

## 9.2 RECOMMENDATIONS

The Study Team presents the following suggestions and recommendations for the implementation of the Project:

① Boundary of Project work:

It is planned to implement the Project within two and half years after the signing of the Exchange of Notes.

Due to the Japanese grant aid cooperation system's rules, the Project implementation period for the Japanese side will be seventeen months. Four months out of the seventeen month period will be required for tendering and contract arrangements. Seven months will be required for the procurement, transportation and preparation of equipment and materials. The actual construction period, therefore, will be six months. During that six month period, the Japanese engineers will provide the Zambian team with technical guidance and advice, and construction supervision in the course of the constructing new deep wells at 32 sites, and the rehabilitation of wells at 40 sites. After this six month period, the Zambian team must construct the remaining new deep wells at 88 sites and rehabilitate the remaining malfunction wells at 60 sites within a period of approximately seven months. Thus, the Zambian Government must come forth with a budget and the personnel that will be sufficient to complete the Project.

The equipment and materials to be provided under the Project shall be used exclusively in Project construction.

② Equipment and Materials

It is desirable to select equipment and materials to be used the Project that are identical to those previously provided for use in the Phase I project. By doing so, spare parts supply, and maintenance and management work will be simplified.

It was determined that a two-year supply of spare parts would be sufficient for Project use. During that two-year period, the Zambian side must take the necessary steps to establish the budget for obtaining the additional spare parts that will be for the continuation of the rural water supply project in the Southern Province. By properly using the equipment and materials, and the transferred techniques, the project can be carried out efficiently.

③ Transfer of Techniques

After examining the results of Phase I project construction, the Study Team found that insufficient techniques, improper trouble handling methods, and overuse of equipment were employed. Thus, the Study Team places strong emphasis on the importance of the transfer of techniques for upgrading the Zambian engineers' technical levels.

During project construction the equipment broke down frequently, causing drilling operation shutdowns. The causes of the breakdowns were attributable to the lack of techniques, and improper equipment use. The Study Team attaches the utmost importance to the transfer of not only drilling techniques, but the techniques associated with equipment repair and maintenance.

- ④ Maintenance and Management of Well Facilities  
Many of the malfunctioning wells that were constructed prior to the Phase I project have not been used for several years.

During the field survey period, the Study Team learned that a substantial number of the malfunctioning wells underwent repairs each year, but that, in a very short time, they began malfunctioning again. Furthermore, even when minor damages or operational problems occurred, the wells would either be put back into use after makeshift repairs or would continue to be used without repairs or servicing. As a result, a number of the wells became completely inoperable.

In view of the above, the maintenance of well facilities along with the transfer of repair techniques are important matters to be taken into consideration for Project implementation. The quality of the maintenance work provided greatly affects the service life of the wells. For this reason, the provision vehicles for use in servicing the wells is requested for the Project.

The Study Team believes that the establishment of a maintenance system comprised of DWA personnel and residents -- residents will require a minimum of training -- will contribute to the success of the Project.

- ⑤ Request to the Government of Zambia  
The Study Team requests the Government of Zambia to act on, without delay, the items agreed upon in the Minutes of Discussions and on the items specified in this report and to make every effort to ensure the success of the Project.

The Study Team expresses its hope that the Government of Zambia will continue on with their rural water supply projects after Project completion in order to achieve the initial objectives.



APPENDIX



# APPENDIX

## APPENDIX 1

- 1.1 Member List of the Study Team
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**APPENDIX 1**



## APPENDIX 1

### 1.1 Member List of the Study Team

<u>Assignment</u>	<u>Name</u>	<u>Designation</u>
Team Leader	Mr. Keiji ABE	Sub Director, Water-works of Kagawa Prefecture
Coordinator	Mr. Ryuji MATSUNAGA	Grant Aid Department, Japan International Cooperation Agency (JICA)
Groundwater Development	Mr. Yukio HOSHINO	Pacific Consultants International
Hydrogeology	Mr. Takuji MURAKAMI	Pacific Consultants International
Facility and equipment planning	Mr. Yuichi HATA	Pacific Consultants International
Cost estimation	Mr. Yoshikazu ITO (Home office work only)	Pacific Consultants International

## 1.2 Schedule of the field survey

<u>Date</u>	<u>Day</u>	<u>Work Schedule</u>
March 13	Sun.	Leave Tokyo
14	Mon.	Trip (Paris to Lusaka)
15	Tue.	Arriving at Lusaka, courtesy call to Embassy of Japan and JICA office.
16	Wed.	Courtesy call to Ministry of Agriculture and Water Development (MAWD) and Department of Water Affairs (DWA). Explanation of the inception report and discussion with MAWD and DWA.
17	Thu.	Complementary meeting with MAWD and DWA, and necessary data collection for site survey.
18	Fri.	Site survey with DWA in Mazabuka and Monze district.
19	Sat.	Site survey with DWA in Kalomo district.
20	Sun.	Finish site survey with DWA. Some of the team member stay behind for farther site survey in Monze district. Some return to Lusaka from Livingstone.
21	Mon.	Discussion with MAWD and DWA, and collection of data, documents, etc. in Lusaka. In Monze, preparation for electric prospecting and survey for the equipments and materials donated in phase I project.
22	Tue.	Sign minutes of discussion in Lusaka. Team leader and coordinator leave Lusaka for Tokyo. Collection of data and documents in Lusaka. In Monze, electric prospecting and site survey are carried out.
23	Wed.	All members remained of the team respectively site survey of electric prospecting, the proposed sites of phase II project and the completed sites of phase I project, examination of records and equipments donated in phase I project and collection of data and water sample for water quality test.

24 Thu. The same as the above for different sites.

25 Fri. The same as the above for different sites.

26 Sat. The same as the above for different sites.

27 Sun. The same as the above for different sites.

28 Mon. The same as the above for different sites.

29 Tue. Return to Lusaka and have discussion on the field survey results, necessary data and documents. Collection of data and documents.

30 Wed. Collection of data, documents and questionnaires. Discussion with DWA

31 Thu. Discussion with DWA and collection of data, documents and questionnaires.

April 1 Fri. Put the data, documents, questionnaires collected and survey results in order. (public holiday)

2 Sat. The same as the above. Meeting among the team members.

3 Sun. Each member respectively makes brief comments after putting their data in order.

4 Mon. Meeting with MAWD and DWA. Complementary data collection.

5 Tue. Meeting with JICA. Courtesy call to Embassy of Japan. Leave Lusaka for Tokyo.

6 Wed. Trip

7 Thu. Trip

8 Fri. Arrive at Tokyo.

### 1.3 List of Organizations and Persons Contacted

Ministry of Agriculture and Water Development (MAWD)  
and Department of Water Affairs (DWA) in Lusaka.

Mr. Namukolo Mukutu	Permanent Secretary MAWD
Mr. C.R.W. Kayambo	Director, D.W.A.
Mr. L.L.Mbumwae	Deputy director, D.W.A.
Mr. R.B. Khuti	Chief water engineer, D.W.A.
Mr. O.L. Sangulube	Hydrogeologist (Mouse, D.W.A.)
Mr. E.M. Siamacheka	Hydrological section principal
Mr. S.Banda	Drilling section D.W.A.
Mr. Azifi Tembo	Drilling section D.W.A.
Mr. Francis Chiwyika	Assistant clerical officer, D.W.A.
Ms. C.P.Mumba	Economist, MAWD
Mr. M.D. Patel	Project coordinator of World Bank
Mr. K.G. Hoold	Technical Cooperation Officer ( British, D.W.A Choma)

Monze district office, Department of Water Affairs.

Mr. Patricd, B.Kamlewe	Geology / Groundwater Engineer
Mr. Alfonso K. Phiri	Engineering Assistant
Mr. Azzelly Njobvu	Water Development Officer
Mr. Samuel R.Nyirenda	Driller
Mr. Peter Simuyemba	Assistant Driller
Mr. Henlry Phiri	Mechanic
Miss. Prisca Choongo	Typist
Mr. Clotus Mpokota	Accountant
Miss. Emely Munzele	Inventory Recorder
Mr. Thuma Muyola	Plumber

Gwembe district office, Department of Water Affairs

Mr. Ngosa Josef	Water Engineering Assestant
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Choma district office, Dipertment of Water Affairs

Mr. P.K. Mwanamwenge	Provincial Water Engineer
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Kalomo district office, Department of Water Affairs

Mr. Shisala Stann	Officer
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National Council for Development Planing

Mr. M.S. Mwale	Assistant derector, N.C.D.P
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Ministry of Decentralisation

Mr. M.E. Longwe	Director, Planing Department
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Ministry of Health  
Mr. M.A.D. Chuni  
Mr. F.C. Bands  
Mr. Chisanga  
Epidemiologist

Senior statistical officer  
Priacipal statistical officer  
Deputy chief inspector

Ministry of Works and Supply

Mr. J.S. Bhatia                      Quantity surveyor, Dep of Building

Others

National council for Scientific Research  
Central Statistical Office  
Government Printer  
Price and Incomes Commission  
Meteorological Department  
Ministry of Finance  
Survey Department, MAWD  
Public Library in Lusaka

Bp Zambia Limited  
Zambia Oxygen Limited  
Zambia Steel and Building Supplies Limited  
Andee's Hardware Ltd  
Zambia Forestry and Forests Industries Corporation Limited  
Crushed Stone Sales Limited  
Chilanga Cement Limited

Embassy of Japan

Mr.Toshio SAIKI            Ambassador extraordinary and plenipotentiary  
Mr.Hideo NOMOTO           Counsellor  
Mr.Kyohei ISHIDA           First secretary  
Mr.Kaoru TSURITA           Special assistant

JICA Zambia office

Mr.Kozo TOMITA            Resident Representative  
Mr.Ryousuke KOJIMA       Assistant Resident Representative  
Mr.Hiroaki OSHIBA        Coordinator

Veterinary Education Project, University of Zambia  
Naito Hisatoshi

Member for Electric Prospecting team in Mouze district office,  
D.W.A

Mr. J.Malambo  
Mr. B.Shambeaza  
Mr. M.P.Nyirongo  
Mr. S.Kapungwe  
Mr. C.Jere  
Mr. R.Chiila  
Mr. M.Malumo

1.4 MINUTES OF DISCUSSION  
IN  
GROUNDWATER DEVELOPMENT PROJECT  
IN  
THE REPUBLIC OF ZAMBIA

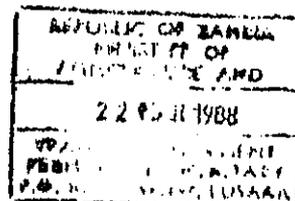
In response to the request made by the Government of the Republic of Zambia for the Groundwater Development Project (Phase-II) in Southern Province, the Government of Japan has sent, through the Japan International Cooperation Agency (hereinafter referred to as "JICA") which is an official agency implementing the technical cooperation of the Government of Japan, a team headed by Mr. Keiji ABE, Sub Director, water-works Bureau of Kagawa Prefecture, to conduct the survey for 22 days from March 15th to April 5th 1988.

The team carried out a field survey, held a series of discussions and exchanged views with the authorities concerned of the Government of the Republic of Zambia.

Both parties have agreed to recommend to their respective Governments and the authorities concerned to examine the result of the survey attached herewith towards the realization of the project.

阿部 啓二  
Keiji ABE  
Head, Japanese Survey Team

N. MUKUTU  
Permanent Secretary  
Ministry of Agriculture and  
Water Development



ATTACHMENT

1. The objective of the project is to improve and stabilize the social conditions of the rural areas by supplying safe drinking water to the rural people in Southern Province.
2. The sites of the Project are located in the 7 Districts namely Gwembe, Mazabuka, Choma, Namwala, Monze, Kalomo and Livingstone in Southern Province and as shown in Annex I.
3. The content of the project is to construct new boreholes and wells facilities and rehabilitate existing boreholes for supplying safe and clean drinking water.
4. The Ministry of Agriculture and Water Development through Water Affairs Department is responsible for the administration and execution of the Project.
5. The Japanese Survey Team will convey to the Government of Japan the desire of the Government of the Republic of Zambia that the former takes necessary measures to cooperate in implementing the Project and bears the cost of the items requested by the latter shown in Annex II within the scope of Japanese economic cooperation programme in grant form.
6. The Government of the Republic of Zambia will take necessary measures listed in Annex III under the condition that the grant aid assistance by the Government for Japan is extended to the Project.
7. Both parties confirmed that the Survey Team explained Japan's grant aid programme and the Zambian side had understood it.

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ANNEX II

The following items are requested by the Government of the Republic of Zambia as grant aid assistance:

A. Consumable materials for new construction, and spare parts for previously donated rigs and vehicles

1. Drill bits
2. DTH hammer
3. Guide pipe
4. Casing pipe
5. Screen pipe
6. Agents
7. Hand pump
8. Spare parts for previously donated vehicles
9. Spare parts for previously drilling rigs and other supporting equipment

B. New equipment for additional one drilling rig and related other works

1. Truck mounted drilling rig with standard accessories
2. High-pressure air compressor for above
3. Vehicles
4. Testing equipment
5. Other equipment
6. Spare parts for above

C. Construction of boreholes on sites of high priority in Southern Province. All the equipment given under the grant shall be used exclusively for the Project. No local contractors will be involved. All the personnel necessary for the construction shall be provided by the Zambian Government.

7/9/70

ANNEX III

The following arrangements are requested to be taken by the Government of the Republic of Zambia:

1. To ensure customs clearance at the entry point in the recipient country.
  - (1) Tax exemption and custom clearance of the products at Lusaka
  - (2) Internal transportation from Lusaka to the Project site
2. All goods, equipment and personal effects of the Japanese consultants and contractors brought under the Project shall be exempted from all duties and taxes.
3. To bear the following commissions to the Japanese foreign exchange bank for the banking services based upon the B/A.
  - (1) Advising commission of A/P
  - (2) Payment commission
4. To accord Japanese nationals whose services may be required in connection with the supply of the products and the services under the verified contract such facilities as may be necessary for their entry into recipient country and stay therein for the performance of their work.
5. The Zambian Government shall provide all the local personnel and bear all their expenses under the Project.
6. To provide convenience to allow Japanese consultants and contractors to use freely the workshops or other facilities/equipment of DWA not covered by the grant when necessary, and to provide consumed materials for the equipment.

7. To organize the Project team with sufficient number/knowledge/technics of personnel for management, planning and technical (siting, boring, installation of well materials, etc.) fields well in advance of the commencement of the Project. Especially members for the 3 units of the boring equipment are essentially necessary.
8. To carry out geo-electric survey prior to the commencement of the Project.
9. To use the equipment and materials given under the grant exclusively for the Project.
10. To maintain and use properly and effectively the equipment and materials purchased under the grant and to arrange the budget and personnel for the maintenance/operation of the equipment and for the construction of boreholes, after the termination of Japanese construction aid.
11. To bear all the expenses other than those to be borne by the grant, necessary for the Project.

2/12/77

J. I C A  
Basic Design Team  
for Groundwater Development Project,  
LUSAKA.

4th April, 1988

The Director,  
Department of Water Affairs,  
P.O. Box 50288,  
LUSAKA.

ATTENTION: Mr. L.L. Mbumwae,  
Deputy Director of Water Affairs

*lll*  
DWA.

1. 5

SUBJECT: SURVEY RESULTS OF GROUNDWATER DEVELOPMENT PROJECT  
PHASE II IN SOUTHERN PROVINCE

Dear Sir,

We would like to inform you the survey results of basic design study of Groundwater Development Project Phase II in Southern Province, while the survey has been conducted in the Republic of Zambia by the Basic Design Study Team of Japan International Cooperation Agency (hereinafter referred to as "JICA Team") for 22 days from 15th March to 5th April, 1988.

The JICA Team carried out a field survey, held a series of discussions and exchanged views with the authorities concerned of the Government of the Republic of Zambia.

Subsequently, the contents of the request as a result of the survey mentioned above are shown in the attachments.

Final formulation for the basic design of the project will be decided within the framework of Japan's grant aid programme in home office work, following the examination of the contents of the request discussed in the field survey and the analysis of the collected data, after this field survey.

We finally believe that this Groundwater Development Project Phase II will be successful, having good co-operation between the Republic of Zambia and Japan.

Yours faithfully,

*Y. Hoshino*  
YUKIO HOSHINO.  
JICA TEAM.

/tmk.

ATTACHMENT \*1

I SUMMARY OF THE CONTENTS OF THE REQUEST DISCUSSED

	<u>REMARKS</u>
1. Construction of New Boreholes with Handpumps	120 sites
- Stage I : Cooperation Team of Japan & Zambia	App. 54 sites
- Stage II: Zambian Team	App. 66 sites as a result of the field survey.
2. Rehabilitation of Unfunctional Handpump	100 sites
- Zambian Team	100 sites
3. Drilling Rig	1 set
4. Necessary Equipments and Materials Concerned	1 lot

II OUTLINE OF THE PROPOSED DISTRICTS AND QUANTITIES

<u>NAME OF DISTRICT</u>	<u>NEW BOREHOLES</u>	<u>REHABILITATION OF HANDPUMP</u>
1. Gwembe	14 sites	15 sites
2. Mazabuka	20	15
3. Monze	28	20
4. Choma	29	20
5. Namwala	9	10
6. Kalomo	17	18
7. Livingstone	3	2
Total 7 Districts	120 sites	100 sites

ATTACHMENT \*2

III CONSTRUCTION MATERIALS, EQUIPMENTS AND OTHERS CONCERNED

A) Consumable Materials for New Constructions, and Spare Parts for previously donated Two Rigs and Vehicles.

		<u>REMARKS</u>
1.	Drill Bits 270mm to 152mm	: Various Number
2.	DTH Hammer	: 3 Units
3.	Guide Pipe 5.5m	: 120 Pipes
4.	FRP Casing Pipe 150mm	: 840m
5.	- 100m	: 3,360m
5.	FRP Screen Pipe	
	- 150mm	: 360m
	- 100mm	: 1,440m
6.	Agents	: 1 lot
7.	Handpump	: 220 Units
	- New Boreholes	: 120 Units
	- Rehabilitation of Handpump	: 100 Units
8.	Spareparts for Vehicles	: 1 lot
9.	Spareparts for 2 Drilling Rigs and and other supporting equipment	: 1 lot
10.	High Pressure Air Compressor for the drilling	: 1 Unit
		less priority than others
B) New equipment for additional one Drilling Rig and Related other works:		
1.	Truck Mounted Drilling Rig with Standard Accessories	: 1 unit
2.	High Pressure Air Compressor for above	: 1 unit
3.	Vehicles	:
	- Cargo Truck with 5 Ton Crane	: 2 units
	- Cargo Truck with 1 or 2 Ton Crane	: 2 units
	- Cargo Truck	: 1 unit
	- Jeep, Pick-up Type	: 2 units
	- Jeep, Station Wagon Type	: 2 units
	- Handpump Maintenance Car	: 2 units
		less priority than others

ATTACHMENT \*3

4. Testing Equipment

- Geo Electrical Prospecting Censor : 2 units
- Borehole Logger : 1 unit
- Pumping Test Equipment : 1 unit
- Conductivity Meter : 2 units
- pH Meter : 2 units

5. Other Equipment

- Engine Welder : 1 unit
- Workshop Equipments for  
Rehabilitation of Handpump : 2 units
- Air Compressor with Air Lifting  
set for Cleaning Old Borehole : 2 units
- Radio Information Unit : 1 unit

- 6. Spare parts for the above : 1 lot

## 1.6 List of Documents Collected

-New Economic Recovery Programme Interim National Development Plan (1987.7 ~1988.12), 1987	National Commission for Development Planning
-Economic Review 1987 and Annual plan, 1989	"
-Economic Report 1987, 1988	"
-Third National Development Plan 1979~83, 1979	Office of the President
--Estimates of Revenue and Expenditure 1988, 1988	Government Printer
-Financial Report for the year 1985, 1986	"
-District Councils Revenue and Capital Estimates for the year 1987, 1989	"
-International Drinking Water Supply and Sanitation DECADE 1981~1990, 1985	National Action Committee
-Health Statistics 1981	Ministry of Health
-Educational Statistics 1984, 1987	Ministry of Higher Education
-Country Profile Zambia 1985, 1986	Central Statistical Office
-Monthly Digest of Statistics, 1985.12	"
-Balance of Payments Statistics	
-Selected Socio-economic Indicators, 1984	"

—1980 Census of Population and Housing, Volume I General Population and Migration table	Central Statistical Office
—1980 Population and Housing, Census of Zambia (Analytical Report Volume III)	”
—1980 Population and Housing, Census of Zambia (Analytical Report Volume IV)	”
—Census of Industrial Production, 1980	”
—Annual Statement of External Trade Volume I, 1979	”
—Annual Statement of External Trade Volume II, 1979	”
—Report of Employment and Earnings	”
—Transport Statistics	”
—Price Index of Building Material	”
—Annual Report of MAWD, 1986	Ministry of Agriculture and Water Development
—Organization of DWA	Department of Water Affairs
—Annual Report of DWA, 1985	”
—Annual Report of DWA in Southern Province, 1986	”
—Annual Report of Drilling Section, 1986	”
—Annual budget of DWA, 1988	”

—Standardisation Committee for Water Supply	Department of Water Affairs
Circulation No. 1	
"    No. 2	
"    No. 3	
—Data for Water Supply Project	"
—Topographic map (1:1,000,000)	Survey Department
—Topographic map (1:1,250,000)	"
—Topographic map (1:50,000)	"
—Province and district map, National Atlas	"
—Map of population growth, absolute growth relative growth	"
—Soil map	"
—Land use map	"
—Others	"
—Geological map and explanation	Geological Survey Department
Report 2 Lusaka, Mazabuka, Kafue	
3 Kariba	
7 Gwembi, Megayi	
8 Muzoka, Choma, Gwenbe	
10 Choma, Namwala	
17 Monze	
22 Chikankata	
37 Masuku, Kabanga (without map)	
—Groundwater Resources of Southern Province, Mehta M (1985)	Department of Water Affairs
—Meteorological Data	Meteorological Department



## APPENDIX 2

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## A) General Data

### 1) Country Name

- Country Name: The Republic of Zambia
- Capital: Lusaka
- Date of Independence: 24 October 1964

### 2) The Country

- Area: 752,620 km<sup>2</sup> (Approximately twice the area of Japan)
- Location: 8°10' to 18°00's latitude  
22°00' to 33°00'E longitude

### 3) Population

- Population: 5,661,801 (1980 census)
- Population density: 7.5 Persons/km<sup>2</sup> (1980 census)
- Population growth rate: 3.1% per year (1969 - 1980)
- Urban population: 2,258,520 (39.9%) (1980)
- Rural population: 3,403,281 (60.1%) (1980)
- Birth rate: 51/1,000 per year (1969-1980)
- Mortality: 20/1,000 per year (1969-1980)
- Infant Mortality: 141/1,000 per year (1969)
- Average life expectancy
  - Male: 50.0 years (1980)
  - Female: 53.8 years (1980)
- Population in Lusaka: 535,830 (1980)

### 4) Form of Government

The government is a republic having a one-party system. The United National Independence Party (UNIP) is the governing Party. Since its independence, Dr. Kenneth David Kaunda has been the president of the country. The next presidential election is expected to be in the fall 1988.

### 5) Number of Tribes

There are more than 70 tribes in Zambia.

## 6) Language

English is one of the official languages. More than thirty tribal languages of the Bantu group are spoken.

## 7) Religions

Shamanism is the main religion in Zambia. Some 20% of the population are Christians, and there are some people of the Hindu and Islam faiths.

## 8) Geographical Features

Zambia is a landlocked country surrounded by Zaire, Angola, Namibia, Botswana, Zimbabwe, Mozambique, Malawi, and Tanzania. Most of the country is a typical plateau savanna having elevations of 1,000 to 1,300m. The Muchinga mountains in the east exceed 2,000m. Valleys along the major rivers are lower than 600m. The Zambezi River is not suitable for transportation because of the rapid stream. The world famous Victoria Falls located in Livingstone is the country's most important tourist attraction.

## 9) Climate

Even though the country is located in the tropical zone, temperatures rarely exceed 30°C because of the high altitude. The climate is very comfortable throughout the year. The dry season, from May through August, finds temperatures ranging from 15.6 to 26.7°C, September through November is the hot dry season, and December through April is the rainy season with the temperatures of 25 to 32°C.

Monthly temperatures, humidity, and precipitation in Lusaka

Month	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct	Nov.	Dec.
Average	20.6	20.5	20.3	19.7	17.5	15.3	15.6	18.0	21.4	24.0	22.6	21.1
Highest	25.9	25.9	26.1	26.3	24.7	22.8	22.9	25.5	28.9	31.1	28.7	26.5
Lowest	17.2	17.1	16.3	14.9	12.3	10.1	9.6	11.7	14.7	17.8	17.8	17.2
Ave Humidity	81	84	77	72	70	67	55	47	44	41	63	78
Precipitation	217.7	196.3	105.9	20.6	3.6	0.3	0.0	0.3	0.5	14.7	91.2	186.4

10) Medical Facilities

Number of hospitals 82(1984)  
 Number of clinics 845(1984)  
 Number of hospital beds 21,668(1984)  
 Number of doctors 880(1982)

11) Education

\*Adults' literacy rate:

Male: 75.4%(1980)  
 Female: 53.1%(1980)  


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 Average 63.8%(1980)

\*Primary school enrollment rate:85%(1982)

12) G.N.P. per Capita

1983	1984	1985
U.S \$580	U.S.\$470	U.S.\$450

13) Unit of Currency: Kwacha (K)

U.S.\$1.00 = K 8.00 (The rate was fixed in May 1987)

14) Infrastructures

\*Water supply rate (percentage of residents who have water supply terminals within a distance of 100m deameters from their home) in 1980

	Water Supply Rate	Population Percentage	
Large Urban Area	70%	23%	By Pipe lines
Small Urban Town Ship	45%	5%	By Pipe lines
Rural Areas	32%	19%	By Wells mainly
Total	-	47%	

\*Sewerage facility rate

	% per Population	
Large Urban Area	17%	Flush toilets
Small Urban Town Ships	3%	Flush toilets
Rural Areas	17%	Pit latrines
Total	37%	

\*Total length of paved road: 5,583km(1982)

\*Number of vehicles:

Private sector: 112,972(1982)

Government sector: 14,241(1982)

\*Railway length: 1,260km (Zambia Railway)  
1,860km (Tanzania-Zanbia Railway)

\*Number of airports: 18 (1982)

\*Number of post offices: 158(1982)

\*Number of telephone lines: 34,493(1982)

\* Electric generating: 10,581 million kw(1982)

(Oil imports: 592,300 tons in 1892)

15) Employment Situations

\*Labour forces: 2,042,000  
(1984)

\*Number of employed persons: 365,000  
[100.0%] (1984)  
(17.9%)

\*Employed persons in agriculture,  
forestry and fisheries: 35,000 [9.6%]

\*Employed persons in mining industries:58,000 [15.9%]

*Employed persons in manufacturing industries:	48,000	[13.2%]
*Employed persons in construction industries:	34,000	[9.4%]
*Employed persons in transportation industries:	24,000	[6.6%]
*Employed persons in service sectors:	166,000	[45.3%]



Fig. B-1-2 POPULATION BY PROVINCE

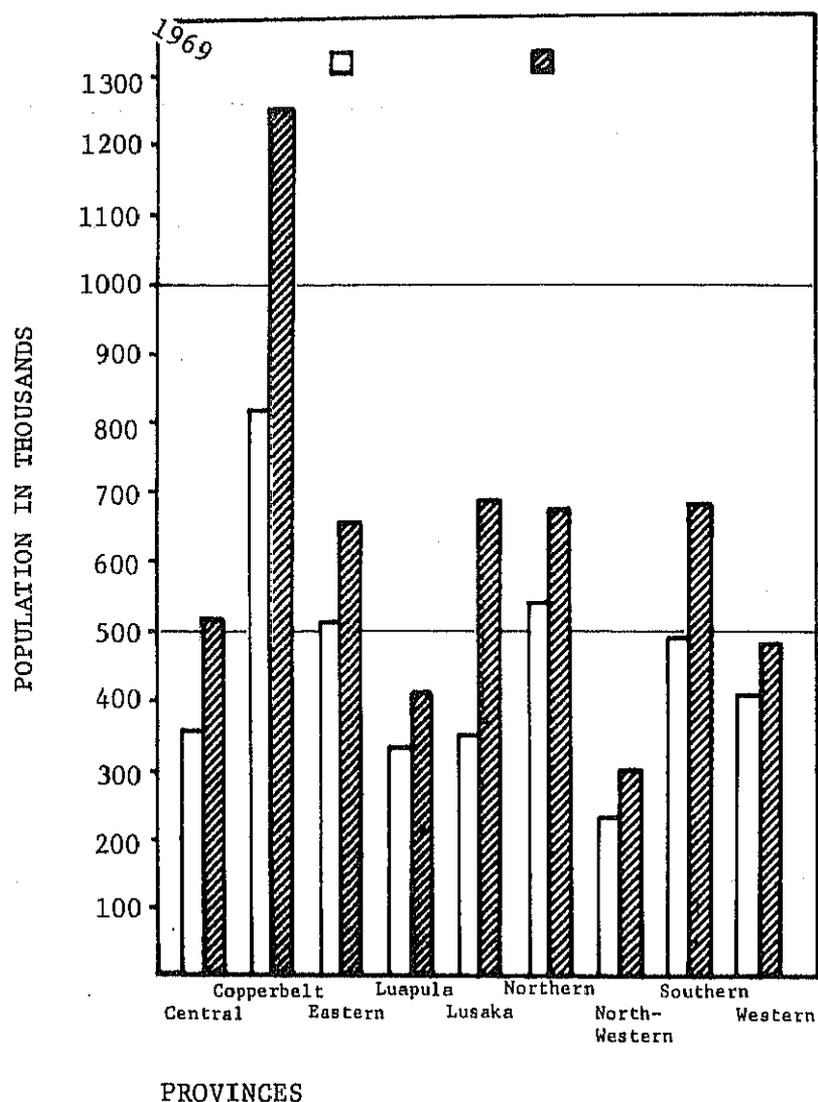


Table B-1-3 Population Distribution by Province, 1963, 1969 and 1980 (Percent)

Province	1963	1969	1980
Central	8.9	8.9	9.1
Copperbelt	15.6	20.1	22.1
Eastern	13.7	12.6	11.5
Luapula	10.2	8.3	7.4
Lusaka	5.6	8.7	12.2
Northern	16.2	13.4	11.9
North-Western	6.0	5.7	5.4
Southern	13.4	12.2	11.9
Western	10.4	10.1	8.6
<b>TOTAL ZAMBIA</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

Source: Central Statistical Office.

Table B-1-4 POPULATION DISTRIBUTION OF DISTRICTS HAVING LARGE URBAN POPULATIONS (50,000+) CLASSIFIED BY URBAN, PERI-URBAN AND RURAL

Province District	Total Population	Total Urban Population	Urban Population	Peri-Urban Population	Rural Population
CENTRAL:					
Kabwe Urban	136,006	136,006	127,422	8,584*	
COPPERBELT:					
Chililabombwe	62,131	54,737	54,737		7,394
Chingola	145,993	130,875	130,875		15,118
Kalulushi	59,267	52,146	52,146		7,121
Kitwe	320,320	266,286	266,286		54,020
Luanshya	129,589	110,907	110,907		18,682
Mufulira	142,329	135,535	135,535		14,534
Ndola Urban	281,315	250,502	250,502	30,813*	
LUSAKA:					
Lusaka Urban	535,830	535,830	498,837	37,180**	
SOUTHERN:					
Livingstone	71,535	63,275	63,275		8,248
<b>TOTAL</b>	<b>1,884,315</b>	<b>1,736,099</b>	<b>1,627,247</b>	<b>76,577</b>	<b>125,117</b>

Note:

\* Peri-Urban population classified as RURAL in the final tabulations.

\*\* Peri-Urban population classified as URBAN in the final tabulations.

B-1-5 POPULATION IN LARGE URBAN AREA

	Population				Average Annual Growth Rate (%)		
	1980	1974	1969	1963	1969-1980	1969-1974	1963-1969
Lusaka	538,469	401,000	262,425	123,146	6.8	8.9	13.4
Ndola	282,439	229,000	159,786	92,691	5.3	7.4	9.5
Kitwe	314,794	251,000	199,798	123,027	4.2	4.6	8.4
Kabwe	143,635	99,000	65,974	39,522	7.3	8.4	8.9
Mufulira	149,778	136,000	107,802	80,609	3.0	4.7	5.0
Chingola	145,869	134,000	103,292	59,517	3.2	5.3	9.6
Luanshya	132,164	121,000	96,282	75,332	2.9	4.6	4.2
Livingstone	71,987	58,000	45,243	33,026	4.3	5.0	5.4
Chililabombwe	61,928	56,000	44,862	34,165	3.0	4.7	4.6
Kalulushi	59,213	41,000	32,272	21,303	5.7	4.7	7.2
<b>Total *</b>	<b>2,258,520</b>	<b>1,663,000</b>	<b>1,192,116</b>	<b>715,020</b>	<b>6.7</b>	<b>6.9</b>	<b>8.9</b>
<b>Percentage **</b>	<b>39.9</b>	<b>35.6</b>	<b>29.4</b>	<b>20.5</b>			

Source: Monthly Digest of Statistics May/August, 1986.

Note: \* Total Urban Population Including Large Urban and Small Urban Town Ship

\*\* Population Ratio of Urban Area for Total Population

Table B-1-6 POPULATION BY AGE AND SEX 1980  
IN SOUTHERN PROVINCE

Age Group	Male	Female	Total
0 -4	61,945	62,510	124,455
5 -9	59,943	60,564	120,507
10 -14	47,686	47,427	95,113
15 -19	35,999	37,848	73,847
20 -24	26,302	30,661	56,963
25 -29	16,781	18,920	35,701
30 -34	13,746	18,133	31,879
35 -39	11,910	15,630	27,540
40 -44	11,430	13,679	25,109
45 -49	10,493	10,066	20,559
50 -54	8,731	7,707	16,438
55 -59	6,323	4,998	11,321
60 -64	5,451	4,772	10,223
65 -69	3,510	2,850	6,360
70 -74	2,637	2,329	4,966
75 -79	1,765	1,436	3,201
80 -84	778	933	1,711
85+	806	834	1,640
Not Stated	2,106	2,284	4,390
<b>Total</b>	<b>328,342</b>	<b>342,581</b>	<b>671,923</b>

Table  
B-1-7

HOUSEHOLDS BY SIZE OF HOUSEHOLD, SEX AND ETHNIC GROUP: ALL GROUPS AND AFRICANS

Geographical division Ethnic Group and Sex of Head of Household	Southern Province			Southern Province-Rural			Southern Province-Urban			
	All Group- Both Sexes	Male	Female	All Group- Both Sexes	Male	Female	All Group- Both Sexes	Male	Female	
Total Population	671,919	526,943	114,976	505,364	390,497	114,867	166,555	136,446	30,109	
Population Living in Households	668,104	542,875	143,229	504,267	389,864	114,403	163,837	135,011	28,826	
Number of Households	114,579	85,868	28,711	85,180	62,352	22,828	29,399	23,516	5,883	
Average Size of Households	5.8	6.1	5.0	5.9	6.3	5.0	5.6	5.7	4.9	
Size of Households (Persons)	1	14,827	10,471	4,356	11,442	7,849	3,593	3,385	2,622	763
	2	10,894	7,606	3,288	7,925	5,367	2,558	2,969	2,239	730
	3	11,628	8,088	3,540	8,598	5,791	2,807	3,030	2,297	733
	4	11,941	8,403	3,538	8,688	5,907	2,781	3,253	2,496	757
	5	11,838	8,587	3,251	8,477	5,944	2,533	3,361	2,643	718
	6	10,938	8,190	2,748	7,978	5,819	2,159	2,960	2,371	589
	7	9,945	7,636	2,309	7,196	5,388	1,808	2,749	2,248	501
	8	8,075	6,420	1,655	5,833	4,546	1,287	2,242	1,874	368
	9	6,419	5,280	1,139	4,744	3,838	906	1,675	1,442	233
	10+	18,074	15,187	2,887	14,299	11,903	2,396	3,775	3,284	491

Fig. B-1-3 POPULATION GROWTH RATE

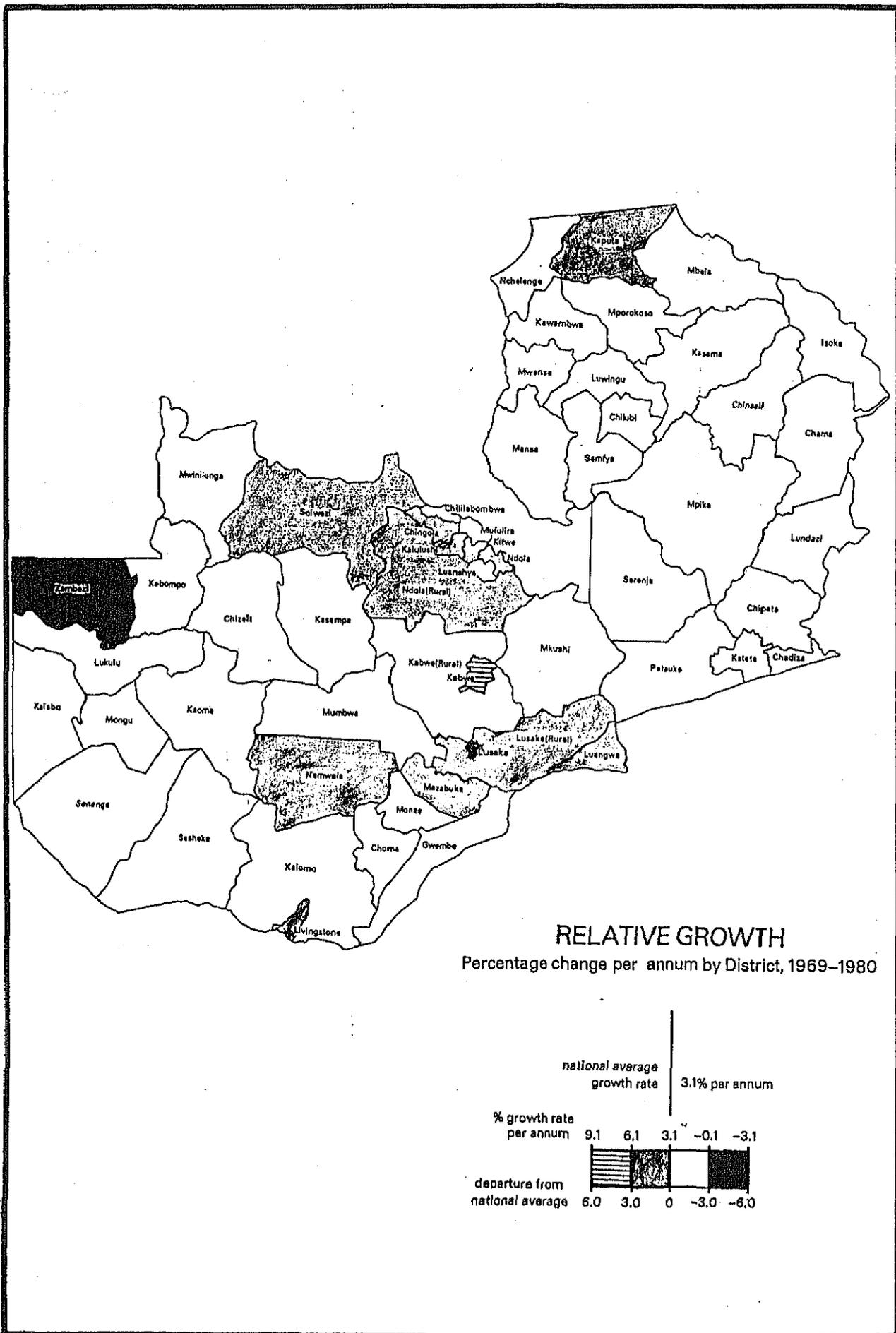
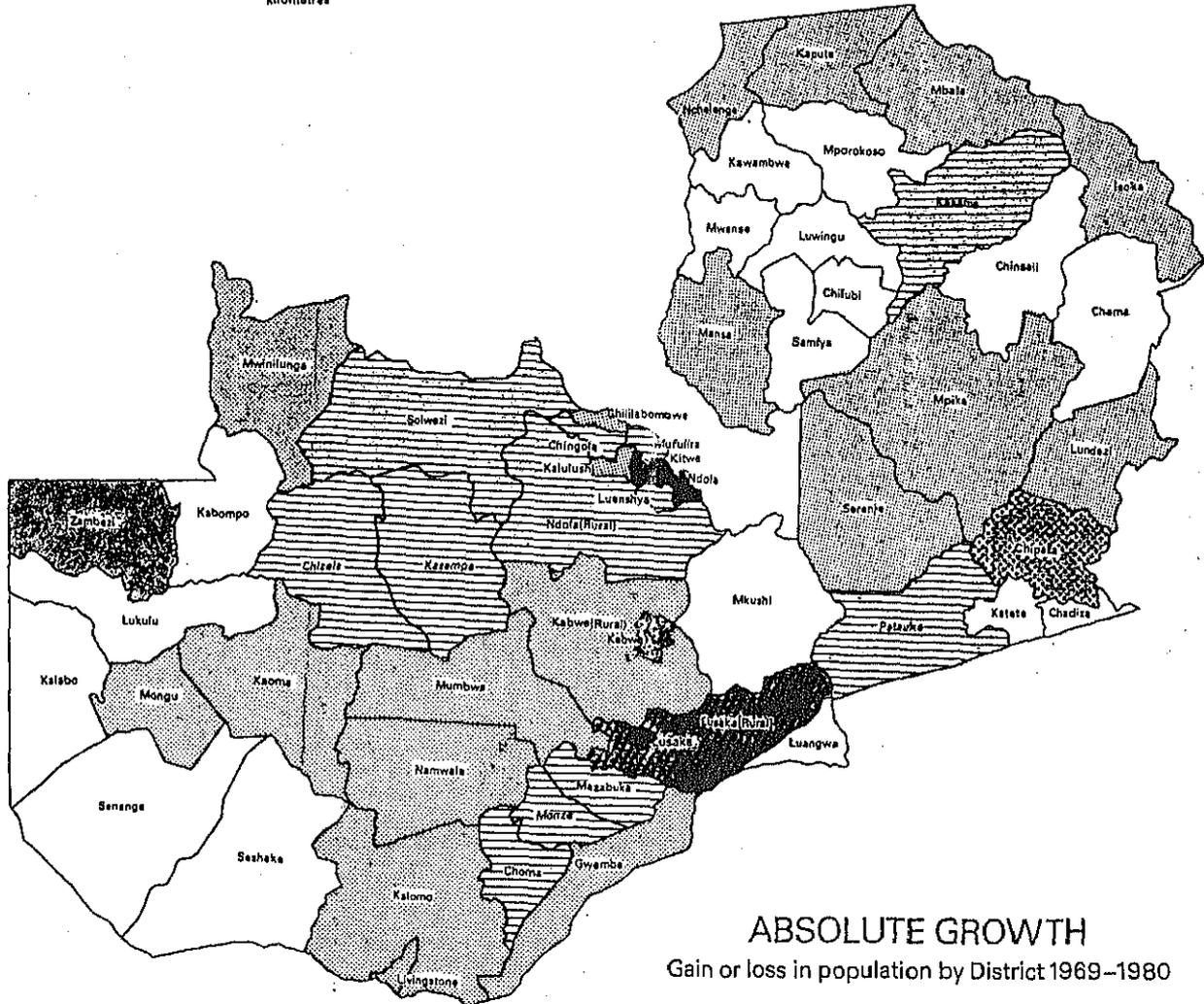
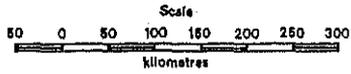


Fig. B-1-4 POPULATIN GROWTH

THE REPUBLIC OF ZAMBIA  
**POPULATION GROWTH**

Based on 1969 and 1980 censuses



**ABSOLUTE GROWTH**  
 Gain or loss in population by District 1969-1980

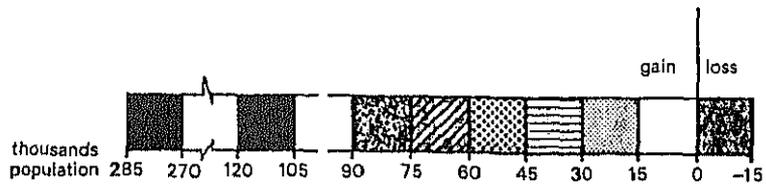


Fig. B-1-5 POPULATION DENSITY

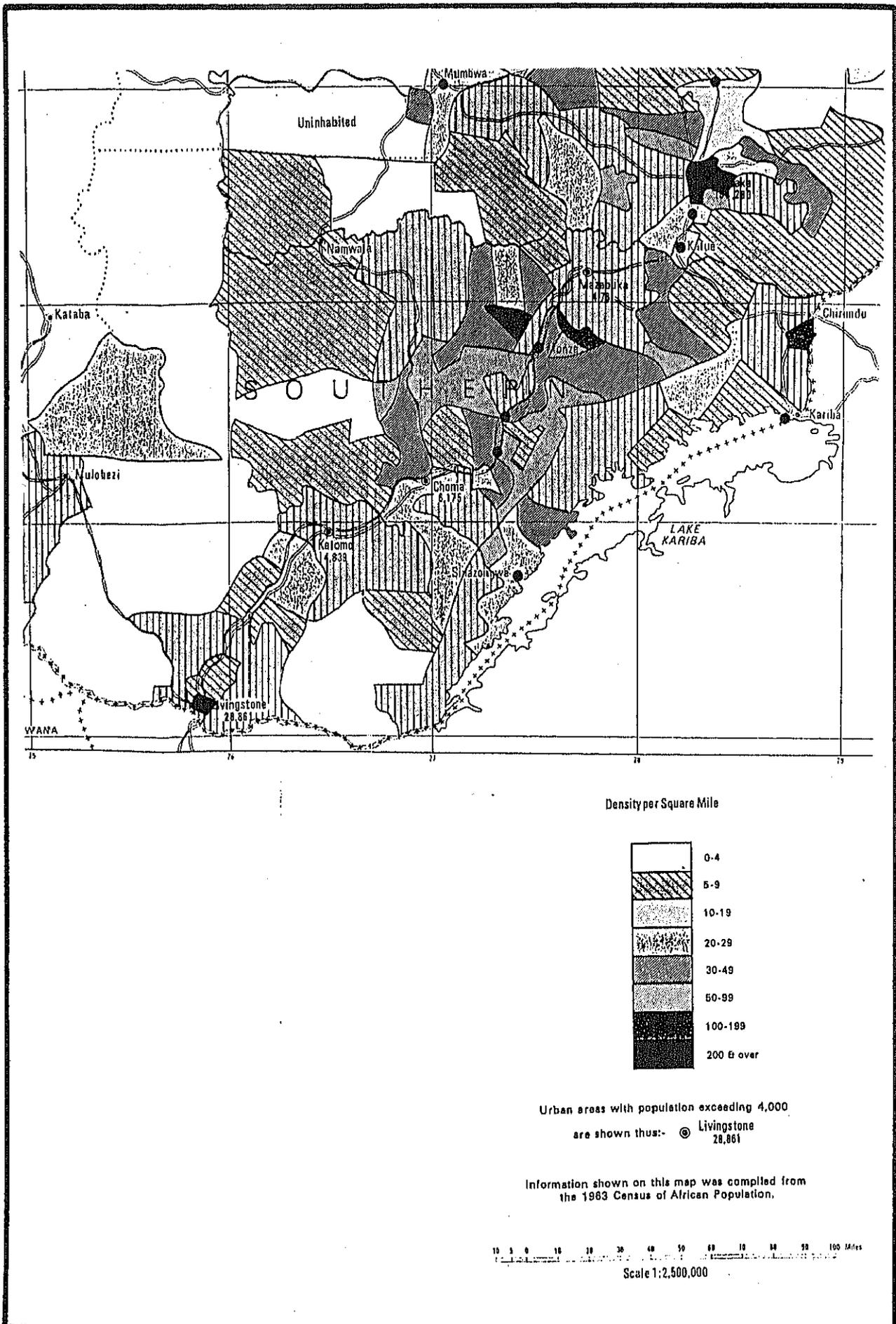


Fig. B-1-6 TRIBES AND LANGUAGES

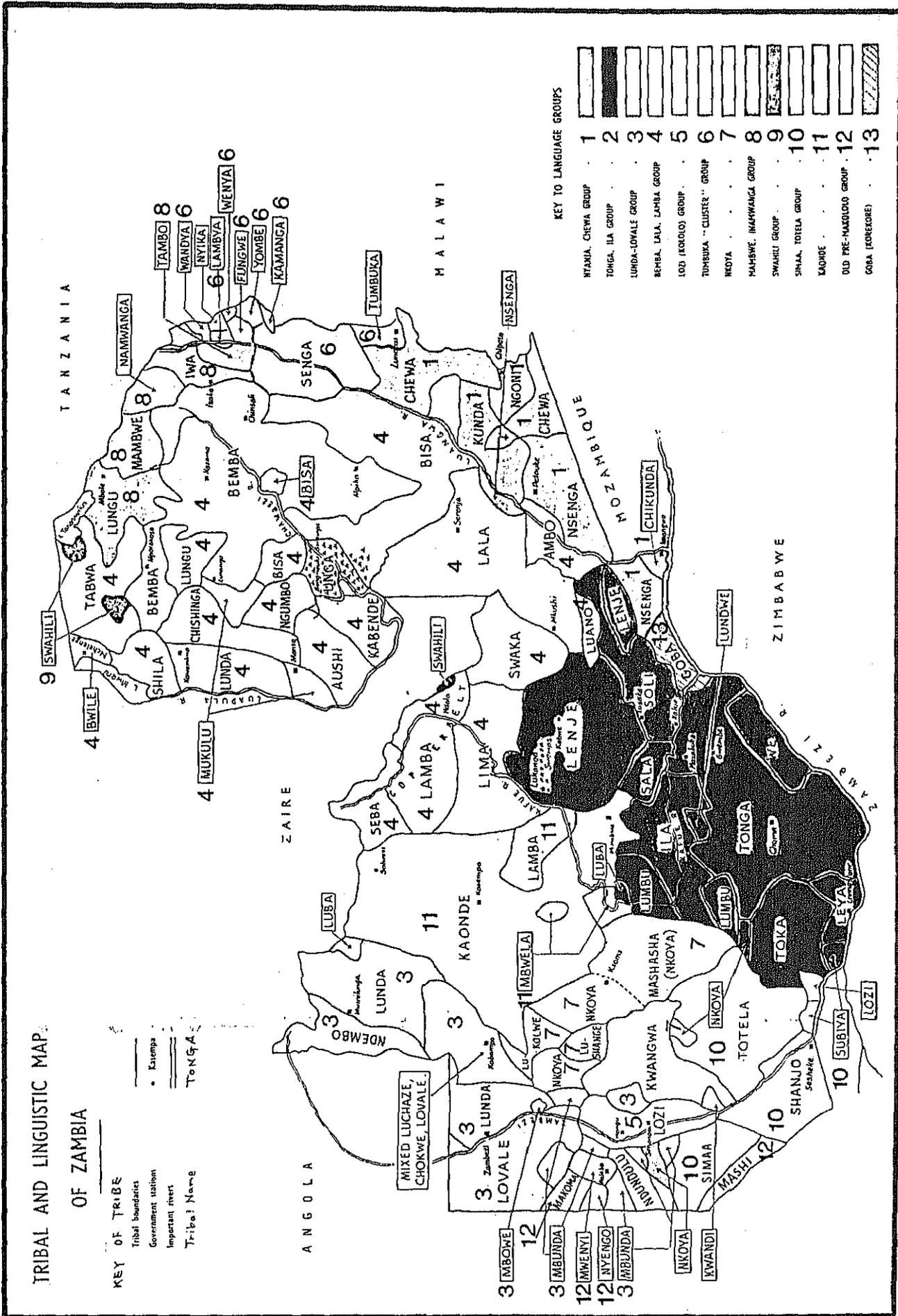


Fig. B-2-1 TOPOGRAPHICAL MAP

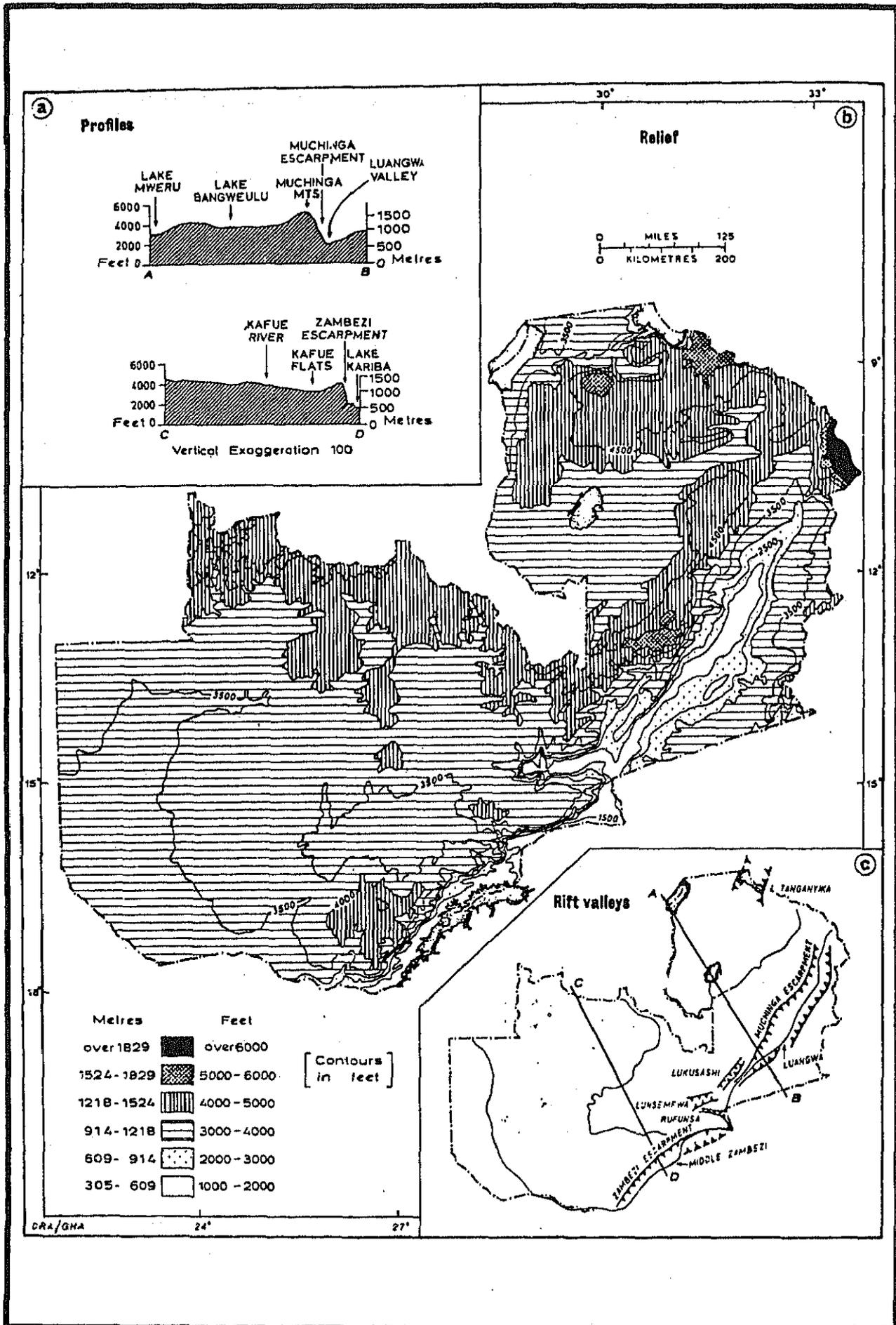


Fig. B-2-2 RIVER SYSTEMS AND THE WATERSHEDS

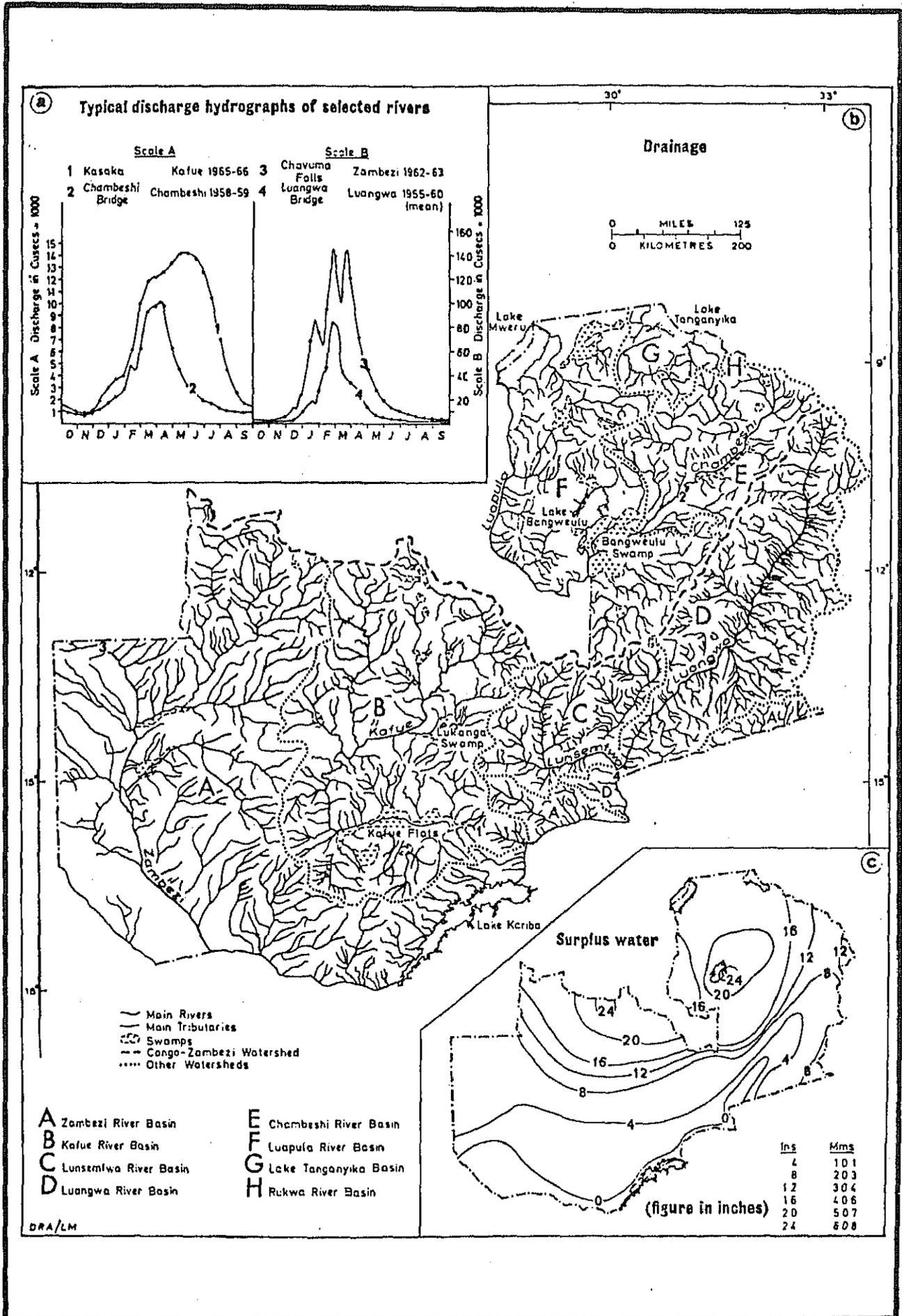


Fig. B-2-3 PRECIPITATION

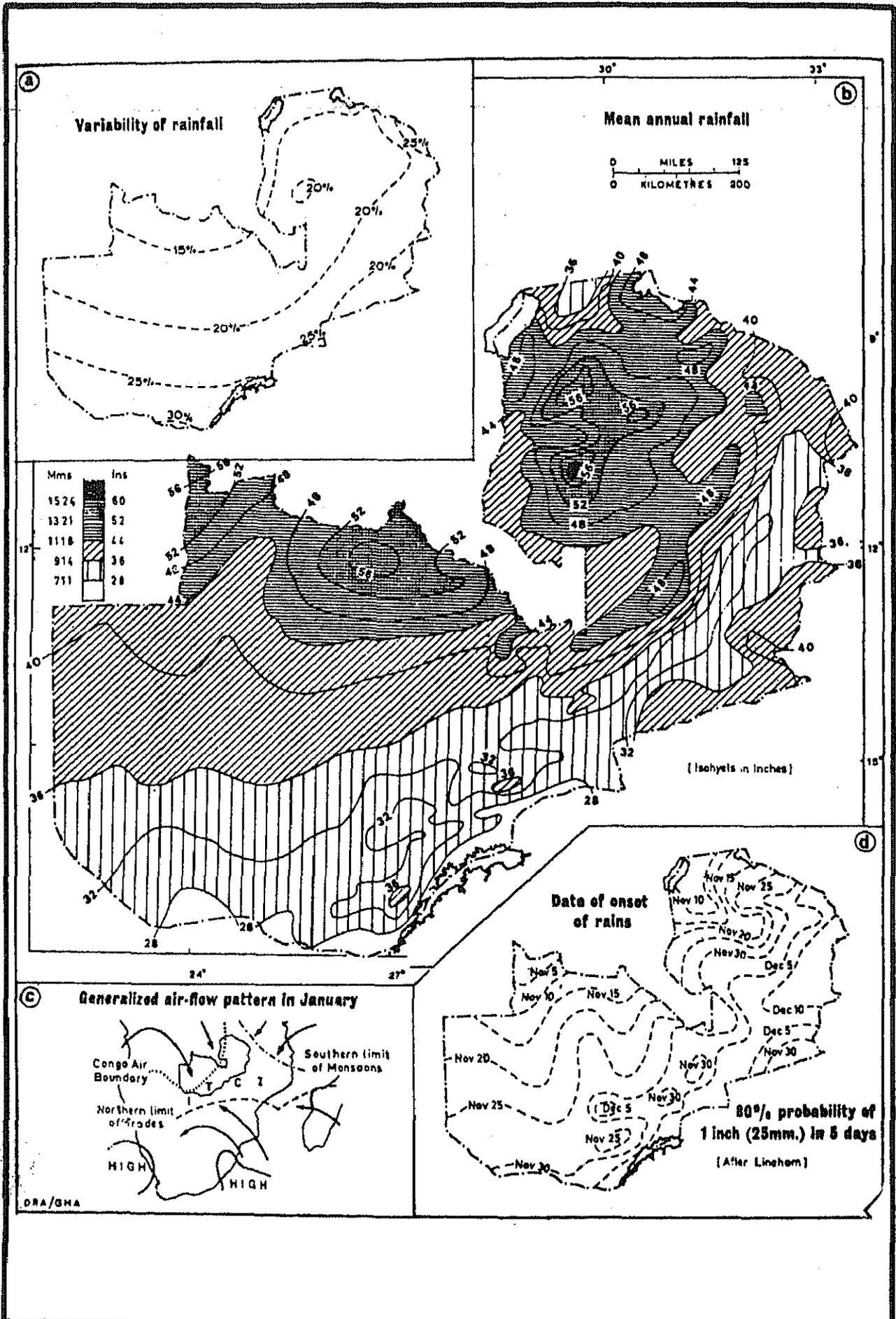
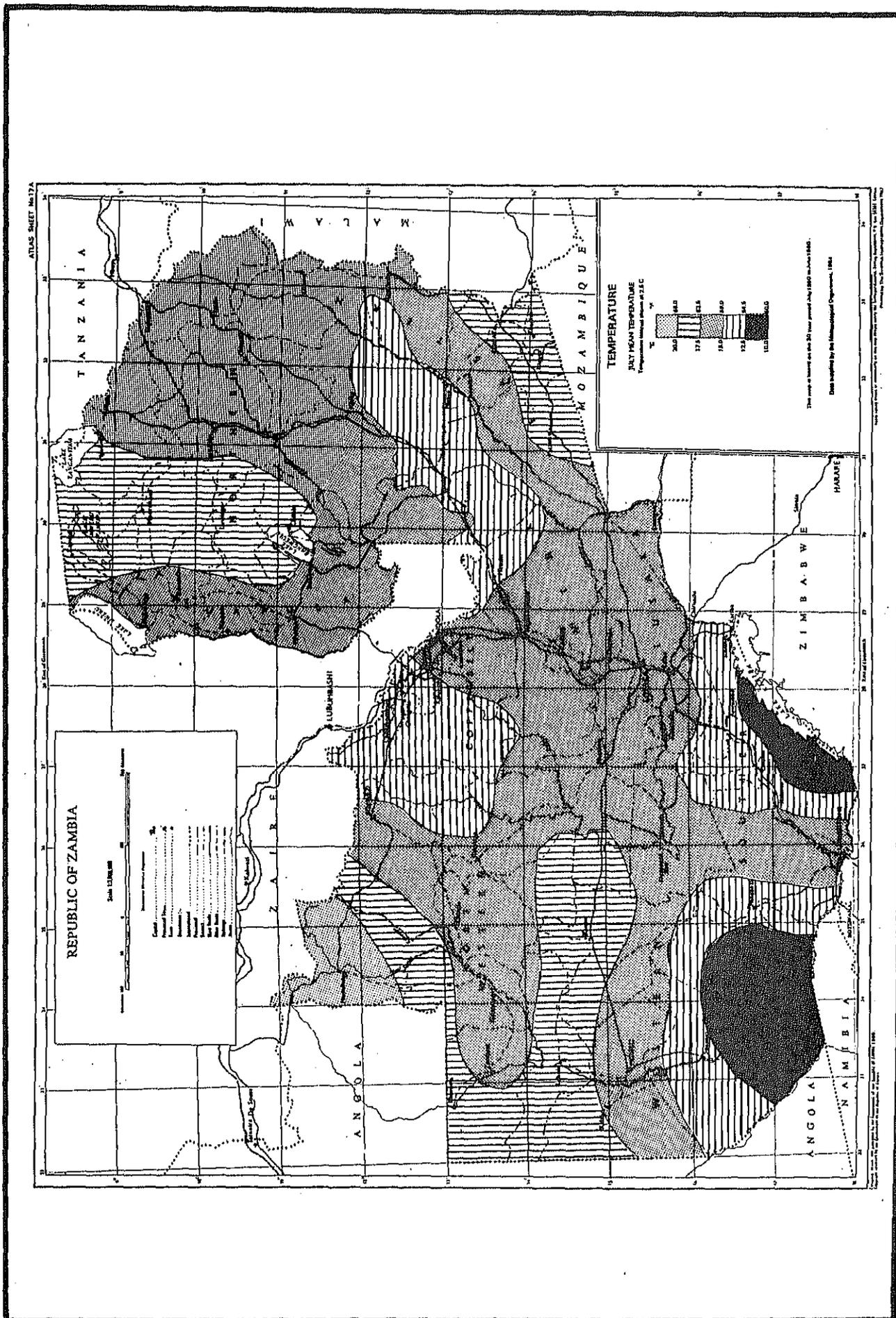


Fig. B-2-4 TEMPERATURE



MONTHLY AVERAGE TEMPERATURE, PRECIPITATION, AND RAINY DAYS  
IN THE MAJOR CITIES OF THE SOUTHERN PROVINCE (1950-1980)

Table B-2-1

Months	KAFUE POLDER (LAT.15° 46's ALT.987m)			CHOMA (LAT.16° 51's ALT.1267m)			LIVING STONE (LAT.17° 49's ALT.986m)			Months
	Mean Temp. (°C)	Mean Monthly Rainfall (mm)	Rain Days ≥10mm	Mean Temp. (°C)	Mean Monthly Rainfall (mm)	Rain Days ≥10mm	Mean Temp. (°C)	Mean Monthly Rainfall (mm)	Rain Days ≥10mm	
July	16.1	0	0	13.4	0	0	15.9	0	0	July
August	18.7	0	0	16.0	0	0	18.9	0	0	August
September	22.6	1	0	19.8	4	0	23.5	2	1	September
October	25.3	12	2	22.7	25	1	26.3	22	3	October
November	24.5	86	8	21.7	104	3	25.1	81	9	November
December	23.0	250	16	21.6	202	7	23.8	197	15	December
January	22.8	195	15	21.4	204	7	23.5	194	15	January
February	22.5	159	13	21.2	174	6	23.3	159	13	February
March	22.2	68	7	20.5	91	3	23.1	84	7	March
April	21.1	23	2	19.2	25	1	22.0	22	3	April
May	18.5	4	1	16.3	9	0	18.9	2	0	May
June	16.3	1	0	13.3	1	0	15.8	0	0	June
Year	21.1	799	64	18.9	839	28	21.7	763	66	Year

Fig. B-2-5 STRATIGRAPHIC MAP

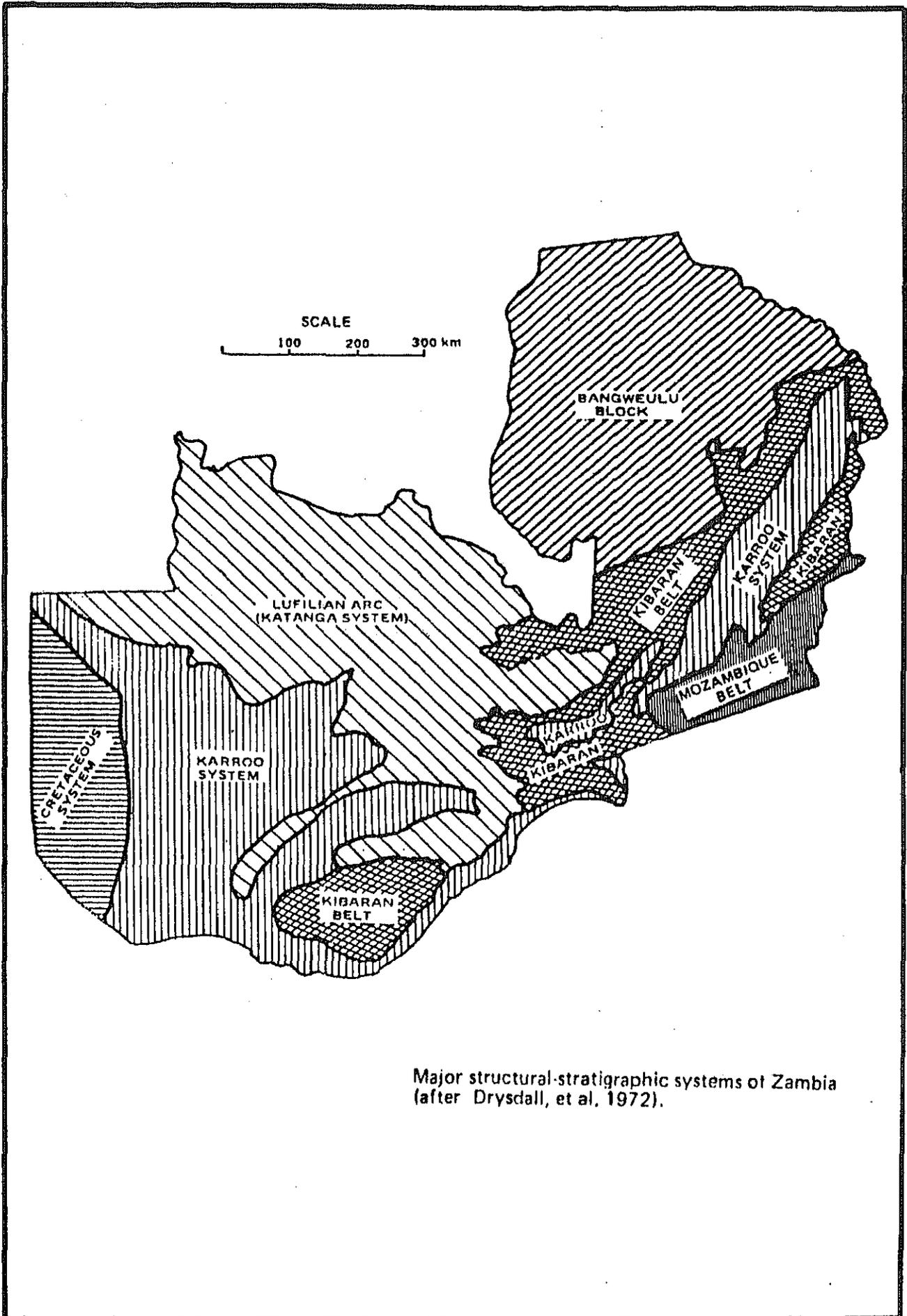
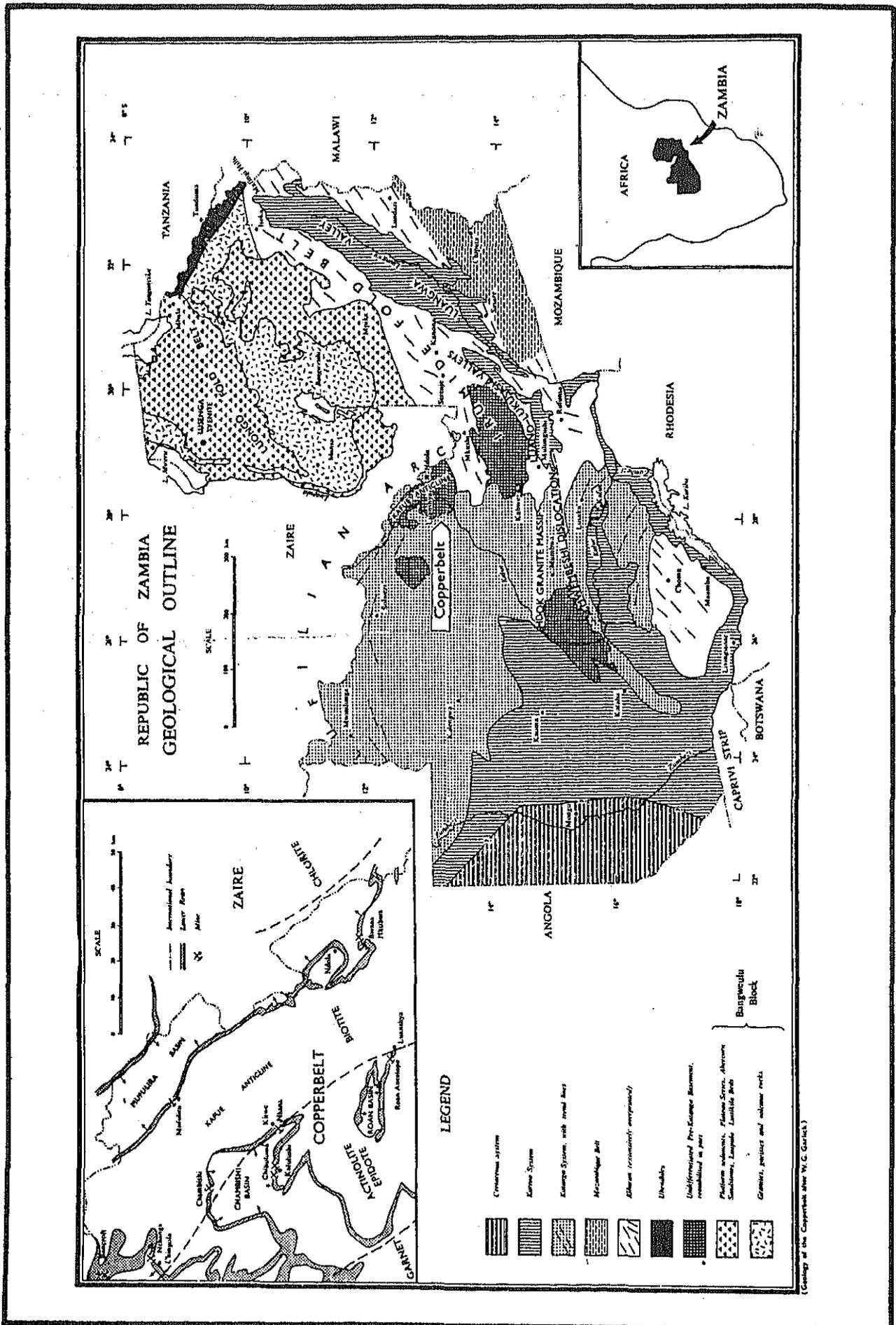


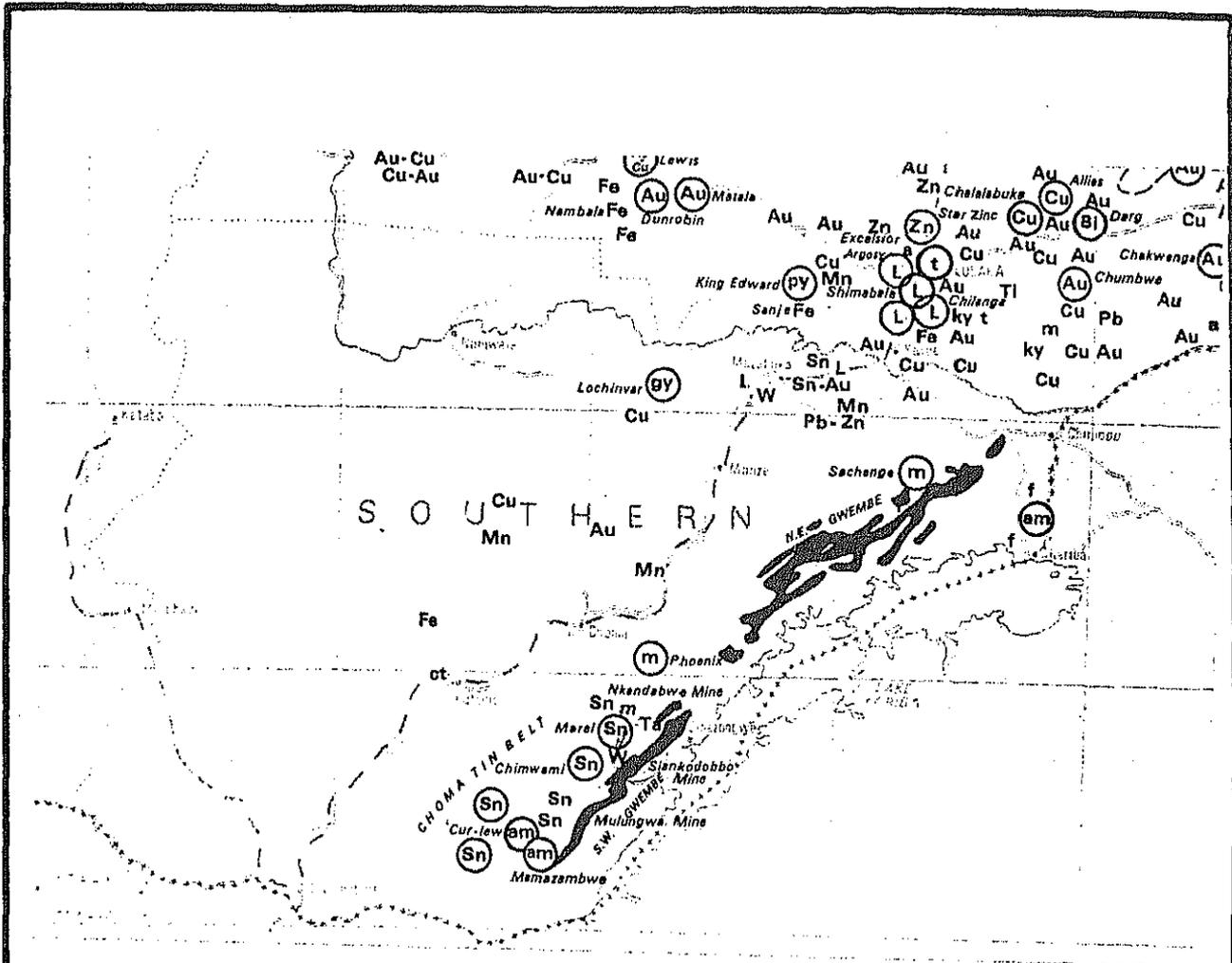
Fig. B-2-6

GEOLOGICAL MAP



(Geology of the Copperbelt after W.C. Gerrick)

Fig. B-2-7 MINERAL DISTRIBUTION MAP



## THE REPUBLIC OF ZAMBIA MINERALS

### EXPLANATION OF SYMBOLS

a	Asbestos	a	Corundum	Pb	Lead
am	Amethyst	f	Fluorspar	pc	Pyrochlore
Ap	Apatite	Fe	Iron	py	Pyrite
Au	Gold	g	Glass sand	Se	Selenium
Ba	Baryte	gr	Graphite	Sn	Tin
Be	Beryl	gy	Gypsum	t	Talc
Bi	Bismuth	ky	Kyanite	Ta	Tantalite
bt	Bastnaesite	L	Limestone	Ti	Titanium
Cd	Cadmium	m	Mica	U	Uranium
Co	Cobalt	Mn	Manganese	V	Vanadium
ct	Columbite	mz	Monazite	W	Tungsten
Cu	Copper	Zn	Zinc		

□ Potential coalfield      ⊙ Obsolete coalmine



Explored areas of Karoo rocks with known coal seams



Unexplored areas of Karoo rocks with known coal occurrences circled

Stippled areas: Mines or Prospects past and present

A red circle around a symbol indicates a mine with current output of the mineral.  
A green circle around a symbol indicates a mine with no current output of the mineral.

Compiled from data supplied by the Director of Geological Surveys.

Scale 1:250,000

Fig. B-2-8 SOIL MAP

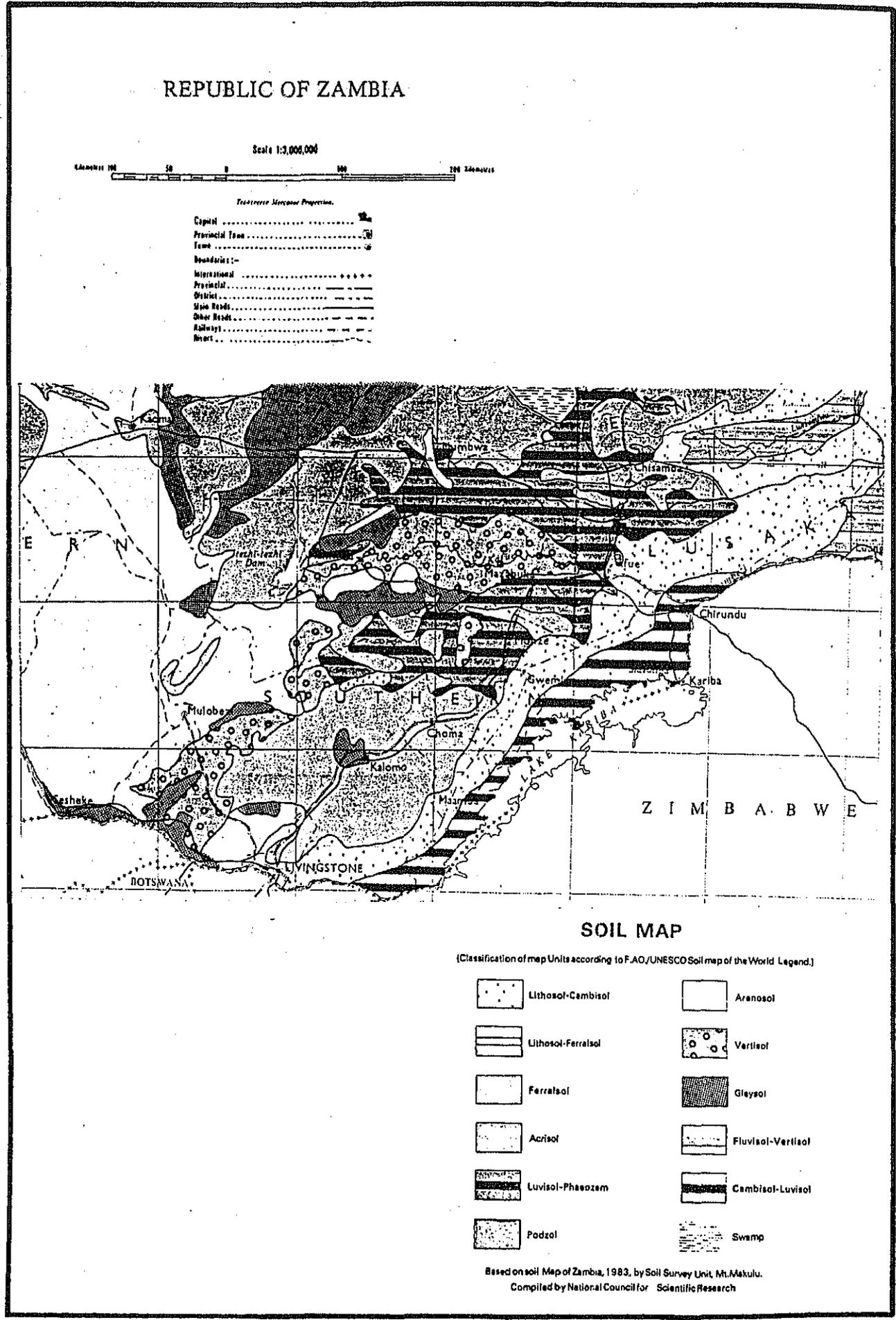


Table B-3-1 MEDICAL FACILITIES IN ZAMBIA\*, 1981

Medical Facilities	1964	1980	1984	1964-1984 %
Hospitals	48	71	82	70.8
Government	19	42	42	121.1
Mission	19	28	29	52.6
Mines/Other	10	11	11	10.0
Health Centers and Clinics	306	721	845	176.1
Rural Health Centers:				
Government	187	469	563	201.1
Mission	63	66	64	1.6
Urban/Dept/Industrial Clinics				
Government	39	120 (a)	140	259.0
Mines/Other	17	66	78	358.8
Total Hospitals and Health Centers	354	802	927	161.9
Number of Beds and Cots in				
Hospitals	7,710	14,889	15,348	99.1
Health Centers	3,140	5,630	6,320	101.3

Table B-3-2 TOTAL NUMBER OF HEALTH PERSONNEL, 1982

Category of Health Personnel	Number	
	1981	1982
Doctor	821	880
Dentist	52	48
Matron	69	78
Sister	238	228
Registered Nurse	871	1,101
Registered Nurse/Midwife	559	454
Zambia Enrolled Nurse	2,651	3,428
Zambia Enrolled Nurse/Midwife	743	681
Medical Assistant	1,222	1,210
Health Assistant	355	314
Pharmacist	35	49
Pharmacy Technician	24	38
Laboratory Technician	105	131
Dental Technician	7	6
X-ray Technician	23	49
Physiotherapist	40	42
Health Inspector	62	70
Other	669	669
Total	8,576	9,476

Source: Ministry of Health: Statistics Unit

Table  
B-3-3

MEDICAL FACILITIES IN EACH PROVINCE

Type of Units	All Zambia	Central	Copperbelt	Eastern	Luapula	Lusaka	Northern	North- Western	Southern	Western
HOSPITALS	82	6	17	9	6	4	8	10	11	11
Central Hospitals	3	-	2	-	-	1	-	-	-	-
Special Hospitals	3	1	1	-	-	1	-	-	-	-
General Hospitals	10	1	-	2	1	-	2	1	2	1
District & Other Hospitals	66	4	14	7	5	2	6	9	9	10
HEALTH CENTERS	825	72	157	88	79	62	84	92	104	87
Urban Health Centers and Clinics	198	15	122	2	1	35	2	2	17	2
Rural Health Centers	612	55	32	86	75	27	80	86	87	84
Zambia Flying Doctor Service	15	2	3	-	3	-	2	4	-	1
MOBILE CLINICS	35	3	5	1	12	3	-	8	-	3
LAPROSIA	15	-	-	1	1	-	1	4	1	7
TOTAL	957	81	179	99	98	69	93	114	116	108

Source: Ministry of Health.

TableB-4-1 NUMBER OF EDUCATIONAL INSTITUTIONS

Year	Primary Schools	Secondary Schools	Teacher Training	Vocational and Technical	University or Zambia
1971	2,598	114	9	13	1
1972	2,628	110	9	13	1
1973	2,654	110	10	13	1
1974	2,669	113	11	14	1
1975	2,710	120	12	14	1
1976	2,743	121	13	14	1
1977	2,756	120	14	15	1
1978	2,777	124	14	14	1
1979	2,786	125	14	14	1
1980	2,813	128	14	14	2
1981	2,851	135	14	14	2
1982	2,886	142	14	14	2
1983	2,977	144	14	14	2
1984	3,055	194	14	14	2

Source: Ministry of General Education and Culture

TableB-4-2 NUMBER OF STUDENTS IN EACH TYPE OF EDUCATIONAL INSTITUTION

Year	Primary Schools	Secondary Schools	Teacher Training	Technical Education	University of Zambia
1971	729,801	56,005	2,419	3,656	1,566
1972	777,873	60,051	2,428	4,123	1,765
1973	810,234	61,354	2,642	4,609	2,244
1974	858,191	65,764	2,900	5,666	2,612
1975	872,392	73,049	3,070	5,421	2,354
1976	907,867	78,805	3,406	5,569	2,569
1977	936,817	83,887	3,780	5,709	3,102
1978	964,475	88,980	3,923	5,788	3,268
1979	996,597	91,795	4,406	5,284	3,399
1980	1,041,938	94,595	4,445	5,338	3,425
1981	1,073,314	98,862	4,485	5,502	3,923
1982	1,121,769	104,859	3,343	5,668	3,337
1983	1,194,070*	115,088	4,304	5,291	4,311
1984	1,260,366*	125,811	4,653	4,910	4,554

Source: Ministry of General Education and Culture.

\* Provisional

TableB-4-3 LITERACY RATE

Year	Literate Population (15+)		Percentage of Literates	
	1969	1980	1969	1980
Male	654,421	1,045,440	61.8	75.4
Female	413,599	797,982	36.3	53.1
Total	1,068,020	1,843,422	51.4	63.8

TableB-5-1 WATER SUPPLY SITUATIONS IN LARGE URBAN AREAS

Name of LUA	Population 1980	Capacity of existing schemes			
		Year	Total m3/day	Groundwater m3/day	Surface water m3/day
Lusaka	538,469	1983	150,000	75,000	75,000
Kitwe	314,794	1983	60,000	-	60,000
Ndola	282,439	1978	110,000	-	110,000
Mufulira	149,778	1980	18,000	-	18,000
Chingola	145,869	1980	26,000	-	26,000
Kabwe	143,635	1983	32,000	-	32,000
Luanshya	132,164	-	-	-	-
Livingstone	71,987	1977	22,000	-	22,000
Chililabombwe	61,928	-	-	-	-
Kalulushi	59,213	-	-	-	-
Total LUAs	1,900,276	-	-	-	-

Source: Personal Communication - Lusaka, Kitwe and Kabwe Feasibility Studies Reports - Ndola, Mufulira, Chingola, Livingstone.

TableB-5-2 RESPONSIBLE AGENCIES FOR WATER SUPPLY IN SMALL URBAN TOWNSHIPS

Responsible Agency	Number of SUTs	1980 Population	% of Total Population of Zambia
DWA	49	330,000	5.8
District Council	19	218,000	3.8
Minig and Parastatals	7	15,000	0.3
Total SUTs	75	563,000	9.9
DWA	12RTS	30,000	0.5
Total Townships	87	593,000	10.4

Table B-6-1 TYPES OF SANITARY FACILITIES IN LARGE URBAN AREAS

Housing Category	Type of Service	Population	% of Total Population
High Cost	Individual Flush	133,019	7.0
Servants Quarters	Individual Flush	114,016	6.0
Medium Cost	Individual Flush	95,014	5.0
Low Cost	Individual Flush	513,075	27.0
Low Cost	Communal Flush	113,019	7.0
Low Cost/ Service Site/Squatter Units	Other (Mostly Pit latrine)	912,132	48.0
Total		1,990,276	100.0

Table B-6-2 TYPES OF SANITARY FACILITIES IN SMALL URBAN TOWNSHIPS AND RURAL AREAS

Housing Category	Type of Service	Population	% of Total Population
High Cost	Individual Flush	15,000	2.5
Medium Cost	Individual Flush	29,000	4.9
Low Cost	Individual Flush	110,000	18.6
Low Cost	Communal Flush	12,000	2.1
Low Cost/ Service Site/Squatter	Others (Mostly Pit latrines)	427,000	71.9
Total		593,000	100.0

TableB-6-3 USE RATE OF PIT LATRINES IN RURAL AREAS

Province	Rural Population	% of Rural Population using adequate Pit Latrine
Central	330,733	33
Cooperbelt	100,034	21
Luapula	347,251	31
North	560,145	30
North-western	263,632	43
Southern	500,388	60
Western	425,410	38
Total	3,239,389	30 (Average)

TableB-6-4 USE RATES OF VARIOUS SANITARY FACILITIES

Type of Facility	% of Urban Population	% of Rural Population
Flush Toilet	58	4
Spetic Tank/Aquaprivy	7	<1
Pit Latrine	27	34
Bucket Service	2	-
None	6	62
Total	100	100

Source: Ministry of Health, Country Health Profile 1978,13.

Table B-7-1 GROSS DOMESTIC PRODUCT (GDP)

	(Million kw)									
	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
At Current Prices	1,986	2,251	2,660	3,064	3,485	3,595	4,181	4,931	7,048.6	12,097.9
At 1977 Prices	1,986	1,998	1,937	1,996	2,119	2,059	2,018	2,013	2,041.4	2,052.2

Table B-7-2 GDP GROWTH RATE

	( % )								
	'77-'78	'78-'79	'79-'80	'80-'81	'81-'82	'82-'83	'83-'84	'84-'85	'85-'86
At Current Prices	13.3	18.2	15.2	13.7	3.21	16.3	17.9	42.9	71.6
At 1977 Prices	0.6	3.1	3.0	6.2	-2.8	-2.0	-0.3	1.4	0.5

Source: Country Profile September 1986.  
Economic Review 1986 and Annual Plan 1987.

Table B-7-3 SHARES OF GDP IN DIFFERENT SECTORS (1)

Economic Activity	1979	1980	1981	1982	1983	1984
Agriculture, Forestry, Fishing and Hunting	309.7	303.9	328.7	290.3	314.6	345.2
Minig & Quarring	195.1	205.2	214.8	215.2	221.7	203.9
Manufacturing	392.9	383.5	430.2	415.1	384.5	377.9
Electricity, Gas and Water	63.4	65.8	71.0	75.8	72.2	72.0
Construction	89.0	102.8	78.9	84.0	88.6	88.3
Wholesale and Retail Trade	176.7	196.2	195.2	178.5	171.8	155.1
Hotels, Bars and Restaurants	34.2	40.1	53.4	53.3	55.8	54.8
Transport, Communication and Storage	123.9	117.5	118.3	118.8	119.4	112.7
Financial Institutions	73.7	66.8	65.0	70.8	66.2	56.2
Real Estate and Business Services	133.3	144.5	153.3	155.7	168.3	168.8
Community, Scocial and Personal Services	328.6	346.0	393.9	393.9	355.7	357.8
Import Duties	37.1	42.3	36.4	27.7	18.5	15.1
Less Imputed Bank Service Charges	20.6	18.8	18.2	19.8	18.5	15.7
<b>Total GDP</b>	<b>1937.0</b>	<b>1995.8</b>	<b>2118.9</b>	<b>2059.3</b>	<b>2018.0</b>	<b>1992.1</b>

Source: Central Statistical Office, Lusaka.

Table B-7-4 SHARES OF GDP IN DIFFERENT SECTORS (2)

Economic Activity	1984	1985	1986
Aggregate GDP	2,013	2,041	2,052
Agriculture, Forestry and Fisheries	332	344	364
Minig	200	185	174
Manufacturing	389	420	420
Electricity, Gas and Water	71	73	74
Construction	89	77	81
Wholesale and Retail Trade	168	175	169
Hotels, Bars and Restaurants	49	51	49
Transport and Communications	116	109	107
Financial Institutions and Insurance	63	61	60
Real Estate and Business Services	180	179	186
Community, Scocial and Personal Services	355	365	362

Source: Central Statistical Office (CSO)

Table B-7-5 NUMBER OF EMPLOYED PERSONS

Industry	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981**	1982*	1983**	1984*
Agriculture Forestry and Fisheries	31	32	34	36	33	31	32	32	33	36	35	35	35
Mining and Quarrying	61	62	65	65	64	65	41	62	63	61	60	58	58
Manufacturing	43	44	44	44	43	46	46	45	48	48	48	49	48
Energy and Water	5	5	5	5	7	7	7	8	8	8	8	8	9
Construction	72	71	71	72	50	50	45	42	44	37	33	32	34
Distribution, Hotel and Restaurants	34	35	36	33	34	33	32	37	31	31	30	30	30
Transport and Comm.	25	24	22	22	21	21	22	25	24	25	24	23	24
Finance, Insurance, Real Estate and Business Services	14	15	17	19	19	18	21	20	23	22	23	22	22
Community, Social & Personal Services (1)	83	87	93	98	98	100	102	104	106	106	107	106	105
All Industries	368	375	387	394	369	371	368	375	380	374	368	363	365

\* All figures are average of quarter ending December except for 81,82,83 and 84 being the average ending June.  
 \*\* Preliminary.  
 Source: Central Statistical Office, Lusaka.

Fig. B-7-1 EMPLOYMENT STRUCTURE

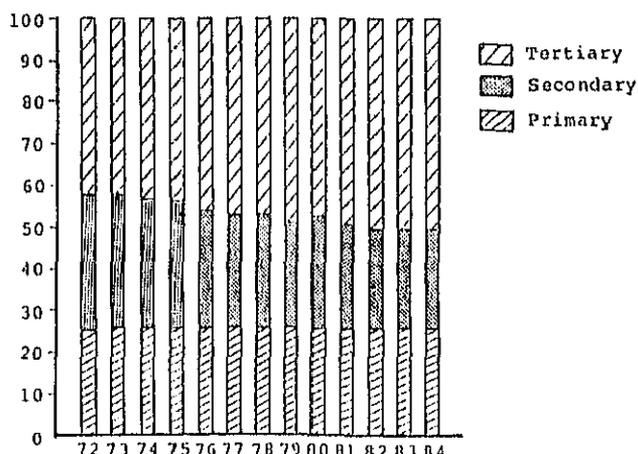


Table B-7-6 NUMBER OF EMPLOYED PERSONS IN DIFFERENT SECTORS

Industry	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981*	1982*	1983*	1984*
Agriculture Forestry and Fisheries	8	9	9	9	9	8	9	9	9	10	10	10	10
Mining and Quarrying	17	17	17	17	17	18	17	17	17	16	16	16	16
Primary	25	26	26	26	26	26	26	26	26	26	26	26	26
Manufacturing	12	12	12	11	12	12	13	12	13	13	13	13	13
Energy and Water	1	1	1	1	2	2	2	2	2	2	2	2	2
Construction	20	19	18	18	14	13	12	11	12	10	9	9	9
Secondary	33	32	31	30	28	27	27	25	27	25	24	24	24
Distribution, Hotel and Restaurants	9	9	9	8	9	9	9	10	8	8	8	8	8
Transport and Comm.	7	7	6	6	6	6	6	7	6	7	7	7	7
Finance, Insurance, Real Estate and Business Services	4	4	4	5	5	5	6	5	6	6	6	6	6
Community, Social & Personal Services (1)	23	23	24	25	27	27	28	28	28	28	29	26	29
Tertiary	43	43	43	44	47	47	49	50	48	49	50	50	50
All Industries	100	100	100	100	100	100	100	100	100	100	100	100	100

\* Preliminary.

Table B-7-7

## MINERAL PRODUCTION

Year	Total Value (K'000)	Copper		Cobalt		Zinc		Lead		Coal		Other Value (K'000)
		Qty '000' Tonnes	Value (K'000)	Qty Tonnes	Value (K'000)	Qty '000' Tonnes	Value (K'000)	Qty '000' Tonnes	Value (K'000)	Qty '000' Tonnes	Value (K'000)	
1970	673,508	683.3	648,020	2,052	4,522	53.5	10,302	27.3	5,159	623.2	1,228	4,277
1972	514,562	698.0	479,816	2,055	6,899	55.9	13,695	25.9	4,653	936.5	1,887	7,612
1974	936,204	702.1	876,664	1,964	9,461	58.3	26,375	24.5	8,027	809.5	7,930	7,747
1976	687,224	712.9	633,660	1,620	10,762	37.1	17,176	13.5	3,032	762.0	12,031	10,563
1978	642,685	655.6	557,408	1,560	35,342	42.5	17,160	12.7	5,534	615.1	15,902	11,339
1980	1,178,603	609.5	955,359	3,309	141,734	32.7	16,777	10.0	6,098	579.1	17,527	41,108
1981	959,948	560.6	781,463	2,569	91,774	33.3	23,537	9.9	5,371	507.3	16,988	40,815
1982	861,301	584.4	716,820	2,444	45,258	39.2	27,630	14.6	6,017	603.9	22,346	37,036
1983	1,250,730	576.1	1,076,617	2,407	34,825	37.8	36,239	14.8	6,332	452.8	17,802	78,917
1984	1,526,628	523.3	1,224,724	3,472	123,061	29.2	49,395	8.8	5,923	510.6	27,930	94,592

Note: Qty is Quantity  
Source: Central Statistical Office

Table B-7-8 CONTRIBUTION OF COPPER INDUSTRY TO GDP, GOVERNMENT REVENUE, AND EXPORT

Year	Gross Domestic Product at Current Prices	Contribution to Gross Domestic Product		Government Revenue	Contribution to Government Revenue		Value of Domestic (1) Exports f.o.b.	Copper and Value of Exports	Cobalt Contribution to exports
	(K'mill)	(K'mill)	%	(K'mill)	(K'mill)	%	(K'mill)	(K'mill)	%
1969	1,314	637	48	400	235	59	754	729	97
1970	1,279	462	36	432	251	58	710	688	97
1971	1,181	268	23	309	114	37	480	454	95
1972	1,338	317	24	315	56	18	536	499	93
1973	1,591	506	32	385	108	28	738	703	95
1974	1,893	607	32	647	339	52	900	847	94
1975	1,583	204	13	448	59	13	518	479	93
1976	1,872	330	18	443	12	3	749	705	94
1977	1,986	223	11	499	-	-	706	661	94
1978	2,251	272	12	550	-	-	685	634	93
1979	2,660	456	17	595	-	-	1,087	1,027	94
1980	3,064	490	16	768	42	5	1,020	960	94
1981	3,485	473	14	820	11	1	930	875	94
1982	3,595	382	11	840	-	-	945	881	93
1983	4,181	619	15	957	42	4	1,048	959	92
1984	4,733	651	14	-	-	-	1,188	1,051	88

Merchandise - export totals, as resulting from trade returns  
Source: Central Statistical Office.

Table B-7-9

## INDEX OF INDUSTRIAL PRODUCTION IN DIFFERENT MANUFACTURING FIELDS

	Manufacturing								
	Total Manu- facturing	Food, Beverage and Tobacco	Textiles and Clothing	Wood and Wood Products	Paper and Paper Products	Chemicals, Rubber and Plastic	Non- Metallic Mineral Products	Basic Metal Industries	Other Metal Products
Weights	237	73	28	9	12	44	16	5	50
Year									
1972	94.5	96.3	102.3	81.5	99.2	86.8	108.4	95.2	91.0
1973	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1974	110.6	106.3	118.9	119.5	101.1	119.2	110.2	131.6	103.6
1975	105.5	104.0	117.9	88.9	115.5	107.8	114.4	98.0	97.1
1976	101.6	101.5	118.9	69.6	94.1	106.7	102.7	100.5	95.0
1977	98.5	98.1	100.4	76.9	102.6	105.8	134.5	109.8	81.9
1978	102.6	99.3	140.7	75.4	123.3	103.5	132.7	121.0	73.8
1979	96.2	91.2	147.1	75.0	96.8	107.1	121.5	114.8	59.1
1980	94.7	93.6	165.4	79.8	32.9	92.6	81.3	114.2	66.4
1981	104.9	100.4	184.7	108.1	82.0	119.2	95.8	98.9	62.8
1982	100.1	96.0	195.0	93.3	88.9	96.2	90.2	84.2	66.8
1983	95.1	91.1	157.8	45.9	91.1	91.3	120.9	95.0	67.7
1984	91.9	90.6	160.7	45.1	77.8	93.0	79.9	97.1	82.5
1985	103.0	89.0	196.2	52.4	104.1	86.2	138.0	93.2	96.8
1986	101.9	95.5	142.8	52.5	116.9	87.5	101.3	88.5	92.1
1987	112.3	110.5	207.9	40.7	253.7	72.5	80.4	57.1	90.8

Source: Central Statistical Office, NCDP.

Table B-7-10 FOREIGN TRADE (1)

Year	Total Exports	Total Imports	Export Surplus
1970	714,964	340,711	374,253
1971	485,177	399,284	85,895
1972	541,564	402,471	139,093
1973	741,955	346,867	395,089
1974	905,091	506,636	398,455
1975	521,049	597,611	-76,562
1976	751,850	468,748	283,102
1977	708,016	529,970	178,046
1978	686,808	492,605	194,203
1979	1,090,006	593,640	496,366
1980*	1,023,276	876,686	146,590
1981*	936,496	924,444	12,052
1982*	950,456	929,997	20,459
1983*	1,045,545	893,174	152,371
1984*	1,188,098	1,107,866	80,232

\* Preliminary

Source: Central Statistical Office, Lusaka.

Fig. B-7-2 FOREIGN TRADE (2)

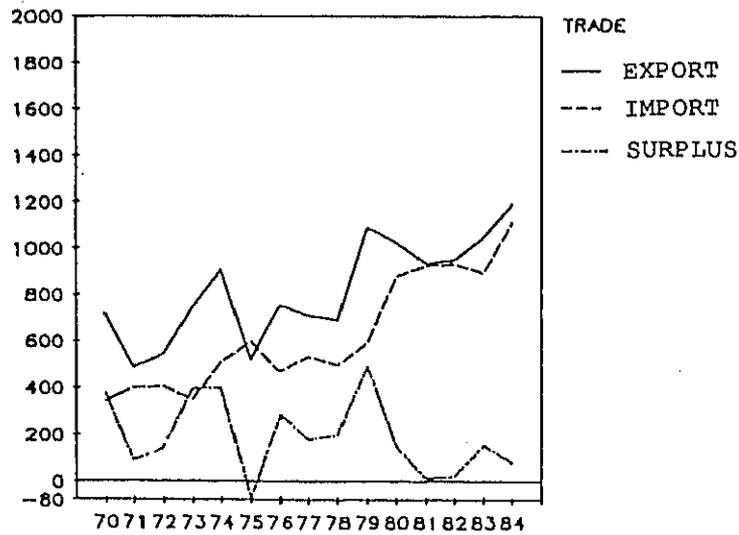


Fig. B-7-3 FOREIGN TRADE PARTNERS

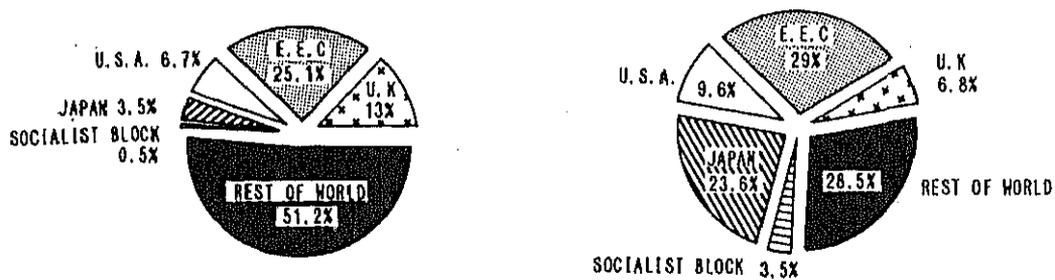


Table B-7-11 INTERNATIONAL MONETARY BALANCE

(Unit: Million U.S. Dollars)

Item	Export				Import			Payment Balance	Trade Balance	Longterm Capital Balance	Basic Balance	Overall Balance	Foreign Currency Reserve
	Total	Copper	Zinc	Lead	(2) Total	Grain	(3) Machinery						
1960	362	-	-	-	-	-	-	-	-	-	-	-	-
1965	532	487	14	4	295	5	-	8	201		15.6	12.6	199.6
1970	1,001	950	15	7	477	12	-	108	455		-17	145	513.8
1975	810	721	32	9	929	29	-	-721	-144		-349	-343	149.1
1978	869	744	22	4	628	19	224	-298	213	18	-280	-341	60.2
1979	749	1,125	34	8	750	29	254	37	652	218	245	70	90.7
1980	1,299	1,108	25	8	1,111	28	383	-539	343	170	-368	-223	88.6
1981	1,074	958	26	6	1,062	43	361	-742	-69	556	-186	-460	65.7
1982	1,066	920	27	5	831	32	345	-614	-61	224	-390	-390	141.7
1983	828	-	-	-	703	-	-	-228	212	126	-102	-453	125.4
1984	655	-	-	-	608	-	-	-175	280	61	-114	-233	54.9
1985	539	-	-	-	698	-	-	-98	275	-93	-191	-18	36.4

Notes: (1) Figures prior to 1975 were obtained from various official publications.  
 (2) Total imported amount was f.o.b. price.  
 (3) Machines and transport equipment.

Source: Overseas Economic Cooperation Manual (1987)

Table B-7-12 TRADE WITH JAPAN

(Unit: Million U.S. Dollars)

	1981	1982	1983	1984	1985
Import from Japan	51.70	51.41	27.60	34.62	60.13
Export to Japan	273.10	227.16	166.87	202.39	222.55

(Unit: Million U.S. Dollars)

Major Trade Items in 1985	Import		Export	
	Electrical Appliances and Machinery	Transportation Equipment	Industrial Products	Raw Materials
	18.10	14.52	221.40	0.97

Table B-7-13

## CONSUMER PRICE INDEX

BASE: 1975=100

Year	High Income		Low Income		Combined	
	Index	% Change on year	Index	% Change on year	Index	% Change on year
1970	70.4	-	70.9	-	70.8	5.9
1971	74.5	5.8	75.1	5.9	75.0	5.9
1972	78.7	5.6	78.9	5.1	78.9	5.2
1973	84.6	7.5	84.0	6.5	84.1	6.6
1974	92.2	9.0	90.8	8.1	90.9	8.1
1975	100.0	8.5	100.0	10.1	100.0	10.0
1976	116.1	16.1	118.8	18.8	118.5	18.5
1977	136.0	17.1	142.3	19.8	141.5	19.4
1978	152.6	12.2	165.6	16.4	163.9	15.8
1979	169.8	11.3	181.6	9.7	180.1	9.9
1980	189.4	11.5	202.9	11.7	201.2	11.7
1981	209.1	10.4	231.3	14.0	228.5	13.6
1982	236.6	13.2	260.2	12.5	257.2	12.6
1983	278.6	17.8	311.2	19.6	307.0	19.4
1984	336.4	20.7	373.5	20.0	368.8	20.1
1985	446.4	32.7	513.3	37.4	504.7	36.8

\* The consumer price index is a measure of retail price change. The selection of the 500 goods and services (food, clothing, rent, household goods, medical care, transport, recreation etc.) was made from the framework of the Household Budget Survey 1974/75. Low income group was originally defined as income earners below K100 per month. In 1974/75 only 10 percent of the urban households had this income level. The weights assigned to the main groups, sub-groups and item have been determined in accordance with the expenditure patterns of households in the Household Survey 1974/75.

Source: Central Statistical Office, Lusaka.

Table B-7-14

## CONSUMER PRICE INDICES OF DIFFERENT ITEMS

BASE: 1975=100

Year	All Item	Food Beverages and Tobacco	Clothing and Footwear	Rent, Fuel and Lighting	Furniture and Household	All Other Services
1976	118.8	122.3	116.4	101.4	120.4	111.5
1977	142.3	144.8	155.8	109.4	159.0	138.0
1978	165.6	169.4	193.4	115.9	187.5	149.7
1979	181.6	184.5	226.6	119.4	213.1	163.6
1980	202.9	211.1	244.2	123.4	226.6	178.3
1981	231.3	242.7	260.7	134.2	285.5	187.2
1982	260.2	276.6	285.9	138.7	328.5	213.1
1983	311.2	333.8	317.0	152.2	460.4	261.4
1984	373.5	395.8	364.0	201.0	600.2	308.0
1985	513.3	540.0	521.1	252.6	881.2	453.4

Table B-8-1 AMOUNT OF OFFICIAL DEVELOPMENT ASSISTANCE (ODA)  
PROVIDED TO ZAMBIA-A

(Unit: Million U.S. Dollars)

From	Year	1983	1984	1985
Total Net Amount Received		216.9	239.5	329.0
OPEC Member Countries		3.4	-	-
International Organizations		33.3	57.7	113.5
DAC Member Countries		180.2	181.8	215.4
Japan		19.1	4.9	41.3
United States		23.0	40.0	36.0
Sweden		29.4	20.4	22.9

Source: DAC

Table B-8-2 AMOUNT OF OFFICIAL DEVELOPMENT ASSISTANCE (ODA)  
PROVIDED TO ZAMBIA-B

(Unit: Million U.S. Dollars)

From		Year	1981	1982	1983	1984
ODA	From Single Nations		180.5	256.5	182.4	180.5
	Largest Donor		England (37.9)	West Germany (28.8)	Sweden (29.4)	U.S.A (40.0)
	From International Organization		50.4	52.3	33.3	57.7
	Largest Donor		EEC (27.6)	EEC (30.1)	EEC (8.4)	EEC (23.9)
Total (Single Nations, Private and International Organization)			419.8	466.8	213.6	366.7

Table B-8-3 JAPANESE ECONOMIC ASSISTANCE TO ZAMBIA

(Unit: Million U.S. Dollars)

Item	Year	1981	1982	1983	1984	1985
Grant (ODA)		4.15	10.18	11.37	4.76	16.16
(Technical Cooperation)		(1.66)	(1.61)	(2.13)	(1.45)	(5.06)
Net Loan (ODA)		9.64	13.56	7.74	0.14	25.09
Subtotal		13.79	23.74	19.11	4.91	41.25
Other Official and Private Sectors (Net)		80.72	17.99	-8.75	-6.80	19.62
Grant Total		94.51	41.73	10.36	1.89	60.87

Table B-8-4

## JAPANESE GRANT AID PROJECT IN ZAMBIA

(Unit: Million Yen)

Date of Agreement	Amount	Project Name
81. 1.29	250	Japanese Rice
81. 3.27	300	Agricultural Transportation Improvement Plan
81. 7. 1	1,300	Infant Treatment Center Zambia Univ.
81.11.13	287	Japanese Rice
81. 7. 7	300	Food Production Increase (Agricultural Machines)
81. 7. 7	300	Agricultural Transportation Improvement Plan
82. 7. 7	1,000	Infant Treatment Center Zambia Univ.
82.12.20	500	Road Preparation Plan
82.12.20	473	Japanese Rice
82.12.20	300	Food Production Increase (Agricultural Medicine)
83. 8.30	2,400	Establishment of Veterinary Dept. Zambia Univ.
83. 8.30	105	Agricultural Technique Extension Plan
83.12.16	476	Japanese Rice
83.12.16	400	Food Production Increase (Fertilizer)
84. 6.28	1,483	Establishment of Veterinary Dept. Zambia Univ.
84. 6.28	400	Burmese Rice
84. 6.28	400	Food Production Increase (Fertilizer and Agricultural Mac.)
84.12.28	1,001	Construction of Grain Storage Plan
85. 5.31	54	Agricultural Transportation Improvement Plan
85.10. 8	626	Ground Water Development Plan
85.10. 8	500	Zimbabwe White Maize
85.10. 8	800	Food Production Increase (Agricultural Machines and Fert.)
85.11.20	600	Agricultural Transportation Improvement Plan (SJF)
85.10. 8	45	Establishment of Science Dept. Zambia Univ.
86. 3.18	550	Mehaba Destitute Camp Middle School Plan (I)
86. 3.18	556	Construction of Grain Storage Plan
86.10. 6	139	Mehaba Destitute Camp Middle School Plan (II)
86.11.21	28	L.L. System Equipment Zambia Univ.
87. 1. 6	928	Rusaka City Water Development Plan
87. 1.15	500	Zimbabwe White Maize
87. 1.15	800	Food Production Increase (Fertilizer)
87. 3.29	623	Agricultural Farmland Development Plan
87. 3.29	750	Zambian Personality Development Plan
87. 4.30	200	Food Production Increase (Fertilizer)
Total	19,374	

Source: Ministry of Foreign Affairs, Present Situation and Problems for Economic Aid.

Table B-8-5 ECONOMIC ASSISTANCES FROM SINGLE NATIONS TO ZAMBIA IN 1986

Aid donor	Amount in Kwacha	Type
FINNIDA	56,131,000	Grant
SIDA	58,786,000	Grant
CIDA	16,960,000	3,250,000 Loan 13,710,000 Grant
JAPAN	3,172,000	Grant
DANNIDA	9,303,000	Loan
NETHERLANDS	7,601,000	Grant
ELAND	4,395,000	Grant
BELGIUM	3,201,000	Grant
ITALY	10,800,000	Loan
USAID	6,717,000	6,000,000 Loan 717,000 Grant
KEW	14,762,000	Loan
NORAD	31,848,000	Grant
GTZ	900,000	Grant
UK	5,000,000	Loan
GOSSNAR MISSION	354,000	Grant
<b>TOTAL</b>	<b>229,930,000</b>	

[Source]: Economic Review 1986 and Annual Plan 1987.

Table B-8-6

## ECONOMIC ASSISTANCE FROM INTERNATIONAL ORGANIZATIONS TO ZAMBIA IN 1986

Aid Agency	Amount in Kwacha	Type
IBRD	125,833,000	Loan
EEC	49,492,000	18,628,000 Loan 30,864,000 Grant
ADB/ADF	10,800,000	Loan
ADB	7,850,000	Loan
IDA	13,400,000	Loan
UNDP	6,718,000	Loan
IFAD	3,600,000	Loan
UNICEF	312,000	Grant
INTERNATIONAL REFERENCE CENTRE	223,000	Grant
TOTAL	218,228,000	

[Source]: Economic Review 1986 and Annual Plan 1987.

Table B-8-7 FOREIGN AID IN DIFFERENT SECTORS

SECTOR	1985	1986
1. General Development Issues, Policy and Planning	7%	12%
2. Natural Resources	10%	8%
3. Agriculture, Forestry and Fisheries	42%	39%
4. Industry	3%	6%
5. Transport & Communications	5%	6%
6. Health	7%	5%
7. Education	20%	15%
8. Others	6%	9%

SOURCE: UNDP: Report on Development cooperation with Zambia, 1986

Table B-8-8 TYPES OF FOREIGN AID

AID CATEGORY	1986		1987 **	
	AMOUNT	% TO TOTAL	AMOUNT	% TO TOTAL
Technical Assistance	123.5	21.8	96.7	43.9
Capital Assistance	399.5*	70.7	93.9	42.6
Commodity Assistance	565.4	7.5	29.7	13.5
TOTAL	1,088.4	100	220.3 (485.3)***	100

Source: NCDP

Note: \* Includes US \$125 million Balance

\*\* From Jan. to Oct.

\*\*\* Estimation for 1987

Table B-9-1 SITES LIST OF QUANTITY CONCERNING PHASE-II PROJECT  
(Requested Sites, Number of Requested Borehole, Target Number of Borehole, Implementation Number)

District	Number of requested sites	Requested borehole number	Total population of requested site	Total target borehole number for each population of requested sites	Existing borehole number	Target borehole number in the requested site		Number of project sites	Estimated borehole number for project phase -II
						New borehole number	Rehabilitation number		
Mazabuka District (6,842km <sup>2</sup> )	20	20	8,986	42	1	41	-	41	20
Requested sites for new borehole	15	15	7,350	30	0	15	15	30	15
Requested sites for rehabilitation	35	35	16,339	72	1	56	15	71	35
Sub-total									
Monze District (4,854km <sup>2</sup> )	28	28	25,028	100	0	100	-	100	28
Requested sites for new borehole	20	20	8,440	38	0	18	20	38	20
Requested sites for rehabilitation	48	48	33,468	138	0	118	20	138	48
Sub-total									
Namwala District (21,751km <sup>2</sup> )	9	9	12,221	48	3	45	-	45	9
Requested sites for new borehole	10	10	12,000	49	0	39	10	49	10
Requested sites for rehabilitation	19	19	24,221	97	3	84	10	94	19
Sub-total									
Gwembe District (12,611km <sup>2</sup> )	14	14	11,266	46	0	46	-	46	14
Requested sites for new borehole	15	15	20,450	81	0	66	15	81	15
Requested sites for rehabilitation	29	29	31,716	127	0	112	15	127	29
Sub-total									
Choma District (7,296km <sup>2</sup> )	29	29	18,302	76	0	76	-	76	29
Requested sites for new borehole	20	20	11,990	48	0	28	20	48	20
Requested sites for rehabilitation	49	49	30,292	124	0	104	20	124	49
Sub-total									
Kalomo District (31,103km <sup>2</sup> )	17	17	9,359	39	0	39	-	39	17
Requested sites for new borehole	18	18	11,745	47	0	29	18	47	18
Requested sites for rehabilitation	35	35	21,104	86	0	68	18	86	35
Sub-total									
Livingstone (1,427km <sup>2</sup> )	3	3	1,337	6	0	6	-	6	3
Requested sites for new borehole	2	2	500	3	0	1	2	3	2
Requested sites for rehabilitation	5	5	1,837	9	0	7	2	9	5
Sub-total									
Seven Districts (85,283km <sup>2</sup> )	120	120	86,499	357	4	353	-	353	120
Requested sites for new borehole	100	100	72,475	296	0	196	100	296	100
Requested sites for rehabilitation	220	220	158,974	653	4	549	100	649	220
Total									

Table B-9-2 LIST OF EVALUATED NUMBER FOR NEW BOREHOLE REQUESTED SITES

(Target borehole number and estimated borehole number for project phase-II)

(1)

Name of Sites	Number of requested borehole	Population	Target borehole number for population	Existing borehole number	Target borehole number in the requested sites	Estimated borehole number for project Phase-II
<b>Mazabuka District</b>						
1. Kabanje East	1	315	2	0	2	1
2. Mugwagwa	1	320	2	0	2	1
3. Mazabuka Hospital	1	660	3	1	2	1
4. Kanyeke	1	372	2	0	2	1
5. Mambula	1	400	2	0	2	1
6. Kasengo School	1	289	1	0	1	1
7. St. Michael School	1	524	2	0	2	1
8. Lusale Village	1	261	1	0	1	1
9. Mbiya School	1	357	2	0	2	1
10. Kaoma Village	1	312	2	0	1	1
11. Naluama Hospital	1	950	4	0	4	1
12. Munjile Clinic	1	338	2	0	2	1
13. Munzuma	1	240	1	0	1	1
14. Kasengo Village	1	921	4	0	4	1
15. Dundu School	1	367	2	0	2	1
16. Mukwela School	1	842	3	0	3	1
17. Namembo	1	632	3	0	3	1
18. Mulawbo School	1	250	1	0	1	1
19. Malambo Depot	1	315	2	0	2	1
20. Munjile	1	321	2	0	2	1
	20	8,986	42	1	41	20
<b>Monze District</b>						
1. Keemba H/center	1	954	4	0	4	1
2. Hakwaambwa school	1	1,250	5	0	5	1
3. Luyaba Clinic	1	474	2	0	2	1
4. Chilezya	1	541	2	0	2	1
5. Namazoka School	1	1,241	5	0	5	1
6. Njola School	1	228	1	0	1	1
7. Hamangaba School	1	1,600	6	0	6	1
8. Mankonka School	1	1,621	6	0	6	1
9. Mutali School	1	1,578	6	0	6	1
10. Kazungula School	1	1,215	5	0	5	1
11. Kimbela/Dabali	1	694	3	0	3	1
12. Sigubu School	1	1,240	5	0	5	1
13. Chiyonga	1	432	2	0	2	1
14. Nabukuyu School	1	1,306	5	0	5	1
15. Nangwelika	1	510	2	0	2	1
16. Mwenenjola	1	653	3	0	3	1
17. Milele/Kachango	1	828	3	0	3	1
18. Hambalamatu	1	1,010	4	0	4	1
19. Kanundwa School	1	971	4	0	4	1
20. Simwete	1	337	2	0	2	1
21. Hachiko	1	273	1	0	1	1
22. Malozilozi	1	470	2	0	2	1
23. Hachizangwa	1	349	2	0	2	1
24. Mafulo/Nachisaka	1	868	3	0	3	1
25. Simukale School	1	1,347	5	0	5	1
26. Chikuni	1	256	1	0	1	1
27. Nahicha School	1	1,321	5	0	5	1
28. Singonya School	1	1,461	6	0	6	1
	28	25,028	100	0	100	28

**Table B-9-2 LIST OF EVALUATED NUMBER FOR NEW BOREHOLE REQUESTED SITES**  
 (Target borehole number and estimated borehole number for project phase-II) (2)

Name of Sites	Number of requested borehole	Population	Target borehole number for population	Existing borehole number	Target borehole number in the requested sites	Estimated borehole number for project Phase-II
<b>Namwala District</b>						
1. Mauluzhi	1	1,111	4	1	3	1
2. Mungaila	1	1,530	6	0	6	1
3. Baambwe	1	2,335	9	1	8	1
4. Umbuuzu School	1	824	3	0	3	1
5. Mangwelw School	1	3,100	12	1	11	1
6. Mangwe	1	622	3	0	3	1
7. Baunza	1	741	3	0	3	1
8. Moomba School	1	931	4	0	4	1
9. Nakamboma	1	1,027	4	0	4	1
	9	12,221	48	3	45	9
<b>Gwembe District</b>						
1. Makumbi Village	1	472	2	0	2	1
2. Jalaula Village	1	617	3	0	3	1
3. Bendele Village	1	346	2	0	2	1
4. Nambela Village	1	512	2	0	2	1
5. Kalangwa Village	1	1,552	6	0	6	1
6. Hanchilimba Village	1	764	3	0	3	1
7. Syamuluwa Village	1	852	3	0	3	1
8. Minziyantantu Vge.	1	732	3	0	3	1
9. Chipepo Pri. School	1	632	3	0	3	1
10. Syamamanga Village	1	541	2	0	2	1
11. Sinakasikili Sch.	1	1,061	4	0	4	1
12. Sinakoba Sch.	1	1,517	6	0	6	1
13. Mweenba Village	1	1,050	4	0	4	1
14. Dengeza Village	1	618	3	0	3	1
	14	11,266	46	0	46	14

Table B-9-2 LIST OF EVALUATED NUMBER FOR NEW BOREHOLE REQUESTED SITES

(Target borehole number and estimated borehole number for project phase-II)

(3)

Name of Sites	Number of requested borehole	Population	Target borehole number for population	Existing borehole number	Target borehole number in the requested sites	Estimated borehole number for project Phase-II
<b>Choma District</b>						
1. Mayobo P/School	1	872	3	0	3	1
2. Chibwe P/School	1	961	4	0	4	1
3. Nemfe P/School	1	642	3	0	3	1
4. Macha Central School	1	456	2	0	2	1
5. Mizinga Sikuchoma	1	650	3	0	3	1
6. Nalube P/School	1	566	2	0	2	1
7. Hansingo	1	458	2	0	2	1
8. Katambwakolo	1	458	2	0	2	1
9. Mundundu	1	342	2	0	2	1
10. Kabimba P/School	1	666	3	0	3	1
11. Ndambo	1	432	2	0	2	1
12. Mayasano P/School	1	761	3	0	3	1
13. Haluba P/School	1	821	3	0	3	1
14. Demu P/School	1	718	3	0	3	1
15. Kabwe Kasala Scheme	1	647	3	0	3	1
16. Bbombo P/School	1	833	3	0	3	1
17. Cheelo P/School	1	710	3	0	3	1
18. Chimuka	1	416	2	0	2	1
19. Nachibanga P/School	1	517	2	0	2	1
20. Siadabboka P/School	1	657	3	0	3	1
21. Chief Moyo's Palace	1	811	3	0	3	1
22. Hapande	1	310	2	0	2	1
23. Tawa Compound	1	561	2	0	2	1
24. Mutandalika P/School	1	822	3	0	3	1
25. Gamela	1	460	2	0	2	1
26. Skaawola P/School	1	486	2	0	2	1
27. Nakeempa P/School	1	716	3	0	3	1
28. Siamakando	1	722	3	0	3	1
29. Chuulu P/School	1	831	3	0	3	1
	29	18,302	76	0	76	29
<b>Kalomo District</b>						
1. Mabombo School	1	513	2	0	2	1
2. Chikanta	1	507	2	0	2	1
3. Mulyambeba	1	515	2	0	2	1
4. Siantete	1	463	2	0	2	1
5. Kamuseka	1	633	3	0	3	1
6. Nakabanga	1	512	2	0	2	1
7. Katete Co-op.	1	509	2	0	2	1
8. Sindambi	1	504	2	0	2	1
9. Mantanyani	1	621	3	0	3	1
10. Sikanchele	1	617	3	0	3	1
11. Dunka	1	510	2	0	2	1
12. Mankoondi School	1	519	2	0	2	1
13. Namadula	1	521	2	0	2	1
14. Kakena	1	457	2	0	2	1
15. Chalimongela	1	916	4	0	4	1
16. Kaoma	1	524	2	0	2	1
17. Misika Misika	1	518	2	0	2	1
	17	9,359	39	0	39	17
<b>Livingstone District</b>						
1. Sakubita	1	833	3	0	3	1
2. Simoonga	1	317	2	0	2	1
3. Natebe	1	187	1	0	1	1
	3	1,337	6	0	6	3

Table B-9-3 LIST OF EVALUATED NUMBER FOR REHABILITATION REQUESTED SITES (1)

(Target borehole number and estimated borehole number for project phase-II)

Name of Sites	Number of requested borehole	Population	Target borehole number for population	Existing borehole number	Target borehole number in the requested site			Estimated borehole number for project phase-II (rehabilitation)
					Number of borehole	Number of rehabilitation	New construction borehole number	
<b>Mazabuka District</b>								
1. Naleza School	1	500	2	0	2	1	1	1
2. Mukuyu School	1	450	2	0	2	1	1	1
3. Luhombo	1	550	2	0	2	1	1	1
4. Kasengo School	1	450	2	0	2	1	1	1
5. Ching'ang'auka	1	500	2	0	2	1	1	1
6. Kalama School	1	450	2	0	2	1	1	1
7. Simwamba School	1	450	2	0	2	1	1	1
8. Chilemba	1	450	2	0	2	1	1	1
9. Mugoto School	1	400	2	0	2	1	1	1
10. Mubanga	1	450	2	0	2	1	1	1
11. Sianjalika	1	450	2	0	2	1	1	1
12. Hakantu School	1	450	2	0	2	1	1	1
13. Nansenga School	1	600	2	0	2	1	1	1
14. Chivuna	1	600	2	0	2	1	1	1
15. Chikankata School	1	600	2	0	2	1	1	1
	15	7,350	30	0	30	15	15	15
<b>Monze District</b>								
1. Malundu	1	400	2	0	2	1	1	1
2. Nachibuli School	1	400	2	0	2	1	1	1
3. Bwengwa School	1	400	2	0	2	1	1	1
4. Mulambo	1	600	2	0	2	1	1	1
5. Halubobya	1	400	2	0	2	1	1	1
6. Nkaba School	1	400	2	0	2	1	1	1
7. Kasaka School	1	460	2	0	2	1	1	1
8. Hufwa School	1	600	2	0	2	1	1	1
9. Kanundwa School	1	400	2	0	2	1	1	1
10. Hampanda	1	200	1	0	1	1	0	1
11. Shihubwa	1	500	2	0	2	1	1	1
12. Mayaba local court	1	460	2	0	2	1	1	1
13. Malama	1	500	2	0	2	1	1	1
14. Miyoba School	1	360	2	0	2	1	1	1
15. Habenga Store	1	200	1	0	1	1	0	1
16. Chona School	1	450	2	0	2	1	1	1
17. Mugoti	1	450	2	0	2	1	1	1
18. Kayola School	1	360	2	0	2	1	1	1
19. Moomba School	1	500	2	0	2	1	1	1
20. Chikonga	1	400	2	0	2	1	1	1
	20	8,440	38	0	38	20	18	20

Table B-9-3 LIST OF EVALUATED NUMBER FOR REHABILITATION REQUESTED SITES (2)

(Target borehole number and estimated borehole number for project phase-II)

Name of Sites	Number of requested borehole	Population	Target borehole number for population	Existing borehole number	Target borehole number in the requested site			Estimated borehole number for project phase-II (rehabilitation)
					Number of borehole	Number of rehabilitation	New construction borehole number	
<b>Namwala District</b>								
1. Muunga School	1	2,000	8	0	8	1	7	1
2. Bayangwe	1	750	3	0	3	1	2	1
3. Mungaila	1	1,400	6	0	6	1	5	1
4. Namusonde School	1	1,000	4	0	4	1	3	1
5. Kabulamwanda School	1	1,000	4	0	4	1	3	1
6. Ichila	1	950	4	0	4	1	3	1
7. Makaba School	1	1,000	4	0	4	1	3	1
8. Nkomba	1	1,500	6	0	6	1	5	1
9. Muchila School	1	900	4	0	4	1	3	1
10. Shababwa	1	1,500	6	0	6	1	5	1
	10	12,000	49	0	49	10	39	10
<b>Gwezbe District</b>								
1. Syangwemu School	1	1,500	6	0	6	1	5	1
2. Chikanzaya School	1	1,600	6	0	6	1	5	1
3. Manchavwa School	1	2,000	8	0	8	1	7	1
4. Bakasa School	1	400	2	0	2	1	1	1
5. Ntanga School	1	2,000	8	0	8	1	7	1
6. St. Patrick School	1	1,000	4	0	4	1	3	1
7. Madonda	1	1,000	4	0	4	1	3	1
8. Chiyabi Village	1	2,000	8	0	8	1	7	1
9. Sinanjola School	1	2,050	8	0	8	1	7	1
10. Sinakasi Village	1	1,700	7	0	7	1	6	1
11. Mweemba Village	1	1,700	7	0	7	1	6	1
12. Mamba Council	1	800	3	0	3	1	2	1
13. Simakoba Village	1	600	2	0	2	1	1	1
14. Nyanga Village	1	1,100	4	0	4	1	3	1
15. Siampondo School	1	1,000	4	0	4	1	3	1
	15	20,450	81	0	81	15	66	15
<b>Choma District</b>								
1. Mpinda P/School	1	500	2	0	2	1	1	1
2. Sinaubi P/School	1	500	2	0	2	1	1	1
3. Kabanga Village	1	850	3	0	3	1	2	1
4. Mutongwa P/School	1	450	2	0	2	1	1	1
5. Handondo Village	1	740	3	0	3	1	2	1
6. Haokola P/School	1	600	2	0	2	1	1	1
7. Halala P/School	1	400	2	0	2	1	1	1
8. Malinda Village	1	600	2	0	2	1	1	1
9. Chilundu P/School	1	500	2	0	2	1	1	1
10. Kanchomba P/School	1	500	2	0	2	1	1	1
11. Naambo P/School	1	500	2	0	2	1	1	1
12. Maluma P/School	1	500	2	0	2	1	1	1
13. Muzoka Clinic	1	800	3	0	3	1	2	1
14. Sibanyati	1	950	4	0	4	1	3	1
15. Muntu wabulongo	1	500	2	0	2	1	1	1
16. Moyo P/School	1	500	2	0	2	1	1	1
17. Chanzangwe Village	1	700	3	0	3	1	2	1
18. Habanyuka P/School	1	500	2	0	2	1	1	1
19. Siamuleya	1	900	4	0	4	1	3	1
20. Siasikabole P/School	1	500	2	0	2	1	1	1
	20	11,990	48	0	48	20	28	20

Table B-9-3 LIST OF EVALUATED NUMBER FOR REHABILITATION REQUESTED SITES (3)

(Target borehole number and estimated borehole number for project phase-II)

Name of Sites	Number of requested borehole	Population	Target borehole number for population	Existing borehole number	Target borehole number in the requested site			Estimated borehole number for project phase-II (rehabilitation)
					Number of borehole	Number of rehabilitation	New construction borehole number	
<b>Kalomo District</b>								
1. Chikanta	1	900	4	0	4	1	3	1
2. Chilala	1	700	3	0	3	1	2	1
3. Chifusa School	1	1,500	6	0	6	1	5	1
4. Bilibizi	1	500	2	0	2	1	1	1
5. Katundulu	1	500	2	0	2	1	1	1
6. Mapatizya School	1	500	2	0	2	1	1	1
7. Rural H/centre	1	400	2	0	2	1	1	1
8. Matengu	1	500	2	0	2	1	1	1
9. Muzya School	1	500	2	0	2	1	1	1
10. Luyaba	1	500	2	0	2	1	1	1
11. Sihumbwa	1	600	2	0	2	1	1	1
12. Musamumuyumu	1	600	2	0	2	1	1	1
13. Siamafumba School	1	1,145	5	0	5	1	4	1
14. Siakumba	1	500	2	0	2	1	1	1
15. Muzokotwane	1	600	2	0	2	1	1	1
16. Sinde R.H/Centre	1	800	3	0	3	1	2	1
17. Mizika School	1	500	2	0	2	1	1	1
18. Kamwi	1	500	2	0	2	1	1	1
	18	11,745	47	0	47	18	29	18
<b>Livingstone District</b>								
1. Bwiketo	1	400	2	0	2	1	1	1
2. Ngwenya	1	100	1*	0	1*	1*	0	1*
	2	500	3	0	3	2	1	2







JICA