

13. 要 請 書

AQUACULTURE

PROJECT

Branch of Aquatic Ecology and Fisheries  
Department of National Parks and Wildlife Management  
P.O. Zimbabwe  
May 1981.

# AQUACULTURE PROJECT

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## AQUACULTURE PROJECT

### RESEARCH AND TRAINING CENTRE

#### 1. A SYNOPTIC REVIEW OF THE FISHING INDUSTRY

##### 1.1. THE RESOURCE

Zimbabwe has three main river basins, i.e.

- (i) the Zambezi Basin in the north,
- (ii) the Sabi-Lundi Basin in the south-east,
- ) and
- (iii) the Limpopo Basin in the south.

##### 1.1.1. Capture Fisheries

The creation of reservoirs for hydro-electric power, water-supply and irrigation schemes on rivers, within these basins, gave rise to the country's four major Fisheries, namely Lake Kariba on the Zambezi river, Lakes Mollwaine and Robertson on the Inyanga river part of the Zambezi Basin and, Lake Kyle, and Manjirenji and Zanlaca on the Sabi-Lundi Basin. The sizes of these Fisheries, in surface area, together with those of other impoundments above 500 hectares are given at Appendix I.

Of the more than 100 species occurring in Zimbabwean waters, 20 (Appendix II) are of commercial importance.

Gillnets of mesh sizes 5 cm to 15 cm and beach seines are the main methods used in harvesting the resource in inshore waters. On Kariba, where a pelagic fishery comprising Limnothrissa miodon and the predacious Hydrocynus vittatus occurs, purse seines, lamparas and lift nets are also used. Subsistence fishing is done by traps, baskets and rod and line. Dug-out canoes and small dinghies are used by artisanal fishermen, while modern fibre-glass and metal boats fitted with comparatively sophisticated rigs are used by industrial private companies.

##### 1.1.2. Fish Farming

Some Semi-intensive fish culture is carried out by land-owners in commercial farming areas. These are also the areas where extensive fish-farming is being practised quite successfully. Based on the ecology of the cultivated species, Zimbabwean fish-farming can be divided into two categories, i.e.

- (i) Warmwater Fish Farming in which Cichlids and the common carp (Cyprinus carpi) are employed, and
- (ii) Coldwater Fish Farming which involves the culture of trout (Salmo gairdneri, S. irideus, etc.).

While the former is practised country-wide, the latter is restricted to the Eastern Districts of Inyanga where suitably low temperature are encountered. Initial stocks are supplied by the Department of National Parks and Wild Life Management although farmers are being encouraged to

raise their own fingerlings.

Up to this day, Fish Farming in rural areas has been neglected to the extent that it can, for all practical purposes, be regarded as being non-existent. It is in this area that Government plans to apply maximum effort in aquaculture development.

## 1.2. Fish Marketing

### 1.2.1. Fish Processing

Most of our fish are marketed fresh, deep frozen or sun-dried. Small quantities are processed by smoking but these are generally for regional or local consumption. Canning of Hydrocymus and Limnothrissa has recently been introduced on a commercial scale.

### 1.2.2. System of Marketing

In most countries the passage or movement of fish from lakes or rivers to the consumer, involves three stages, namely the producer, the wholesaler and the retailer. In this country however, the system of fish marketing for guilnet and artisanal fisheries is one in which private corporations who own and operate fishing boats, ice-plants, refrigerated trucks and fish-drying facilities are often responsible for both the production and distributions of fish to the retailers in urban areas and in some cases to commercial farmers who use the fish as part of weekly rations for their farm labourers. Some small corporations lacking processing facilities and suitable transport for distribution sell their catches to wholesalers who call at their landing sites. Kapenta (dried) are sold on site to wholesaler.

Fish prices are not controlled by Government and hence producers or wholesalers tend to sell their products in urban centres where consumers in the high-income bracket can afford the high asking prices. A recent snap survey conducted around Salisbury indicated the following average retail prices which include sales tax:

Fresh and Frozen fish:	- \$1,0 - \$1,50/kg
<u>Limnothrissa</u> : Dried:	- \$3,50/kg
(sardine)	
Canned:	- \$2,00/kg
(175 g. tins)	
<u>Hydrocymus</u> : Canned:	- \$4,50/kg
(tiger fish) (175 g. tins)	

In the Township markets, fish is sold by hand rather than by weight and as result comparison between Township and City market prices is not possible at this stage.

Fish Farmers sell their produce to hoteliers and similar institutions at mutually agreed prices. They may also derive income from the sale of permits to those wishing to fish by rod and line in their dams.

In the absence of a countrywide economic survey involving costs, and earnings within the fishing industry, it is difficult to assess the degree of justification for the current fish prices.

### 1.2.3. Annual Production and Income

Zimbabwe's fish production reached an estimated 14 000 tonnes in 1980; the highest figure on record. The lake Kariba sardine (Limnothrissa niodon) contributed about 57% of the total. This level of production represents a market value of about 16 million dollars, (£\$).

### 1.2.4. Potential Market

Between 1978 and 1980, we imported  $1\ 750 \pm 250$  tonnes of fish in various forms including dried and canned valued at 1,072 million dollars (£\$) in foreign exchange. This was in spite of local production having reached 10 000 tonnes. The bulk of the local catches and nearly all of the imported product were consumed in urban areas, leaving the rural sector in dire need of a cheap source of fish protein. Thus although no statistics are available apart from the present average per capita fish consumption estimated at 2,0 kg per annum, the extent of the potential domestic market is apparent from the fact that, the demand is greater than the supply and the potential demand far exceeds supply especially in rural areas and our population is expected to double within the next 20 years, thereby increasing demand out of proportion to the supply.

With regard to external markets, none of Zimbabwe's neighbours, with the possible exception of South Africa, is self-sufficient in fish and fish products; nor, as far as is known, are they likely to be in the foreseeable future. It can safely be said therefore that in the event of the domestic market being saturated, or the need to earn foreign exchange becoming paramount, within the next two decades, there would be no problem in finding export markets for our fish and fish products,

### 1.3. Socio-economic Benefit

Of the wide variety of socio-economic benefits that the fishing industry provides to the nation, the following are among the most important:

- (1) it provides relatively cheap yet highly nutritious protein food;
- (2) it brings additional income to farmers operating fish ponds and conservation dams;
- (3) it provides employment to several thousand of people involved in fishing, fish-processing, fish-marketing, boat-building, fishing-gear and accessories manufacture, etc;
- (4) through sport-fishing, it provides one of the nation's fastest-growing forms of recreation; with attendant economic consequences.
- (5) as a significant aspect of the country's tourist attractions, it plays a vital role in earning the country foreign exchange.

### 1.4. Administrative Organisation

#### 1.4.1. Ministry, Department and the Branch

Fisheries research, management, development and administration fall under the Branch of Aquatic Ecology (and Fisheries) of the Department of

National Parks and Wild Life Management. The Department itself is part of the Ministry of Natural Resources and Water Development.

The Branch consists of 15 graduate officers, 12 technical officers and some 30 fisheries assistants, locally known as scouts. In addition to these, administrative and other supporting staff are available directly or through the parent Department.

#### 1.4.2. Field Stations

With Headquarters in Salisbury, the Branch maintains Fisheries Stations as follows:

##### 1.4.2.1 Lake Kariba Fisheries Research Institute.

This is the largest of the field stations and is responsible for research providing the basis for management of Lake Kariba and the Zambezi river.

##### 1.4.2.2 Inyanga National Park.

This is responsible for research production and management of trout and related coldwater species.

##### 1.4.2.3 Lake Kyle (near Fort Victoria)

The station caters for the southeastern area of Zimbabwe. In addition to local species, there is in Lake Kyle a significant population of the introduced Largemouth Black Bass, Micropterus salmoides which has proved popular with anglers.

##### 1.4.2.5 Bulawayo.

This station controls fisheries and fish farming activities in the western part of the country.

#### 1.4.3. Other Administrative Institutions

Local Government bodies and Councils are concerned with direct management of smaller water bodies. Agricultural and resettlement bodies are also aware of the fisheries potential and are involved to some degree in its development.

#### 1.5. Development Plans

- 1.5.1. The overall objective is to increase the amount of fish available on a sustained basis in capture fisheries by increasing the degree of management and to develop the production of fish in the rural areas by methods of aquaculture at all levels of production.

This will result in

- (i) increased availability of protein in the rural areas,
- (ii) increase earnings by rural people,
- (iii) increased distribution of fish in more densely populated and urban areas.

dams and irrigation schemes are planned and developed.

- (ii) The intensive stocking of waters.
- (iii) The development of appropriate scale and type of aquaculture in the rural areas.

1.5.3. In order to expand in this way it will be necessary to

- (i) Undertake staff training at all levels through our own efforts and with bilateral aid,
- ii) Evaluate existing infrastructure to identify projects especially in artisanal fisheries,
- iii) Resite and build an adequate facility for the Lake Kariba Fisheries Research Institute, and to provide a better and a further range of research equipment (cost of approx \$1 million).

### 1.5.3. Aquaculture

The programme for aquaculture development is especially aimed at the development of rural areas and requires specifically the establishment of Aquaculture Research and Training Centre following feasibility studies. This centre will serve the whole country, at a later stage being linked with a network of substations.

The task of the centre will be to:-

- 1) Conduct research into the viability and applicability of different methods of fish production
- ii) Train extension workers and fish farmers in methods,
- iii) Provide a research backup for extension. Estimated cost is \$4 million to 5 million.

## 2. AQUACULTURE PROJECT

### 2.1. Justification

- (i) Aquaculture development will provide relatively cheap animal protein to the rural community amongst whom the incidence of malnutrition appears to be highest.
- (ii) It will provide employment within the rural sector and thereby curb a steady drift into urban centres by our youth, a trend which often aggravates housing-shortage, among other social problems.
- (iii) Certain types of land otherwise unsuitable for agriculture will be utilized and thus rendered economically productive.
- (iv) Fish culture will raise the level of income per hectare through the combination of crop and fish production.

- (v) It is one of the best methods of ensuring additional profitable utilization of water in crop irrigation schemes.
- (vi) On a national level, fish culture will augment fish production from Lake Fisheries and provide the rate of our population growth is kept within reasonable limits and provide further that import of luxury fish product is controlled, this may lead to a reduction in our quota of fish imports and thus save valuable foreign-exchange.

## 2.2. Aims of the Research and Training Centre

The Centre's aim will be,

- (i) to research into the economic viability of different forms of Intensive Fish Culture employing different species as well as combination and hybrids thereof. This will necessitate work on Breeding nutrition and culture systems including cage culture.
- (ii) to train potential fish farmers in proven fish culture methods;
- (iii) to provide follow-up Extension Services through staff training.
- (iv) to provide fish seed through sub-stations and main stations  
See Note 1.

## 2.3. Requirements

### 2.3.1. Land See Note 2.

Approximately 40 hectares of land will be required to be utilized as follows:

(i) Normal intensive fish culture	- 4 ha
(ii) Duck-Fish-Vegetable Unit	- 4 ha
(iii) Rice-Fish Unit	- 4 ha
(v) Cage and Enclosure Fish Culture	- 4 ha.
(vi) Dam (one large or a series of small dams)	- 10 ha
(vi) Buildings	- 4 ha.

There will be one Experimental and one Demonstration Unit each comprising the following ponds, subject to modification depending among other things, on the physical features of the selected site:

Suggested pond sizes (m<sup>2</sup>)

<u>Big Ponds</u>	<u>Small Ponds</u>	<u>Crop Land</u>	<u>Animal Houses</u>	<u>Furrows Walls, etc</u>
(i) 15 x 1000	9 x 500	-	-	500



	Big Ponds	Small Ponds	Crop Land	Animal Houses	Furrows Walls, etc.
(i)	15 x 1000 <sup>1.5</sup>	9 x 500 <sup>0.45</sup>	-	-	500
(ii)	15 x 1000 <sup>1.5</sup>	3 x 500 <sup>0.15</sup>	2500	500	500
(iii)	10 x 1000 <sup>1.0</sup>	3 x 500 <sup>0.15</sup>	8000	-	500
(iv)	15 x 1000 <sup>1.5</sup>	9 x 500 <sup>0.15</sup>	-	-	500

The remaining 10 hectares of land will be reserved for future expansion and animal grazing.

### 2.3.2. Buildings

	Estimated Cost (Z\$ x 10 <sup>3</sup> )
1 x Office/Laboratory Block with Classroom, Library and Workshop Complex .....	= 500
1 x 10-roomed Dormitory Block (with cooking and dining facilities) .....	= 75
1 x 4-roomed Rest-house (with kitchen, dining-room, lounge, etc.) .....	= 55
1 x 4-roomed Store Block (for fo K feed, fertilizer, gear, etc.) .....	= 20
Sub-Total .....	= 650

### Staff Housing

7 x High cost housing units @ \$32 each	= 224
5 x Medium cost " " @ \$21 "	= 105
50 x Low cost " " @ \$11 "	= 550
Sub-Total .....	= 879
Basic furniture (for office, hostels, etc.)	= 500
<b>Total: Buildings and Furniture</b>	<b>= 2029</b>

Estimated Cost  
(Z\$ x, 10<sup>3</sup>)

2.3.3. Equipment

Water - pumps and piping .....	= 40
10 x L.W.B. Land-Rovers/Toyota Cruisers .....	= 155
2 x Fish Tankers (Leyland?) .....	= 64
2 x Tractors with Trailers .....	= 30
1 x Mini-Bus (Toyota Coaster?) .....	= 30
1 x Rotovator/Grasscutter .....	= 12
2 x Lawnmowers .....	= 1
10 x Small dinghies .....	= 25
5 x Small fibre-glass fishing boats with 5h.p. outboard motors and fishing gear (For Dam-Fishing Demonstration) .....	= 30
Garden Tools; Fish Cans; Fencing, etc. ....	= 20
Laboratory Equipment (microscopes, calculators, scales, etc.) ....	= 155
Consumable stores .....1st. year.....	= 15
Miscellaneous Items (e.g. power lines or generators) .....	= 80
<b>Total: Equipment Approx .....</b>	<b>= 660</b>

2.3.4. Experts and Personnel Training

Since this document gives only a brief statement of the objectives of the project it is desired to undertake, assistance will also be required in the form of experts to carry out feasibility studies covering site and marketing surveys which are prerequisites to detailed project formulation. The training of a few Zimbabweans in the donor country is also considered an essential though small component of the project.

Experts

- 1 x Fish Culture Expert
- 1 x Fishery Expert
- 1 x Fish Marketing Expert
- 1 x Water Resources Expert
- 1 x Irrigation Expert

Cost

5 x 3 months = 15 man-months @ 7000 = 105

Staff Training

1 x Professional Officer) 3 x 6 months = man-months  
2 x Technical Officers )  
13 man-months and fares = 20

Total Man-power Cost

125

		£\$ x 10 <sup>3</sup>
2.3.5. <u>Summary of Estimated Cost</u>		
(1) Building and Furniture		= 2050-2050
(2) Equipment		= 660 - 675
(3) Pond and Dam Construction (Including earth-moving Equipment)		= 2060 -2100
(4) Consultancy (Experts)8		= 105 - 105
(5) Training		= 20 - 10
	TOTAL	= <u>4875 -4950</u>

NOTES

1. Substations

A number of simple small substations will be established at which fish for stocking will be available and which will be used for the stocking of all waters in the area. Additional such units will be incorporated into the planning for dams and irrigation schemes. These are not pure of the financial implications here.

2. Siting

The Institute will be sited in the lower warmer South East Region. The best possibilities are afforded by siting downstream of a dam serving an irrigation development scheme or on a feeder canal.

The best possibility is below the Manjirenji dam.

APPENDIX I

Some of Zimbabwe's Major Reservoirs Grouped

According to Size and Location

RESERVOIRS

In or Touching on TTLs

In ICAs

2 000 ha. and Above

Variba - 260 000

Robertson - 8 100

Ayle - 9 105

McIlwaine - 2 630

Manjichenji - 2 023

1 000 ha. and Above

Ruti - 1 500

Sebakwe - 1 518

Bangala - 1 133

Mayfair - 1 250

800 ha. and Above

Ingwezi - 850

Siya - 810

500 ha. and Above

Maitenga - 500

Mosma Upper - 765

Lesapi - 615

Ngezi - 580

Falowan - 565

Mapongolwe - 525

Nearest TTL/ .....

APPENDIX II  
Commercially Important Species

<u>FAMILY</u>	<u>SPECIES</u>
<u>CICHLIDAE:</u>	<u>Tilapia rendalii</u> <u>Sarotherodon mossambicus mortimeri</u> <u>Sarotherodon parochir</u> <u>Haplochromis codringtoni</u>
<u>CHARACIDAE:</u>	<u>Hydrocynus vittatus</u>
<u>CLUPEIDAE:</u>	<u>Limnothrissa miodon</u>
<u>CLARIIDAE:</u>	<u>Claris gariepinus</u> <u>Heterobranchus longifilis</u>
<u>DISTICHODONTIDAE:</u>	<u>Distichodus mossambicus</u> <u>Distichodus shenga</u>
<u>SCHILBEIDAE:</u>	<u>Eutropius depressirostris</u> <u>Schilbe mystrus</u>
<u>MORAYRIDAE:</u>	<u>Morayrus deliciosus</u> <u>Morayrus longirostris</u> <u>Hippopotamyrus discorynchus</u> <u>Marcusenius macrolepidotus</u>
<u>CYPRINIDAE:</u>	<u>Labeo altivelis</u> <u>Labeo congoro</u>
<u>MOCROKIDAE:</u>	<u>Synodontis sarbezensis</u>
<u>MALAPTERURIDAE:</u>	<u>Malapterurus electricus</u>

APPENDIX III (a)

STAFF REQUIREMENTS (Local)

(a) Professional & Technical

- 1 Senior Ecologist (Officer-in-charge)
- 2 Professional Officers increasing to 5
- 2 Technical Officers increasing to 5
- \*2 Artisans (1 motor mechanic, 1 electrician)
- 3 Junior Technical Officers increasing to 5
- 15 Scouts
- 20 C.D. Es (Classified Daily Employees)

(b) Administrative

- 1 Clerical Officer
- 1 Stenographer/Secretary
- 2 Typists
- 1 Office Orderly

(c) Trade-Tested Workmen

- 5 x Drivers for vans, tankers and bus
- 2 x Tractor drivers
- 1 x Brick-layer
- 1 x Plumber
- 1 x Carpenter
- 2 x Hostel cooks

APPENDIX III (b)

STAFF

Senior Ecologist

Secretary

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Professional Officer  
(Fish Culturist)

Professional Officer  
(Agriculturist)

Technical Officer \*Motor mechanic

\*Electrician

Technical Officer

Junior Technical Officer

Clerical Officer

Junior Technical Officer

Scouts

Drivers Plumbers Cook

Typist Bricklayer Carpenter

Scouts

C.D.Es.

Office Orderly

C.De.Es.

\* To be provided through Central Mechanical  
Equipment Department.

## 14. ミニッツ案

### MINUTES OF MEETING

#### ON

#### PRELIMINARY STUDY ON THE ESTABLISHMENT OF AQUACULTURE CENTRE PROJECT

In response to the request made by the Government of the Republic of Zimbabwe, Japan International Cooperation Agency (JICA), the official agency responsible for the implementation of technical cooperation program of the Government of Japan, has conducted the preliminary study for the Establishment of Aquaculture Centre Project at Triangle in close cooperation with the Zimbabwean Authorities concerned.

The team headed by Mr. T. MARUYAMA, Technical Officer, National Research Institute of Aquaculture, Ministry of Agriculture Forestry and Fisheries, stayed from September 14, 1982 to September 23, 1982, and completed a series of meeting and site visits with the Zimbabwean team headed by the Secretary for Natural Resources and Tourism, (List of members is attached Appendix A)

Both sides herewith confirmed the following points:

1. Basic Concept of the Centre is as follows,

(1) Role of the Centre.

According to the development plan of the Government of the Republic of Zimbabwe, a number of reservoirs, both large and small, will be built throughout the country particularly in the lowveld of Victoria Province. The programme is designed to increase food production through irrigation, fisheries and other schemes. The role of the centre will be to fulfill this Government policy through the provision of high quality animal protein in the form of fish, while at the same time providing employment to the rural community.



(2) Activities of the Centre.

The centre will serve the following functions:-

- (i) production of fish seed for stocking dams and reservoirs,
- (ii) to conduct basic and applied research to increase fish production,
- (iii) to demonstrate and train peasant farmers in various forms of aquaculture and fish seed production.

(3) Operation and Management Plan of the Centre.

As for the project organisation, the Branch of Aquatic Ecology and Fisheries within the Department of National Parks and Wildlife Management is in direct charge of the project and the necessary staff and budget for the project will be appropriated to the Branch to ensure the project operation.

(4) Location of the Centre.

The Survey Team visited the proposed site on Triangle Estate and had no objection to the Centre being established there.

2. The Government of the Republic of Zimbabwe will take the following necessary measures to enable the Government of Japan to take initial steps to prepare the basic design for the construction of the centre.

- (1) to complete and provide the result of topographic survey 1 : 1000 at 20m interval (estimated cost \$400.0)
- (2) to ensure that adequate water supply will be available from the Kyle canal to the project site

(3) to take necessary steps to acquire land (about 50 ha) on the proposed site.

3.(a) Japanese team has recognized the necessity of the Aquaculture Centre and will recommend to the Government of Japan that the Basic Design Study Team shall be assigned as soon as possible.

(b) In the event that the Government of Zimbabwe is unable to meet the costs of the topographic survey referred to in Article 2(i) the Japanese Government shall endeavour to meet that cost.

September, 1982

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TAMEZO MARUYAMA  
JICA TEAM - LEADER

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SECRETARY FOR NATURAL RESOURCES  
AND TOURISM.

APPENDIX A

JAPANESE TEAM

Mr. Tamezo Maruyama	Team Leader	Technical Officer National Research Institute of Aquaculture, Ministry of Agriculture, Forestry and Fisheries.
Mr. Takeshi Komori	Coordinator	Staff in charge of Basic Design Grant Aid Department, Japan International Cooperation Agency.

ZIMBABWE GOVERNMENT TEAM

Dr. D.M. Chavunduka	Secretary	Natural Resources and Tourism.
Dr. F. Mbengo	Deputy Secretary	"
Dr. G.F. Child	Director	National Parks and Wildlife Management.
Dr. W.K. Nduku	Deputy Director	"
Mr. A.B.E. Mabaye	Chief Ecologist (A)	"
Mr. P.J. Thomson	Senior Ecologist	Victoria Province.

COMMERCIALY IMPORTANT SPECIES

A. WARMWATER FISH

<u>FAMILY</u>	<u>SPECIES</u>	<u>COMMON NAME</u>
CICHLIDAE:	<u>Tilapia rendalli</u>	Redbreasted tilapia
	<u>Oreochromis mortimeri</u>	Kariba tilapia
	<u>Oreochromis mossambicus</u>	Mosambique tilapia
	<u>Oreochromis macrochir</u>	Green headed tilapia
	<u>Serranochromis codringtoni</u>	Green "happy"
CHARACIDAE:	<u>Hydrocynus vittatus</u>	Tiger Fish
CLUPEIDAE:	<u>Limnothrissa miodon</u>	Kapenta
CRARIDAE:	<u>Clarias gariepinus</u>	Sharp tooth catfish
	<u>Heterobranchus longifilllis</u>	Vundu
DISTICHODONTIDAE:	<u>Distichodus mossambicus</u>	Nkupe
	<u>Distichodus schenga</u>	Chessa
SCHILBEIDAE:	<u>Eutropius depressirostris</u>	Butter catfish
	<u>Schilbe mystus</u>	Silver catfish
MORMYRIDAE:	<u>Mormyrops deliciosus</u>	Cornish Jack
	<u>Mormyrus longirostris</u>	Bottlenose
	<u>Hippopotamyrus discorynchus</u>	Zambeze parrotfish
	<u>Marcusenius macrolepidotus</u>	Bulldog
CYPRINIDAE:	<u>Labeo altivelis</u>	Hunyani Salmon'
	<u>Labeo congoro</u>	Purple labeo
MOCHOKIDAE:	<u>Synodontis zambezensis</u>	Brwon Squeaker
MALAPATHERURIDAE:	<u>Malapterurus electricus</u>	Electric catfish

B. COLDWATER FISH

<u>FAMILY</u>	<u>SPECIES</u>	<u>COMMON NAME</u>
SALMONIDAE:	<u>Salmo gairdnerii</u>	Rainbow trout
	<u>Salmo trutta</u>	Brown trout
	<u>Salvelinus fontinalis</u>	Brook trout

## 15. 資料目錄

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10. Climate Handbook of Zimbabwe April, 1981
11. Rainfall Report Season 1980/81
12. Fish Farming issued by the Department of National Parks and Wild Life  
Management
13. Kariba Studies Paper No. 10
14. The Rhodesia Science News Vol. 13, No. 4
15. Electricity Supply Commission - Tariff Leaflet
16. 1:250,000 MAP, Fontvictoria, Chipinga, Nuanetsi, Chiredzi
17. MAP for Administrative Provinces and Districts
18. Provisional Soil Map
19. Map for Natural Regions and Farming Areas
20. Map for Hydrological Zones
21. Map for Land Allocation

第1表

LARGE DAM SITES. DIVISION OF DEVELOPMENT  
 (VICTORIA州を除く) 所管の既設および建設計画中DAM数,面積一覽

記号	番号	名称	河川名	面積 Km <sup>2</sup>	既設
AB	1 10	GOURLAY'S BLOCK	BUBI	480	
AB	2 10	INGWEGWEZI	BEMBEZI	1,554	
AB	2 15	INOVA	BEMBEZI	1,840	
AB	3 10	NGWENYA	BEMBEZI	48	
AB	3 20	CHARLIESONA	BEMBEZI	754	
AB	3 30	POLLARDS	INGWEGWEZI	285	
AD	10	DEKA	DEKA	1,940	
AG	1 10	BEMBESI	GWAI	14,730	
AG	1 15	LUPANI	GWAI	18,852	
AG	1 20	DAHLIA	GWAI	20,838	
AG	1 25	GWAI-SHANGANI	GWAI	38,743	
AG	1 30	KAMATIVI MINE	KAMATIVI	23	
AG	2 10	GWAI-UMGUSA	GWAI	8,124	
AG	3 10	UMGUSA UPPER DAM	UMGUSA	405	
AG	3 15	UMGUSA LOWER DAM	UMGUSA	486	
AG	3 20	FUNDISI DAM	KOSE	331	
AG	3 25	PAMPOENPORT DAM	KOSE	517	
AG	3 30	UMGUSA RANCH	UMGUSA	1,517	
AG	3 40	ESPERANZA	UMGUSA	2,194	
AG	4 10	GWAI-KHAMI	GWAI	3,134	
AG	5 10	KHAMI DAM	KHAMI	311	
AG	5 20	BONISA DAM	MPAPOMA TRIB	31	
AG	6 10	UMGULULU DAM	GULULU	67	
AG	6 20	GWAI UPPER	GWAI	798	
AIN					
AK					
AL	10	ENTUBA	LUKOSI	1,456	
AM					
AN	10	MANANDA DAM	NATA	383	
AR	10	PUZIRUHURU	RUZIRUHURU	189	
AR	15	NABUSENGA DAM	NABUSENGA	27	
AS	1 10	KANA	KANA	1,401	
AS	2 10	JOTSHOLO	SHANGANI	14,862	

記号	番号	名称	河川名	面積 Km <sup>2</sup>	既設
AS	3 10	WARRENDER	GWELO	142	
AS	3 13	ANCHOR YEAST	NCAMO	93	
AS	3 15	INSUKAMINI	NGAMO	219	
AS	3 17	DEANFIELD	INGWENYA	31	
AS	3 20	HOZORI	GWELO	1,710	
AS	3 30	EXCHANGE BLOCK	GWELO	2,590	
AS	4 10	NKAI	SHANGANI	5,750	
AS	5				
AS	6 10	LEECHDALE	SHANGANI	194	
AS	6 20	TIYABENZI DAM	SHANGANI-	1,039	
AT	10	NDOLWANE	TEGWANE		
AT	20	MAITENGWE	TEGWANE	1,347	
AZ	1				
AZ	2				
AZ	3 20	SENGWA GORGE	SENGWA	8,060	
AZ	3 25	PASIPAMERE	SENGWA		
AZ	4 50	DOMOREHOTO	UME	5,010	
BB	1 5	BONAMGOMBIE	BUBYE	4,309	
BB	1 20	BUBYE LOWER	BUBYE	8,204	
BB	2				
BB	3 10	MKASHI DAM	BUBYE	231	
BB	3 20	RIPPLE CREEK DAM	BUBYE	554	
BIK	5	INYANKUNI	INYANKUNI	352	
BIN	1 10	NYAZANI	INSIZA	1,632	
BIN	1 11	GRANITE	INSIZA	1,720	
BIN	1 12	MAYFAIR	INSIZA	1,774	
BIN	1 13	MAYFAIR DAM	INSIZA	1,800	
BIN	1 15	MOSENTHALS	INSIZA	1,869	
BIN	1 20	SILALABUHWA	INSIZA	3,030	
BIN	2 10	RIXON DAM	INSIZA	531	
BL	1				
BL	2 10	THOR	LIMPOPO	200,780	
BL	2 11	BEIT BRIDGE O.R.S. N°)			
BL	3				
BM	10	BLANKET & SHEET DAMS	MJENI	518(B) 434(S)	

記号	番号	名称	河川名	面積 Km <sup>2</sup>	既設
BN	3 20	BELINGWE	NUANETSI	1,652	
BNC	5	ESSEXVALE N° 16	NCEMA	198	
BNC	7	ESSEXVALEN° 9	LUNGA	160	
BNC	8	UPPER NCEMA DAM	NCEMA	643	
BNC	9	NCEMA DAM	NCEMA	713	
BR	25	YASHO	INGWESI	185	
BR	10	UMHLANGWA	UMHLANGWA	85	
BR	20	EMPANDINE	INGWEZI	504	
BR	30	FALLOWFIELD	INGWEZI	632	
BR	40	INGWEZI	INGWEZI	847	
BR	50	MBAKWE MISSION DAM	TRIB. UMPAKWE	41	
BR	40	MADABE DAM	RAMAQBANE	212	
BS	1				
BS	2 10	LINGWE	SHASHANI	987	
BS	2 30	KAFUSI	KAFUSI	510	
BS	3 10	MT. EDGECOMBE	SHASHANI	334	
BS	3 20	NTABAZAMANYONI	SHASHANI	590	
BT	4 10	MOTOPOS DAM	MALEME TRIB	10	
BT	4 30	MAIZANA	MTSHELELE	914	
BT	5 20	MAKWE DAM	TULI	773	
BUZ	1 10	MAKADO RANCH DAM	TSHABA	699	
BUZ	1 20	HOBİ	UMZINGWANE	12,797	
BUZ	1 25	TONGWE	TOMGWE	518	
BUZ	1 27	LUVULE	MTETENGWE	1,800	
BUZ	2 10	OAKLEY BLOCK	UMZINGWANE	7,650	
BUZ	2 20	DODDIEBURN	MTSHIBIZINI	512	
BUZ	2 30	SIYOKA	UMZINGWANE	10,282	
BUZ	3 10	GLASS BLOCK	UMZINGWANE	2,380	
BUZ	4 10	UMZINGWANE DAM	UMZINGWANE	407	
CA	1				
CA	2 10	NYAMAKARI (U&L)	ANGWA	789(U) 871(L)	
CA	2 20	ANGWA	ANGWA	2,934	
CA	2 30	KARO W/S DAM	KATOMBAODZI	18	
CA	2 32	BLOCKLEY	MIAMI	80	
CA	2 35	SAN MICHELE	NYARUMANDA	126	
CHI	10	DANDE	DANDE	1,277	



記号	番号	名称	河川名	面積 Km <sup>2</sup>	既設
CH	2 10	RED ACRES	CHISANCA	22	
CH	2 15	KELSTON PARK	MESITWE	465	
CH	2 20	MUSOORIE	TRIB MATORASHANGA	12	
CH	2 30	NYAKAPUPU	HUNYANI	9,894	
CH	3 20	BIRI	HUNYANI	4,983	
CH	3 25	CHIMWEMWE DAM	DONDO	91	
CH	3 30	TUINPLAATS DAM	DORA	22	
CH	3 35	MUNENI (BANKET W/S) DAM	MUNENI	199	
CH	3 45	MUKWADZI (UP & LR)	MUKWADZI	281(U) 304(L)	
CH	3 50	RATHGAR (REJECTH)	MUKWADZI	425	
CH	3 55	AYRSHIRE UPPER MAZWIKADEI	MUKWADZI	1,127	
CH	3 60	AYRSHIRE TENNSSEE	MUKWADZI	1,128	
CH	3 65	AYRSHIRE LOWER CHEMBADZI	MUKWADZI	1,161	
CH	3 70	GLYN-A-MEL	HUNYANI	7,819	
CH	4 10	HUNYANI PORT	HUNYANI	2,227	
CH	4 20	COLLECE	GWEBI	186	
CH	4 30	DARWENDALE DAM	HUNYANI	3,792	
CH	5 10	HENRY HALLAM DAM	HUNYANI	2,227	
CH	5 15	PRINCE EDWARD DAM	HUNYANI	722	
CUF	1 30	SISIJE	UMFULI	11,840	
CUF	2 13	HIPPO POOLS	UMFULI		
CUF	2 14	AITAPE	UMFULI	5,683	
CUF	2 16	FOPOGENA	UMFULI	5,690	
CUF	2 20	SURI-SURI DAM	SURI SURI	260	
CUF	2 21	KASAMA	MSWENZI	82	
CUF	2 22	STRATHSPEY	MSWENZI	94	
CUF	2 25	JOHANINADALE	UMFULI	6,115	
CUF	2 30	MUSENGESI (FROG MINE)	UMFULI	7,774	
CUF	3 5	CHIBERD COLLEGE	NYAWNE	78	
CUF	3 10	MONDORO	UMFULI	3,460	
CUF	3 15	LOTHIAN (UP & IR)	UMFULI	3,723	
CUF	3 16	ESSEX	UMFULI	3,768	
CUF	3 18	MAYHARDS WEIR	UMFULI	3,908	
CUF	3 19				

記号	番号	名称	河川名	面積 畝	既設
CUF	3 20	SEIGNEURYLR	UMFULI	4,250	
CUF	3 25	KENT ESTATE DAM	NYAMAKARI	21	
CUF	3 30	SERUI	SERUI	576	
CUF	3 35	CHINAVOTI	CHINAVOTI	84	
CUF	3 40	POOLE	UMFULI	5,069	
CUF	3 19	RUTARA	CHIRUNDAZI		
CUF	4 30	CARNATHY	NYAYMAZARA	92	
CUG	1				
CUG	2 5	EASTWOLDS	MUSENGEZI	110	
CUG	2 10	PEMBI	PEMBI	40	
CUG	2 18	ARANBIRA	MUSENGEZI	700	
CUG	2 20	BIRDWOOD	MUSENGEZI	720	
CUG	2 21	SILVERSTRCOM	MUSENGEZI	728	
CUG	2 23	BUMURURU	MUSENGEZI	830	
CUG	2 25	GIWONDE	MUSENGEZI	900	
CUN	1 7	NGONDOMA	NGONODOMA	1,054	
CUN	1 10	UMNIAT-NGONDOMA	UMNIATI	20,180	
CUN	1 15	LODESTAR WEIR	UMNIATI	20,160	
CUN	1 20	RODBS DRIFT	UMNIATI	21,332	
CUN	1 30	SAKURGWE	UMNIATI	23,542	
CUN	1 40	NYONDI	UMNIATI	23,115	
CUN	2 20	ENPRESS NICKEL MINE	UMNIATI	14,210	
CUN	3 5	UMSUNGWE	SHUNGWE	195	
CUN	3 16	NYABONGWE (UP & LR)	BEMBEZAAN	560(U) 570(L)	
CUN	3 20	DUTCHMAN'S DOOL DAN	SEBAKWE	4,298	
CUN	3 30	SEBAKWE POORT	SEBAKWE	4,434	
CUN	3 33	WHITEWATERS DAM	KWE KWE	250	
CUN	3 35	MLEZU *SEE BELOW	MLEZU	124	
CUN	3 40	CACTUS POORT DAM	KWE KWE	1,280	
CUN	3 45	RISCO UPPER	KWE KWE	1,300	
CUN	3 50	SUNNYMEAD	NJOMANE TRIB	52	
CUN	3 55	RISCO LOWER	KWE KWE	1,450	
CUN	3 60	GREENHAM	KWE KWE	1,840	
CUN	3 65	RHINO	RHINO	124	
CUN	3 37	MUCHAKATA	KWE KWE	590	
CUN	4 01	RANGE	SEBAKWE	60	

記号	番号	名称	河川名	面積 Km <sup>2</sup>	既設
CUN	4 10	ORTON'S DRIFT	SEBAKWE	987	
CUN	4 12	GOBERA	SEBAKWE	1,437	
CUN	4 13	CENTRAL ESTATES	SEBAKWE	1,543	
CUN	4 15	ATHENS MINE	NYAMAFUFU	70	
CUN	4 20	MVURACHENA	SEBAKWE	2,474	
CUN	4 30	SEBAKWE DAM	SEBAKWE	2,705	
CUN	5 10	NGESI POORT	NGESI	639	
CUN	5 20	NGESI DAM	NGESI	1,350	
CUN	6 10	MWENEZI	UMNIATI	1,717	
ACUN	6 20	MHLABA SUSAMOYU	UMNIATI	2,760	
BCUN	6 20	CIRCLEG	"	"	
CCUN	6 20	WINDSOR	"	"	
CUS	5	FARA 8A	MANZIMHLOPE	38	
CUS	7	BEXHILL	MOMBE TRIB	47	
CUS	8	TIVERTON	MOMBE		
CUS	10	ACORN	UMSWESWE	2,262	
CUS	12	DOREEN'S PRIDE	MUFTI	60	
CUS	14	CLAW	UMSWESWE	2,381	
CUS	15	LION (REJECTED)	UMSWESWE		
CUS	18	SILVER KING	WHITEWATERS	122	
CUS	20	LEOPARD	UMSWESWE	2,980(U)	
CZ	1 10	KARIBA DAM	ZAMBEZI	514,892	
CZ	2 10	REKOMITJE	REKOMITJE	366	
DIY	1 10	UMWINDSI	UMWINDSI	118	
DIY	1 20	CHABWIND DAM * SEE BELOW	MUKWENI	61	
DIY	1 25	MSINJE DAM	SISWA	9	
DIY	1 27	ALDERLEY	MABFEN	82	
DIY	1 28	ATLANTA	MABFEN	101	
DIY	1 30	LION'S HEAD UP.	UMWINDSI	867	
DIY	1 40	LION'S HEAD LR. DELETE IN FAVOUR OF DIY 30	UMWINDSI	931	
DIY	1 43	UMWINDSI-HYAGU	HYAGUI		
DIY	1 45	MREWA	CHIVAKE	95	
DIY	1 47	CHIBVI DIP	CHENJERA	41	
DIY	1 50	NYAGUI-MAZOE	NYAGUI	4,750	
DIY	1 22	MARDEN-SWISWA	MUNENGA	126	

記号	番号	名称	河川名	面積 Km <sup>2</sup>	既設
DIY	2 5	NYAKAMBIRI	SHAVANHOHWE	960	
DIY	2 10	SHAVANHOHWE	SHAVANHOHWE	1,200	
DIY	2 20	MASANI NO. 1	SHAVANHOHWE	1,038	
DIY	3 10	NYAMBUYA DAM	NYAMBUYA	70	
DIY	3 20	BOTHA'S RUST	NYAMBUYA	166	
DIY	3 30	CHINYIKA FALLS	CHINYIKA	302	
DIY	3 37	PAUL'S POST	NORA	102	
DIY	3 38	SHANGURE	NOREA	191	
DIY	3 40	DOMBOSVIPA	NYAGUI	1,418	
DIY	3 45	MANDINDINI	NYAGUI	1,508	
DM	1 10	NYADIRE	MAZOE	19,219	
DM	2 10	FROGMORE DAM	RUYA	96	
DM	2 30	CHITSE	RUYA	3,092	
DM	3 5	EBEN DAM	MUFURUDZI	290	
DM	3 10	SWISWAMAYO	MAZOE	10,951	
DM	3 20	GWATERA	MAZOE	11,137	
DM	4 10	BINDURA	MAZOE	2,486	
DM	4 20	MARAMBA	MAZOE	9,778	
DM	5 10	GOSFORTH	POTE	258	
DM	5 12	WISE ACRE	POTE	307	
DM	5 15	RUWANGA	TRIB NYAMASANCA	21	
DM	5 18	CHAVADZIMU	NYAURI	320	
DM	5 20	POTE A, B & C	POTE	813(A) 815(B) 995(C)	
DM	6 10	YELLOW JACKET	MAZOE TRIB	75	
DM	7 10	MAZOE DAM	MAZOE	342	
DM	1 5	MASUNZWA	NYAMATANDA		
DM	1 10	CHITISA	CHITISA	27	
DM	1 20	KUDZWE	KUDZWE	72	
DM	2 10	HOYUYU	NYAZIKATZE	170	
DM	2 15	SELOUS NEK ESTATE	NYAMSHUPA	98	
DM	2 18	MASANHI	NYATANCA	61	
DM	2 20	NYADERI MISSION	NYADJRI	1,672	
DR	1 15	NYARUCHENA	NYARUCHENA		
DR	1 25	KOTWA	NYAMUUNGA	55	
DR	2 20	MAKATE	RUENYA	9,016	

記号	番号	名称	河川名	面積 Km	既設
DR	2 10	RUENYA	RUENYA		
DR	3 20	NYAHEZI	INYAMASIZI		
DR	3 60	BANZI	INYAMASIZI		
DR	4 10	CHIDZIMBA	NYANGADZI	274	
DR	4 15	ROYAL VISIT	MAFURI	190	
DR	4 20	TWO STREAMS	NYNDORA	260	
DR	4 25	VIRGINIA	SUKANDORA	120	
DR	4 40	ROTARY	NYANGADZI		
DR	4 60	BUMURWE	NYANGADZI		
DR	5 10	MARINGOWE	MWARAZI	85	
DR	5 20	MWARAZI	MWARAZI	280	
DR	5 25	EXCELSIOR	MUKOOI		
DR	5 30	TANDA	MWARAZI	837	
DR	5 40	INYASURE	INYAHOI	69	
DR	5 50	MATUKA	NYADIMBA	27	
DR	5 60	DEVERWE	DEVERWE	38	
DR	6 10	CLAREMONT DAM	MARORO	144	
DR	6 15	UDU VALLEY DAM	UDU	114	
DR	6 20	WITHINGTON	INYANGOMBI	235	
DR	6 30	ZIMBITI	INYANGOMBI	1,968	
DR	6 40	MUPERE	INYAWARU	100	
DR	6 45	MAUNGA	INYAWARU	156	
DUR	1 10	MWENJE DAM	NWENJE	557	
DUR	2 10	CONCESSION	UMRODZI	675	
DUR	3 10	JUMBO	MARODZI	168	
DUR	4				
FC	1 35	ESSANBY	CHIPIMBI	91	
EC	1 40	MALILLANGWA	NYAMASAKANI	168	
EC	2 25	MCHENI		480	
FL	4 7	AMAPONGOKWE UPPER	AMAPONGOKWE	180	
FI	4 10	AMAPONGOKWE LOWER	AMAPONGOKWE	244	
EI	4 20	LUBONGO	LUNDI	2,473	
EL	4 40	GANYE	MUSAVEZI	21	
EL	5 10	UMTEBEKWE	UMTEBEKWA	184	
EL	5 20	SELONDI	UMTEBEKWA	414	
EL	5 30	GWELO SITE NO. 3	UMTEBEKWA	570	
EL	6 10	ABERFOYLE	LUNDI	267	

記号	番号	名称	河川名	面積 Km <sup>2</sup>	既設
EL	6 15	GWENORO	LUNDI	409	
EL	6 20	IMPALI UPPER	IMPALI	44	
EL	6 25	IMPALI LOWER DAM	IMPALI	49	
EM	1				
EM	2 10	CIENFARO	CHIMBI	73	
EM	2 20	LESAPI	LESAPI	674	
EM	3 10	DOMOTOMBO	MACHEKE	1,333	
EM	3 15	LUDO	MAZI	241	
EM	3 20	CHIGARWE	MACHEKE	1,828	
EN	1 5	MCHINGWE	INGESI	3,730	
EN	2 10	MIMOSA	MCHINCWE	1,457	
EN	3 10	GHOKO	INGESI	573	
EN	3 20	PALAWAN	INGESI	1,313	
EO	1 10	MPUDZI	ODZI	4,907	
EO	1 11	CHINYAMANDA	ODZI	4,909	
EO	1 15	MUTAMBARA	UMVUMVUMU	371	
EO	2 25	ZIMUNYA A, B ANDC	MPUDZI	54.9	
EO	3 10	NYAGARI	UMTALI	37	
EO	3 15	EMBEZA VALLEY	IMBEZI	18	
EO	3 20	NGAMB	UMTALI	152	
EO	3 25	MOUNT ORASI	ODZI	3,113	
EO	3 27	WILD PARR	ODZI	3,313	
EO	3 30	MARANKE	ODZI	3,680	
EO	4 10	SIMLA	NYAMBWA	39	
EO	4 11	EASTBOURNE (UPPER)	NYAMBWA	48	
EO	4 12	EASTBOURNE (LOWER)	NYAMBWA	49	
EO	4 13	PLOTS	NYAMBWA	64	
EO	4 14	NYAMBWA	NYAMBWA	76	
EO	4 18	SMALLBRIDGE	ODZANI	49	
EO	4 19	ODZANI	ODZANI	78	
EO	4 20	ODZANI LOWER	ODZANI	151	
EO	4 25	CHAWVI	ODZANI	197	
EO	4 26	WUSEYA	ODZANI	208	
EO	5 10	MINNEHAHA	ODZI	68	
EO	5 15	NYAMSOMOKO	ODZI	153	
EO	5 18	SHITOWA	ODZI	167	
EO	5 25	MUBVUMIRA	NYATANDA	543	

記号	番号	名称	河川名	面積 Km <sup>2</sup>	既設
EO	5 20	TSONZO	ODZI		
EO	5 30	OSBORNE	ODZI	1,380	
ER	1 10	WYE VALLEY	RUZAWI	1,709	
ER	2 10	CHURCHILL	MTOROMANZI	150	
ER	2 20	SABLE	RUSAWI	380	
ER	2 35	RHODESDALE	KARIMBA	24	
ER	2 55	GULAMALAKA	CHINEKWA	65	
ES	3 25	MAKORE	MAKORE	571	
ES	3 23	SIDZA	MAKORE	394	
ES	3 55	TURGWE-HUMANI	TURGWE	3,056	
ES	4 10	RASA	DEVURE	1,116	
ES	4 15	MUNGEZI	MUNGEZI	255	
ES	4 20	PEMBESI	DEVURE	3,367	
ES	4 30	CHIRORGWE	DEVURE	6,937	
ES	5 10	RUTI	NYAZWIDZI	2,615	
ES	5 12	HERA	NYAZVIDZI	2,781	
ES	7 10	DZIDZI	MWERIHARI	1,111	
ES	7 18	DZOROVA	MWERIHARI	1,592	
ES	7 20	ROVANYATI	MWERIHARI	1,660	
ES	7 30	NYASHANU	MWERIHARI	2,309	
ES	8 10	MACHEKE	SABI	10,083	
ES	8 20	CONDO	SABI	11,071	
ES	9 30	CHIMANZA	MAZHAKATIZE	14	
ET	1 10	SANATI	TOKWE	6,454	
ET	2 30	AUSTRAL	TOKWE	627	
ET	3 10	HAMBADUNYA	SHASHE	670	
ET	3 20	CHILIMANZI	SHASHE	1,054	
ET	4 20	MHENDE	MHENDE	80	
ET	4 40	RIVER PLATE	NGFZI	1,095	
ET	5 20	OLIVER'S DRFT	TOKWE	1,064	
ET	5 25	TANA'S POOL	TOKWE	1,096	
EUT	3				
EUT	5 15	WOODLANDS	MANENDI	82	
FB	40	WOLFSCRAG	CHIPUDZANA		
FB	45	SOUTHDOWN CHIPUDZANA			
FG	1 10	NYAMAROPA REGULATING DAM	HYARUKWA TRIB	2	

記号	番号	名称	河川名	面積 km <sup>2</sup>	既設
FG	1 20	MARWE	MATIZI		
FG	1 30	MATIZI BRIDGE	MATIZI		
FG	1 40	MAJENIERE	GAIRESI		
FG	2 40	BORDERE	GAIRESI		
RH	50	NHANETE	HONDE		
FLS	30	FORTUNA	TRIB RUSITU		
FLS	35	KNUTS FORD	RUSITU		
FLS	40	MAYFIELD	CHIPITA		
FLS	55	NGORIMA	RUSITU		
FM	1				
FM	2				
FP	5	INYANGAN	MADZIMAYUYA		
FP	6	NYAZENGU	MATENDERERE		
FP	10	MATENDERERE	MATENDERERE	18	
FP	30	RUMBISA	PUNGWE		
FP	45	KATAMBARARE	NYAMKOMBE		
FP	47	SANYATSURO	NYAMKOMBE		
FUZ	20	WEST RIDING	NYAUTUTU		

DAM面積合計 1,430,634.7 km<sup>2</sup>

面積の明らかな DAM 320ヶ所

面積不明の DAM 54ヶ所



第2表

LARGE DAM SITES. VICTORIA州内の  
DIVISION OF WATER DEVELOPMENT所管DAM数,面積一覽

記号	番号	名称	河川名	面積 Km <sup>2</sup>	既設
EL	4 30	MWEDZA	LUNDI	2,590	
EL	3 10	KWEREDZI	LUNDI	3,810	
EL	3 20	SHABANI WEIR	LUNDI	3,832	
EL	3 40	NYARUSHANGWE	HYARUSHANGWE	108	
BN	2 15	MATAGA	MONDI	481	
BN	2 10	SOVELI	NUANETSI	2,832	
ET	1 5	MAPANZURE	MUSOGWESI	43	
EL	2 12	CHIPUKUSWI	LUNDI		
BN	2 25	DINE	NUANETSI	5,508	
BN	2 30	RINETTE	NUANETSI	6,000	
BB	1 5	BONAMGOMBIE	BUBYE	4,309	
EUT	4 20	POPOTEKWE	MTILIKWE	973	
EUT	2 18	FUMURE	MTILIKWE	3,989	
EUT	2 20	MANGURUNGUMA	NYAMAWANGA	299	
EUT	1 20	MAKWANGWANGA	MASHAVATWE	436	
EUT	1 30	MASHAVATWE	MASHAVATWE	539	
EUT	1 40	ESQUILINGWE WEIR	MTILIKWE	6,716	
EL	2 20	MTSITSI	LUNDI	13,290	
EC	2 13	GAVORGWE	NYATARI	146	
EC	2 10	NGOMASHA	CHIREDDZI	669	
EC	2 20	CHIREDDZI	CHIREDDZI	894	
EC	2 30	MUKOBYU	CHIREDDZI	1,110	
EC	1 15	CHITORA	MUNGWEZI	290	
EC	1 10	MAKWARINGWE	CHIREDDZI	1,700	
EC	1 20	MUNGWESI	CHIREDDZI	2,170	
EC	1 30	BUFFALO	CHIREDDZI	2,740	
ES	3 15	CHINYIKA	MUJICHE	141	
EL	1 10	HIPPO VALLEY	LUNDI	32,090	
EL	1 20	CHIPINDA POOLS	LUNDI	36,522	
BN	1 10	CHIKOMBEDZI	MUANETSI	10,828	
ES	4 40	CHISURGWE	DEVURE	7,575	
ES	4 50	CHIKANYA	DEVURE	7,888	
ES	4 55	DEVURE BRIDGE (PICK-UP WEIR)	DEVURE		

記号	番号	名称	河川名	面積 Km <sup>2</sup>	既設
ES	2 10	RUTEGENI	TANGANDA	245	
ES	2 30	CHITOWE	SABI	40,072	
ES	1 20	MKWASINI	MKWASINI	1,469	
ES	1 55	SABI SANGWE	SABI	41,982	
ES	6 15	NYAMASHANGA (PICK-UP WEIR)	SABI		
EO	1 26	NYANYADZI OFFTAKE	NYANYADZI	774	
EO	1 25	BAOBAB	NYANADZI	766	
EO	1 23	SHINJA	NYANADZI	648	
EO	1 21	NYANYADZI UPPER	NYANADZI	442	
EO	1 20	NYANYADZI BRIDGE	NYANYADZI	428	
FLS	20	WESTWARD HO	NYAHODI	241	
FB	14	GAZA	NUOKARI		
FB	18	HOMEFIELDS	NUOKARI	11	
FB	10	CHIPINGA	BUSI	27	
FB	19	BOULZIMIKI	NUOKARI		
FB	25	LANDSDOWNE	MAKARA	12	
FB	30	ESTKOL	MWARA	98	
FB	20	MIRROR	BUSI	186	
FUZ	10	GREEN VALLEY	MUSIRIZWI		
FUZ	25	NYATUTU	NYAUTUTU		
FUZ	50	NYAGADZA	NYAGADZA		
FUZ	40	UMZELEZWE	MUSIRIZWI		
FUZ	55	NDOWOYO	MUSIRIZWI		

DAM 面積合計 247,919 Km<sup>2</sup>

面積の明らかな DAM 46ヶ所

面積不明の DAM 10ヶ所

第3表

LARGE DAM SITES. SABI-LIMPOPO AUTHORITY  
 ( IRRIGATION PROJECTS ) の所管DAM数,面積一覽

記号	番号	名称	河川名	面積 Km <sup>2</sup>	既設
BN	2 20	MANYUCHI	NUANETSI	4,612	
EC	2 16	ZAKA	NYATARI	182	
EC	2 40	MANJIRENJI	CHIRENZI	1,536	既
EL	2 10	TENDE	LUNDI	12,154	既
EL	3 60	MUNAKA	LUNDI	5,950	
EN	1 10	BUHWA	INGESI	4,250	
EO	1 30	NYANYADZI	ODZI	7,207	
ES	1 10	MUKAZI	MKWASINE	437	
ES	2 20	DOTTS DRIFT	SABI	39,832	
ES	3 10	SIYA	TURCWE	518	既
ES	3 20	MUJICHI	TURCWE	1,458	
ET	1 20	MUKORSI	TOKWE	7,119	
ET	1 30	TOKWANI	TOKWANI	7,498	
ET	2 20	UMSHANDIGE	UMSHANDIGE	325	
EUT	2 10	KYLE	MTILIKWE	3,989	既
EUT	2 30	BANGALA	MTILIKWE	5,828	既
FLS	10	NYAHODI	NYAHODI	124	

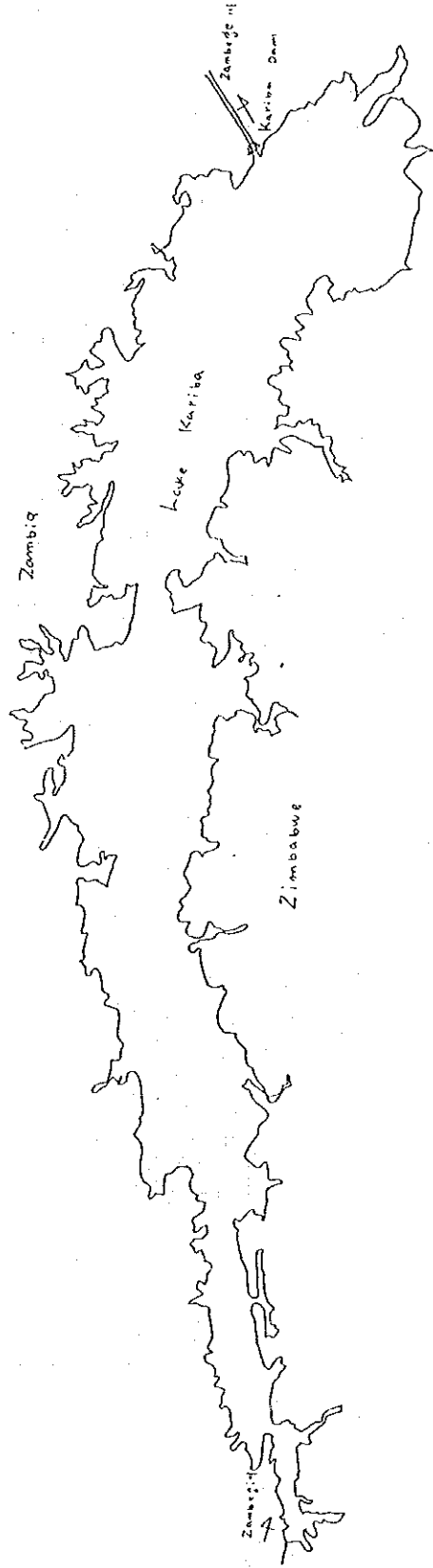
計画中 DAM 面積 78,994Km<sup>2</sup>  
 既設 DAM 面積 24,025Km<sup>2</sup>  
 面積合計 103,019Km<sup>2</sup>

第1图

ZIMBABWE 共和国州别图



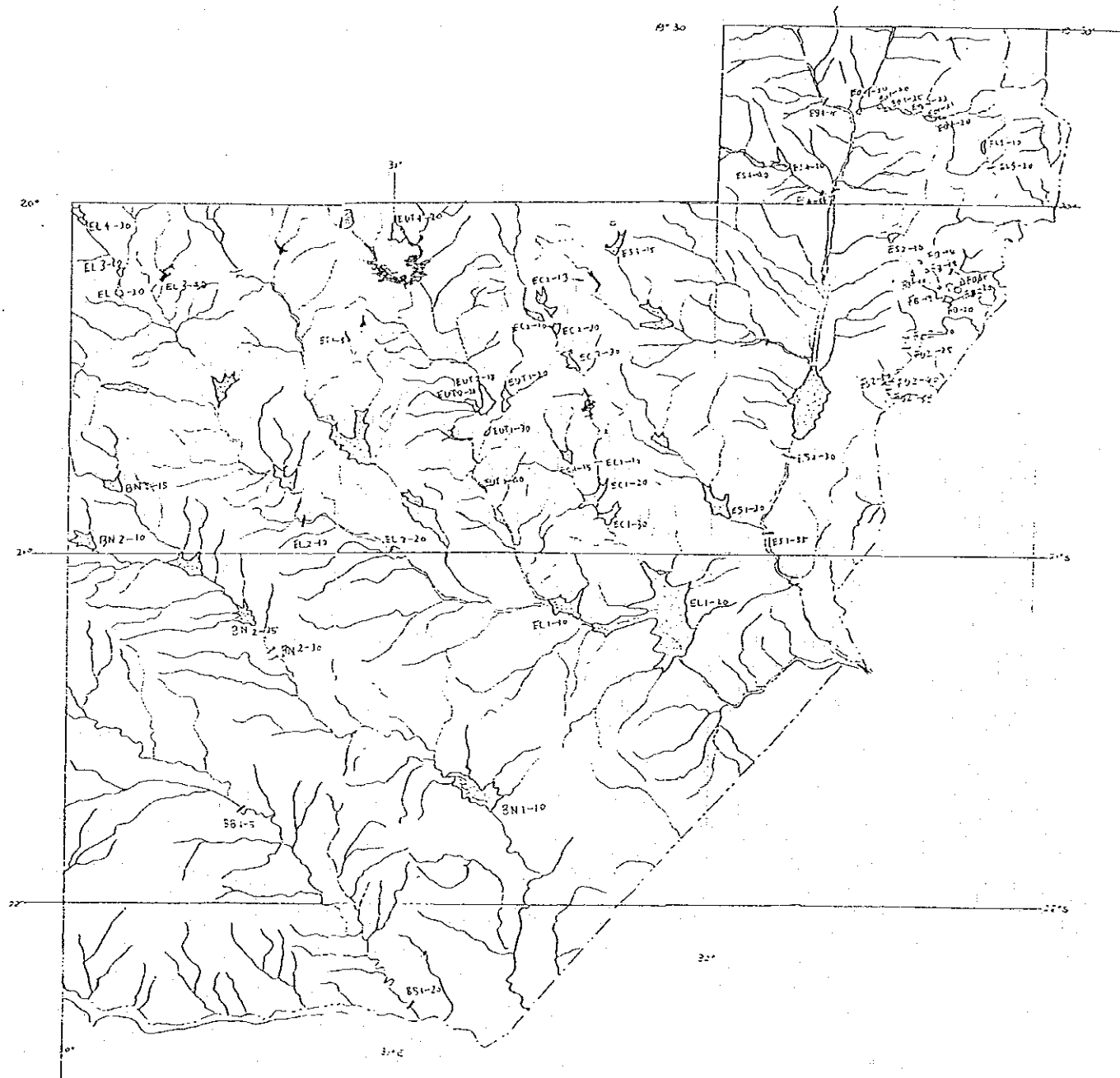
第2図  
KAKIBA



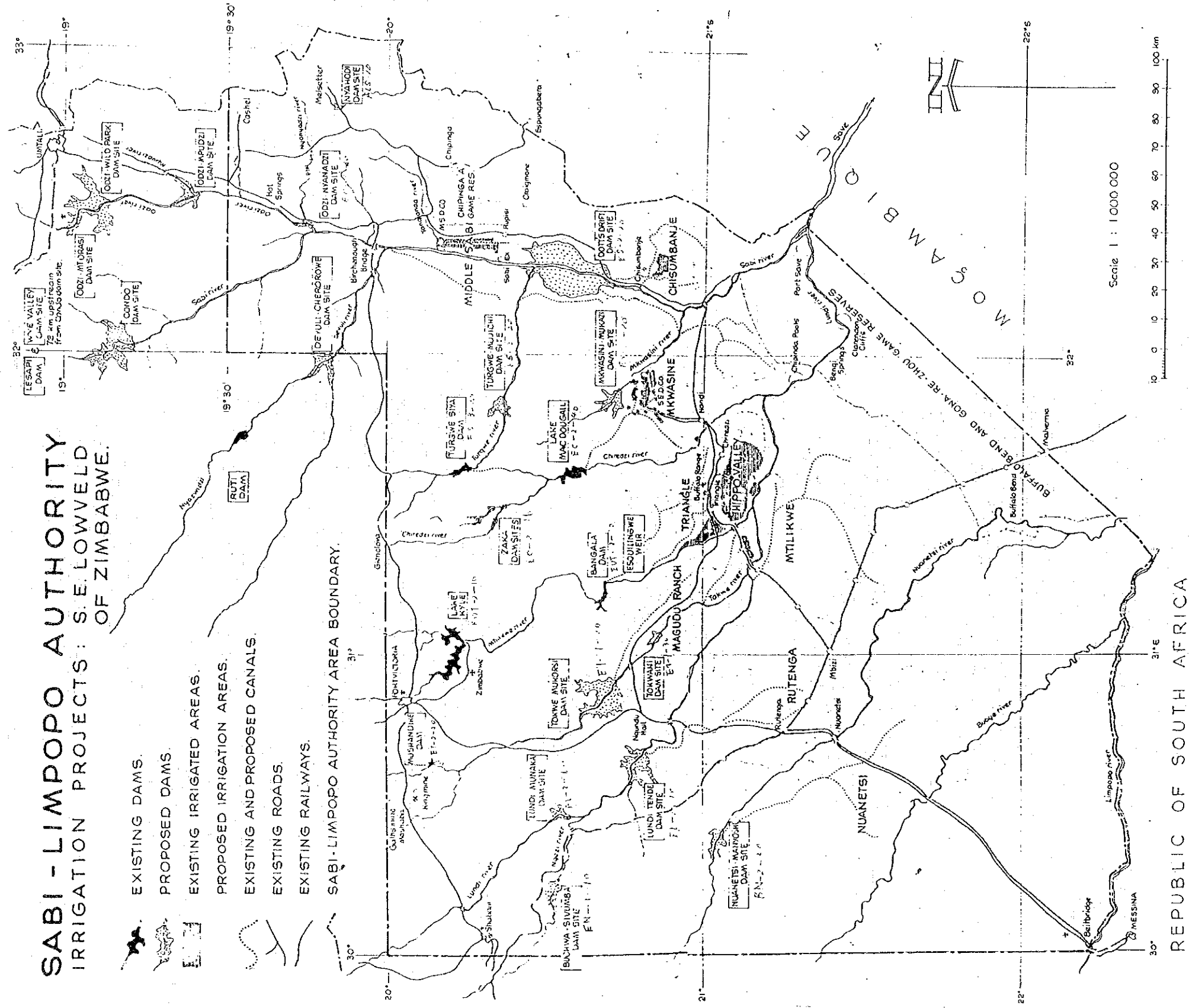
第3図

VITORIA州内のDIVISION OF WATRE  
DEVELOPMENT 所管 DAM位置

(記号NOのない DAMは SABI-LIMPOPO AUTHORITY 所管)



第 4 图



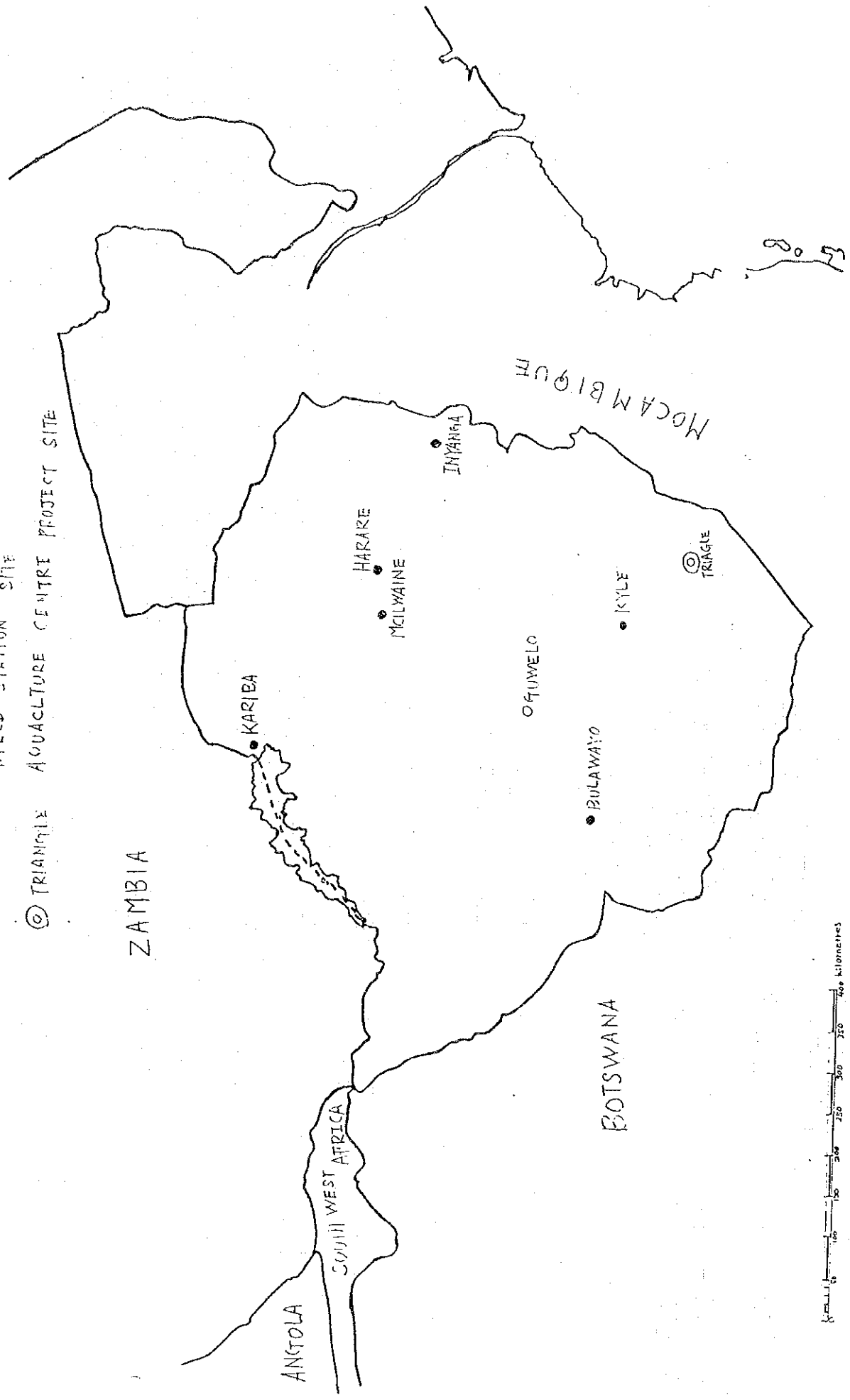


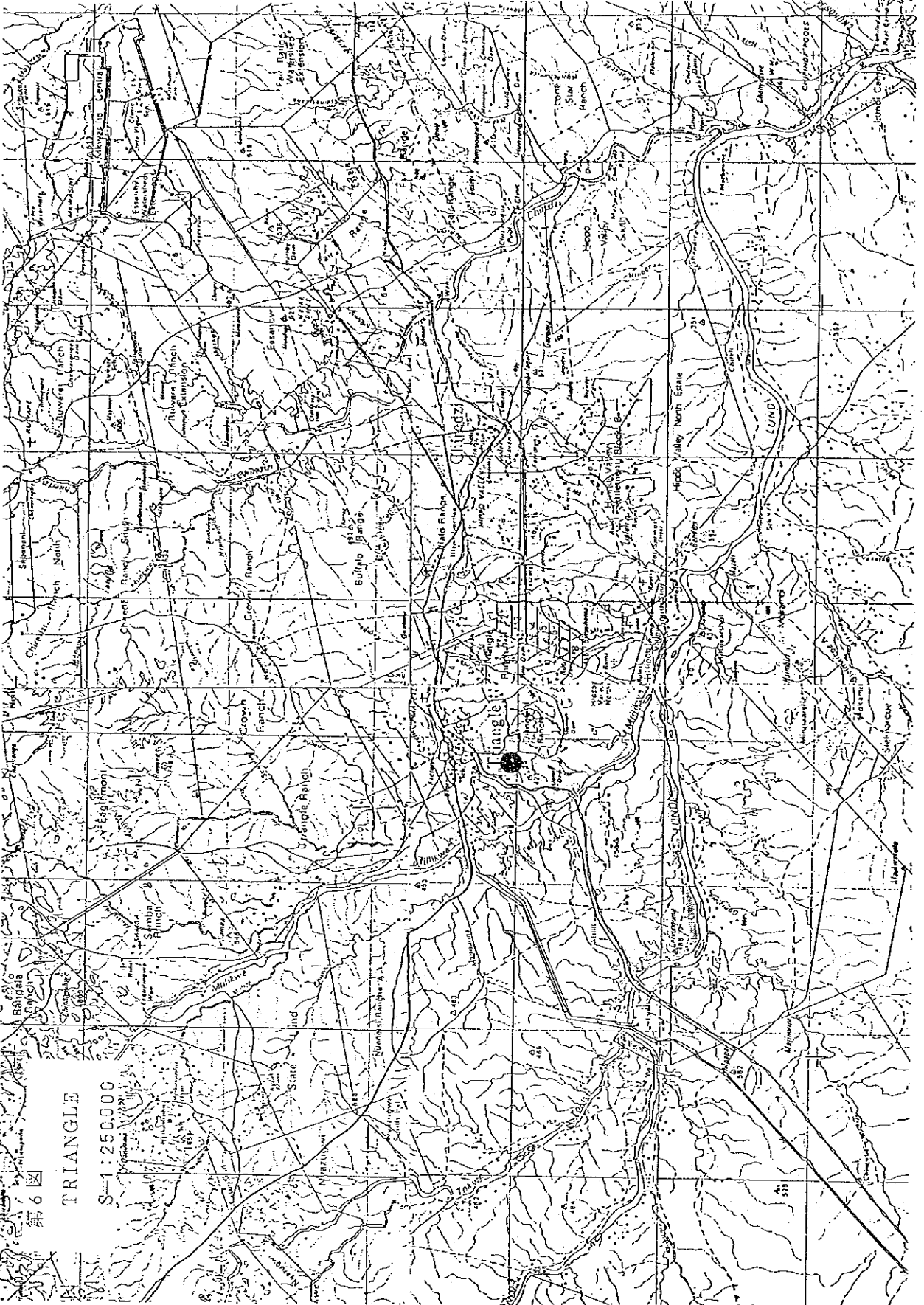


第5图

FISHERIES STATION の所在地

- GUMWELO FIELD STATION SITE
- ◎ TRIANGLE AQUACULTURE CENTRE PROJECT SITE





第 6 区

TRIANGLE

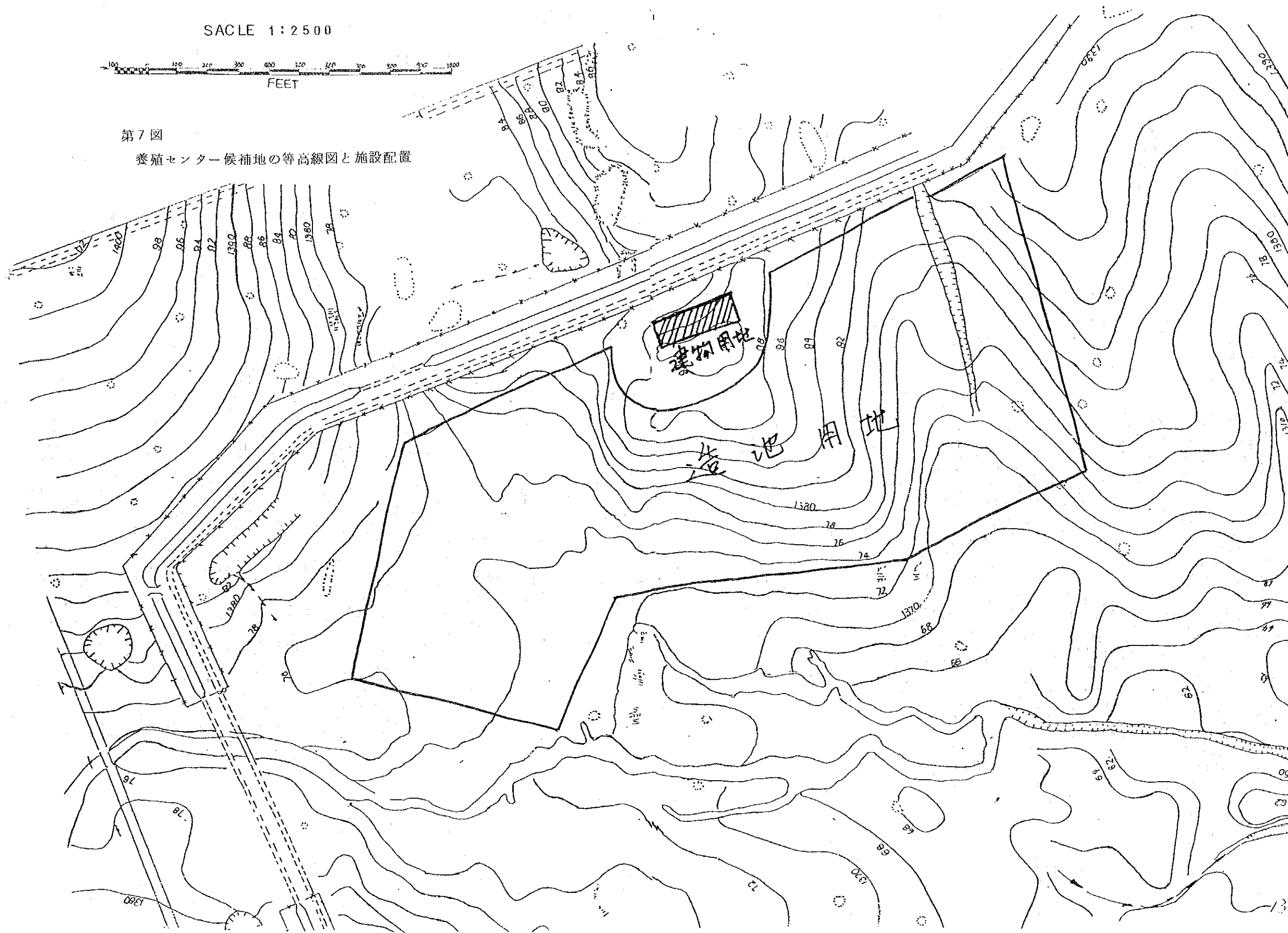
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SACLE 1:2500



第7図

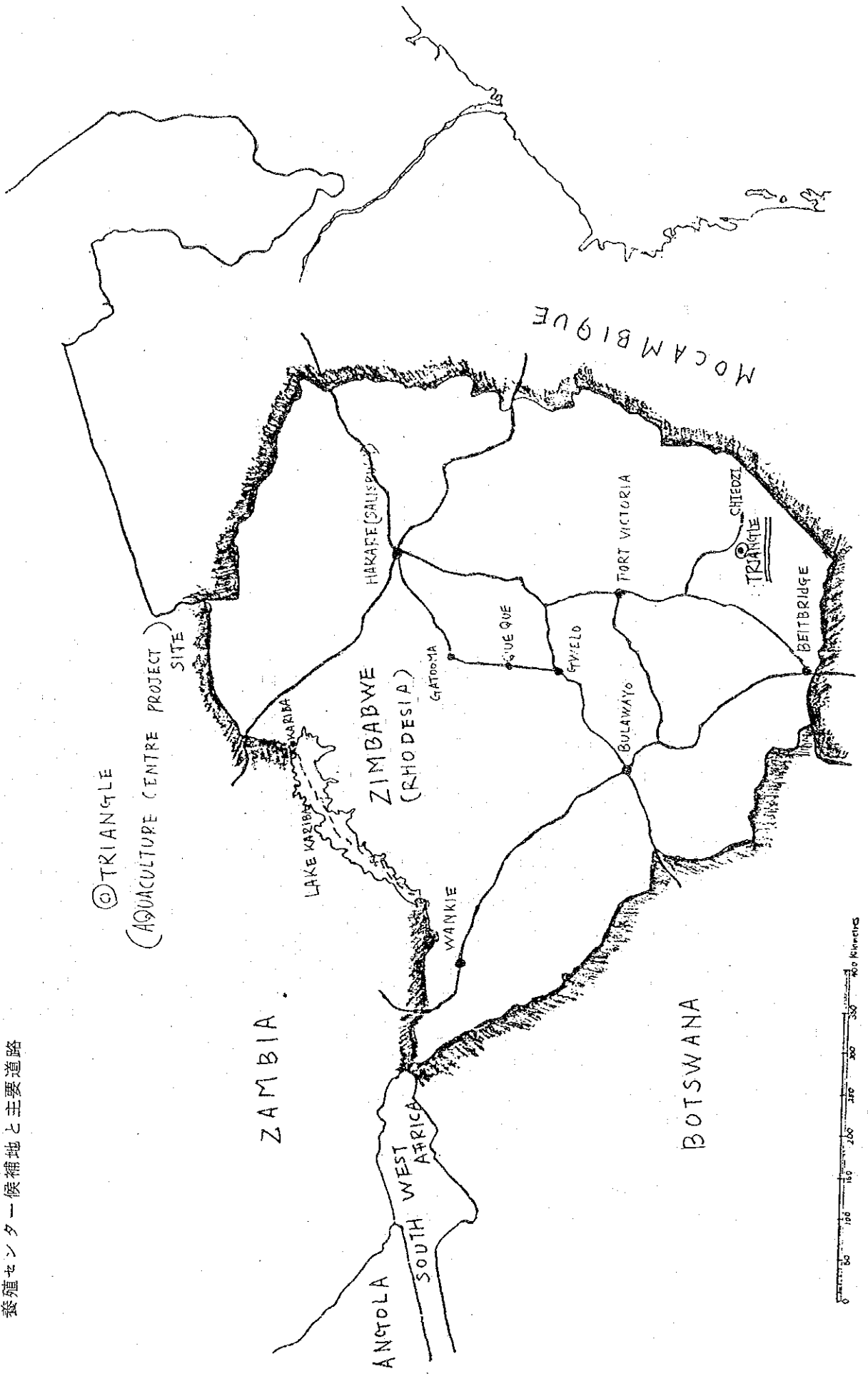
養殖センター候補地の等高線図と施設配置





第8図

養殖センター候補地と主要道路













JICA

