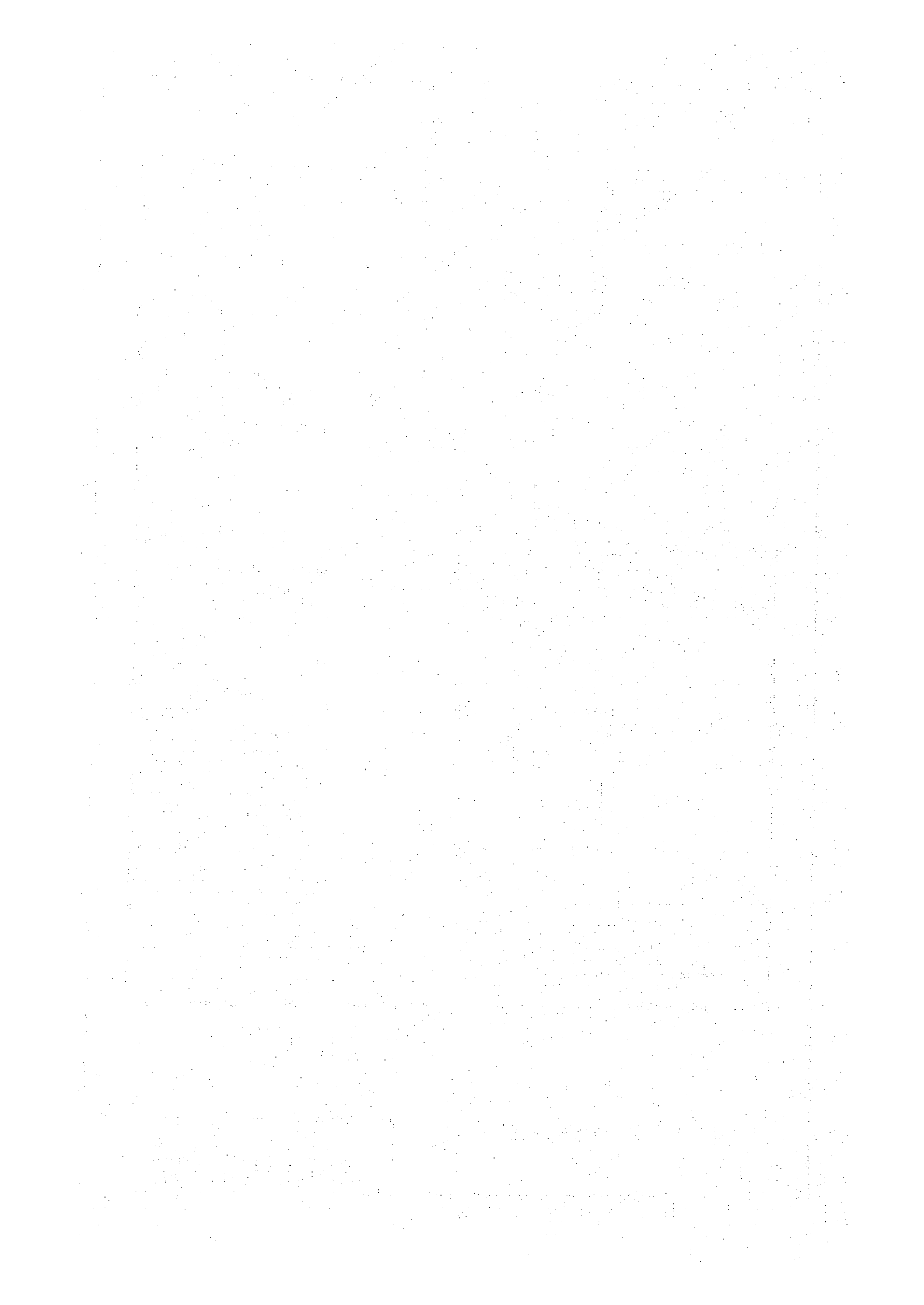


図 2.1 ケニア国行政区分

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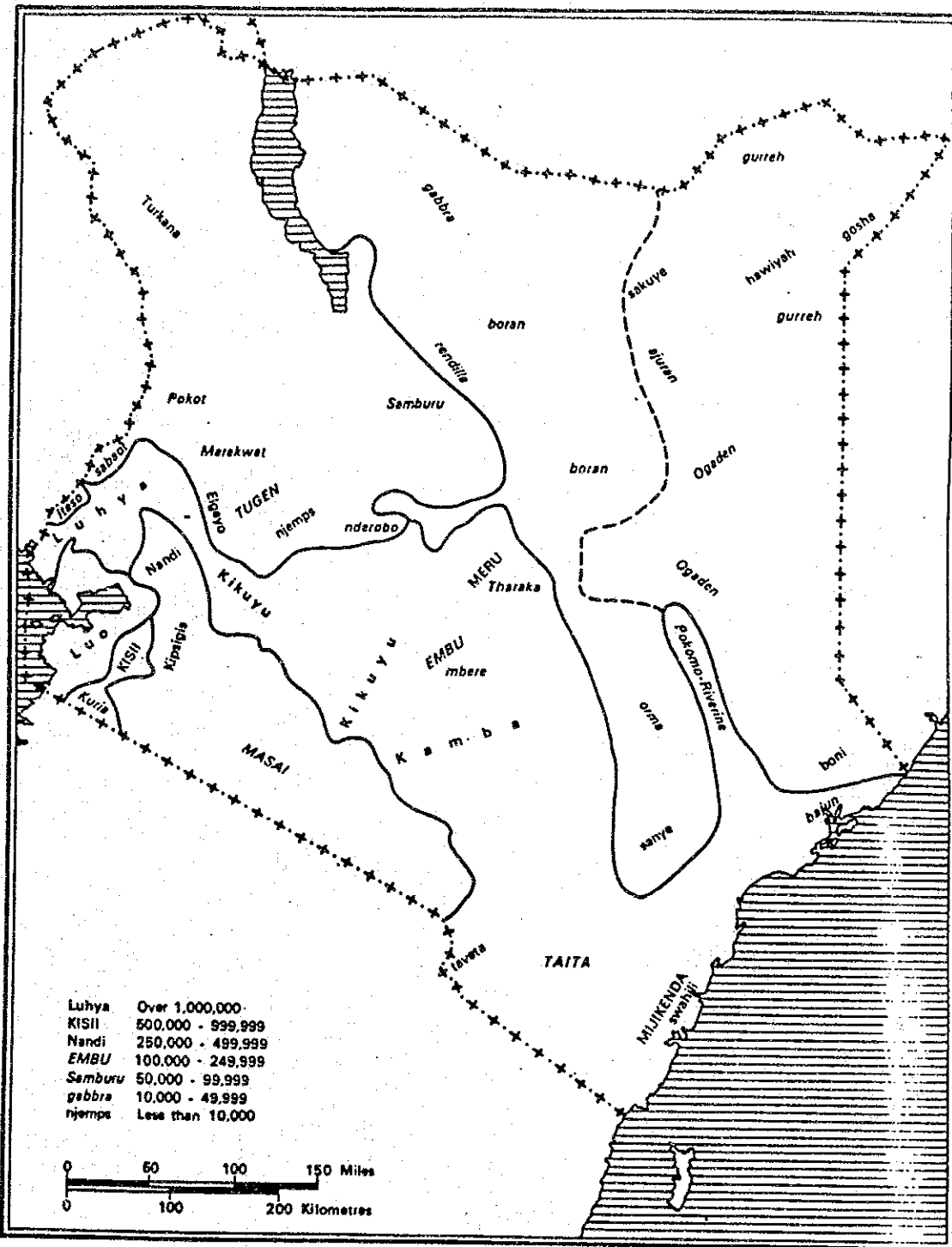


図 2.2 ケニア内の部族分布

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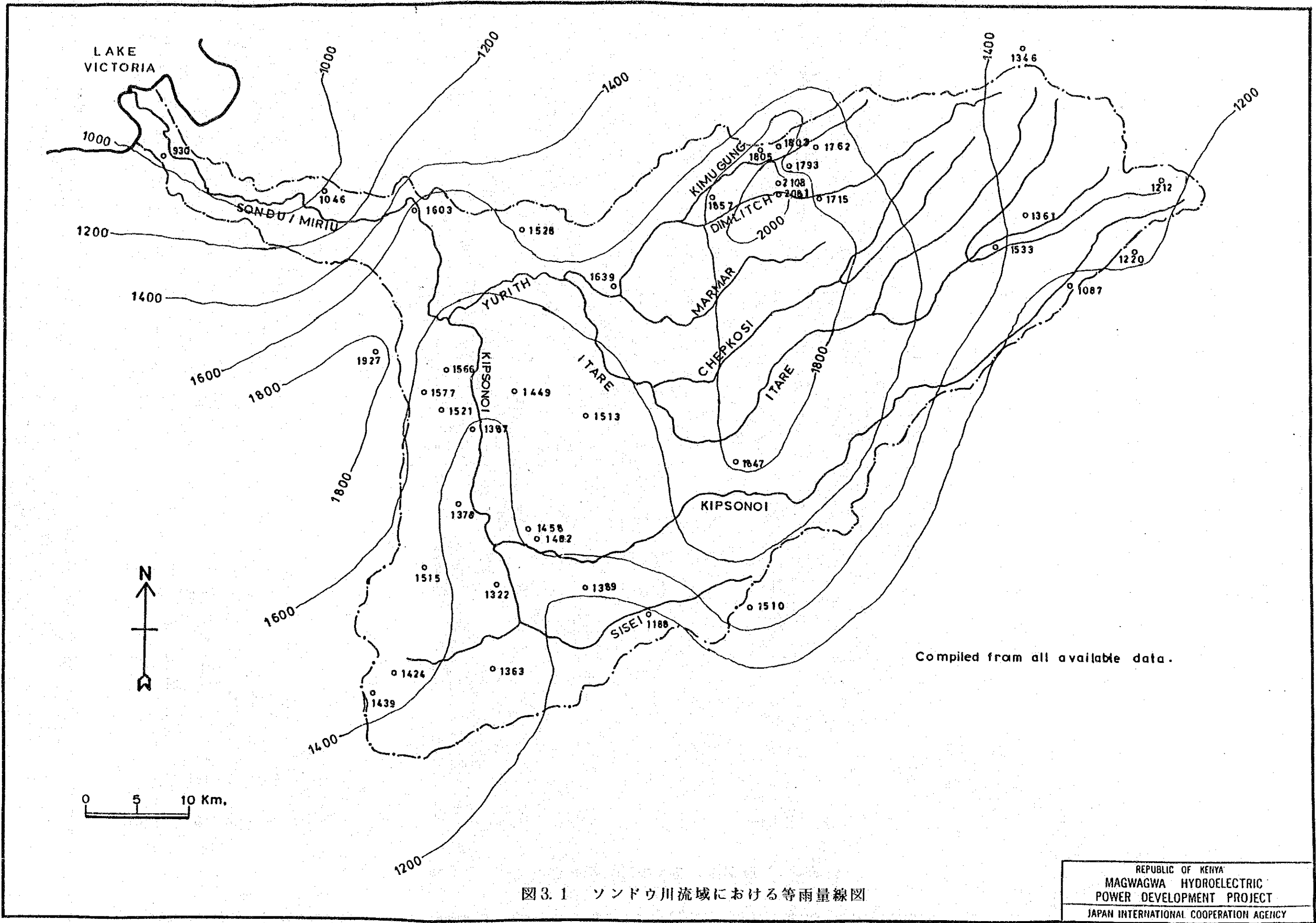


図 3. 1 ソンドウ川流域における等雨量線図

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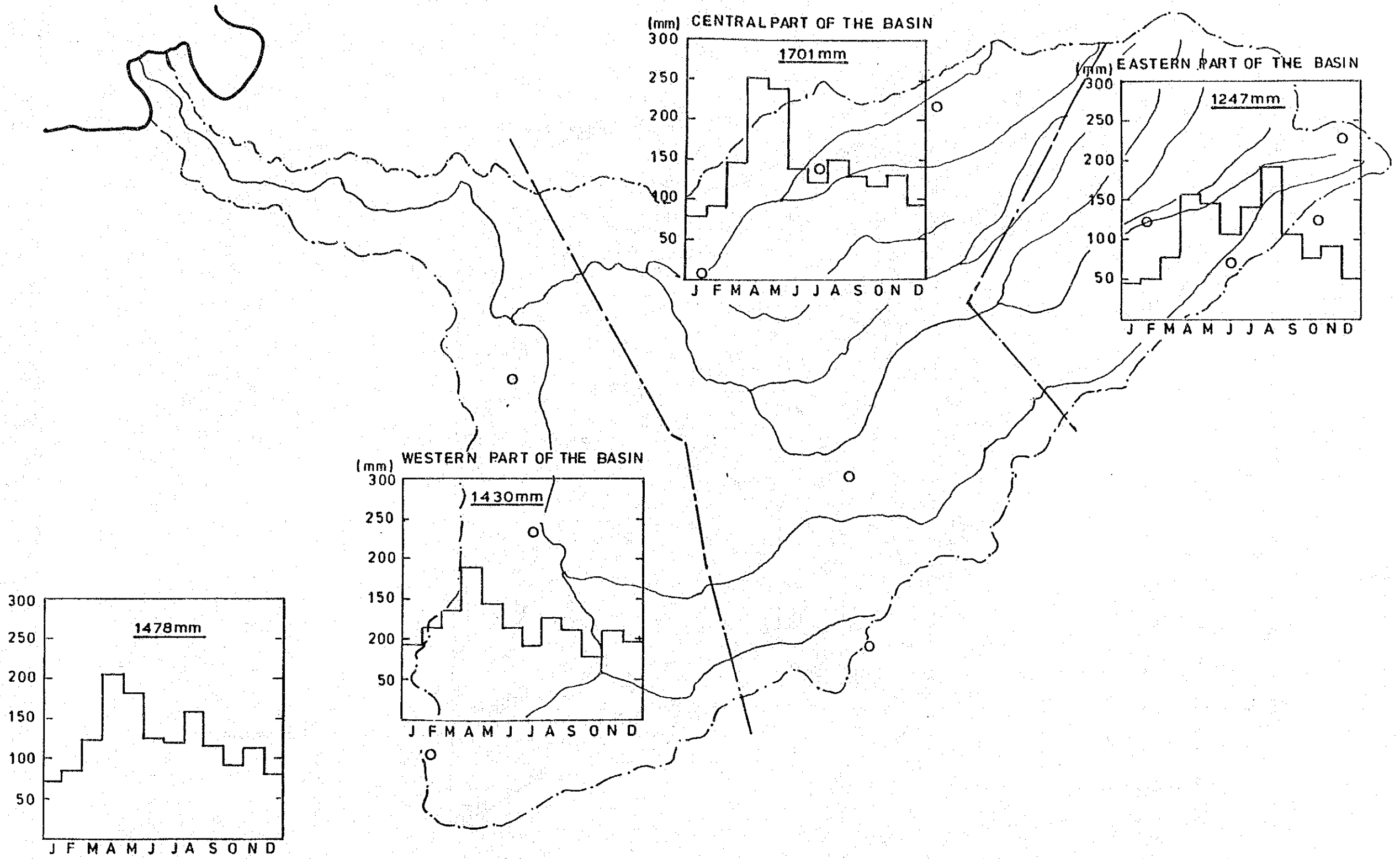


図3.2 ソンドウ川流域における月別降雨パターン図

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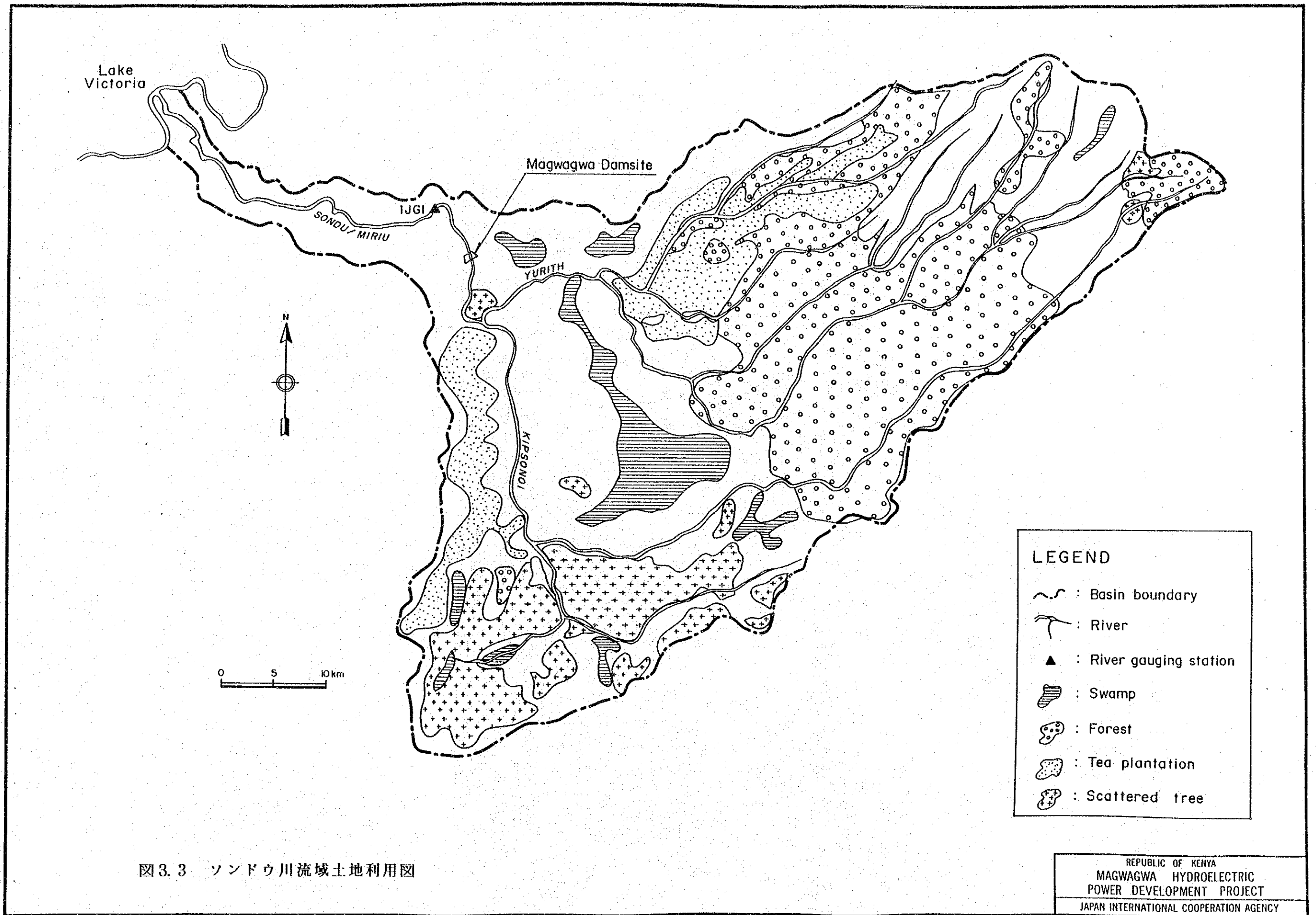


図3.3 ソンドウ川流域土地利用図

**LEGEND**

- ~ : Basin boundary
- : River
- ▲ : River gauging station
- ▨ : Swamp
- : Forest
- ⊕ : Tea plantation
- 🌳 : Scattered tree

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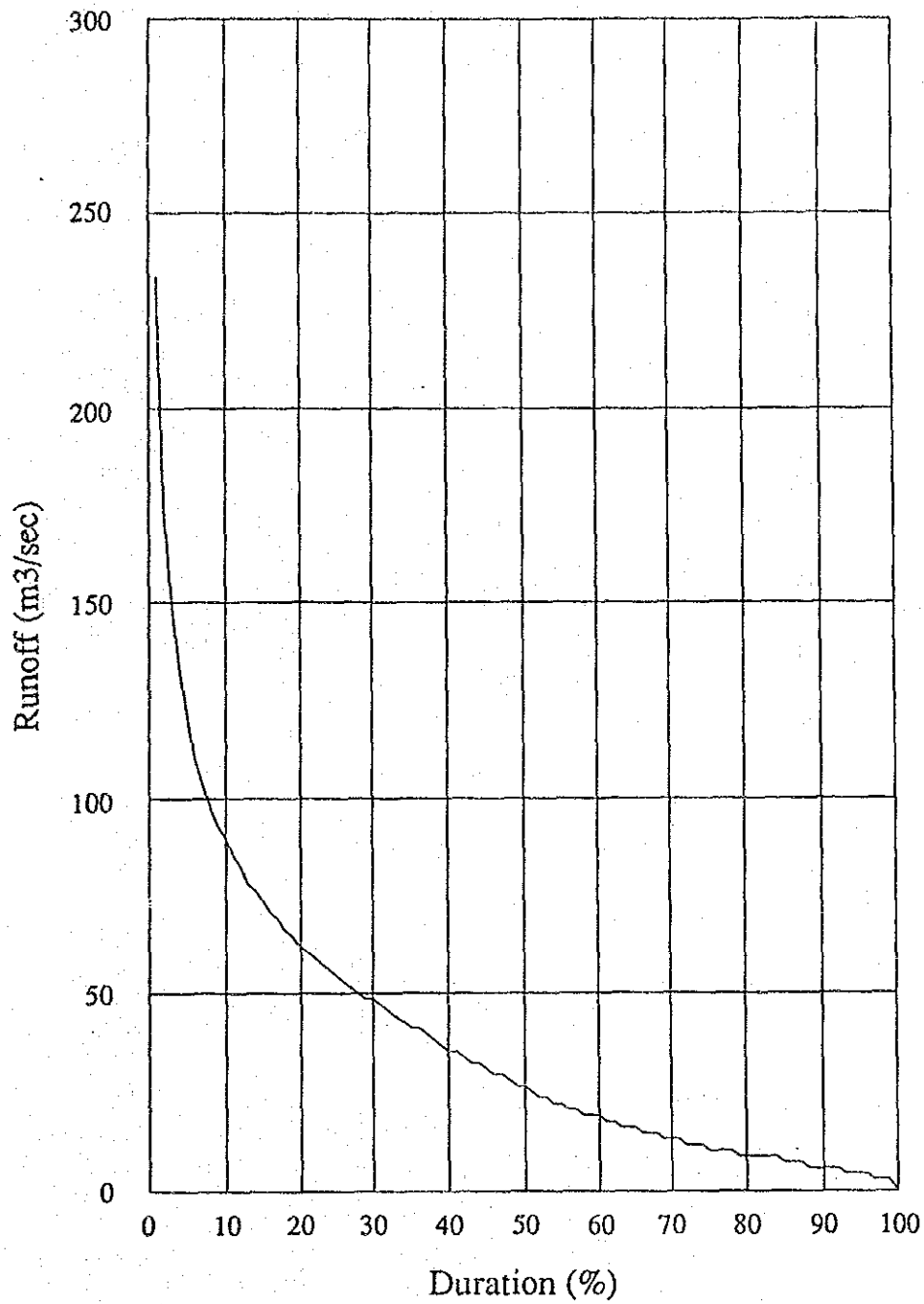
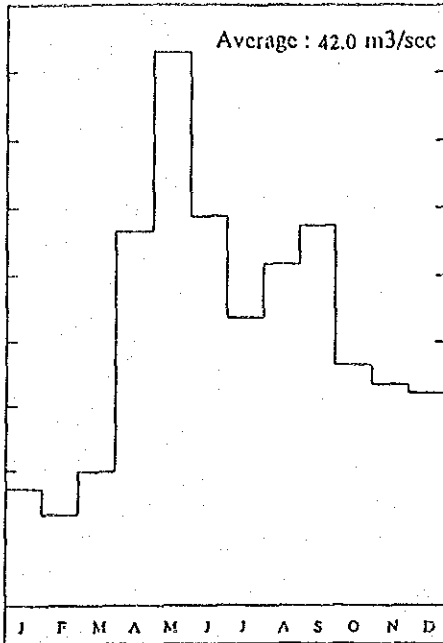


図 3. 4 シリーズ法による 1 J G 1 地点における流況曲線

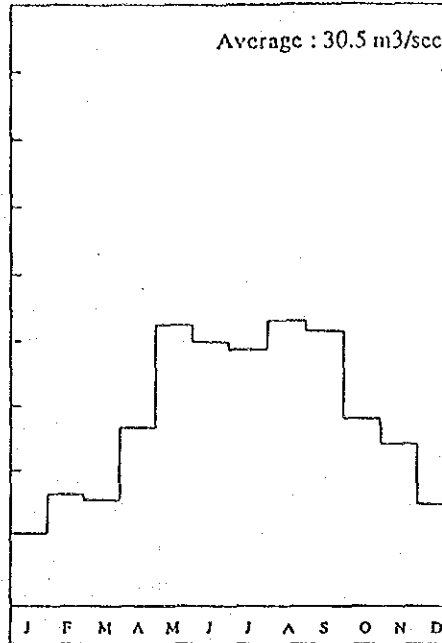
REPUBLIC OF KENYA MAGWAGWA HYDROELECTRIC POWER DEVELOPMENT PROJECT JAPAN INTERNATIONAL COOPERATION AGENCY
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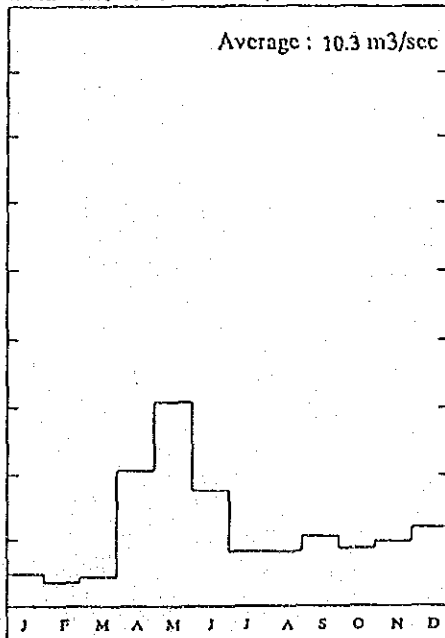
Station Name : 1JG1  
 River : Sondu/Miriu  
 C.A. : 3,260 km<sup>2</sup>  
 Data Period : 1946 - 1990



Station Name : 1JD3  
 River : Yurith  
 C.A. : 1,570 km<sup>2</sup>  
 Data Period : 1969 - 1989



Station Name : 1JF1/1JF8  
 River : Kipsonoi  
 C.A. : 1,523 km<sup>2</sup>/1,540 km<sup>2</sup>  
 Data Period : 1951 - 1961/1986 - 1989



Station Name : 1GD4  
 River : Nyando  
 C.A. : 2,520 km<sup>2</sup>  
 Data Period : 1956 - 1988

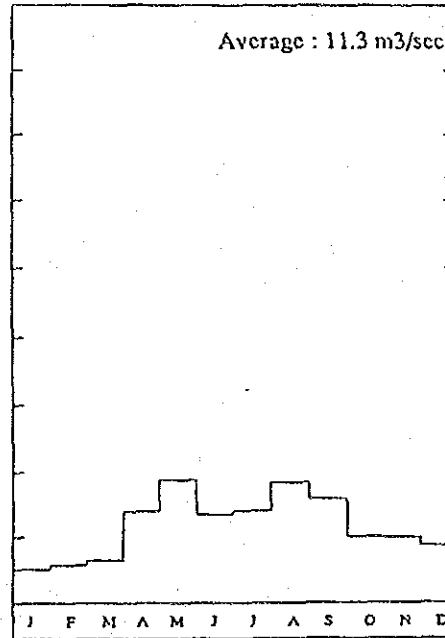


図 3.5 ソンドウ川流域における月別流出パターン

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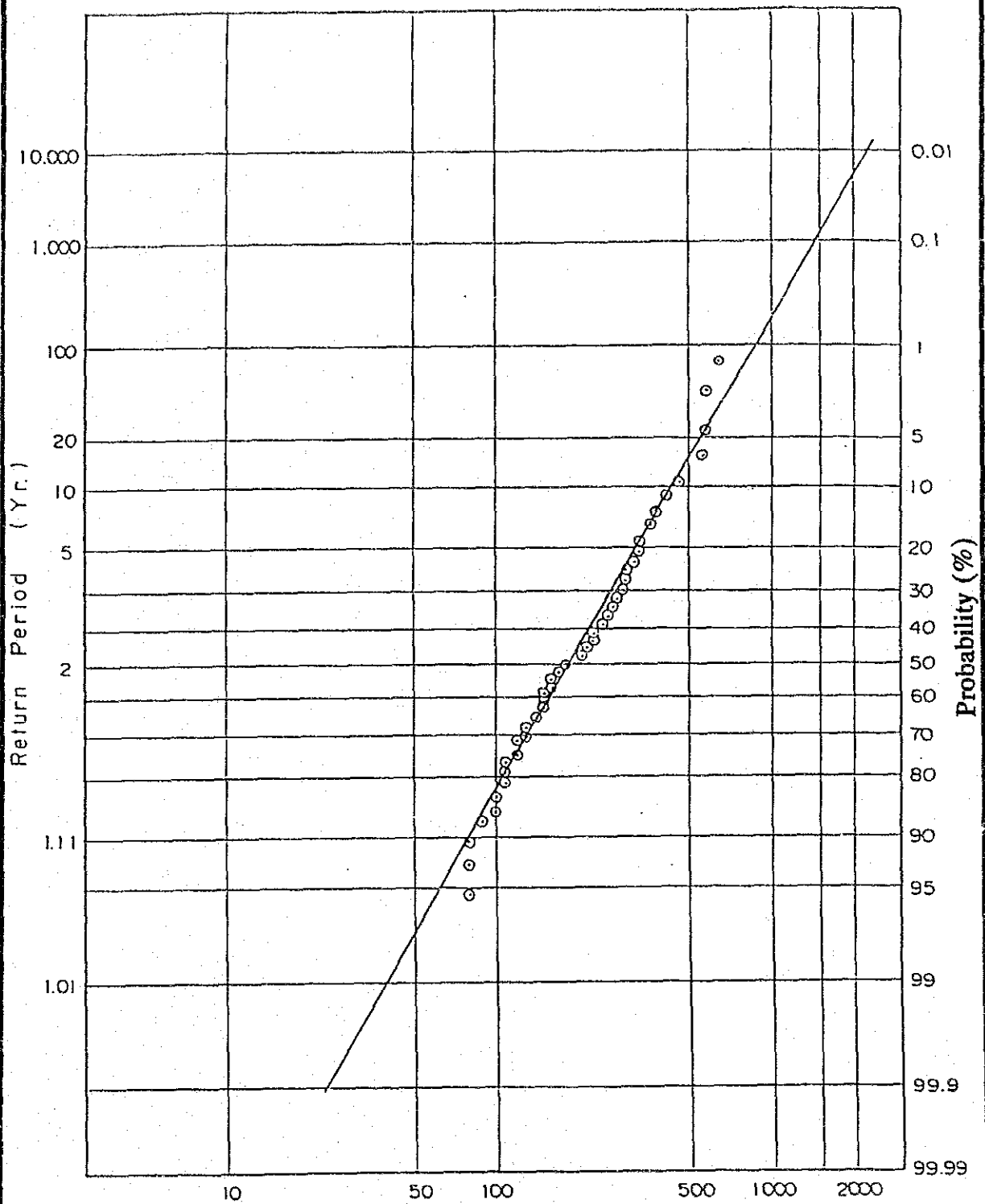


図3.6 1 J G 1 観測所の年最大流量の頻度曲線

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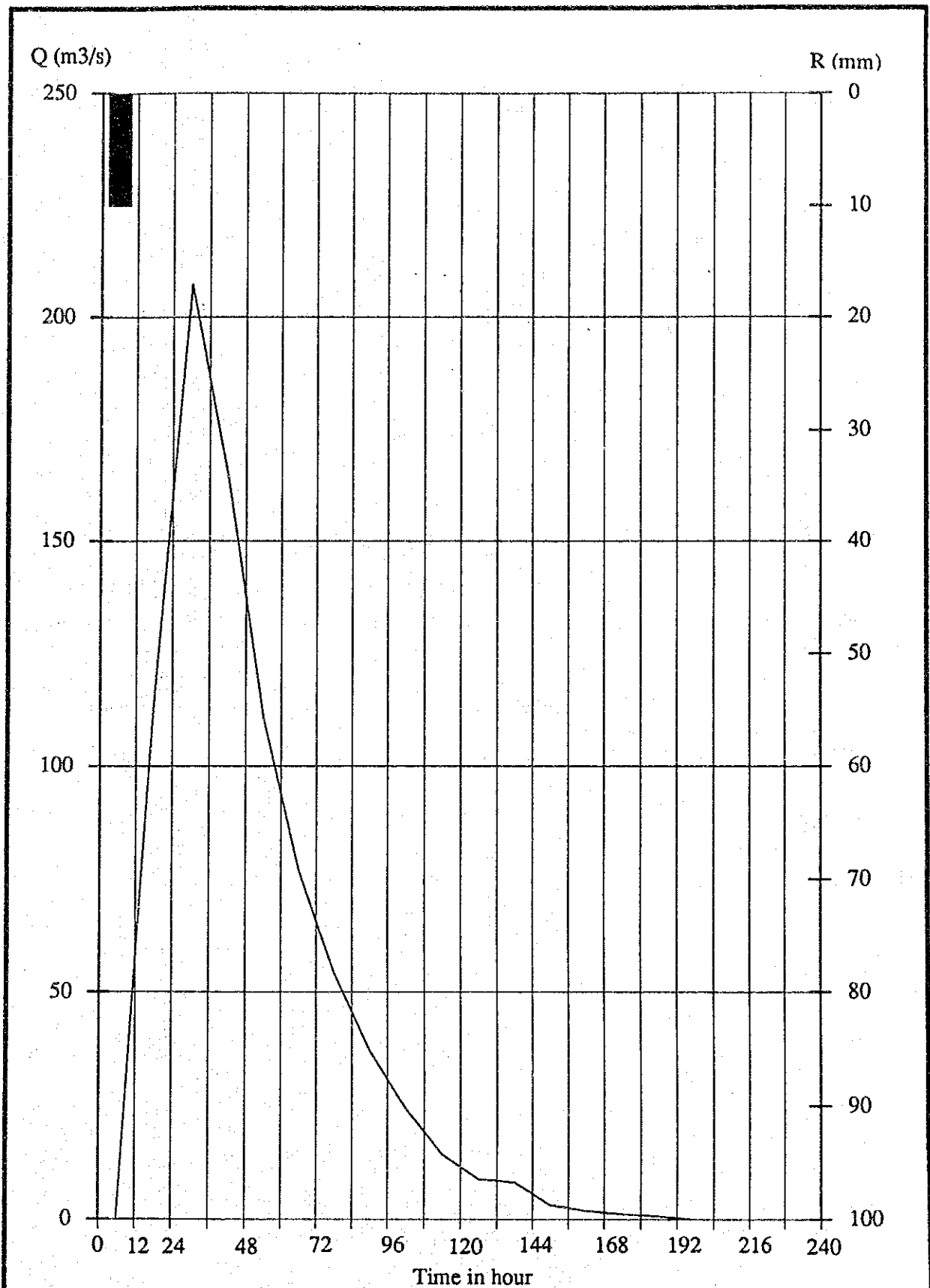


図3.7 マグワグワ貯水池上流端における単位図

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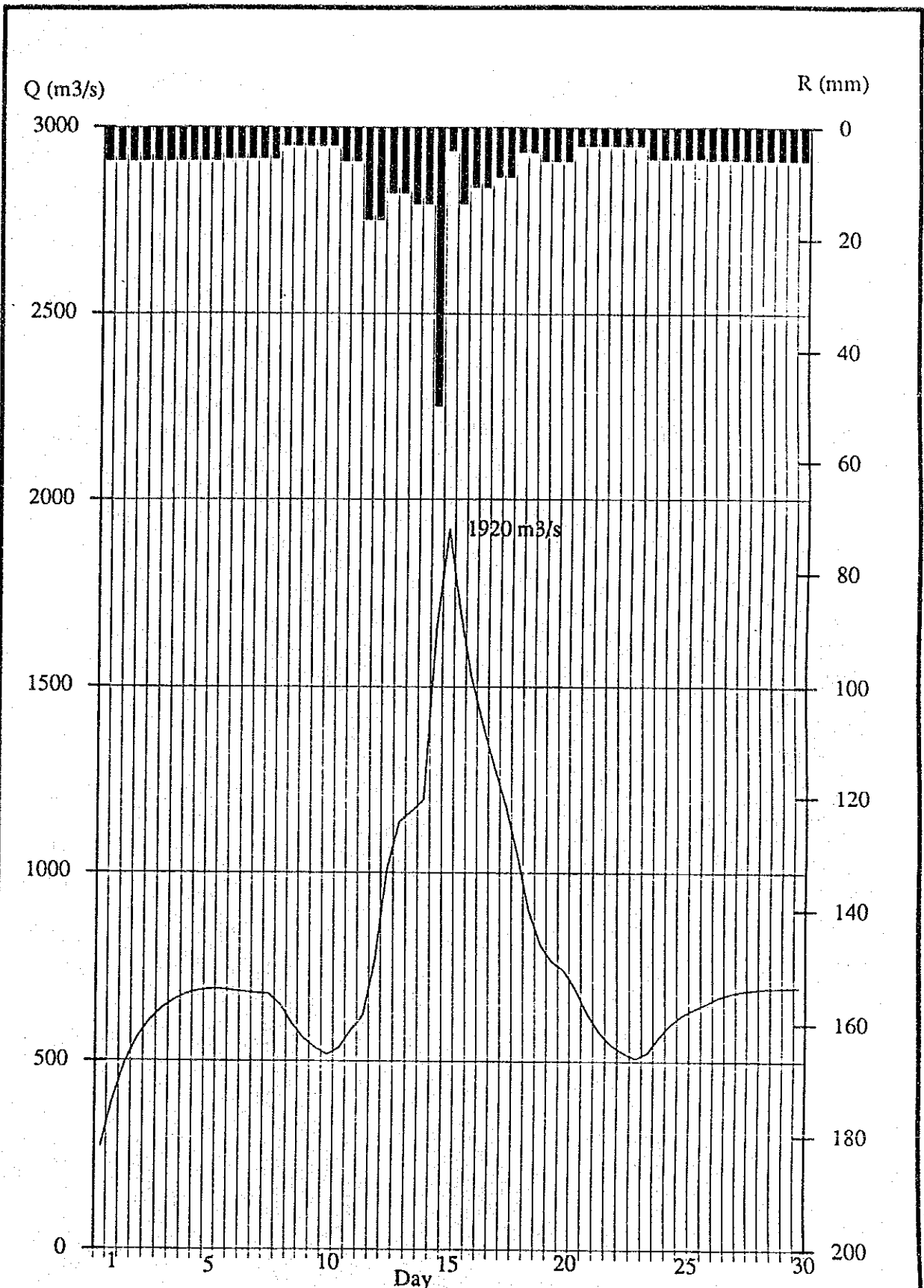


図 3. 8 マグワグワダム地点における可能最大洪水ハイドログラフ

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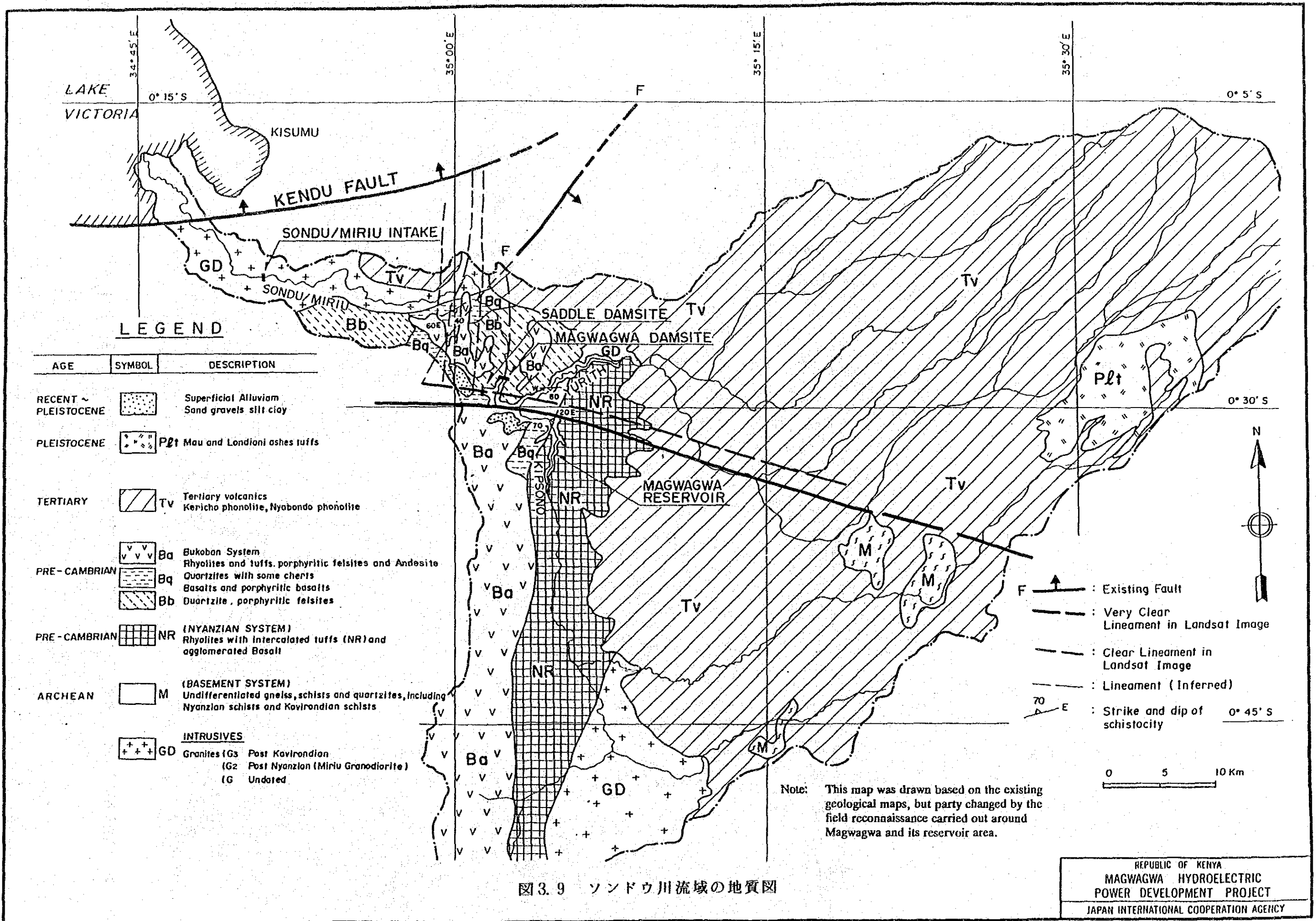


図 3.9 ソンドウ川流域の地質図

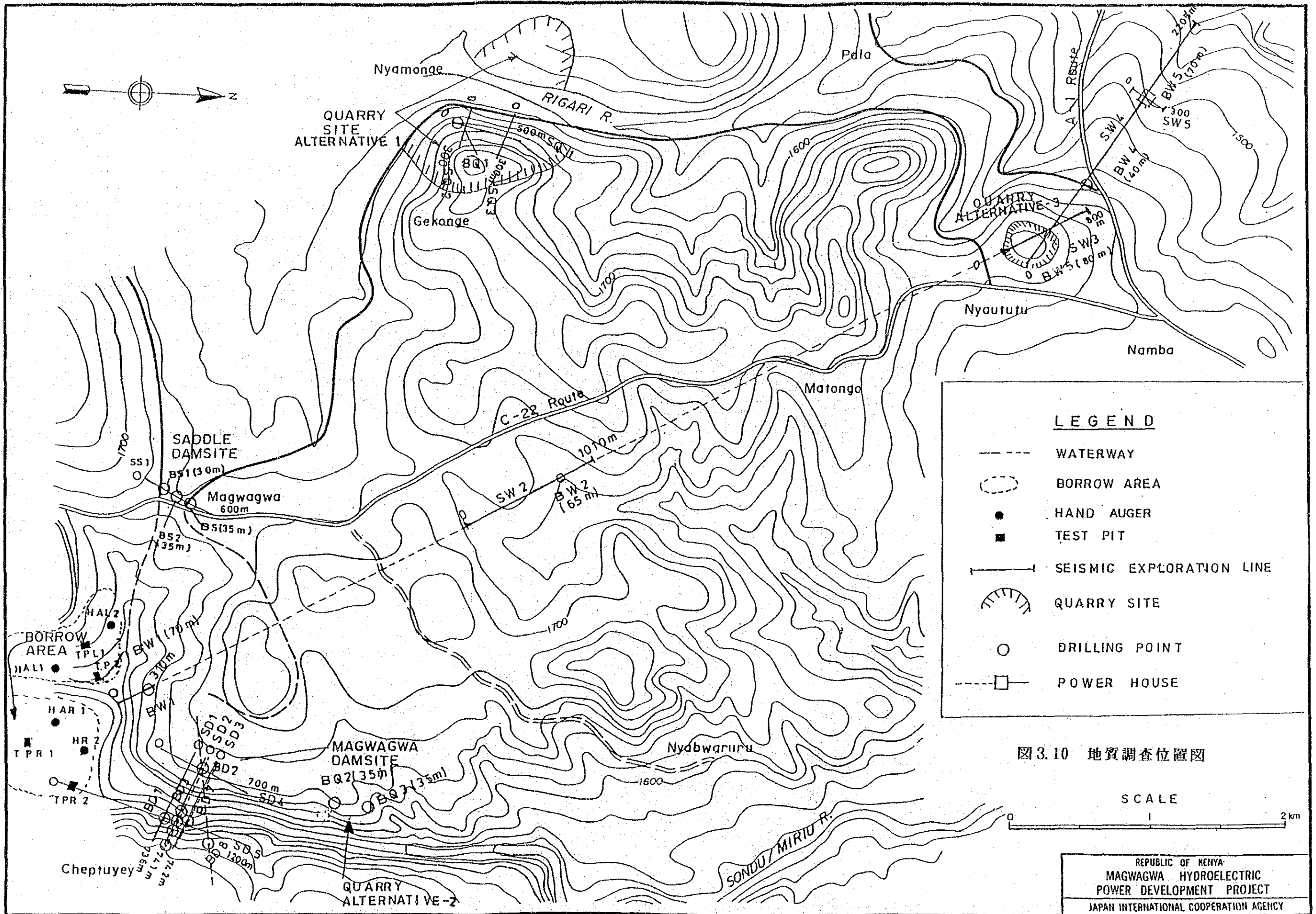
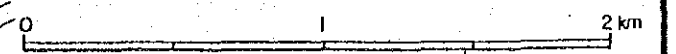


图 3.10 地質調査位置図

SCALE





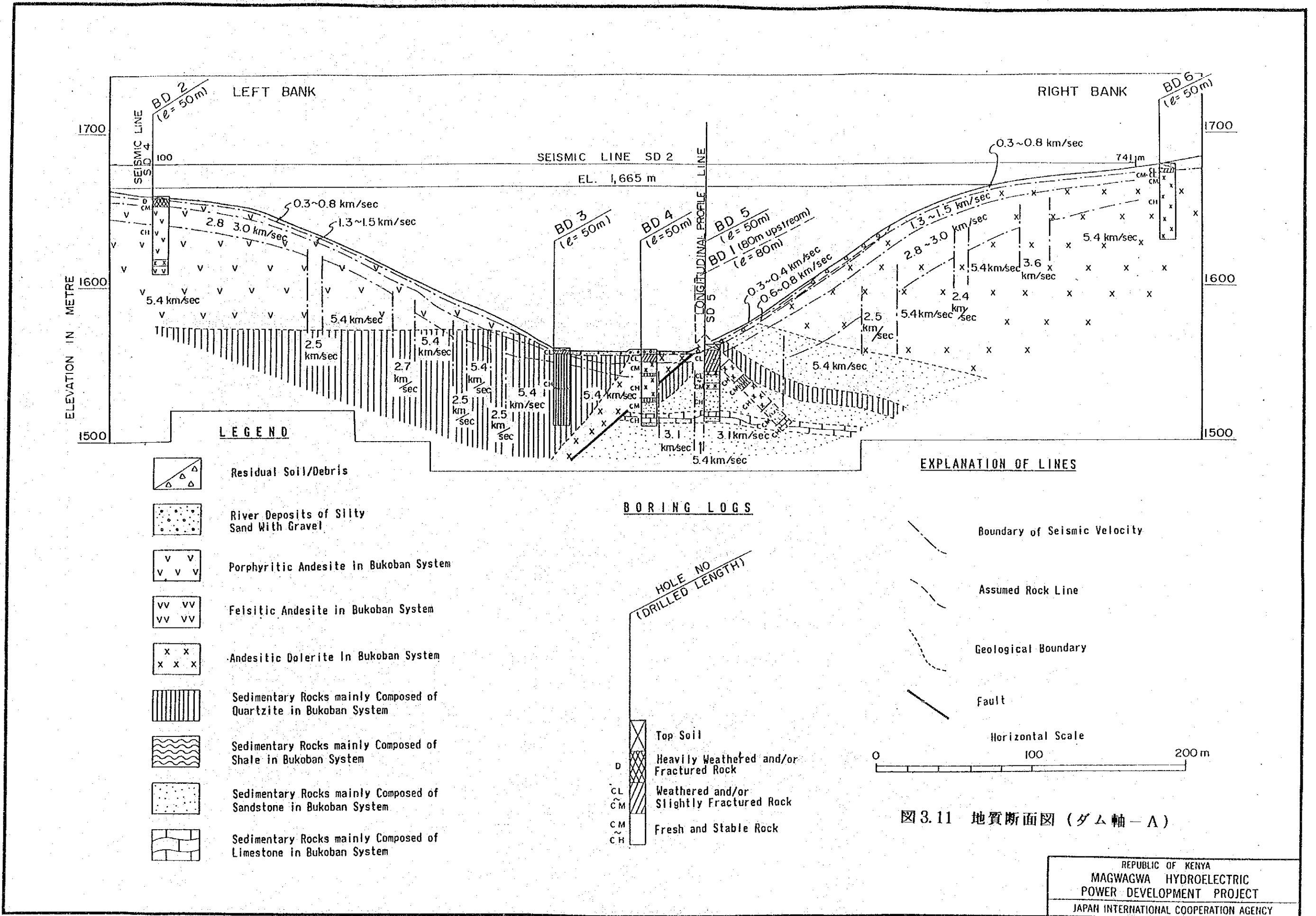


図 3.11 地質断面図 (ダム軸-A)

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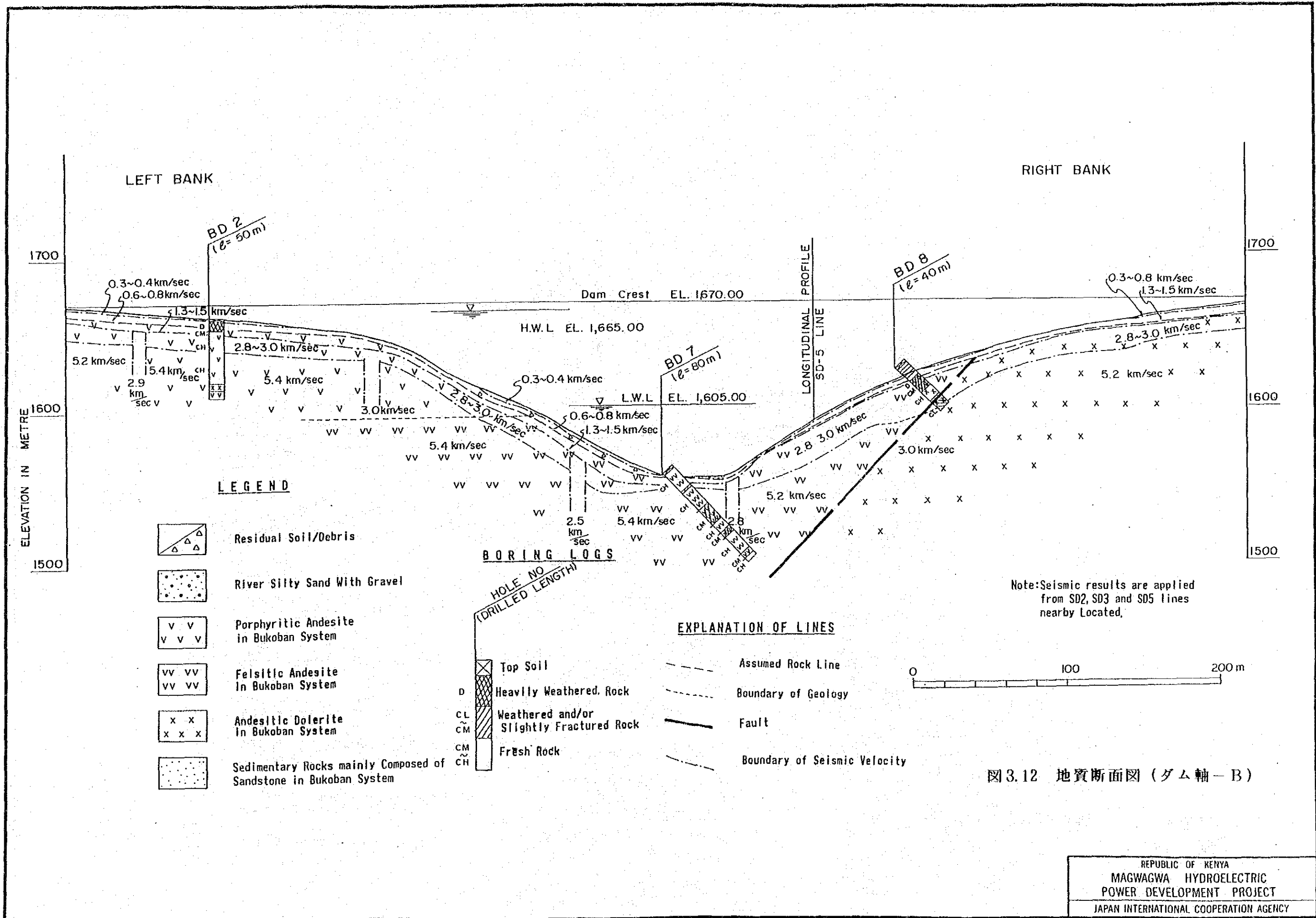
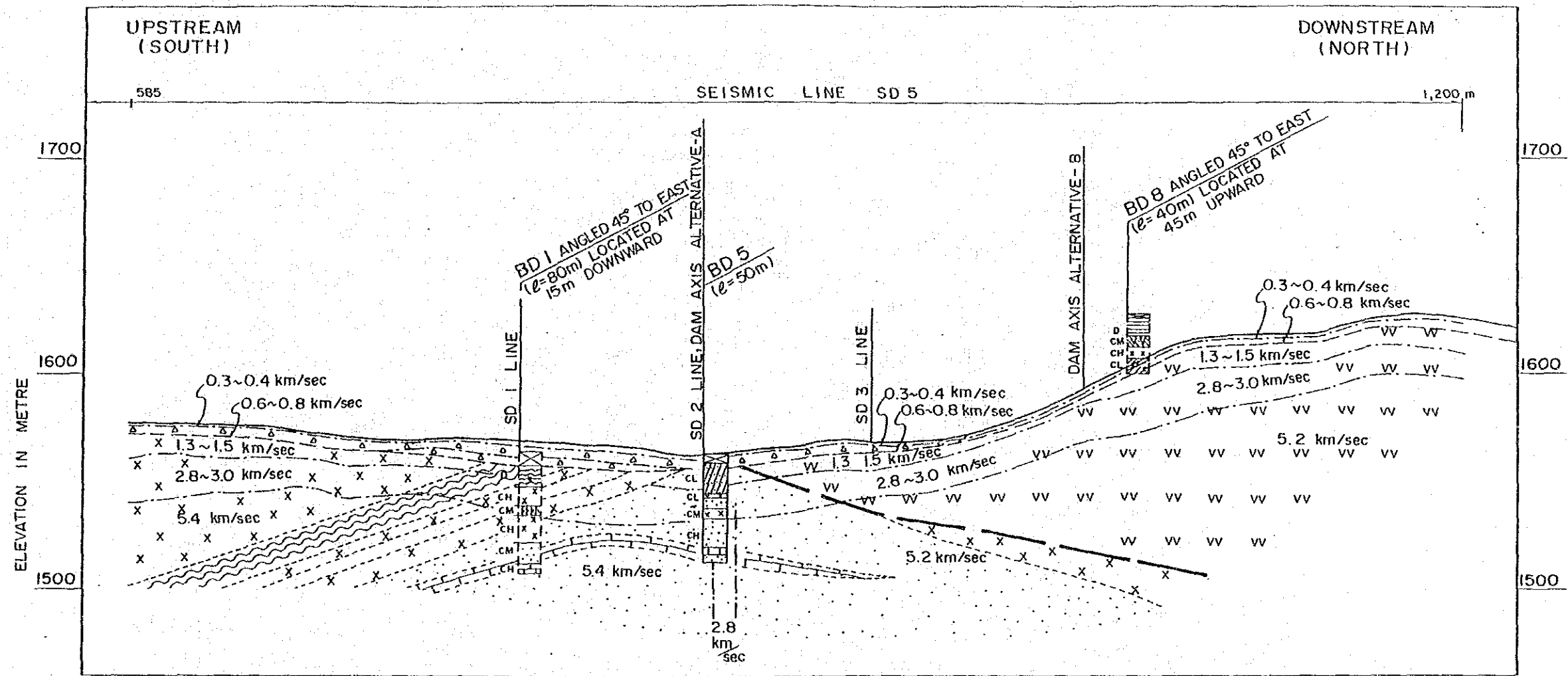


図3.12 地質断面図 (ダム軸-B)



LEGEND

- |  |  |  |  |
|--|--|--|--|
|  | Residual Soil/Debris   |  | Sedimentary Rocks mainly Composed of Sandstone in Bukoban System |
|  | Felsitic Andesite in Bukoban System                              |  | Sedimentary Rocks mainly Composed of Limestone in Bukoban System |
|  | Andesitic Dolerite in Bukoban System                             |  | Boundary of Seismic Velocity                                     |
|  | Sedimentary Rocks mainly Composed of Shale in Bukoban System     |  | Assumed Rock Line  |
|  | Sedimentary Rocks mainly Composed of Quartzite in Bukoban System |  | Geological Boundary  |
|  |  |  | Fault  |

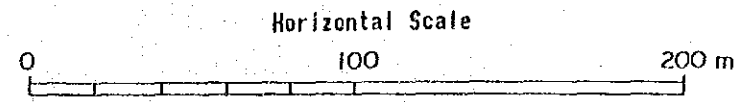
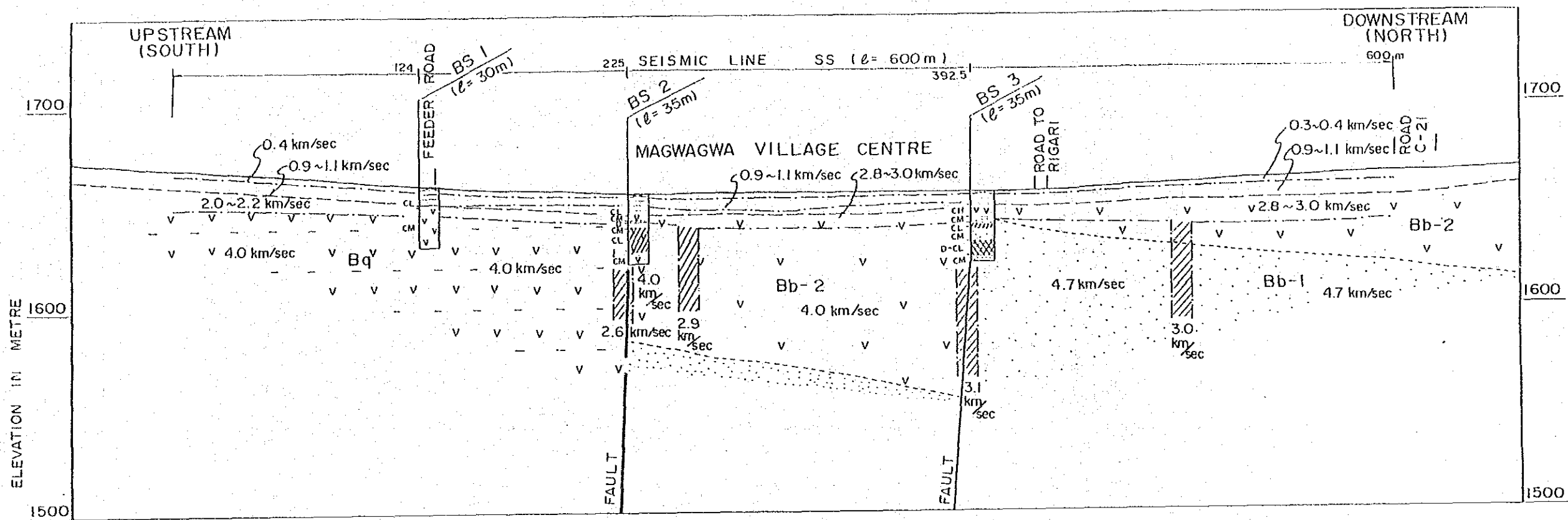


図 3.13 ダムサイト地質縦断面図 (物探測線 S D - 5)

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**LEGEND**

- |  |  |  |                              |
|--|--|--|------------------------------|
|  | Residual Soil with Gravels                   |  | Assumed Rock Line            |
|  | Andesite in Bukoban System                   |  | Geological Boundary          |
|  | Sandstone in Bukoban System                  |  | Boundary of Seismic Velocity |
|  | Andesite in Quartzite Zone in Bukoban System |  | Fault                        |
|  |  |  | Main Fault                   |

**EXPLANATION OF LOGS**

- HOLE NO (DRILLED LENGTH)
- |  |                                  |
|--|----------------------------------|
|  | Top Soil                         |
|  | Residual Soil                    |
|  | Heavily Weathered/Fractured Rock |
|  | Weathered/Fractured Rock         |
|  | Andesite                         |
|  | Sandstone                        |

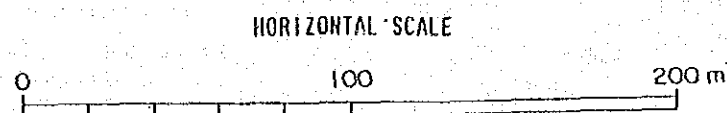


図3.14 サドルダムサイト地質断面図 (物探測線SS)

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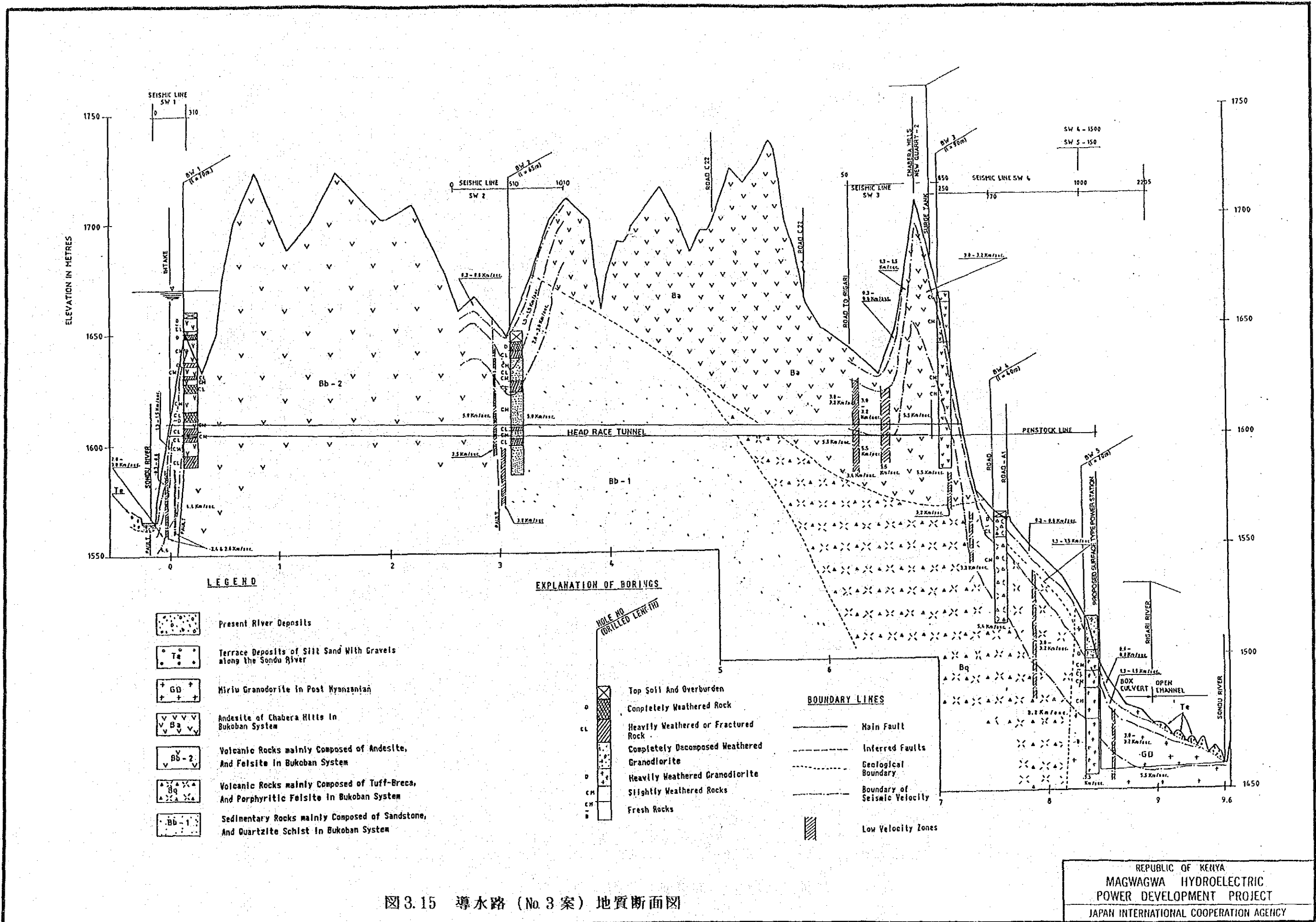


图 3.15 导水路 (No. 3 案) 地质断面图

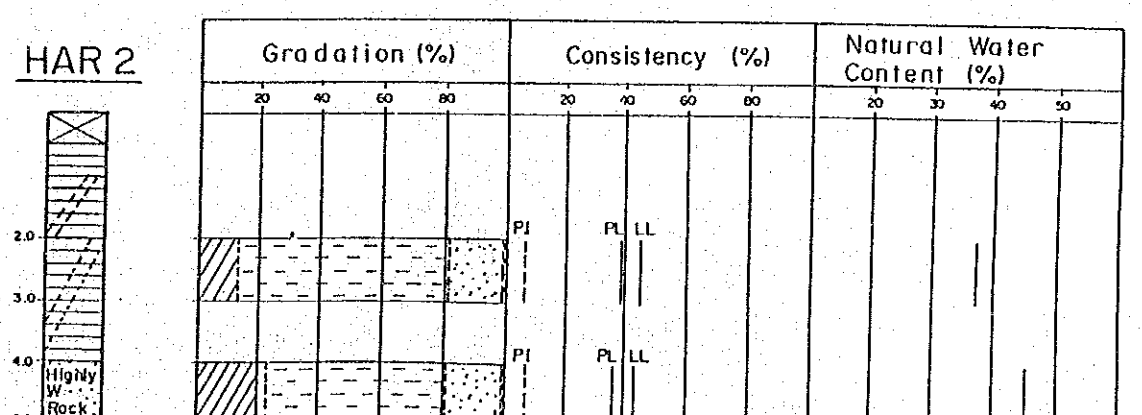
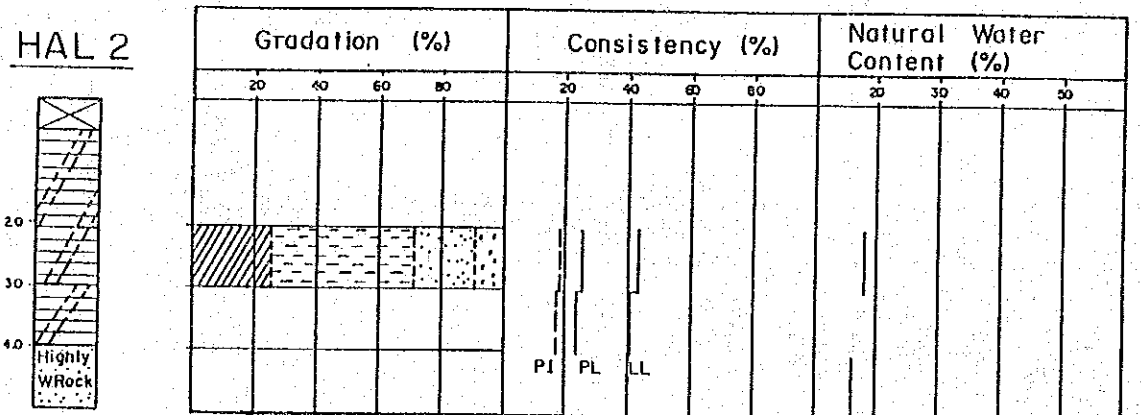
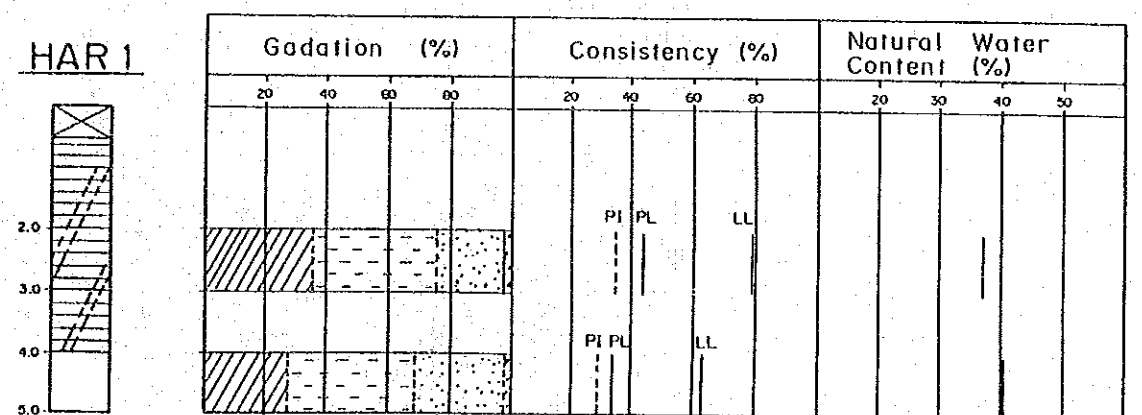
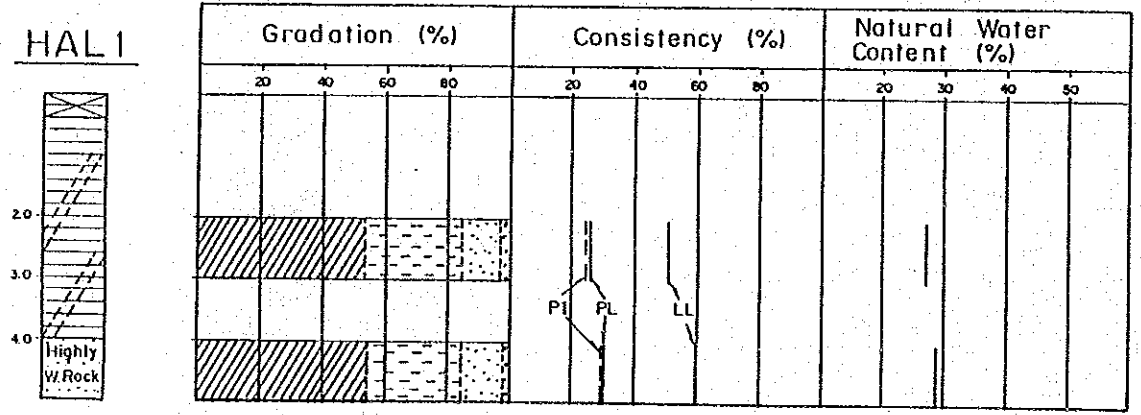
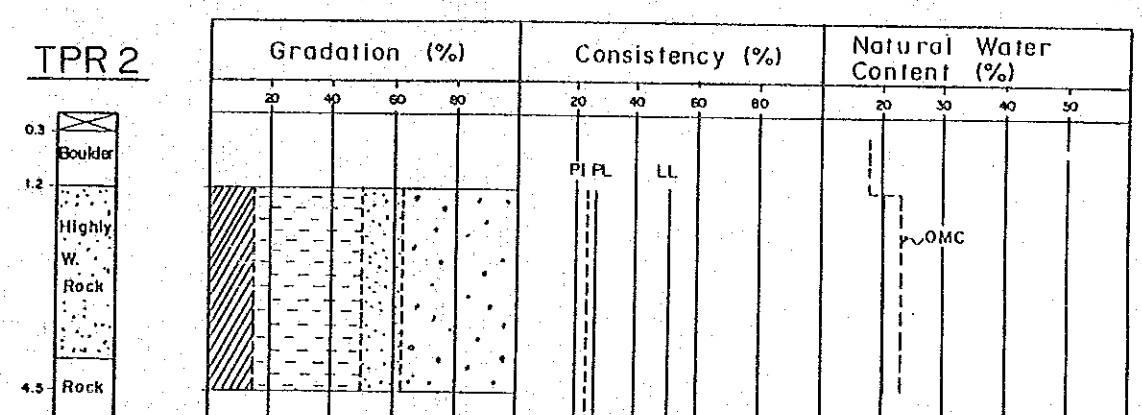
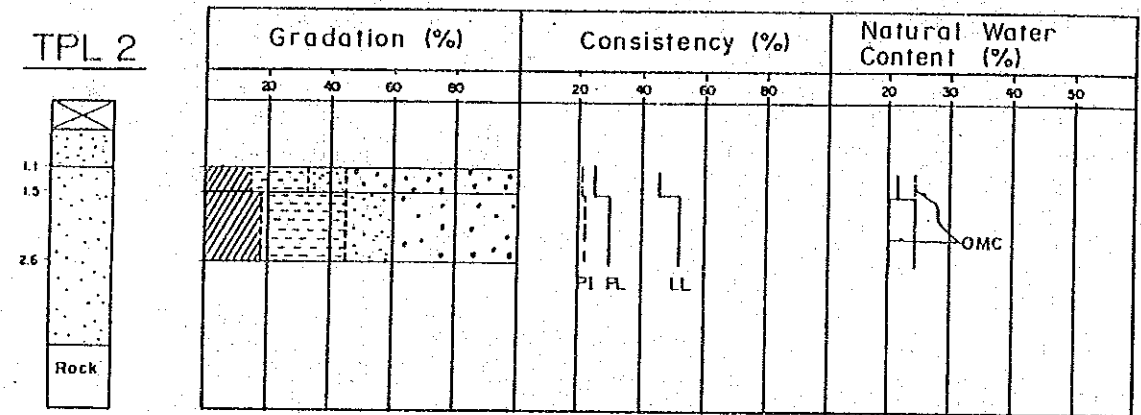
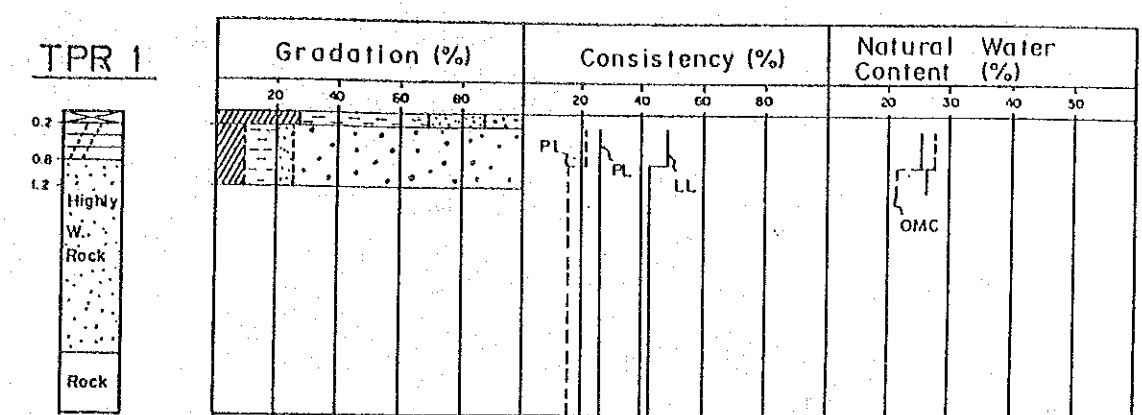
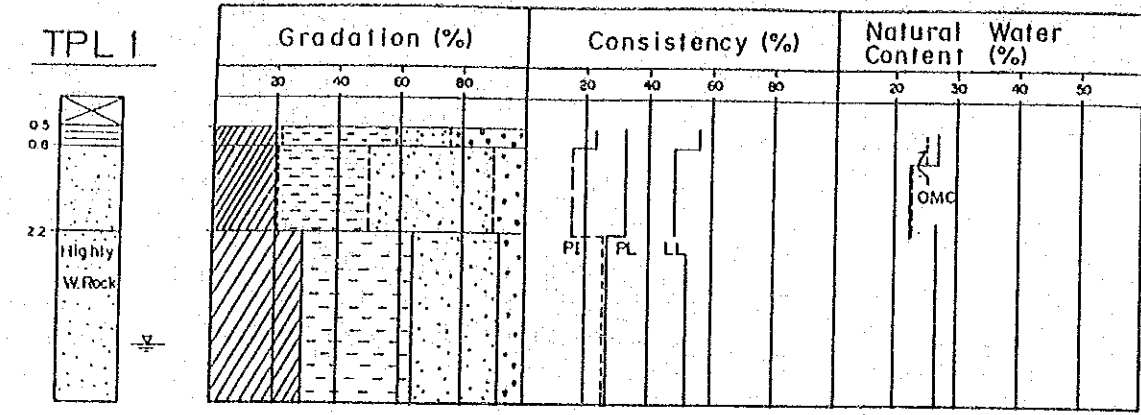
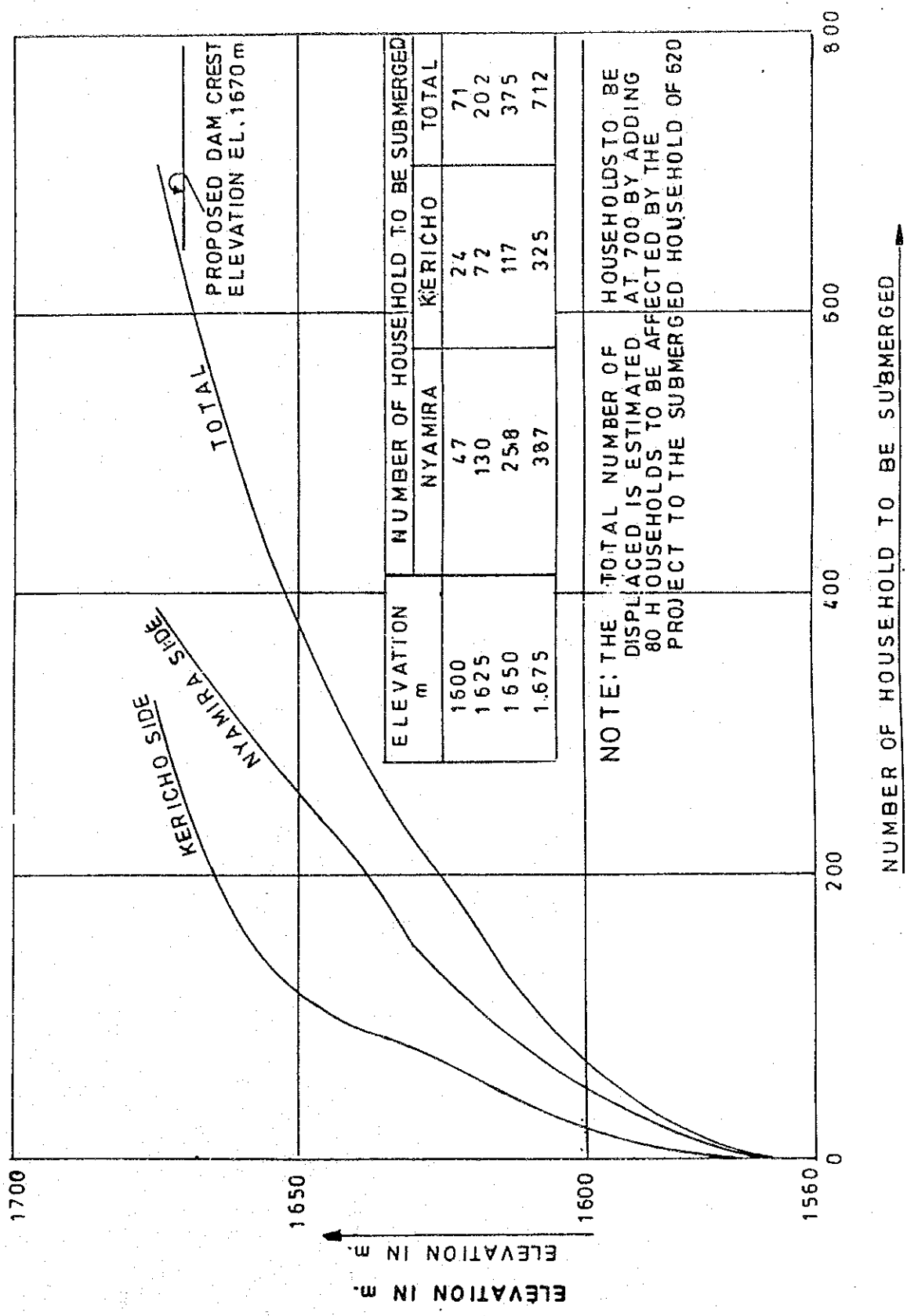


図 3.16 土取場の土の物理試験結果

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NOTE: THE TOTAL NUMBER OF HOUSEHOLDS TO BE DISPLACED IS ESTIMATED AT 700 BY ADDING 80 HOUSEHOLDS TO BE AFFECTED BY THE PROJECT TO THE SUBMERGED HOUSEHOLD OF 620

图3.17 貯水池内家屋数

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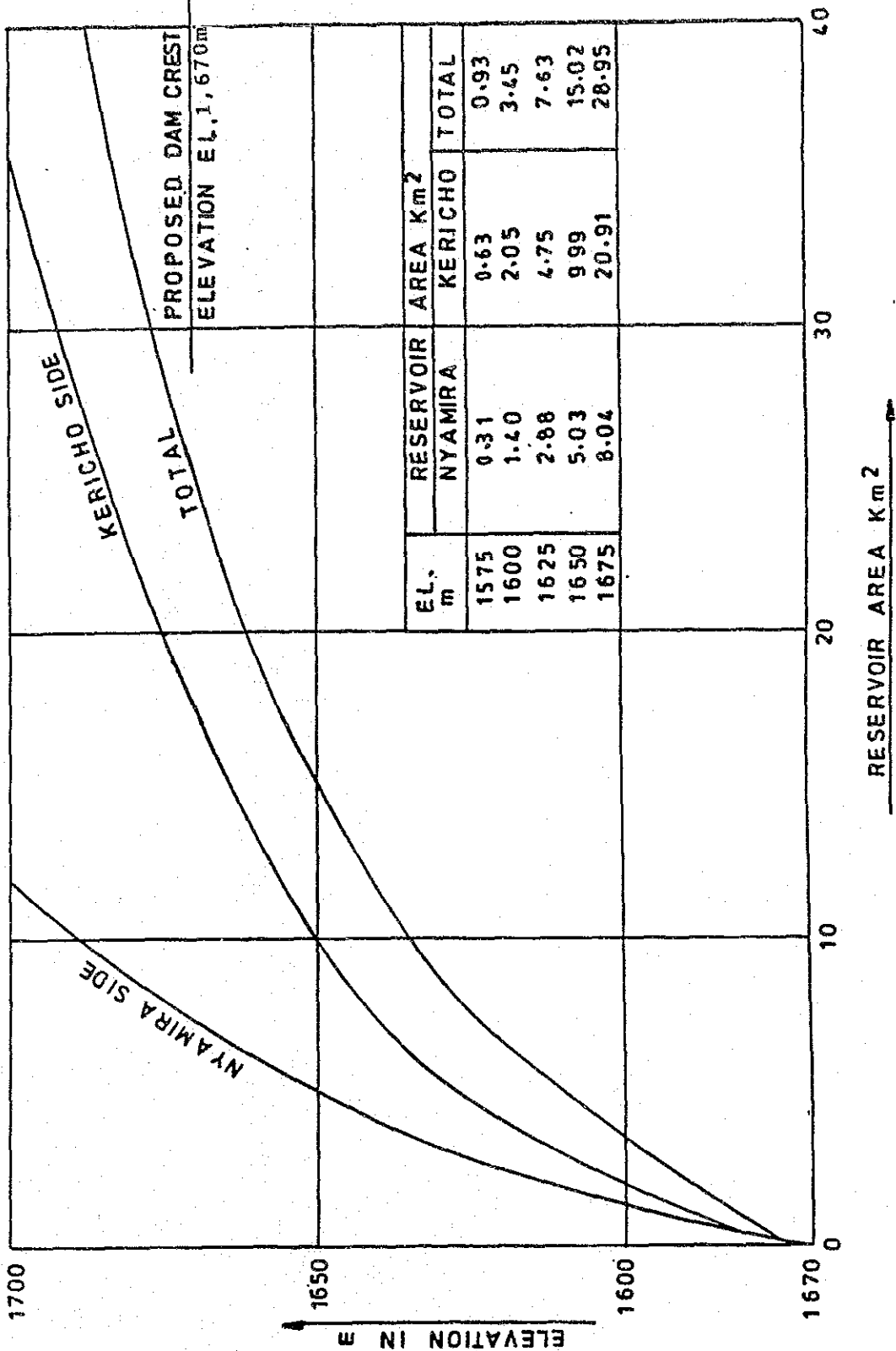


图 3.18 貯水池湛水面積曲線

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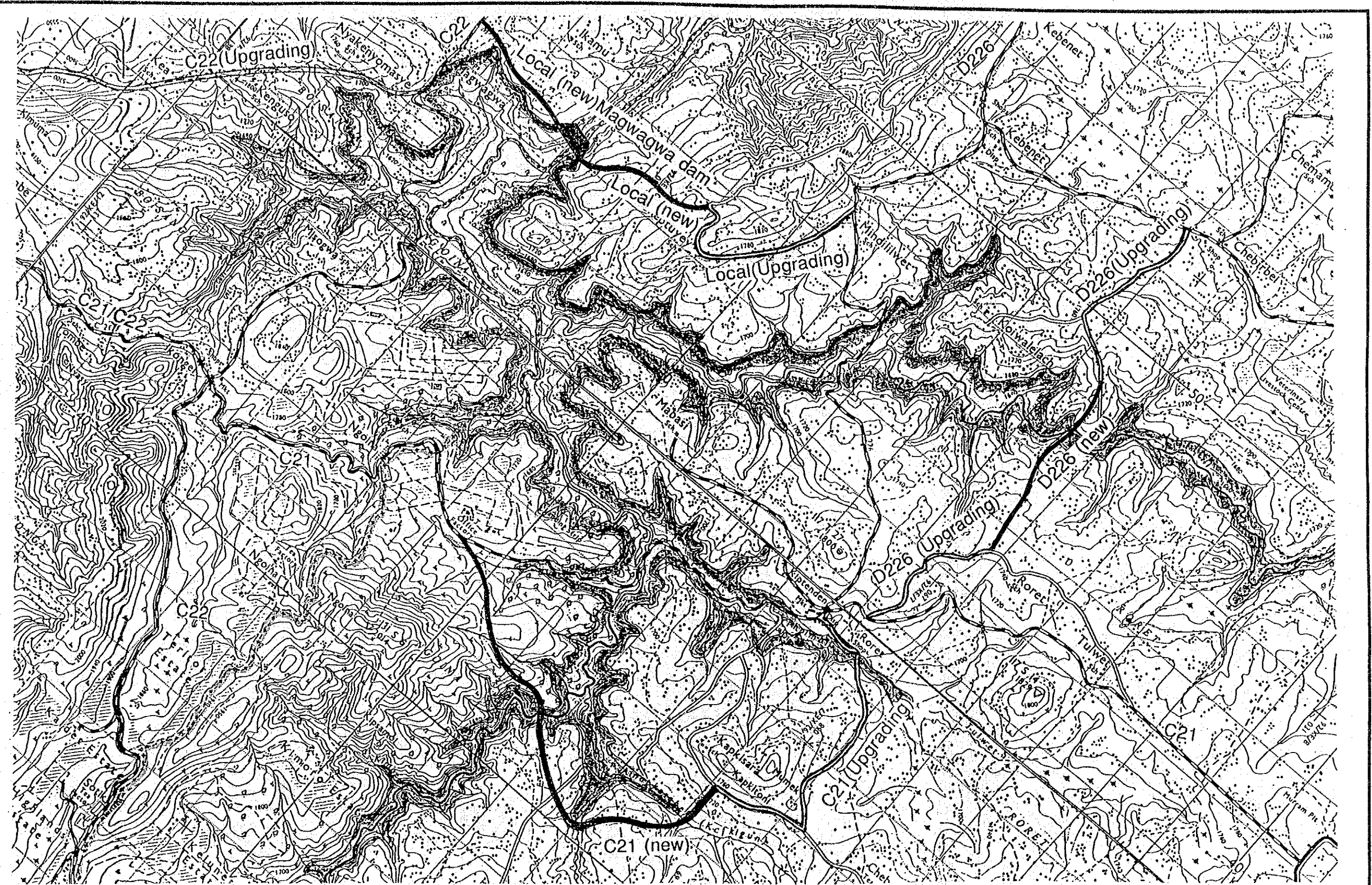


图 3.19 貯水池周辺地区道路移転計画

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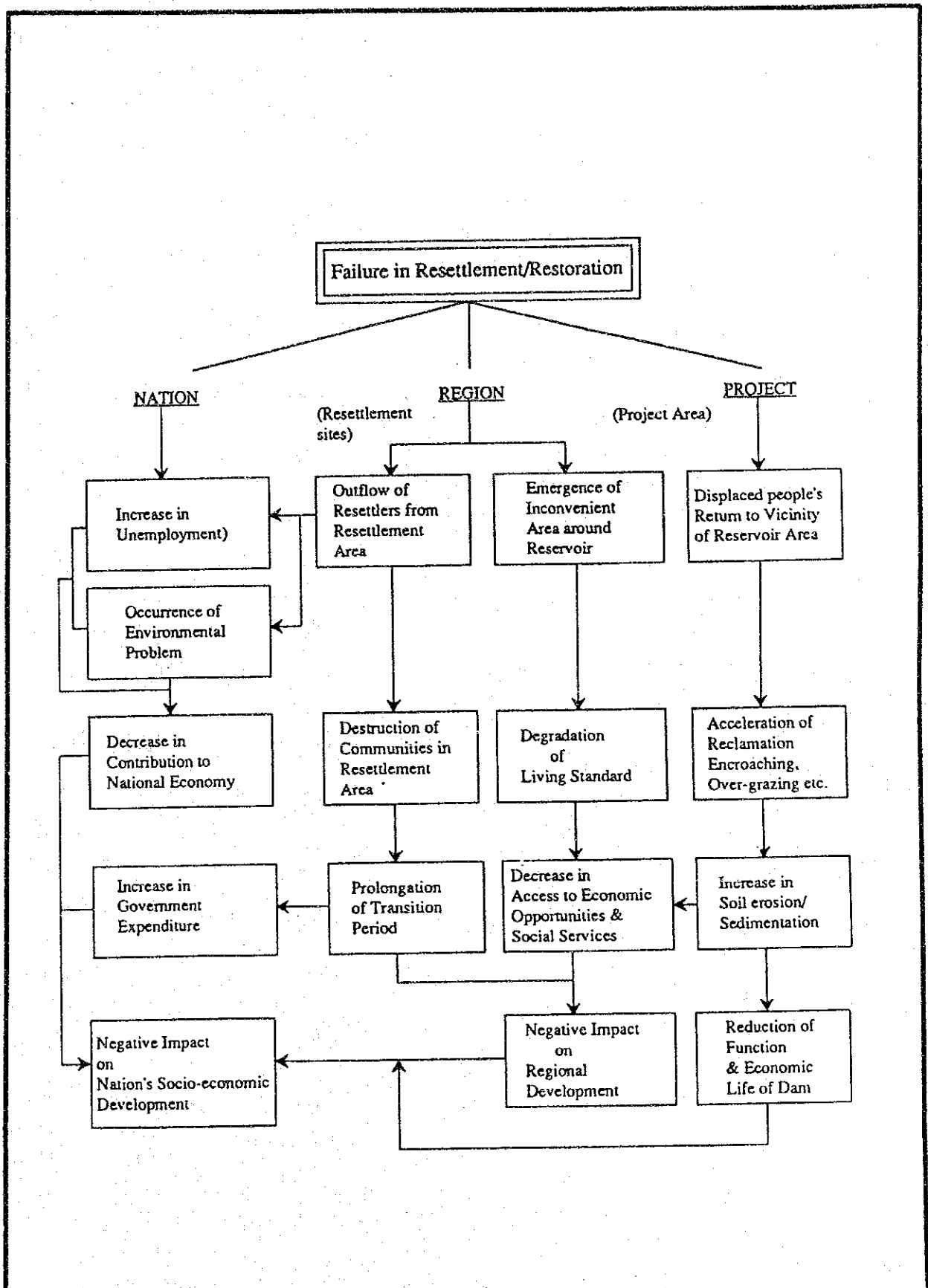


図 3.20 計画地区内の移転計画不成功における影響

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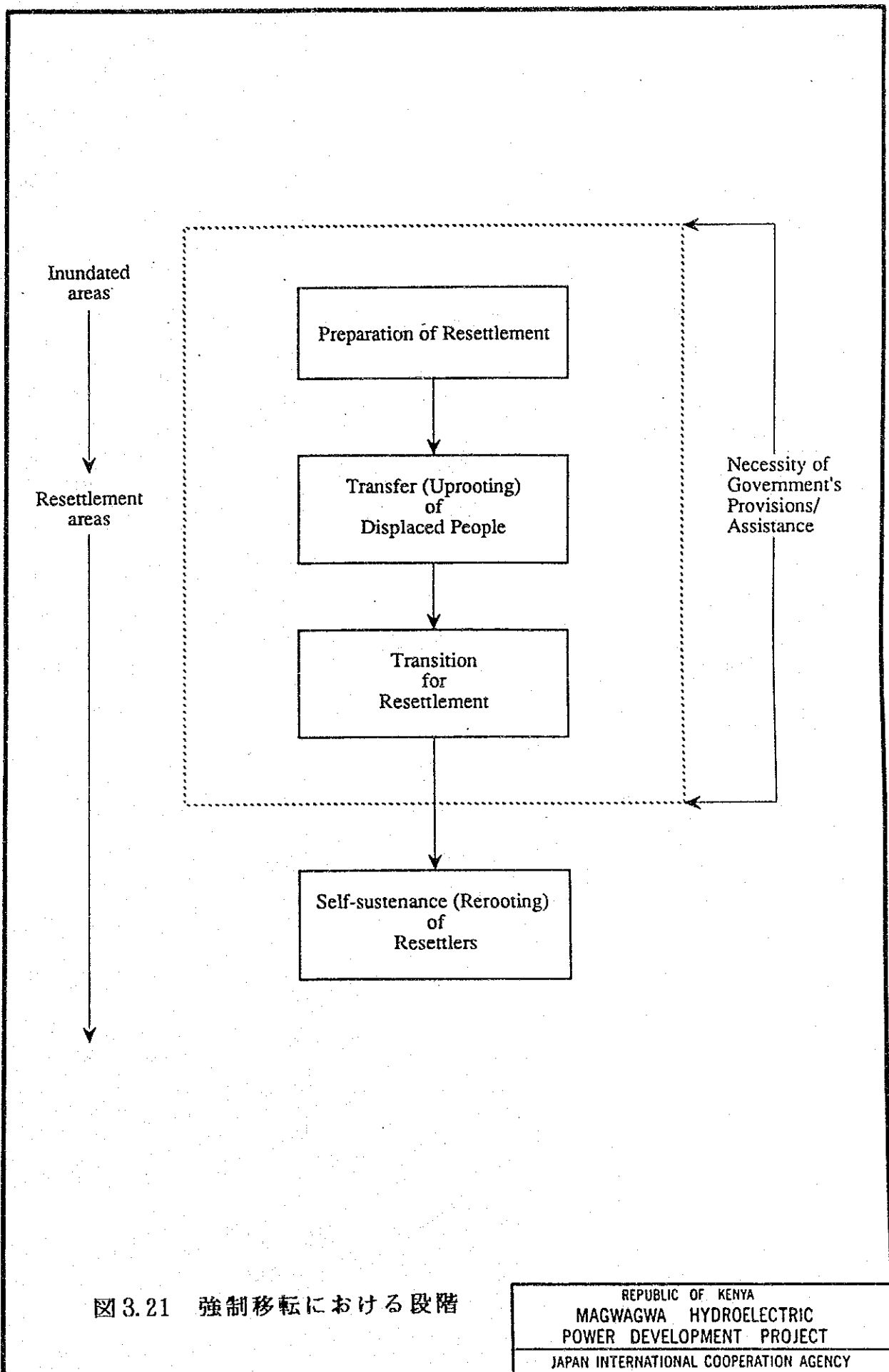


図 3.21 強制移転における段階

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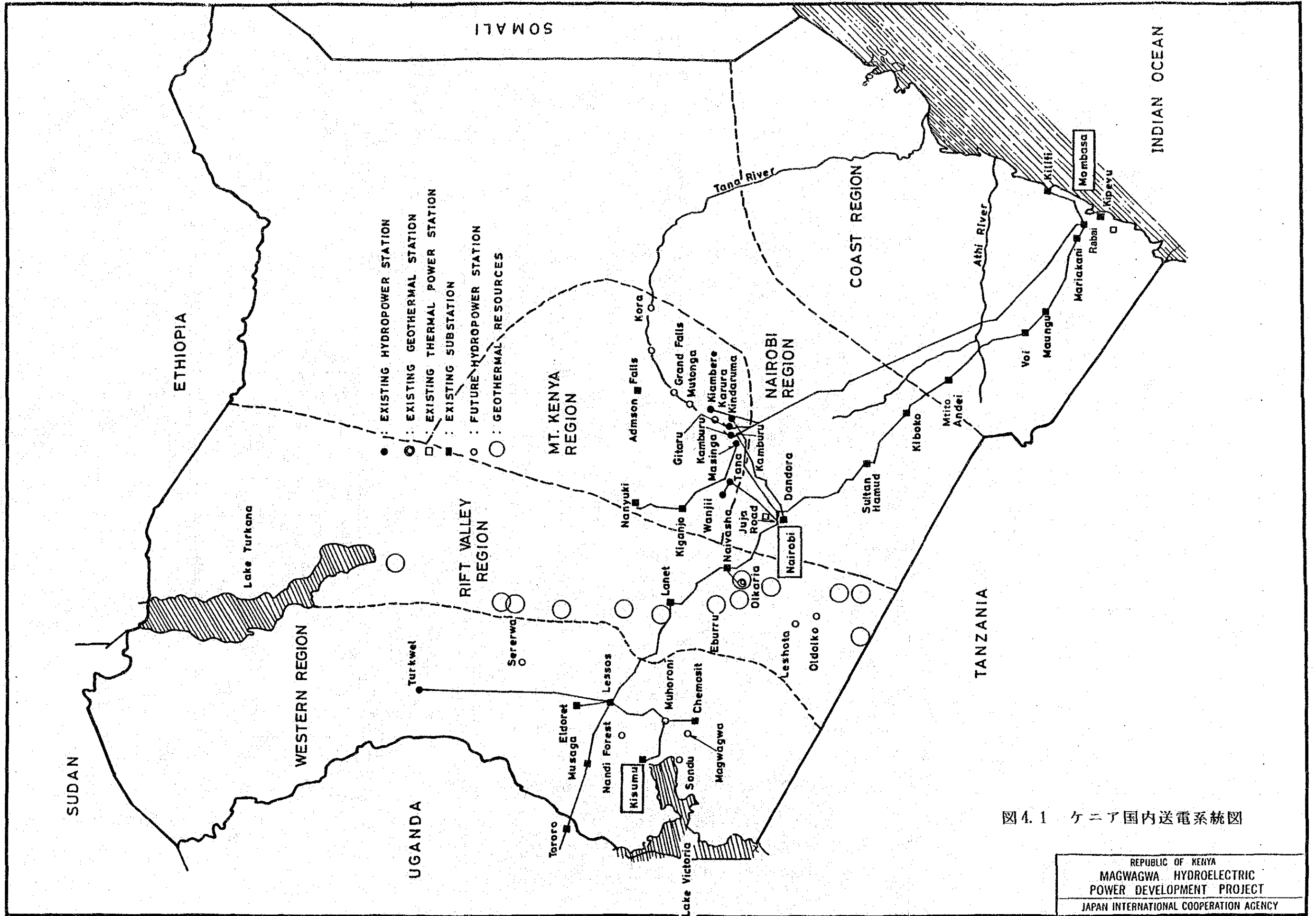


図 4.1 ケニア国内送電系統図

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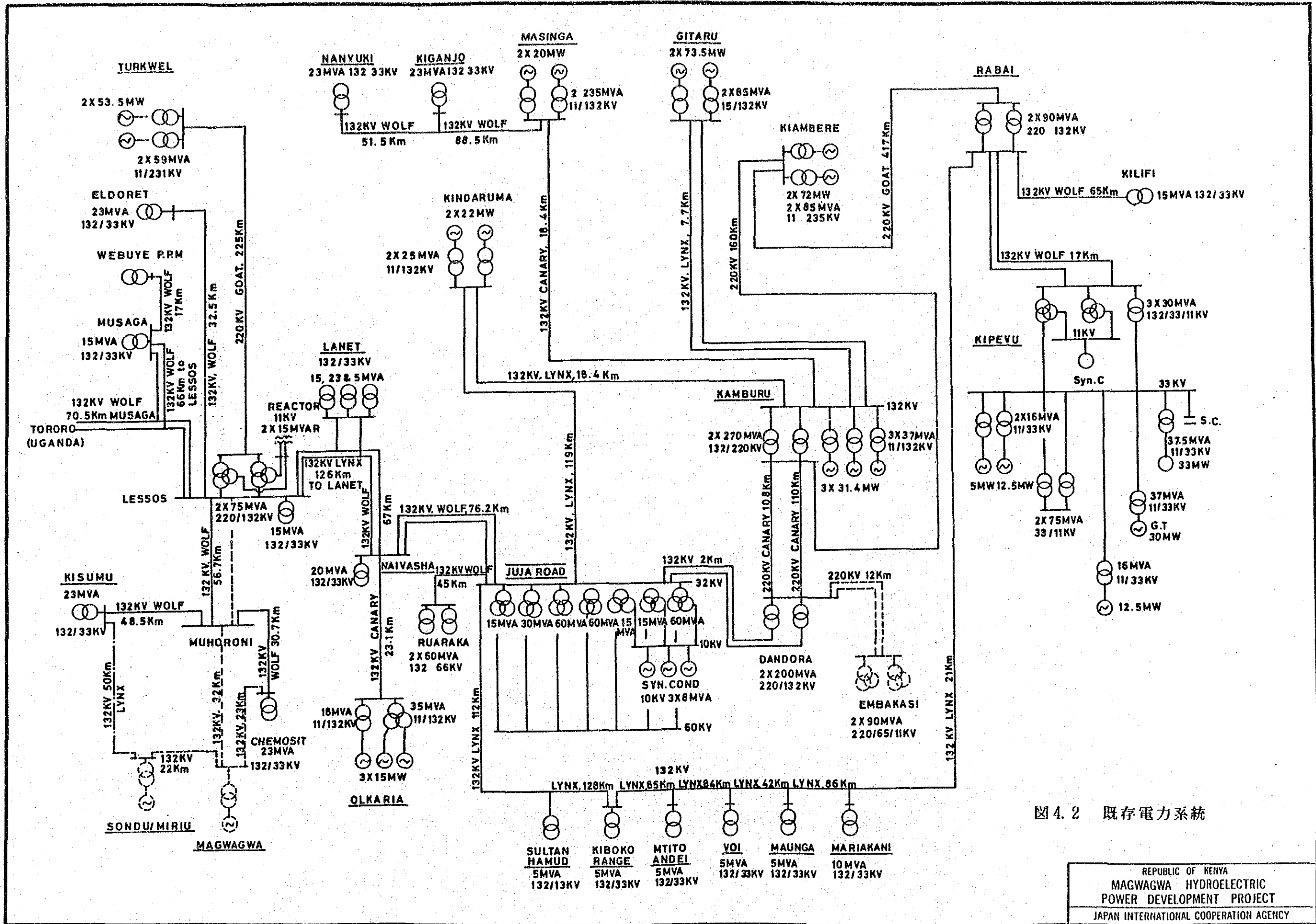
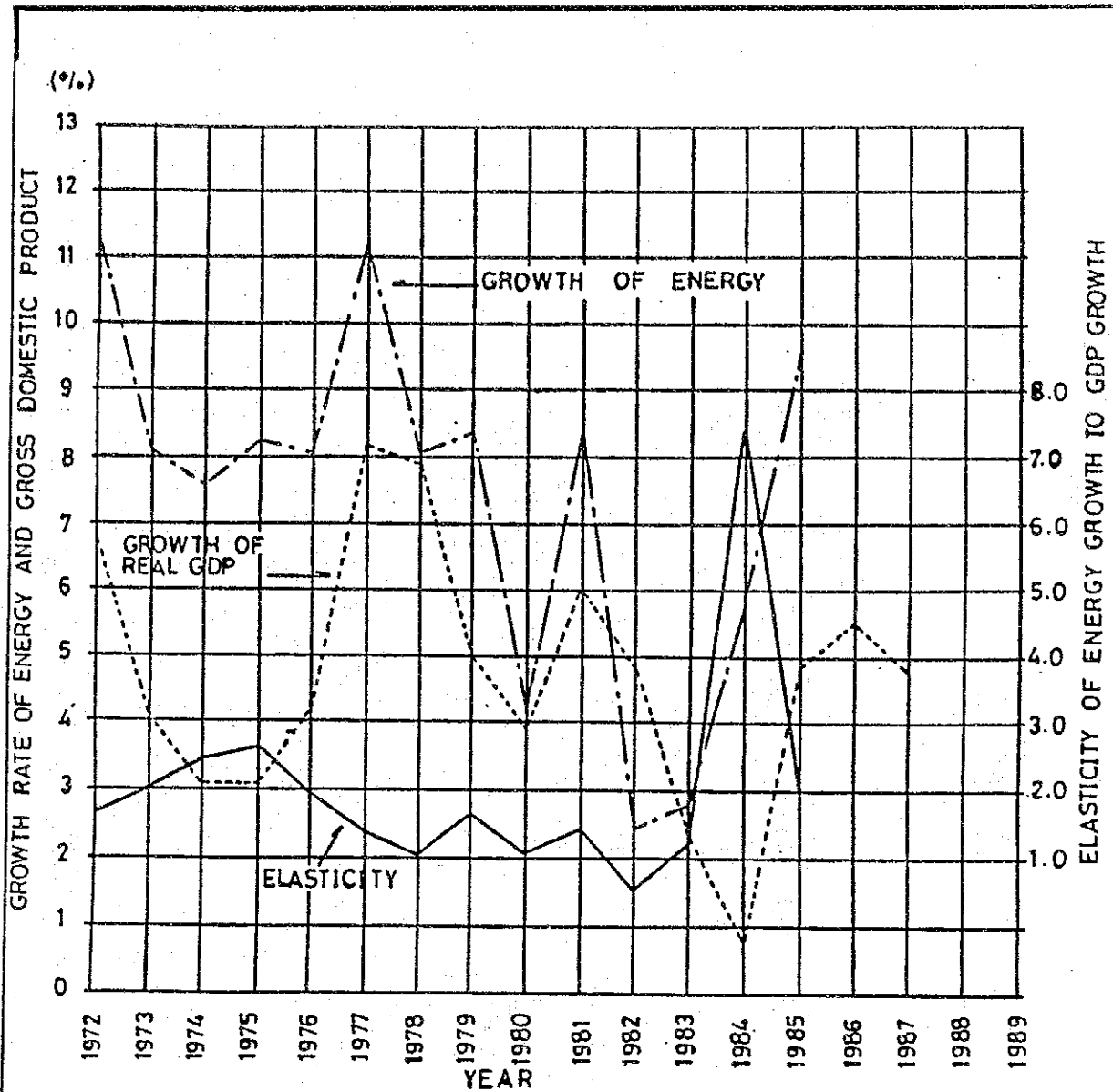


図 4. 2 既存電力系統

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	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
GROWTH OF ENERGY (%)	11.2	8.2	7.6	8.3	8.1	11.2	8.1	8.4	4.2	8.5	2.4	2.8	5.9	9.5	-	-	10.4	-
GROWTH OF REAL GDP * (%)	6.8	4.1	3.1	3.1	4.2	8.2	7.9	5.0	3.9	6.0	4.8	2.3	0.8	4.8	5.5	5.7	-	-
ELASTICITY	1.65	2.00	2.45	2.68	1.93	1.37	1.03	1.68	1.08	1.42	0.50	1.22	7.38	1.99	-	-	-	-

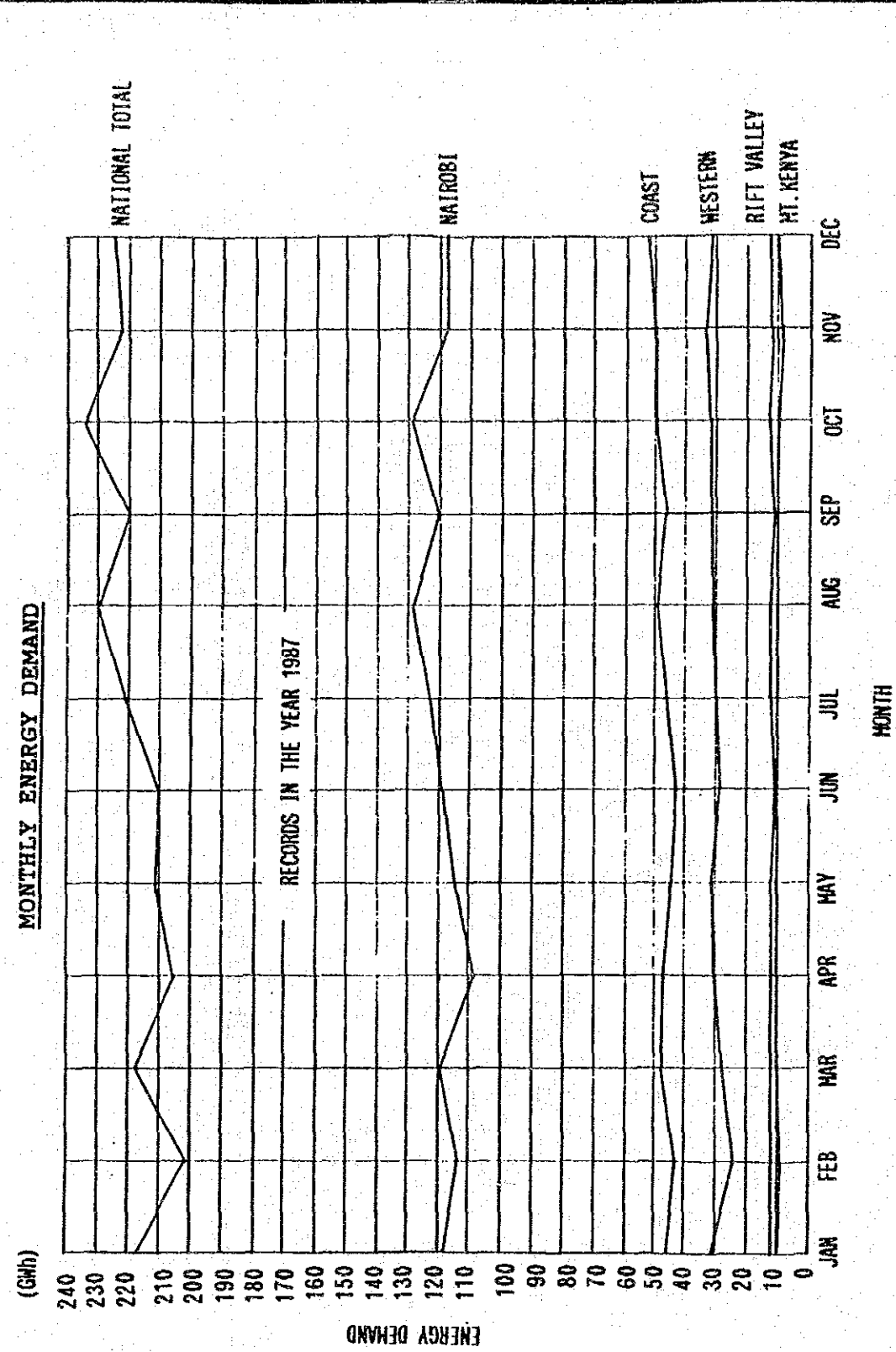
\* Source : National Development Plan for 1989-1993

図 4.3 電力の伸び及びGDPへの弾性率

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MONTHLY ENERGY DEMAND



DAILY LOAD IN THE LESSOS SUBSTATION

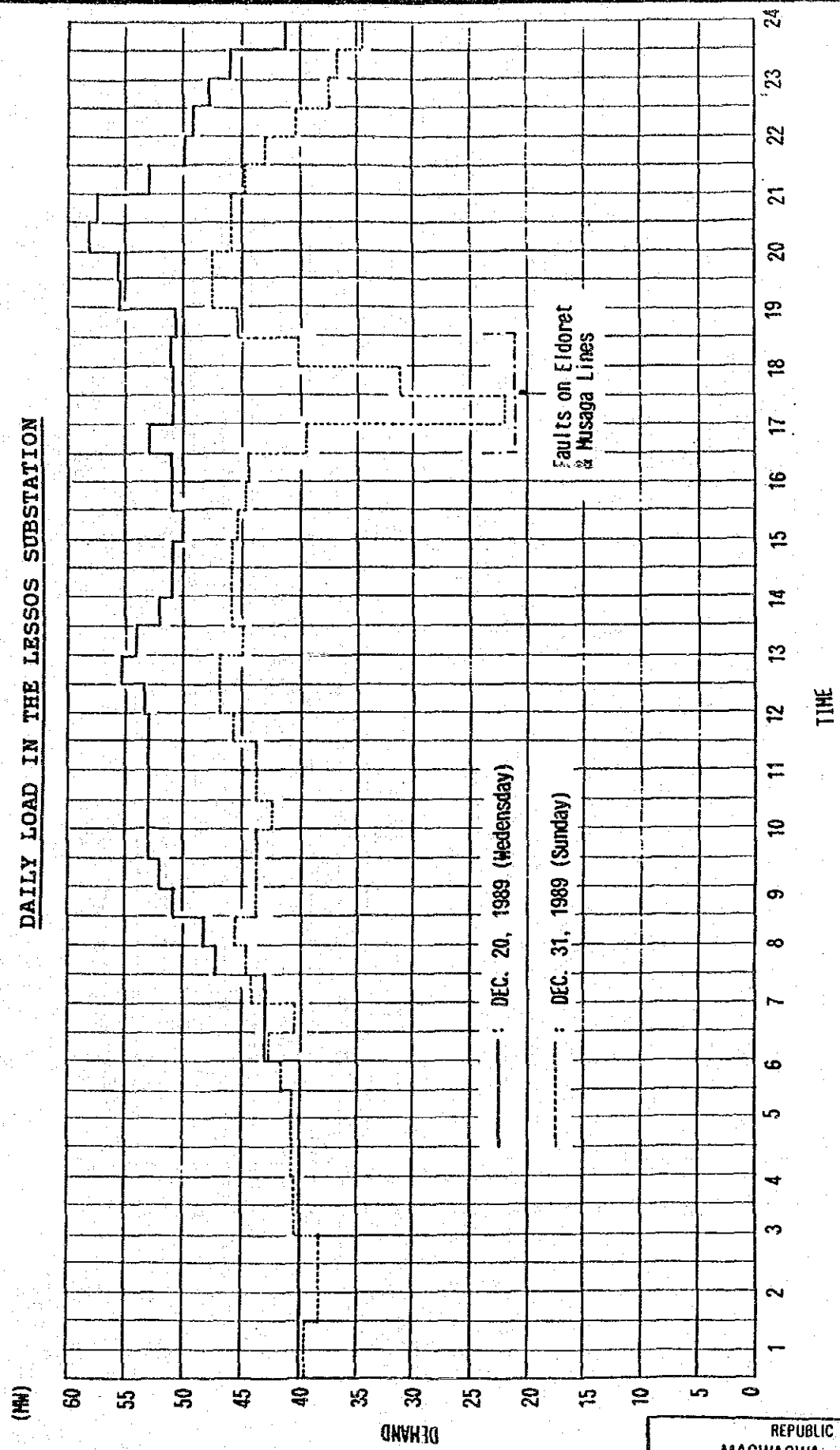


図 4. 4 電力負荷

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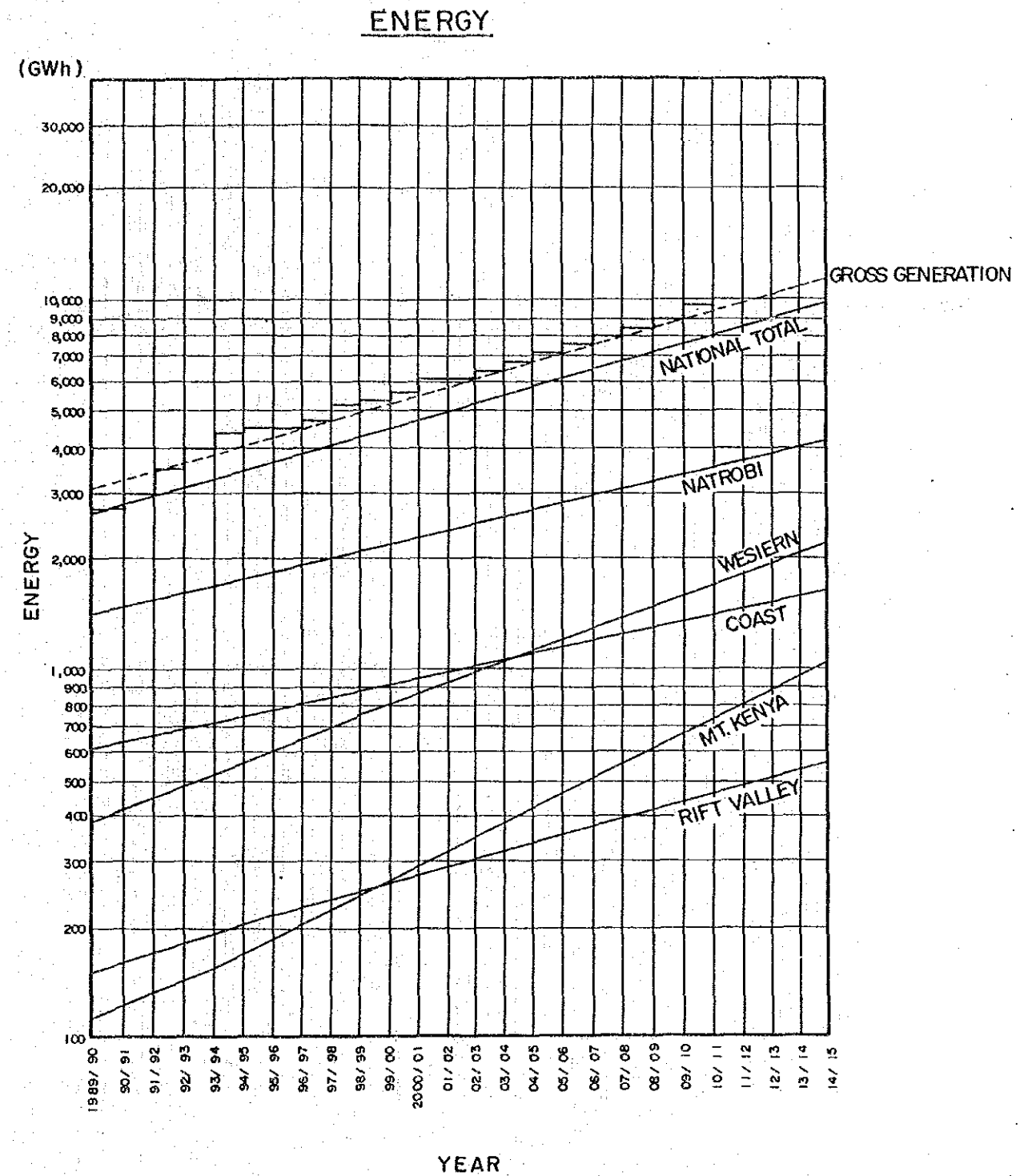
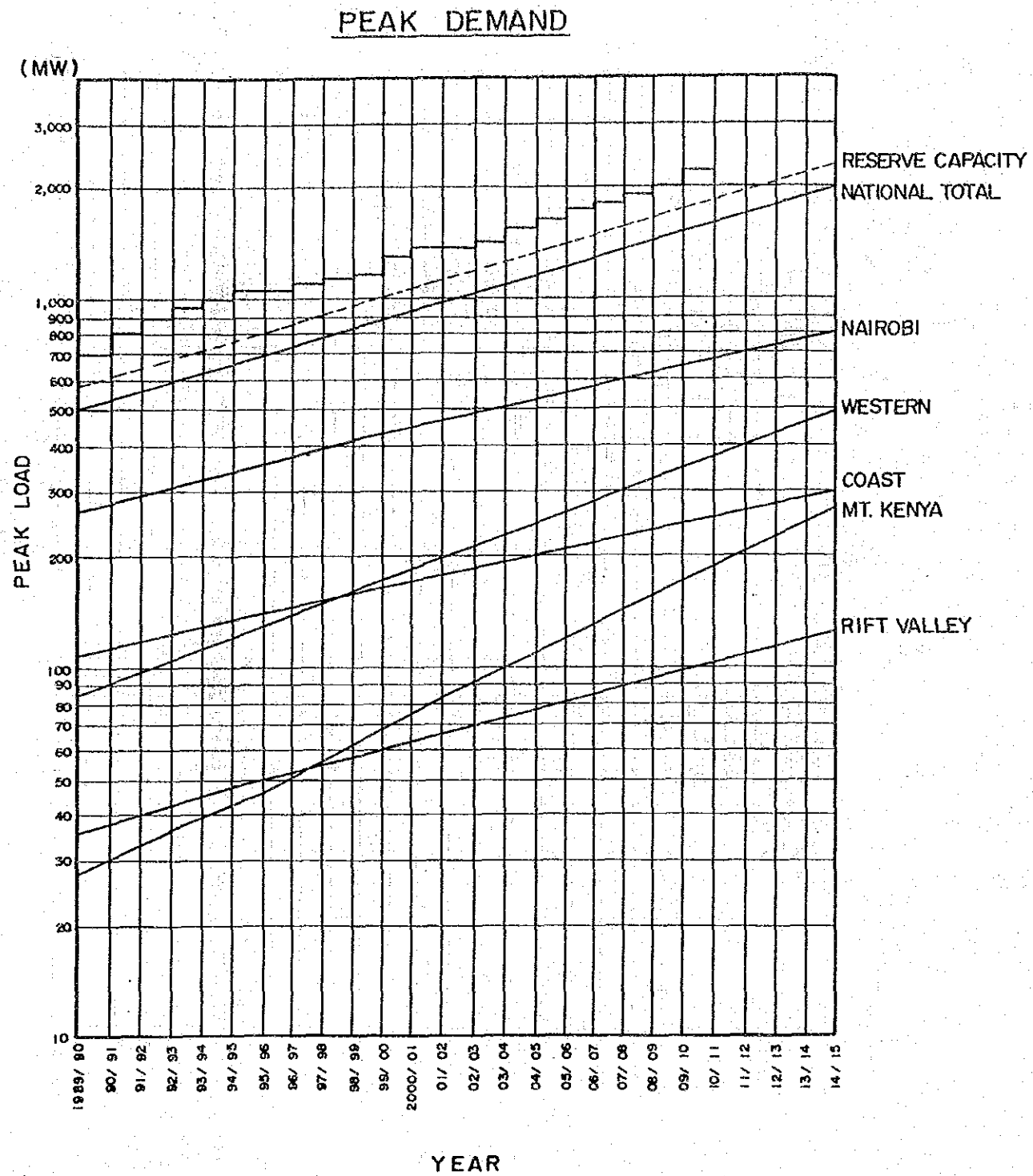
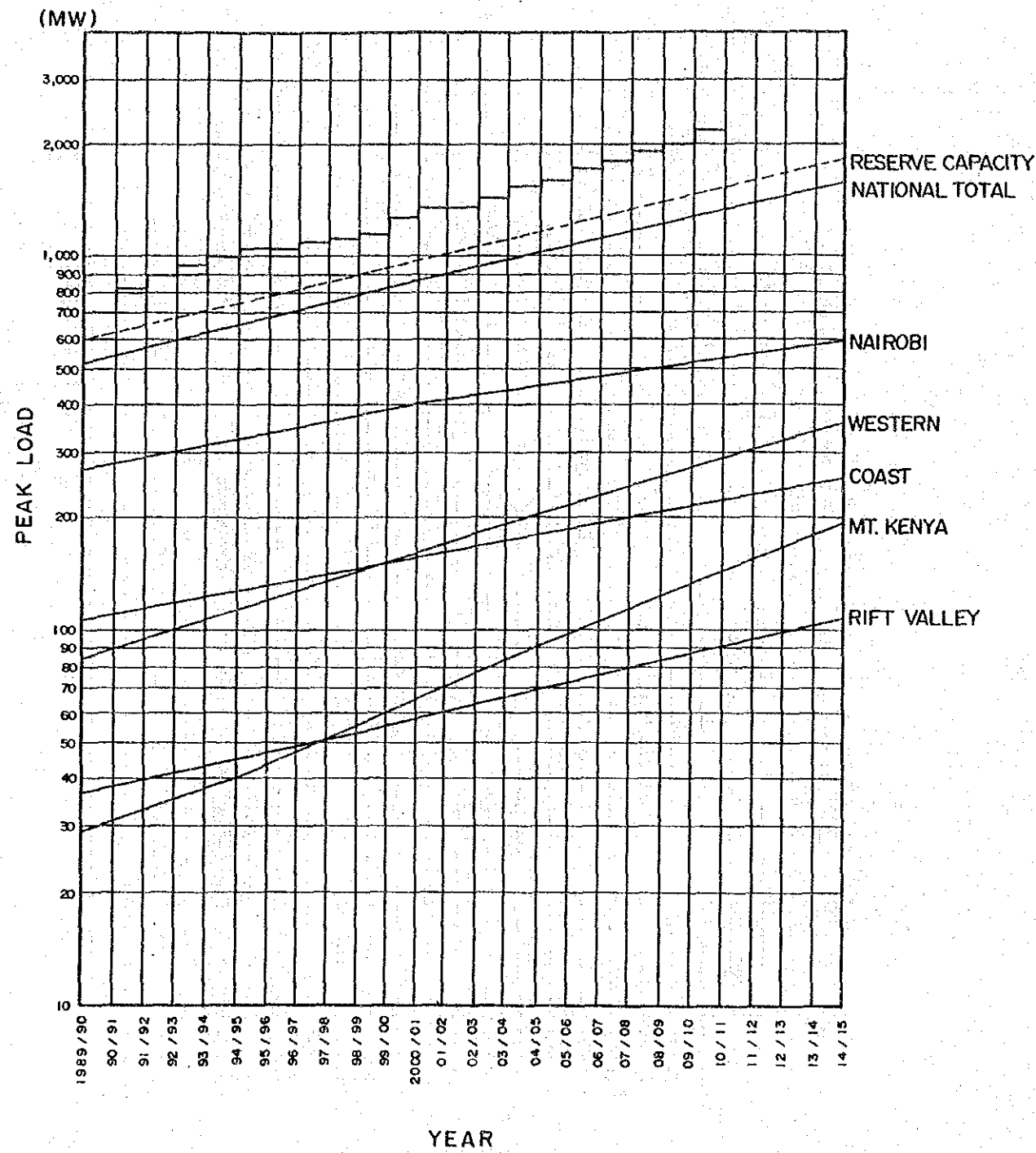


图 4.5 電力需要予測 (中間)

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PEAK DEMAND



ENERGY

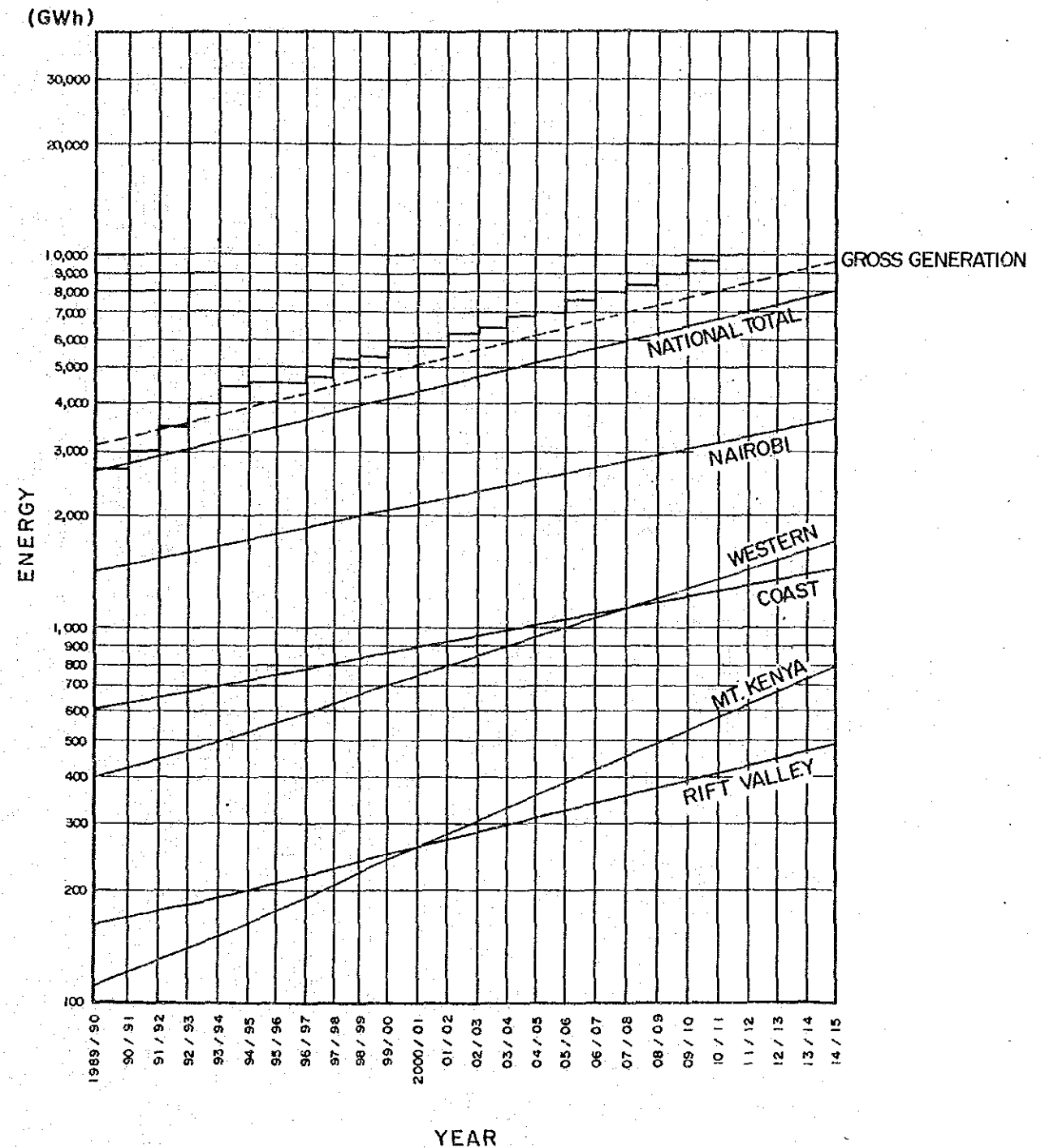


图 4.6 電力需要予測 (低)

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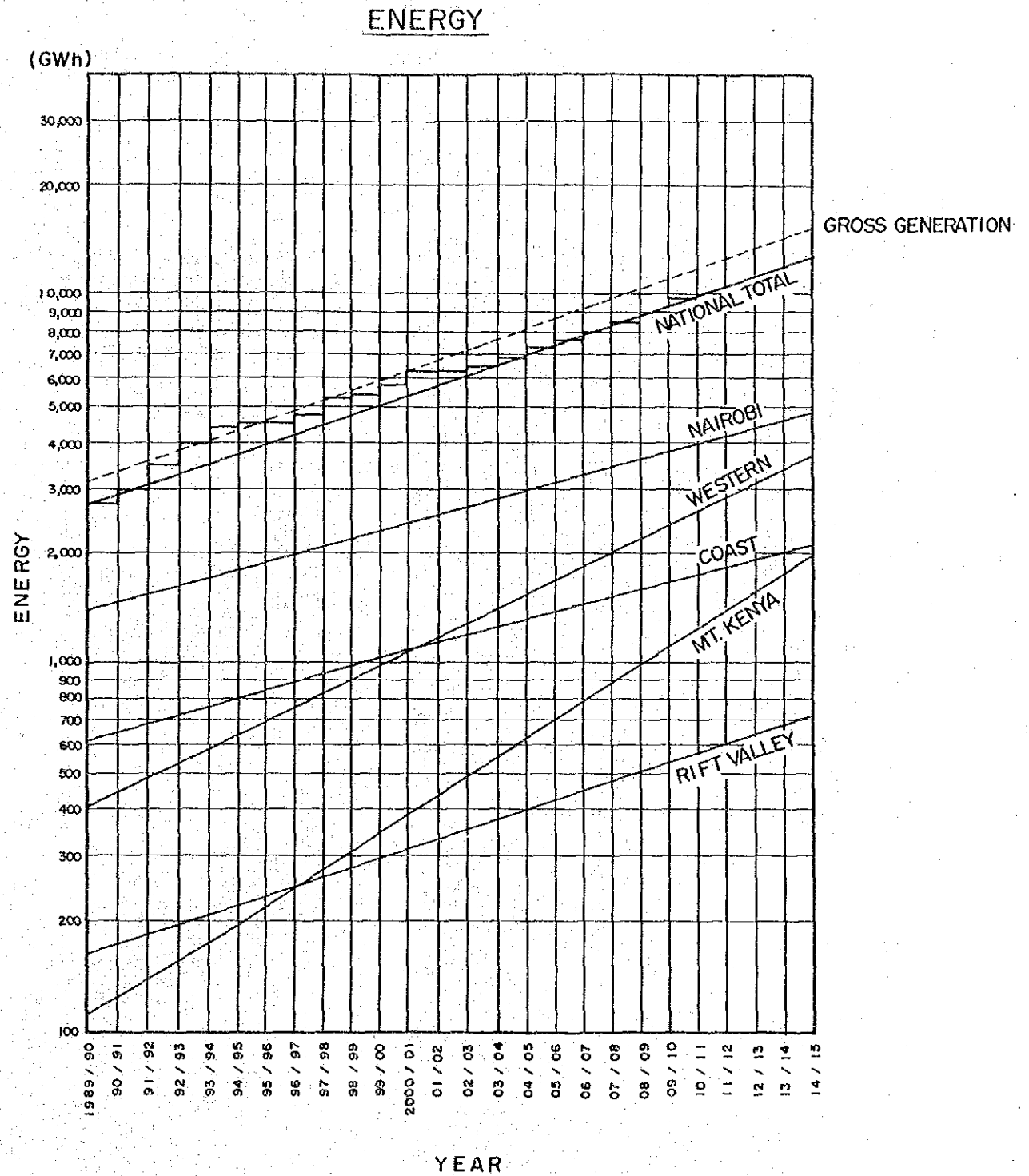
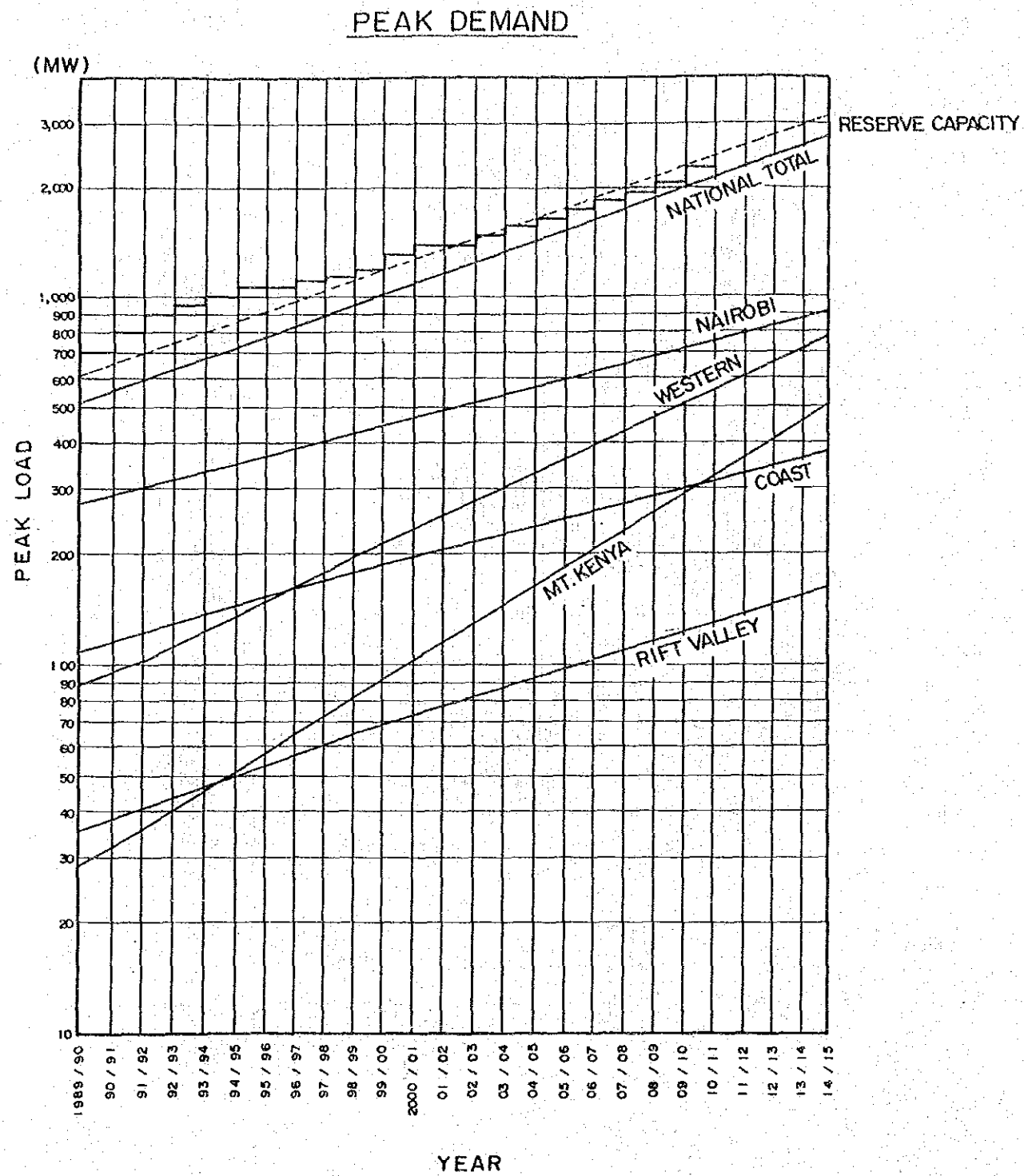
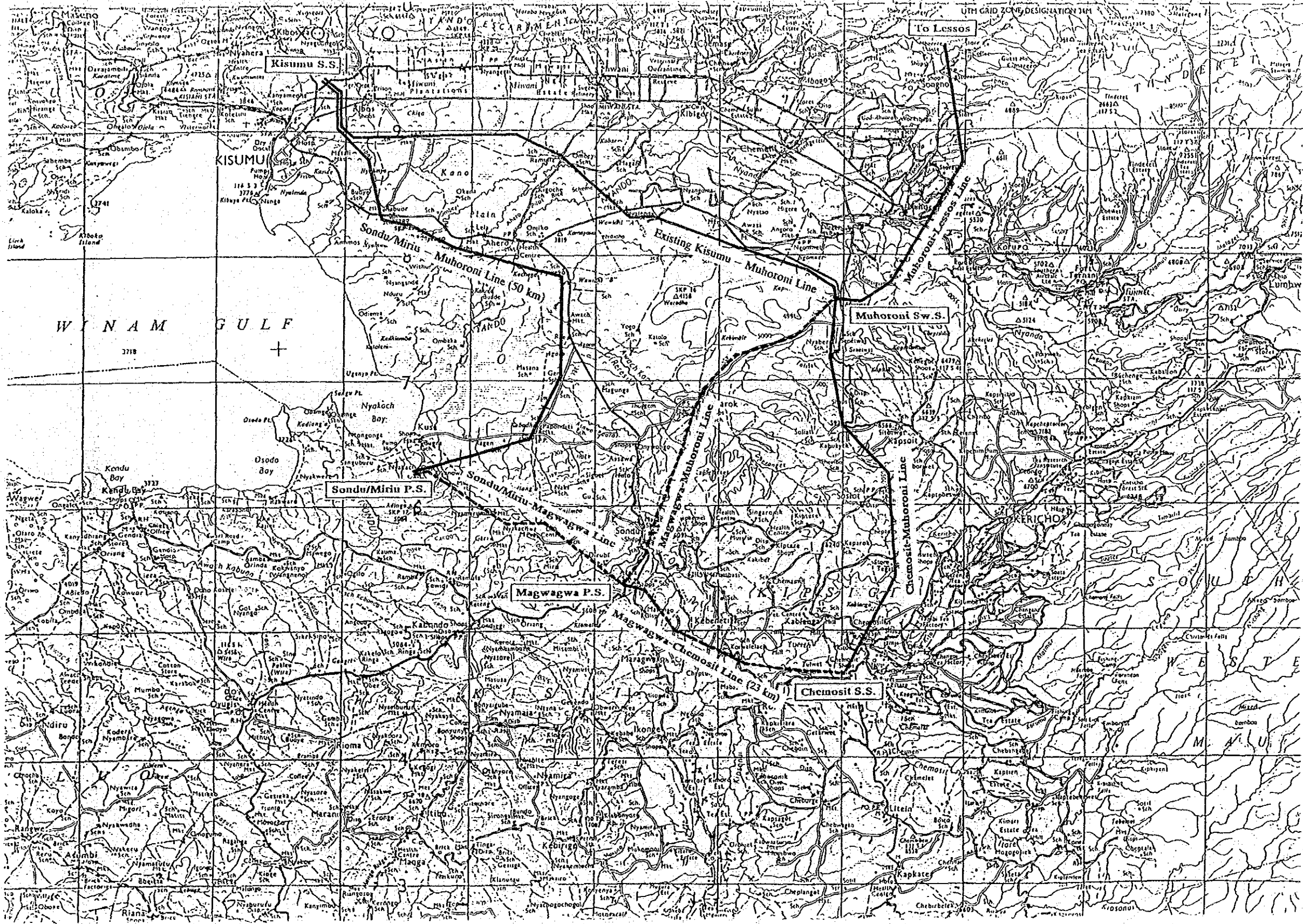


图 4.7 電力需要予測 (高)

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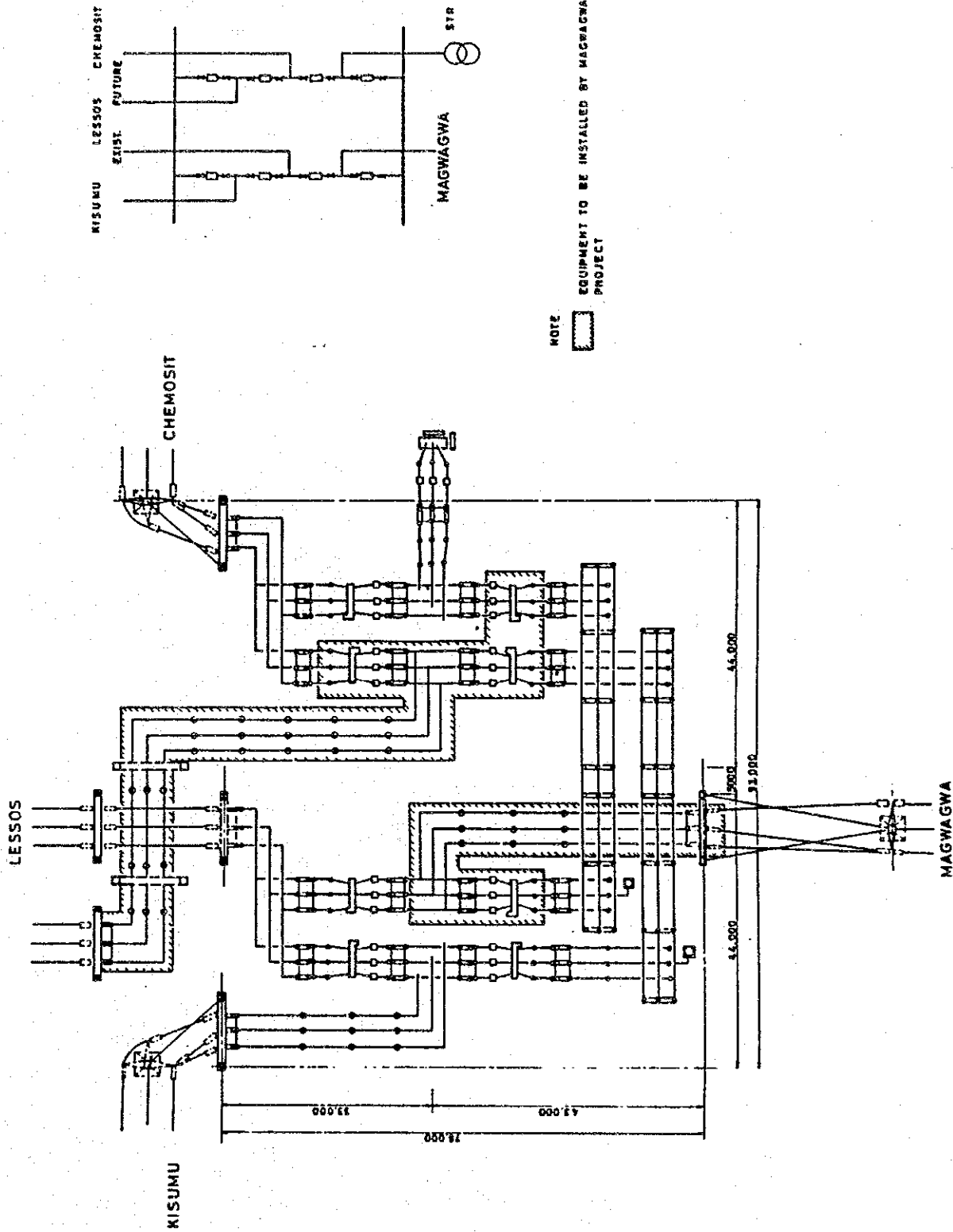
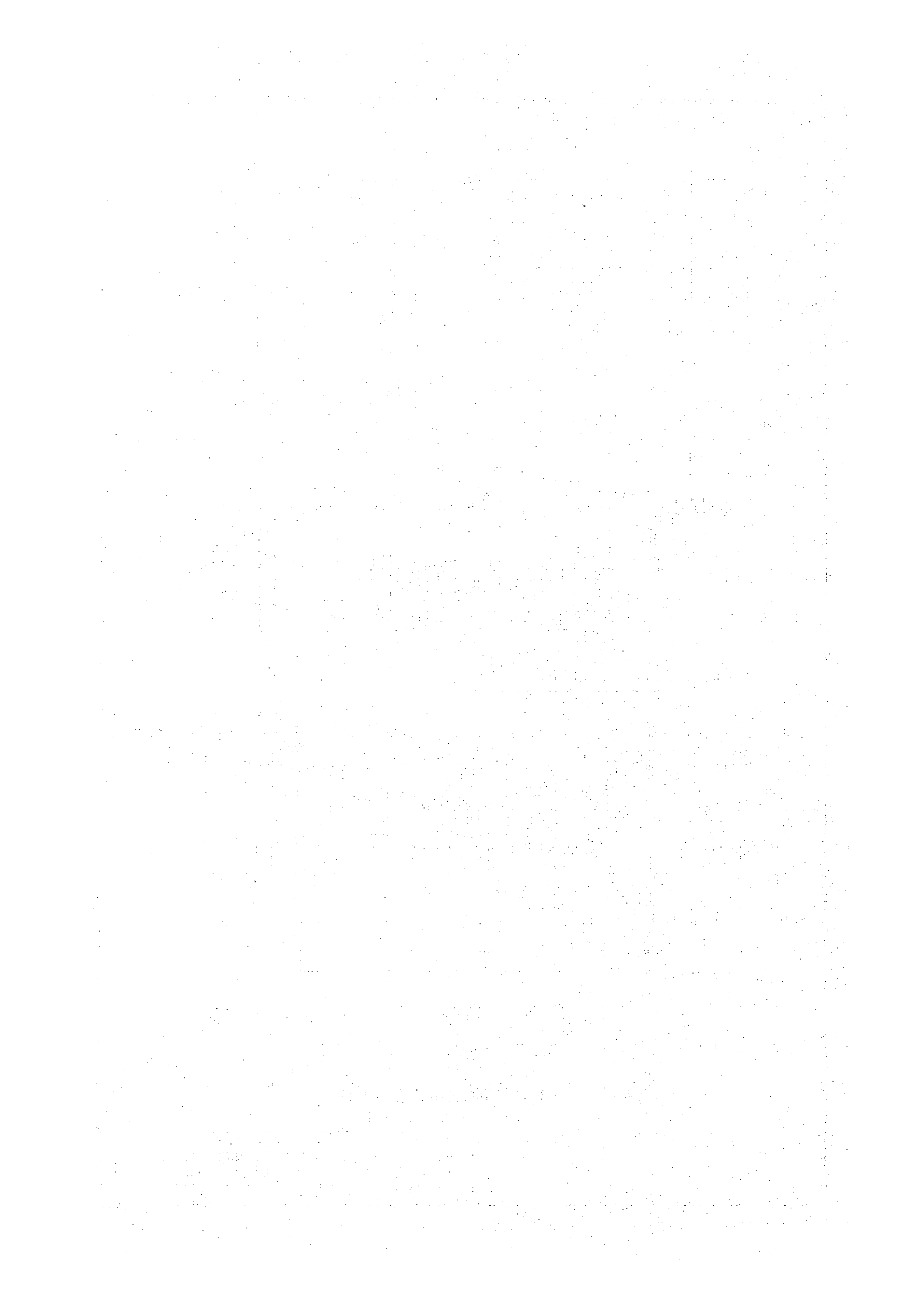
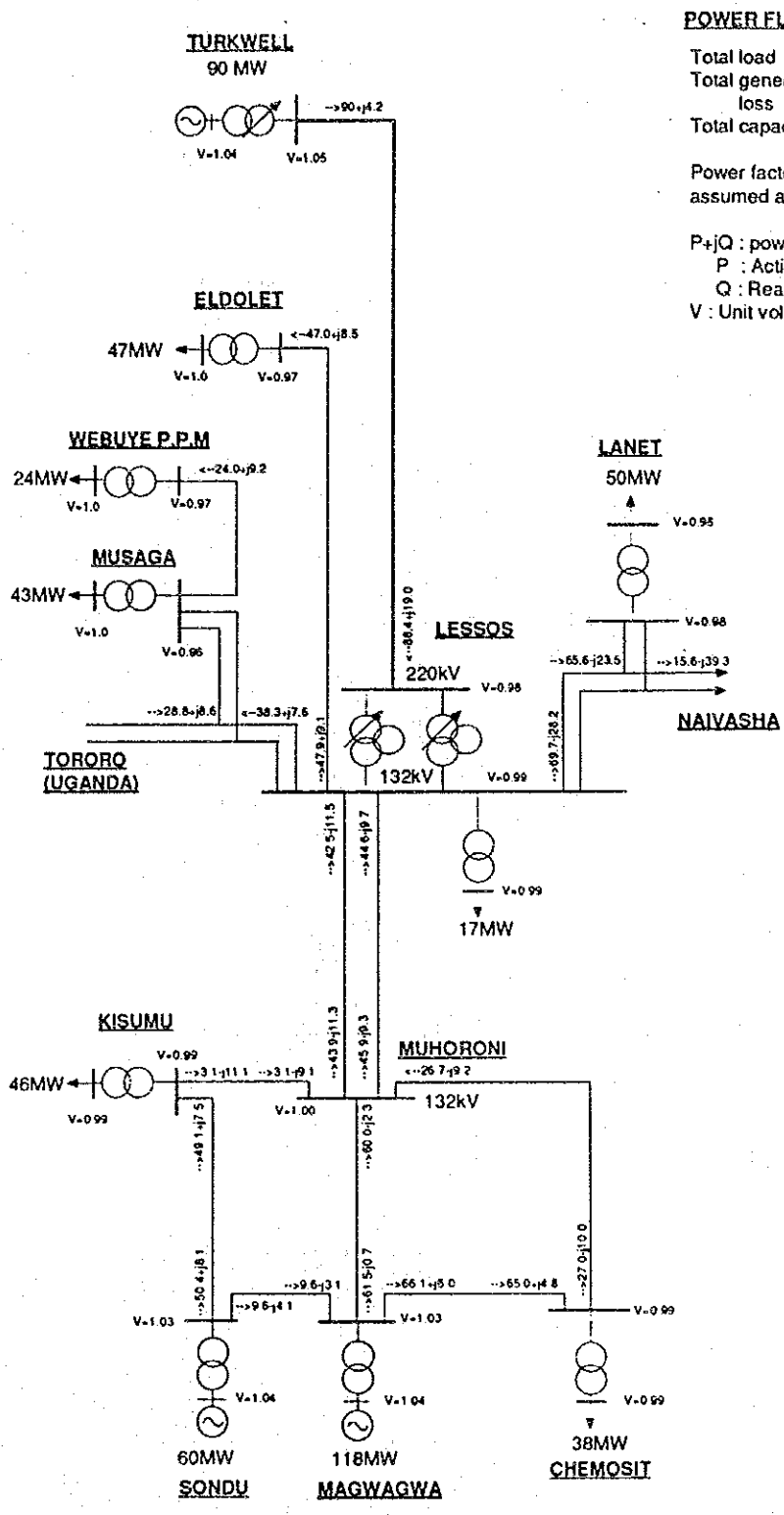


図 4.9 ムホロニ開閉所の配置図

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**POWER FLOW in 2002**

Total load : 1,044MW  
 Total generation : 1,090MW  
 loss : 46MW  
 Total capacitor : 55MVA

Power factor of load is assumed at 0.95.

P+jQ : power flow  
 P : Active power  
 Q : Reactive power  
 V : Unit voltage (P.U)

図 4.10 西部地区の電力流れ図

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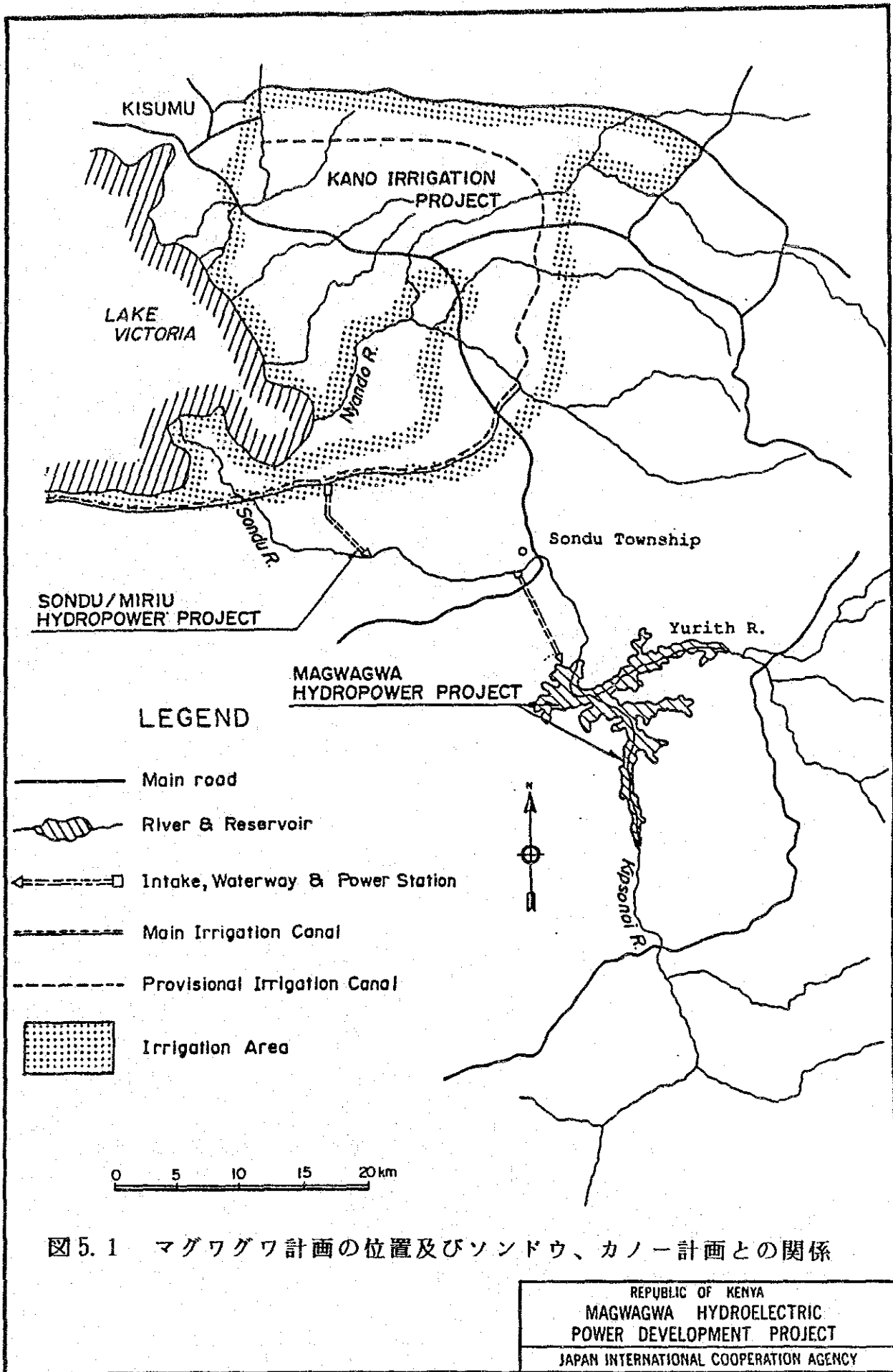


図 5. 1 マグワグワ計画の位置及びソンドウ、カノー計画との関係

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 POWER DEVELOPMENT PROJECT  
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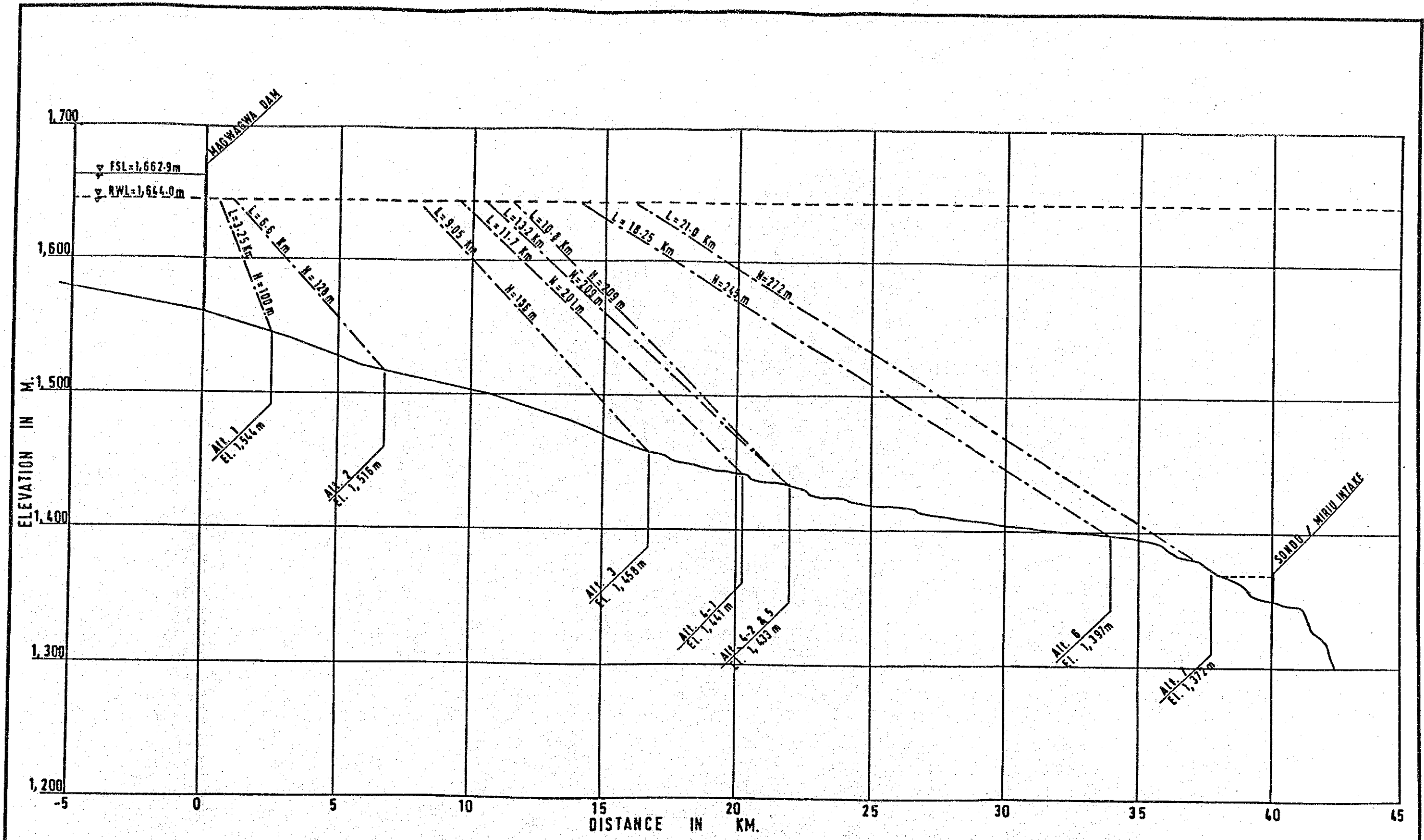


図 5.2 ソンドウ川の河道勾配

REPUBLIC OF KENYA  
 MAGWAGWA HYDROELECTRIC  
 POWER DEVELOPMENT PROJECT  
 JAPAN INTERNATIONAL COOPERATION AGENCY