

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

REPUBLIC OF ZAMBIA
MINISTRY OF ENERGY AND WATER DEVELOPMENT

THE STUDY

ON

THE NATIONAL WATER RESOURCES MASTER PLAN

IN

THE REPUBLIC OF ZAMBIA

FINAL REPORT
MAIN REPORT

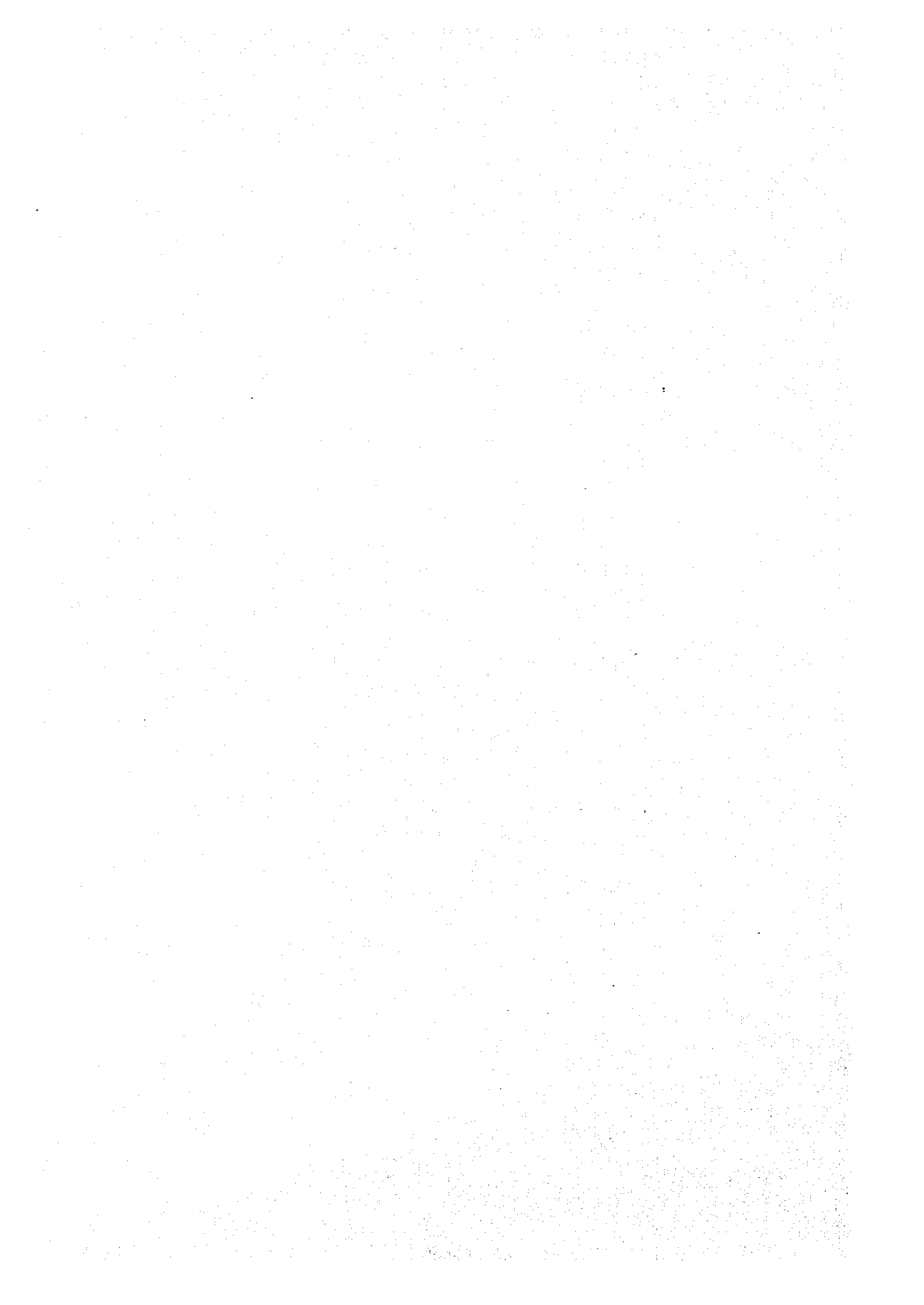
OCTOBER, 1995

YACHIYO ENGINEERING CO., LTD.
(YEC)

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OCTOBER, 1995

YACHIYO ENGINEERING CO., LTD.
(YEC)

THE UNIVERSITY OF CHICAGO

PHYSICS DEPARTMENT

PHYS 440

LECTURE 10: QUANTUM MECHANICS

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PREFACE

In response to a request from the Government of the Republic of Zambia, the Government of Japan decided to conduct a master plan study on the national water resources and entrusted the study to the Japan International Cooperation Agency (JICA).

JICA sent to Zambia a study team headed by Mr. Yoshio Nakagawa, Yachiyo Engineering Co., Ltd., five times between October 1993 and October 1995.

The team held discussion with the officials concerned of the Government of Zambia, and conducted field surveys at the study area. After the team returned to Japan, further studies were made and the present report was prepared.

I hope that this report will contribute to the promotion of the project and to the enhancement of friendly relations between our two countries.

I wish to express my sincere appreciation to the officials concerned of the Government of the Republic of Zambia for their close cooperation extended to the team.

October, 1995



Kimio Fujita
President
Japan International Cooperation Agency

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1. The first part of the document discusses the importance of maintaining accurate records of all transactions and activities. It emphasizes that this is essential for ensuring transparency and accountability in the organization's operations.

2. The second part of the document outlines the various methods and tools used to collect and analyze data. It highlights the need for consistent and reliable data collection processes to support effective decision-making.

3. The third part of the document focuses on the role of technology in data management and analysis. It discusses how modern software solutions can streamline data collection, storage, and reporting, thereby improving efficiency and accuracy.

4. The fourth part of the document addresses the challenges associated with data management, such as data quality, security, and privacy. It provides strategies to mitigate these risks and ensure that data is handled in a responsible and compliant manner.

5. The fifth part of the document discusses the importance of data governance and the role of various stakeholders in ensuring that data is used ethically and for its intended purpose. It emphasizes the need for clear policies and procedures to guide data management practices.

6. The sixth part of the document explores the future of data management and the potential of emerging technologies like artificial intelligence and machine learning. It suggests how these technologies can be leveraged to gain deeper insights from data and optimize organizational performance.

7. The seventh part of the document provides a summary of the key points discussed and offers recommendations for implementing a robust data management strategy. It encourages organizations to regularly review and update their data management practices to stay current with industry trends.

8. The eighth part of the document includes a list of references and resources for further reading on data management topics. It also provides contact information for the authors and any relevant organizations.

9. The ninth part of the document contains a glossary of key terms and definitions used throughout the document. This is intended to help readers understand the terminology and concepts discussed in the text.

10. The final part of the document is a conclusion that reiterates the importance of data management and the potential for success through effective data practices. It expresses hope that the information provided will be helpful and inspiring for all readers.

October, 1995

Mr. Kimio Fujita
President
Japan International Cooperation Agency
Tokyo, Japan

Dear Mr. Fujita,

LETTER OF TRANSMITTAL


We are pleased to submit to you the master plan report on the national water resources development project in the Republic of Zambia. The report contains the advice and suggestions of the authorities concerned of the Government of Japan and your Agency as well as the formation of the above mentioned project. Also included are comments made by the Ministry of Energy and Water Development of the Government of Zambia during technical discussions on the draft report which were held in Lusaka, Zambia.

The report proposes plans showing the general direction of future water resources development targeting the year 2015. Regarding water supply and agriculture sectors, many concrete projects have been formulated according to the proposed development targets. For other sectors related to water resources, development policies are presented from the viewpoint of water resources development, based on the analysis of the current situation and future projections. The plans for the water supply and agricultural sectors were prepared on the basis of three scenarios (three sets of future socio-economic conditions leading to the maximum, medium and minimum water demands) considering future population and economic growth. The report also presents an action plan to be implemented at an early stage, selecting from the plans proposed in the master plan.

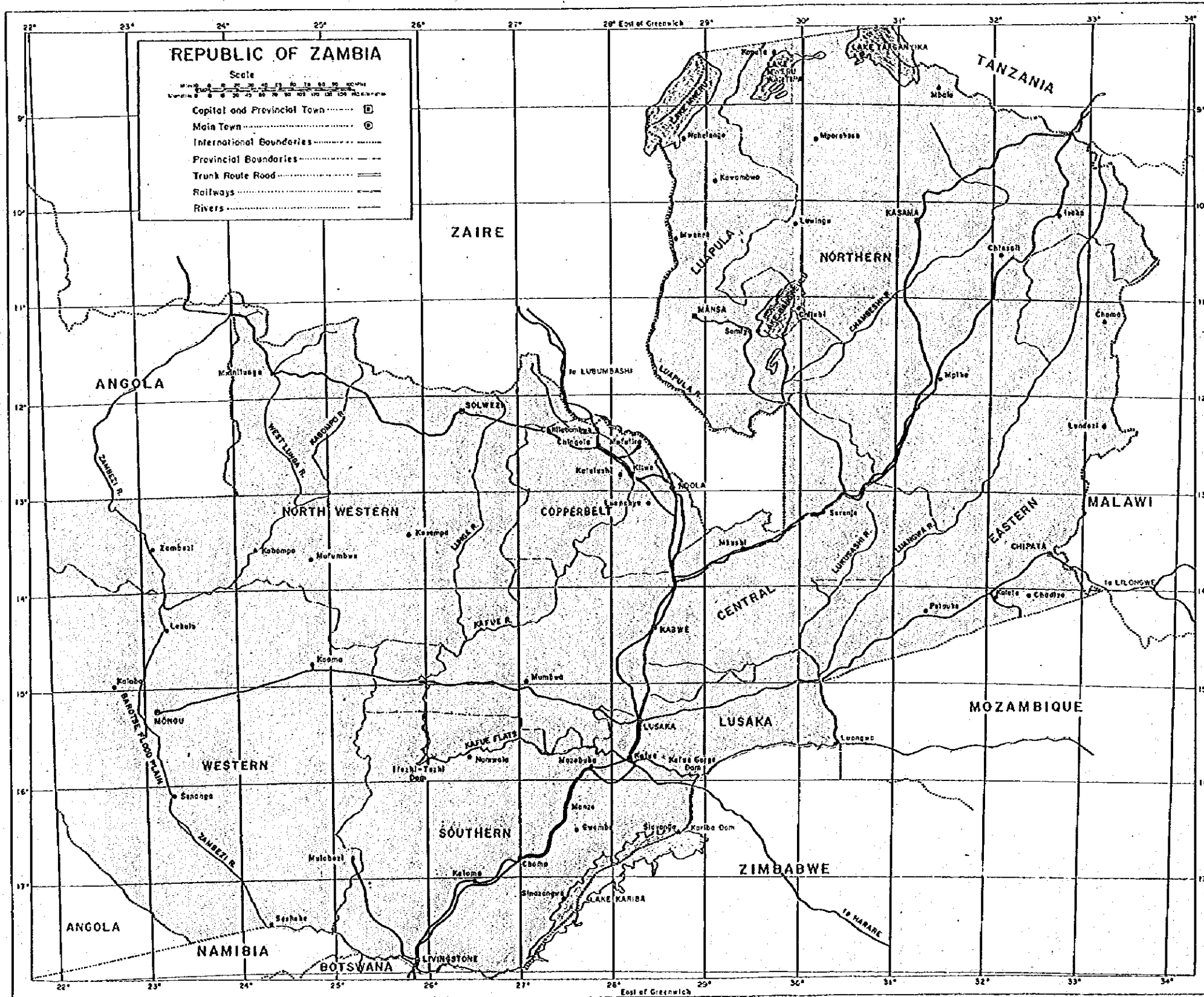
In view of the urgency of water resources development in Zambia and of the need for the socio-economic development of Zambia as a whole, we recommend that the Government of Zambia implement the projects proposed in the action plan as a top priority.

We wish to take this opportunity to express our sincere gratitude to your Agency, the Ministry of Foreign Affairs, Ministry of Construction, Ministry of Agriculture, Forestry and Fisheries. We also wish to express our deep gratitude to the Ministry of Energy and Water Development of the Government of Zambia for the close cooperation and assistance extended to us during our investigation and study.

Very truly yours,



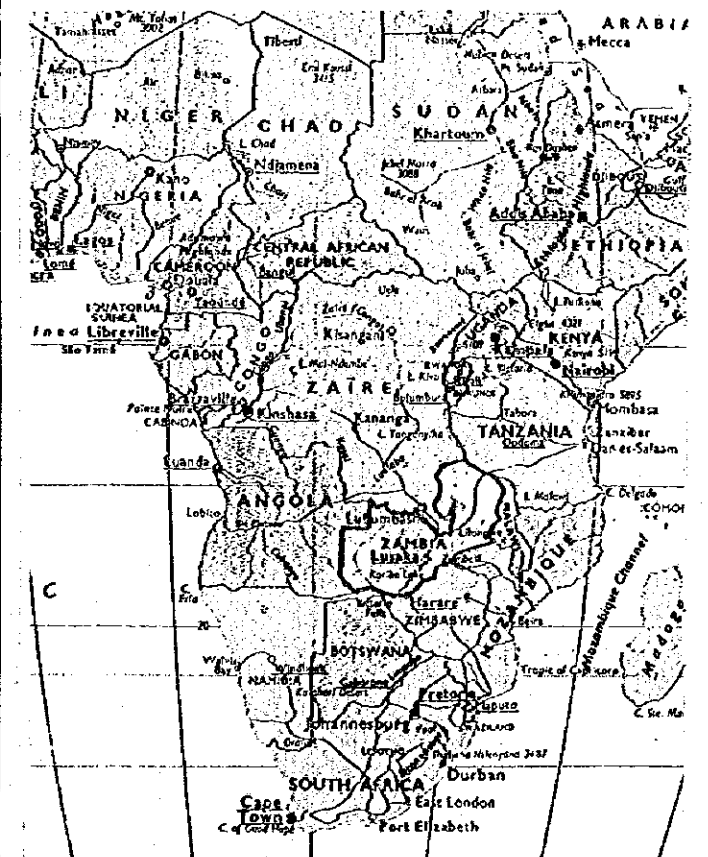
Yoshio Nakagawa
Team Leader
The Study on the National Water Resources
Master Plan in the Republic of Zambia



Location Map of Study Area

Zambia Brief Information

Long-form Name	Republic of Zambia
Independence	October 24, 1964
Former Ruler	United Kingdom
Form of Government	Republican System
President	Frederick Chiluba inaugurated on November 2, 1991
Location	Latitude 9-18 degree South Longitude 23-34 degree East
Area	753 thousand km ²
Capital	Lusaka
Population	7.82 million (1990)
Official Language	English
Tribes	Tonga, Bemba, Ngoni etc. (73 Tribes)
Religion	Mainly Traditional Religions, Christianity in Cities
Education	Compulsory Education: 7-14 years old Attendance Rate: Primary School: 95 % Secondary School: 20 % University: 2 % Literacy: 73 % 1990 statistics
Time Lag	Time Lag with Japan: -7 hours



THE STUDY ON NATIONAL WATER RESOURCES MASTER PLAN
IN THE REPUBLIC OF ZAMBIA
FINAL REPORT

LIST OF REPORTS

SUMMARY

MAIN REPORT

SUPPORTING

Volume - 1

- Part - A Socio-economy
- Part - B Meteorology
- Part - C Hydrology
- Part - D Hydrogeology
- Part - E Domestic Water Supply
- Part - F Industrial Water Supply
- Part - G Current Water Use Survey

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- Part - H Agriculture, Livestock and Fishery
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- Part - J Forestry
- Part - K Hydroelectric Power Generation
- Part - L Navigation
- Part - M Flood Control
- Part - N Dam Geology
- Part - O Dam Development Plan Dam Geology
- Part - P Water Supply Plan

Volume - 3

- Part - Q Water Quality and Environment
- Part - R Laws and Institutions
- Part - S Landsat Satellite Imagery Analysis
- Part - T Topographic Survey
- Part - U Groundwater Monitoring
- Part - V Well Inventory Survey
- Part - W Database

DATA

- DB - 1 Meteorological Data
- DB - 2 Hydrological Data
- DB - 3 Well Inventory Data
- DB - 4 Current Water Use Data

SYNOPSIS

The Study on the National Water Resources Master Plan in the Republic of Zambia

Study Period: October, 1993 ~ October 1995

Recipient Agency: Ministry of Energy and Water Development

1 BACKGROUND OF THE STUDY

Zambia had a population of 7.38 million in 1990. The population growth in 1980's was as high as 2.7% per annum. Rapid urbanisation has caused deterioration in public water supply services. The capital city of Lusaka has the most serious degradation. The supply capacity can meet only 60% of the demands. Rain fed agriculture prevails in Zambia for crop production, primarily maize, to meet the consumption of the nation. Rain fed agriculture has often been seriously affected by drought. Promotion of irrigation is a national target to attain stable crop production. Establishment of strengthened social and economic foundation with optimal use of the water resources is required in order to rehabilitate the economic base, which is heavily dependent on copper production at present and vulnerable to its market price, and to achieve a stable and sustainable socio-economic development of the country.

2 OBJECTIVES OF THE STUDY

The objective of the Study is to formulate a master plan for water resources development which covers the whole Zambia and whose target year is the year 2015 to remedy the current problems and to meet the future needs in the water supply sector and agricultural sector. Action plans are also formulated for immediate implementation, selecting out of the projects proposed in the Master Plan.

3 OUTLINE OF THE MASTER PLAN

Development policies are formulated for sectors, such as water supply, agriculture, hydro-electric generation, navigation, water quality, etc., after the analysis of the present status and future requirements for each sector. Projects are proposed for water supply and agricultural sectors with the target year of 2015.

3-1 Basic Policies

< Water Demand Scenario >

The following three scenarios are set, comprising population projection and economic growth forecast, for the estimation of future water demands.

- 1) Base Scenario-Agricultural Expansion:
medium population projection, base economic growth - agricultural expansion
- 2) Base Scenario-Industrialisation:
high population projection, base economic growth-industrialisation
- 3) Conservative Scenario:
low population projection, conservative economic growth

< Development Policy for Water Supply >

Target water supply coverage in all urban areas are set as 100% by 2015. The coverage in rural areas is to be raised from current 25% to 75% by 2015. Sources from surface water

should correspond to the 10-year return period drought. Sources from groundwater should utilise rechargeable groundwater within the limit of safe yields to prevent depression of water tables for sustainable use.

< Development Policy for the Agricultural Sector >

While rain fed agriculture is to be encouraged in the northern regions favoured with adequate rainfall, irrigation is to be introduced and promoted utilising stable water sources to attain food security and improvement of balance of payment through increased production of irrigated cereal and export crops. Livestock and fishery is to be encouraged to maintain meat consumption and to increase fish consumption.

3-2 Proposed Projects

The volume of water to be developed to ensure domestic and industrial water use in large urban, small urban and rural areas is shown in Table-1. Water requirement for the development of irrigation, aqua-culture and livestock breeding is given in Table-2.

Table-1 Water Supply Projects for Domestic and Industrial Use

	Base Scenario- Agricultural Expansion		Base Scenario- Industrialisation		Conservative Scenario	
	Population Served (1000 person)	Water Developed (1000m ³ /day)	Population Served (1000 person)	Water Developed (1000m ³ /day)	Population Served (1000 person)	Water Developed (1000m ³ /day)
Large Urban	4,500	723	5,223	1,095	3,433	551
Small Urban	965	156	1,948	358	870	103
Rural	7,270	169	7,165	164	6,609	148

Table-2 Agricultural Projects

	Base Scenario- Agricultural Expansion		Base Scenario- Industrialisation		Conservative Scenario	
	Area (ha) or Heads (1000)	Water Developed (1000m ³ /day)	Area (ha) or Heads (1000)	Water Developed (1000m ³ /day)	Area (ha) or Heads (1000)	Water Developed (1000m ³ /day)
Irrigation	60,776	5,252	53,806	4,648	38,156	3,241
Fishery	30,950	2,130	40,500	2,793	24,050	1,648
Livestock	4,604	222	5,183	250	4,190	204

4 PROJECT COST

The project costs for water supply and agricultural sectors are estimated with unit prices in January, 1995 (1 us\$ = 610 Kwacha) as shown in Table-3 and Table-4.

Table-3 Project Cost (Water Supply Sector)

(Unit: US\$ million)

Water Supply Sector	Base Scenario- Agricultural Expansion			Base Scenario- Industrialisation			Conservative Scenario		
	Large Urban	Small Urban	Rural	Large Urban	Small Urban	Rural	Large Urban	Small Urban	Rural
	647.86	153.03	209.52	878.09	323.04	203.77	518.34	107.47	183.85
	1,010.41			1,404.90			809.66		

Table-4 Project Cost (Agricultural Sector)

(Unit: US\$ million)

Agricultural Sector	Base Scenario- Agricultural Expansion			Base Scenario- Industrialisation			Conservative Scenario		
	Irrigation	Fishery	Livestock	Irrigation	Fishery	Livestock	Irrigation	Fishery	Livestock
	1,188.77	290.08	35.75	954.89	379.07	40.25	762.06	225.74	32.54
	1,514.60			1,374.21			1,021.55		

5 EVALUATION

5-1 Economic Analysis

Economic efficiencies of the projects are calculated as shown in Table-5, comparing economic benefits and cost, 5% of household income for domestic use plus 3% of value added for industrial use in the case of water supply, and net benefit of agricultural production in the case of agricultural sector, and converted costs from estimated financial cost in both cases.

Table-5 Result of the Economic Analysis

Items	Water Supply Projects				Agricultural Projects			
	Large Urban	Small Urban	Rural	Total	Irrigation	Fishery	Livestock	Total
Economic Internal Rate of Return (%)	6.3	4.0	4.2	5.3	11.4	12.7	13.1	11.7
Benefit/Cost	0.80	0.56	0.64	0.72	1.12	1.18	1.25	1.13
Net Present Value (US\$ million)	-81.0	-54.3	-58.3	-193.5	65.8	32.3	3.9	102.0

5-2 Financial Evaluation

It is estimated that the government's investment for water supply will accumulate to US\$ 630 million by 2015, while the proposed projects will cost 2.2~1.2 times of the estimation. The past investment by the government was too small. In case that the economic growth as set in the scenario is attained, the government budget and consequently the investment in water supply sector will be raised. The required investment will possibly be obtained. Investment of the agricultural sector relies on the private sector. Since projects of the agricultural sector have high economic efficiency, projects are feasible if finances are secured.

5-3 Social Evaluation

Through the implementation of the water supply and agricultural projects, the following social effects will be expected:

- Incentive to regional economy and increase of employment opportunity
- Improvement of safe water coverage and public hygiene
- Inducement to participating in "women in development" activity
- Mitigation of economic disparity among regions

5-4 Environmental Impact Assessment

While the IEE's have been based on limited investigations, no serious problems have yet been discovered. The IEE's have identified the following issues as likely to be important :

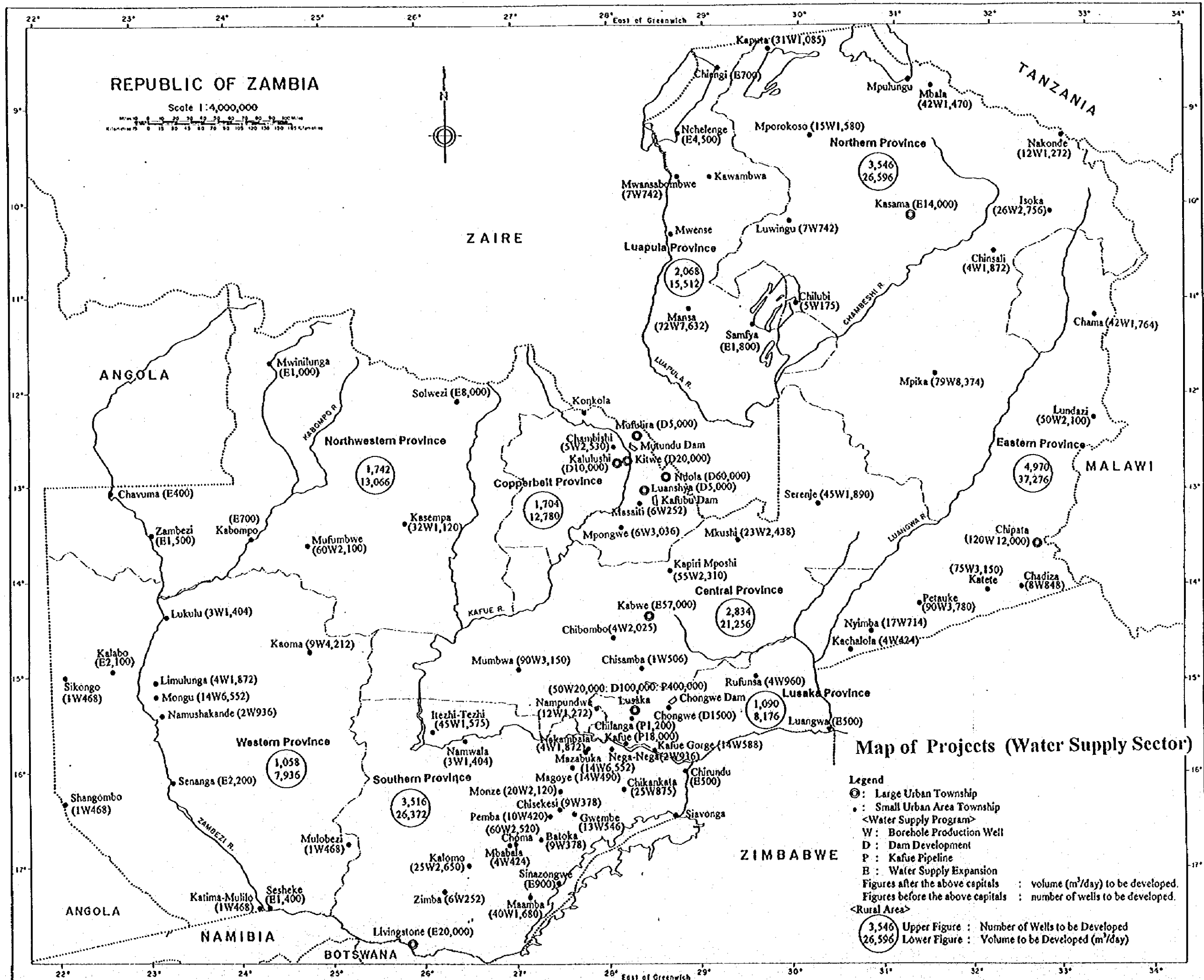
- Land tenure, acquisition, compensation and re-settlement
- Water right allocation and its impact on social equity
- New water demands and their impact on existing users
- Aquatic and terrestrial fauna in the river channel, dam reservoir, riparian strip, surrounding wetlands and along wildlife corridors
- Soil erosion due to expansion of agricultural land.

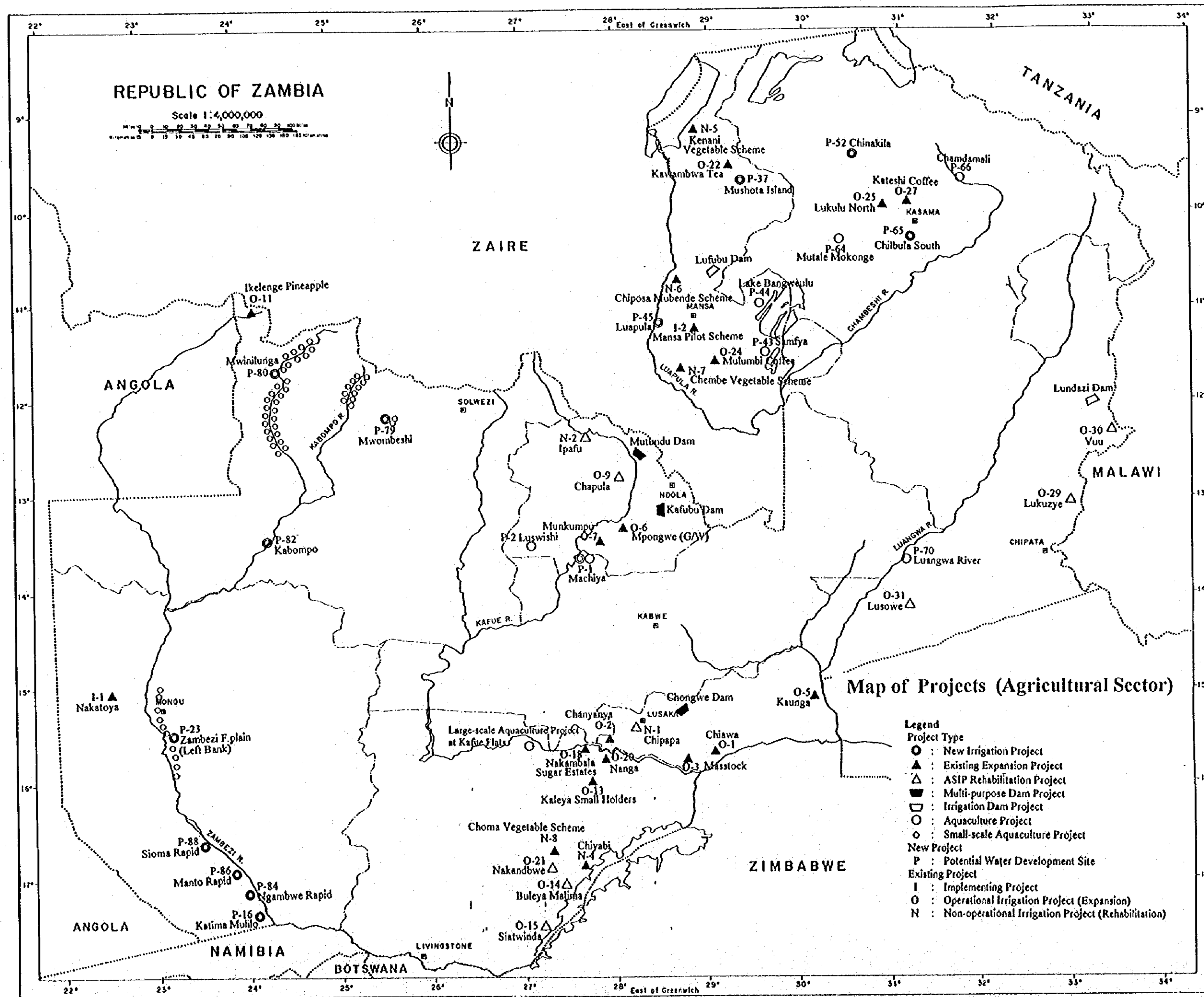
6 RECOMMENDATIONS

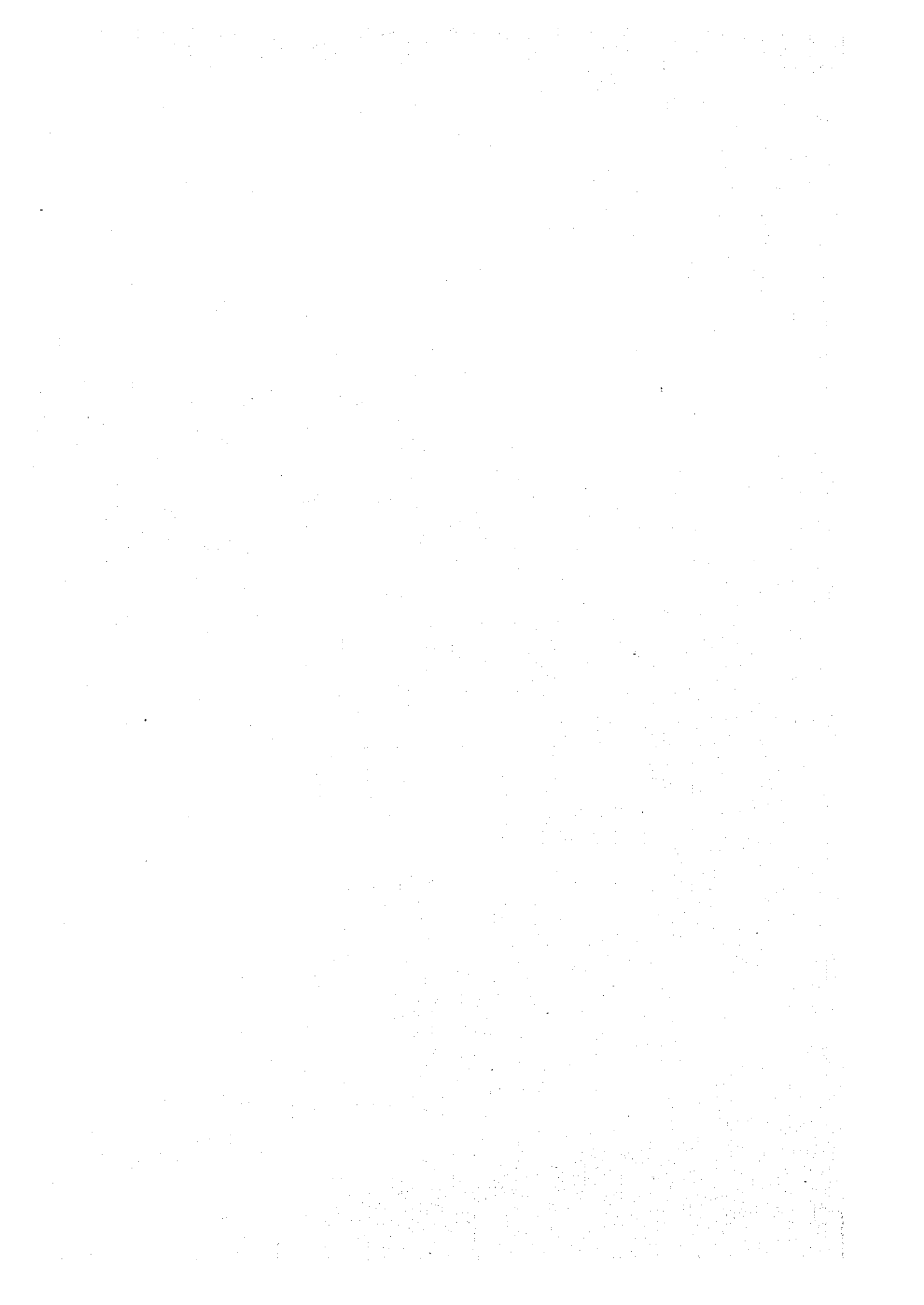
As well as revisions to the Master Plan every five years, endeavours for securing finances, and encouragement of public awareness of Beneficiary-to-Pay principle and of Saving Water, immediate commencement of implementation of the Action Plan, as listed in Table-6, are recommended.

Table-6 Projects Proposed in Action Plan

Project	Outline	Implementation Schedule	Project Cost (Million US\$)
(1) Northern Lusaka Production Well Project	- Location: 10km north from Lusaka - Water Developed: 20,000 m ³ /day - No. of Borehole: 50 (diameter: 30 cm) (depth: 100 m)	completed by 1998	15.70
(2) Chongwe Multi-purpose Dam Project	- Location: 45km east from Lusaka - Fill Type Dam - Target: * Water Supply to Lusaka and Chongwe (103,000 m ³ /day) * Irrigation (810ha, 70,000 m ³ /day)	- study and design 1996-1997 - construction 1998-2000	- Water Supply: 109.87 - Irrigation: 34.74
(3) Drilling Center Project	- Location: one per province (new 6 centers) - Objective: Groundwater development by province	- construction of center by 2000 - procurement of rigs by 2005	41.64
(4) Groundwater Development Training Centre Project	- Objective: Training of engineers and technicians for groundwater development - Location: Lusaka City - Land Area: 10,000m ² - Building Area: 3,000 m ² - Rigs: 2 sets (DTH type) - Facilities: training rooms, reference rooms, auditorium, workshop, etc.	- Phase 1 (1996-1998) establishment of the centre and initial training by consultants - Phase 2 (1999-2003) technical transfer from foreign experts - Phase 3 (2004-) training and management by Zambians	- for Phase 1 16.40
(5) ASIP Rehabilitation Projects	- Irrigated Area: 220 ha (9 sites) - Crops: vegetable (peri-urban agriculture around local townships)	completed by 1999	5.34
(6) Zambezi Left Bank Floodplain Rice Irrigation Project	- Irrigated Area: 1,500 ha - Crops: rice - Water Developed: 261,000 m ³ /day	- Phase 1: 1998-2000	19.47







**FINAL REPORT
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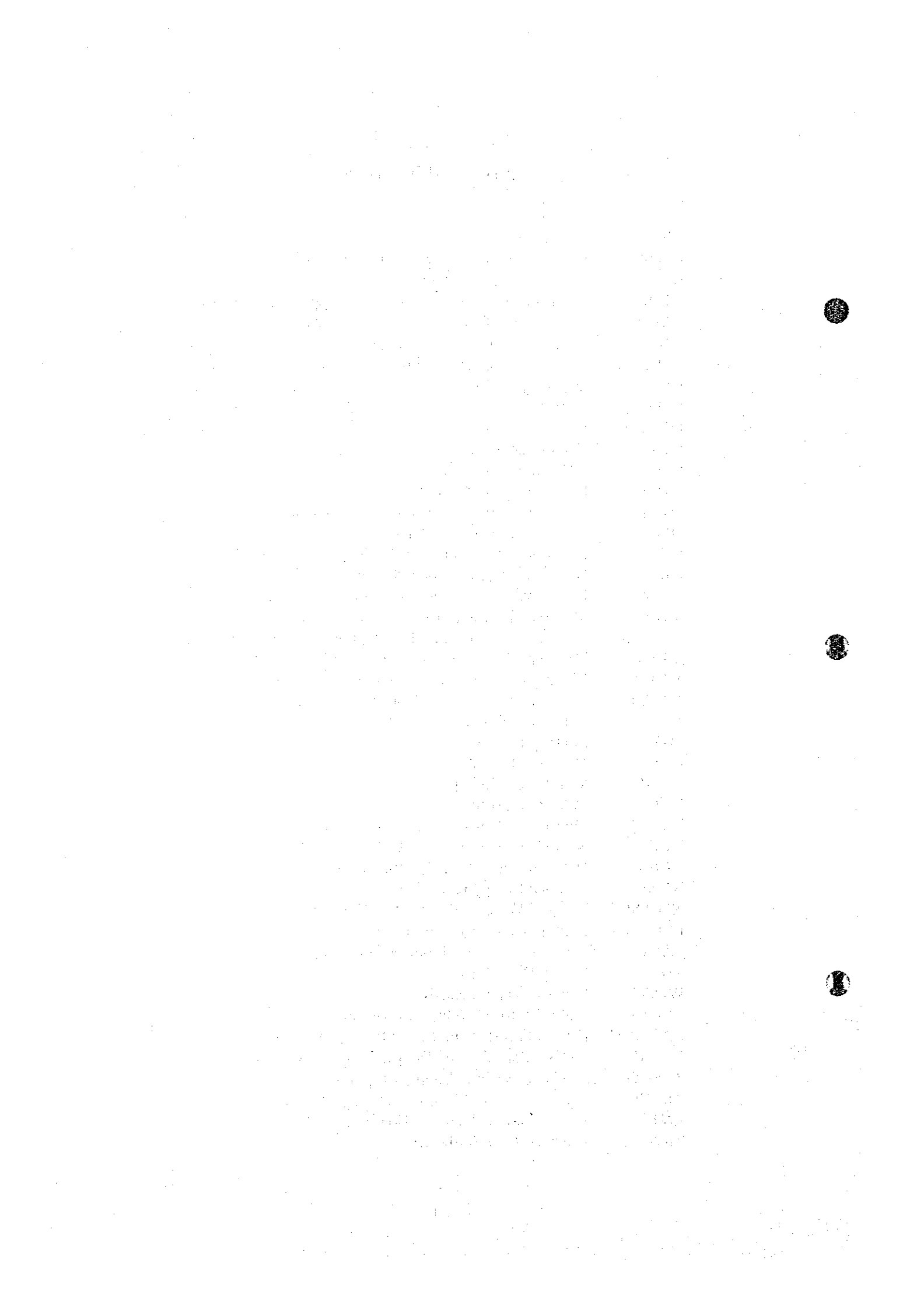
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List of Abbreviations

CSD	: Central Statistical Office
CWSC	: Cipata Water and Sewerage Company Limited
DGS	: Department of Geological Survey
DISS	: Department of Infrastructure and Supporting Services
DMIW	: Department of Maritime and Inland Waters
DNR	: Department of Natural Resources
DOA	: Department of Agriculture
DOE	: Department of Energy
DOF	: Department of Fisheries
DOFOR	: Department of Forest
DOI	: Department of Industry
DOL	: Department of Land
DOM	: Department of Meteorology
DTCP	: Department of Town and Country Planning
DWA	: Department of Water Affairs
ECZ	: Environmental Council of Zambia
GRZ	: Government of Republic of Zambia
LWSC	: Lusaka Water and Sewerage Company Limited
MAFF	: Ministry of Agriculture, Food, and Fisheries
MCDSS	: Ministry of Community Development and Social Services
MENR	: Ministry of Environment and Natural Resources
MEWD	: Ministry of Energy and Water Development
MLGH	: Ministry of Local Government and Housing
MOCI	: Ministry of Commerce Trade and Industry
MOH	: Ministry of Health
MOL	: Ministry of Land
MOM	: Ministry of Mining
MOT	: Ministry of Tourism
MOTC	: Ministry of Transport and Communication
NCDP	: National Commission for Development Planning
NCSR	: National Council for Scientific Research
NENC	: National Energy Council
NWASCO	: National Water and Sanitation Council
PCU	: Programme Coordination Unit
SADC	: South African Development Community
SD	: Survey Department
WDB	: Water Development Board
WSDG	: Water Sector Development Group
ZAFFICO	: Zambia Forestry and Forest Industries Corporation
ZCCM	: Zambia Consolidated Copper Mines Limited
ZESCO	: Zambia Electricity Supply Corporation
ZIMCO	: Zambia Industrial and Mining Corporation
ZNTB	: Zambia National Tourist Board
ZRA	: Zambezi River Authority



CHAPTER 1 INTRODUCTION

1.1 Outline of Study

The economy of the Republic of Zambia has relied on the mining and production of copper since long before independence. However, since the decline in international copper prices in the latter half of the 1970's, the economy has suffered badly and the Government has sought to diversify its domestic industries. Agriculture has been chosen as the leading sector in Zambia's national development and implementation of the Agricultural Sector Investment Programme (ASIP) is a major priority. At the same time, the population of Zambia has been increasing rapidly at a rate of nearly 2.7% per year, and the distribution of the population has been changing with increased urbanisation and concentrations of population in Lusaka and other large cities. In order to increase agricultural production to both develop the economy and feed the population, as well as to provide drinking water to cities, towns and villages, Zambia needs to develop adequate water resources. As such, the formulation of a National Water Master Plan was proposed in the Fourth National Development Plan (1989 - 1993) - however, no such plan has been implemented until now.

With the above background, the Government of the Republic of Zambia originally requested technical co-operation from the Government of Japan for the formulation of a water resources development plan, in February 1987. This request led to the Japan International Cooperation Agency (JICA) dispatching a study team to undertake the "Master Plan Study on Hydrological Observation Systems of the Major River Basins in Zambia" in December 1989. The team carried out the study over thirty months in cooperation with the Department of Water Affairs (DWA) of the Ministry of Energy and Water Development (MEWD), and the Final Report was submitted in March 1992. The objectives of this earlier study were the collection of hydrological data and the projection of water resources potential for the western half of Zambia. However, the formulation of a water resources development plan was not included.

Following from this study, and considering the development of water resources as a matter of urgency, the Government of Zambia again requested technical co-operation from the Government of Japan, for the formulation of a Master Plan relating to water resources development, in March 1992. In compliance with that request, JICA dispatched a preparatory study team headed by Mr. Takeshi KADOMATSU in January 1993. The Scope of Work and Minutes of Meeting were agreed between the Permanent Secretary of the Ministry of Energy and Water Development (MEWD), the Acting Director of the Department of Water Affairs (DWA) of MEWD, and the Resident Representative of the JICA Zambia Office in June 1993. With this agreement, a study team headed by Mr Yoshio NAKAGAWA commenced "The Study on the National Water Resources Master Plan in the Republic of Zambia" from the beginning of November 1993. This Final Report presents the conclusions of the investigations undertaken by the Study Team in collaboration with the Zambian counterparts and the staff of the DWA.

The objectives of the Study were to formulate a national water resources master plan to the year 2015, and to propose an action plan to be implemented immediately. The final objective was to promote technology transfer to the Zambian counterparts during the Study. The master plan and action plan objectives were achieved by an investigation of the general socio-economic and hydrologic conditions in Zambia, an assessment of the current situation

regarding water use and the future requirement for water resources development, a detailed study of the water resources potential for both surface water and groundwater, and by a water balance between current and future demands and available resources. The master plan proposals include plans for multi-purpose dams, the development of public water supply systems for domestic and industrial use, and irrigation, livestock and fishpond development to promote agricultural economic growth. Improvements to laws and institutions are also recommended. Technology transfer was achieved by the counterparts and Study Team members working together in the course of the Study, by the joint JICA/MEWD Technical Seminar given in Lusaka, and by two of the Zambian counterparts participating in JICA training courses in Japan.

1.2 Output of Study

The Study comprises the following plans and recommendations, namely the National Water Resources Master Plan to the year 2015, and the Action Plan. The output of the Study was submitted to the Ministry of Energy and Water Development (MEWD), the executing agency for the Zambian Government. The Final Report comprises the Summary, Main Report, three volumes for the Supporting Reports and Data Book.

1.3 Acknowledgements

The Government of Zambia, through the Ministry of Energy and Water Development (MEWD) and the Department of Water Affairs (DWA), established the Steering Committee and Technical Committee for the purpose of overseeing the execution of the Study and providing technical guidance to the Study Team. In the same manner, the Japan International Cooperation Agency (JICA) set up the Advisory Committee to advise the Team for the implementation of the Study.

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CHAPTER 2 GENERAL CONDITIONS OF SOCIO-ECONOMY AND WATER RESOURCES IN STUDY AREA

2.1 Socio-Economy

2.1.1 Administrative Units

Zambia administratively consists of nine Provinces. They are: Lusaka, Copperbelt, Central, Northwestern, Western, Southern, Luapula, Northern and Eastern. Province is furthermore divided into Districts. There are 61 Districts at present in the country. In the 1990 census year, the number of Districts was 57 as shown in Table 2-1. Afterwards, as shown in Table 2-2, four Districts were created as independent Districts. In this current study, however, the number of Districts is considered as 57 as of the 1990 census year, because of data availability.

Table 2-1 Administrative Structure of Zambia

Provinces	Number of District at the 1990 Census	Number of Districts in 1995
Lusaka	3	4
Copperbelt	8	8
Central	5	6
Northwestern	6	6
Western	6	6
Southern	9	9
Luapula	5	5
Northern	9	10
Eastern	6	7
Zambia	57	61

The central government is located in Lusaka city, the national capital. It comprises 22 Ministries and Offices of the President and the Vice President. The Ministries and Offices have branches in the respective Provinces. Under the central government, there are three levels of autonomous local government. They are established by "The Local Government Act, No.22 of 1991" of the Zambian Laws. As of the 1990 census year, 57 local authorities were functioning and distributed as follows: three city councils, i.e., Lusaka, Ndola and Kitwe; seven municipal councils, i.e., Chingola, Kabwe, Mufulira, Luanshya, Livingstone, Chililabombwe and Kalulushi; and 47 district councils which were located in District capital towns. Incidentally, Kasama and Chipata district councils were promoted to municipal council from district council. Besides, four district councils increased after the 1990 census year, so in 1995 the total local authority is enumerated as follows: three city councils, nine municipal councils and 49 district councils.

Table 2-2 List of Local Authorities: 1990 and 1995

1990 Census Year		Existent Situation in 1994	
Code	District	Code	District
	Capital Town		Capital Town
Lusaka Province			
11	Lusaka-Urban	111	Lusaka *
12	Lusaka-Rural	121	Chongwe
13	Luangwa	131	Luangwa
Copperbelt Province			
21	Ndola-Urban	211	Ndola *
22	Ndola-Rural	221	Masaiti
23	Chililabombwe	231	Chililabombwe
24	Chingola	241	Chingola
25	Mufulira	251	Mufulira
26	Kalulushi	261	Kalulushi
27	Kitwe	271	Kitwe
28	Luanshya	281	Luanshya
Central Province			
31	Kabwe-Urban	311	Kabwe *
32	Kabwe-Rural	321	Chibombo
33	Mumbwa	331	Mumbwa
34	Mkushi	341	Mkushi
35	Serenje	351	Serenje
Northwestern Province			
41	Solwezi	411	Solwezi *
42	Mwinilunga	421	Mwinilunga
43	Zambezi	431	Zambezi
44	Kabompo	441	Kabompo
45	Mfumbwe	451	Mfumbwe
46	Kasempa	461	Kasempa
Western Province			
51	Mongu	511	Mongu *
52	Lukulu	521	Lukulu
53	Kalabo	531	Kalabo
54	Kaoma	541	Kaoma
55	Senanga	551	Senanga
56	Sesheke	561	Sesheke
Southern Province			
61	Livingstone	611	Livingstone *
62	Namwala	621	Namwala
63	Mazabuka	631	Mazabuka
64	Monze	641	Monze
65	Choma	651	Choma
66	Kalomo	661	Kalomo
67	Siavonga	671	Siavonga
68	Gwembe	681	Munyumbwe
69	Sinazongwe	691	Sinazongwe
Luapula District			
71	Mansa	711	Mansa *
72	Nchelenge	721	Nchelenge
73	Kawambwa	731	Kawambwa
74	Mwense	741	Mwense
75	Samfya	751	Samfya
Northern District			
81	Kasama	811	Kasama *
82	Kaputa	821	Kaputa
83	Mbala	831	Mbala
84	Mporokoso	841	Mporokoso
85	Luwingu	851	Luwingu
86	Chilubi	861	Chilubi
87	Isoka	871	Isoka
88	Chinsali	881	Chinsali
89	Mpika	891	Mpika
Eastern Province			
91	Chipata	911	Chipata *
92	Chama	921	Chama
93	Lundazi	931	Lundazi
94	Chadiza	941	Chadiza
95	Katete	951	Katete
96	Petauke	961	Petauke
			Nyimba **

Remark: * Provincial capital town ** District created newly

2.1.2 Population and Labour Force

(1) Population

Population distribution is one of the most basic piece of information to formulate a water resources development plan. The latest available and reliable information regarding present population and its distribution is the 1990 census. The final reports of the 1990 census were officially published in February, 1995. During the study proceeding, however, the census information was not available, so it was provided for the JICA Study Team through the courtesy of CSO's information and research section. Thus, since this current master plan study was based on the preliminary census information, some figures were slightly different from the final ones. This difference, however, was so small that it would have no influence upon planning of water resources development.

(a) District Distribution

According to the 1990 census, the national population was 7.38 million as the final figure. Its distribution by District is shown in Table 2-3. The national average growth was 2.7% per annum for 10 years between the 1980 and 1990 censuses. The population growth for the census was illustrated in Figure 2-1. The Districts, which recorded high population growth rate of more than 4% per annum on average, were eleven: Mfumbwe, Gwembe, Kalomo, Ndola-Rural, Kaoma, Petauke, Mumbwa, Mkushi, Kabwe-Rural, Lundazi and Namwala. On the contrary, Mufulira and Kalabo Districts recorded negative growth during the same period. In terms of population density, Lusaka-Urban District was the most densely inhabited among the 57 Districts with 1,744 persons per km². The following four Districts recorded a density of more than 100 persons per km²: Kitwe, Ndola-Urban, Luanshya and Kabwe-Urban. They are all urbanised Districts and located along the Lusaka-Copperbelt line. On the other hand, Mfumbwe and Kasempa Districts recorded the lowest density of less than 2 persons per km².

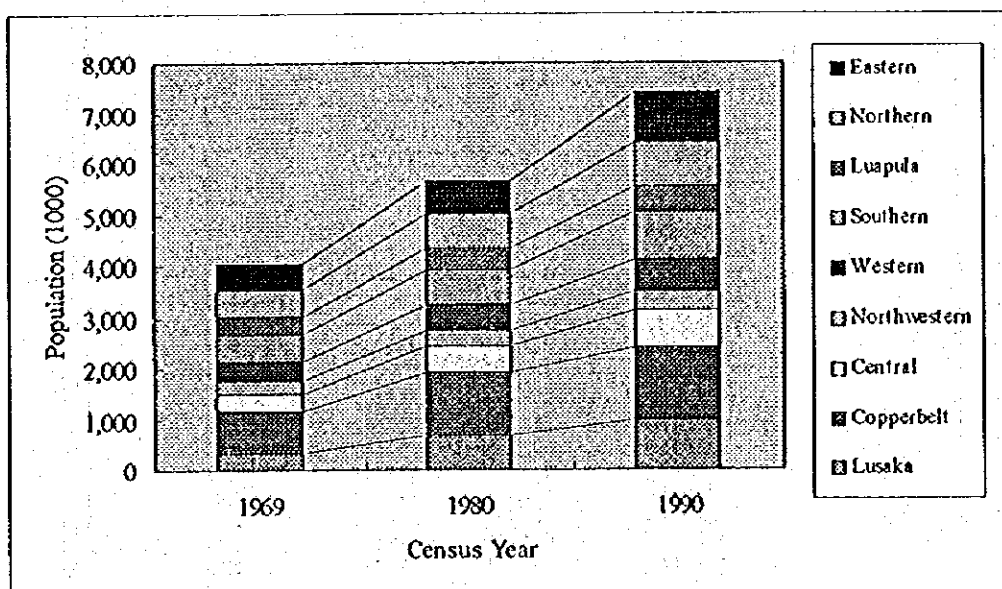


Figure 2-1 Population Growth: 1969, 1980 and 1990 Censuses

Table 2-3 Census Population and Growth Rate: 1969, 1980 and 1990

Code	Province District	Census Population			Average Annual Growth Rate (%)		
		1969	1980	1990	1969-80	1980-90	1969-90
11	Lusaka-Urban	262,425	535,830	769,353	6.70	3.68	5.26
12	Lusaka-Rural	83,624	143,762	201,507	5.05	3.43	4.28
13	Luangwa	7,925	11,462	16,246	3.41	3.55	3.48
21	Ndola-Urban	159,786	281,315	334,531	5.28	1.75	3.58
22	Ndola-Rural	72,215	102,494	165,004	3.23	4.88	4.01
23	Chililabombwe	44,862	62,131	62,578	3.00	0.07	1.60
24	Chingola	103,292	145,993	161,058	3.20	0.99	2.14
25	Mufulira	107,802	150,069	146,451	3.05	-0.24	1.47
26	Kafulushi	32,272	59,267	68,223	5.68	1.42	3.63
27	Kitwe	199,798	320,320	347,756	4.38	0.83	2.67
28	Luanshya	96,282	129,589	141,927	2.74	0.91	1.86
31	Kabwe-Urban	65,974	136,033	161,456	6.80	1.73	4.35
32	Kabwe-Rural	122,570	146,295	219,339	1.62	4.13	2.81
33	Mumbwa	60,138	83,907	127,895	3.07	4.31	3.66
34	Mkushi	36,992	72,190	108,466	2.17	4.16	3.11
35	Serenje	52,981	73,480	103,472	3.02	3.48	3.24
41	Solwezi	52,979	92,773	124,624	5.23	3.00	4.16
42	Mwinilunga	51,398	68,845	81,496	2.69	1.70	2.22
43	Zambezi	61,324	60,811	58,365	-0.08	1.18	0.52
44	Kabompo	33,376 *1	40,347	53,197	*1	2.80	*
45	Mfumbwe	*1	9,286	22,979	1.79 *1	9.48	2.59 *
46	Kasempa	32,656 *1	30,606	36,893	*1	1.89	*
51	Mongu	110,123 *2	114,405	142,795	3.41 *2	2.24	2.75 *
52	Lukulu	*2	44,800	51,953	*2	1.49	*
53	Kalabo	105,893	98,496	97,320	-0.66	-0.12	-0.40
54	Kaoma	56,450	70,066	112,049	1.98	4.81	3.32
55	Senanga	88,602	101,957	137,768	1.28	3.06	2.12
56	Sesheke	49,019	56,731	64,928	1.34	1.36	1.35
61	Livingstone	49,063	71,521	82,952	3.49	1.49	2.53
62	Namwala	36,600	56,058	83,075	3.95	4.01	3.98
63	Mazabuka	159,376 *3	112,258	155,436	3.09 *3	3.31	2.75 *
64	Monze	*3	110,423	126,039	*3	1.33	*
65	Choma	97,980	130,416	163,050	2.63	2.26	2.45
66	Kalomo	76,571	97,177	162,674	2.19	5.29	5.29
67	Siavonga	*4	29,633	34,876	*4	1.64	*
68	Gwembe	76,451 *4	20,666	35,462	1.90 *4	5.55	2.71 *
69	Sinazongve	*4	43,771	63,586	*4	3.80	*
71	Mansa	80,342	111,437	142,497	3.02	2.49	2.77
72	Nehelenge	56,755	80,233	112,039	3.20	3.40	3.29
73	Kawambwa	54,706	63,304	82,782	1.34	2.72	1.99
74	Mwense	52,974	65,552	80,356	1.96	2.06	2.00
75	Samfya	90,807	100,440	107,486	0.92	0.68	0.81
81	Kasama	107,817	147,594	189,360	2.90	2.52	2.72
82	Kaputa	*5	44,731	49,993	*5	1.12	*
83	Mbala	95,633	113,935	136,091	1.60	1.79	1.69
84	Mporokoso	67,390 *5	41,145	52,505	2.23 *5	2.47	2.02 *
85	Luwingu	79,164 *6	52,596	66,699	0.74 *6	2.40	1.43 *
86	Chitubi	*6	33,285	39,874	*6	1.82	*
87	Isoka	77,700	93,999	121,871	1.75	2.63	2.17
88	Chinsali	58,014	66,174	83,659	1.20	2.37	1.76
89	Mpika	59,378	81,291	115,125	2.90	3.54	3.20
91	Chipata	148,416	204,738	291,372	2.97	3.59	3.26
92	Chama	30,887	35,359	51,772	1.24	3.89	2.49
93	Lundazi	92,247	114,653	171,602	2.00	4.12	3.00
94	Chadiza	32,169	44,879	63,210	3.07	3.48	3.27
95	Katete	80,485	94,208	138,470	1.44	3.93	2.62
96	Petauke	125,311	157,065	249,542	2.07	4.74	3.33
10	Lusaka	353,974	691,054	987,106	6.27	3.63	5.00
20	Copperbelt	816,309	1,251,178	1,427,528	3.96	1.33	2.70
30	Central	358,655	511,905	720,628	3.29	3.48	3.38
40	Northwestern	231,733	302,668	387,554	2.46	2.50	2.48
50	Western	410,087	486,455	606,813	1.56	2.24	1.88
60	Southern	496,041	671,923	907,150	2.80	3.05	2.92
70	Luapula	335,584	420,966	525,160	2.08	2.24	2.16
80	Northern	545,096	674,750	855,177	1.96	2.40	2.17
90	Eastern	509,515	650,902	965,968	2.25	4.03	3.09
	Zambia	4,056,994	5,661,801	7,383,084	3.08	2.69	2.89

Source: (1) 1990 Census of Population, Housing and Agriculture, Preliminary Report, Dec. 1994, CSO (Ref. B36)
 (2) 1980 Census of Population and Housing, Volume I, General Population and Migration Tables, September 1985, CSO (Ref. B01) (3) Data of CSO

Remark: *1-*6 comprises some parts of other Districts

(b) Family Size

The average family size in the 1990 census was 4.8 persons, as shown in Table 2-4. Of District averages, the largest was 6.4 persons of Monze. The smallest size was 3.3 persons of Samfya and Chilubi. In urban areas, the average family size was 5.2 persons, as shown in the table. Of the urban family size averages, Kitwe had the largest figure of 6.1 persons and Chilubi had the smallest one of 3.7 persons.

(c) Urban Population

A human settlement (or township) is defined as settlement with 1,000 persons and more, according to "Human Settlement" report. The 1990 census showed that there were 92 urban settlements and their total population was 2.78 million. It accounted for 38% of the total census population. Of these 92 settlements, 48 townships have population size of 5,000 and above. Settlements with a population size of 5,000 and above are officially classified as small urban area. Besides size of population, most of them have to be involved in non-agriculture activities and to have common facilities like piped water, electricity, post office and police station. In addition, a large urban area is defined as that with a population of 50,000 and above, and with the same conditions mentioned above. There are nine large urban areas in the country as of the 1990 census year: Lusaka, Ndola, Kitwe, Chingola, Kabwe, Mufulira, Luanshya, Livingstone and Chipata.

Between the two censuses, a growth rate of urban population in the country was 2.1%, which was lower than the natural population increase rate of 2.7%. There were five Provinces of which the growth rate exceeded the natural increase rate: Lusaka, Luapula, Central, Northwestern and Eastern. In Western Province, its growth rate was negative. In Copperbelt Province, although its urban population has grown at 0.8%, its percentage share of 45.6% in 1980 decreased to 40.0% in 1990.

Among the nine large urban areas, the towns which exceeded the natural increase rate of population in the country were only two towns, Lusaka and Ndola. Kalulushi town recorded the largest negative rate of 4.9% per annum during the two censuses. The total population of large urban areas grew at 1.9% on average, which was lower not only than that of the natural increase rate of the country but also than that (2.1%) of the total urban population including small urban areas. Between the 1969 and 1980 censuses, the population growth in urban areas recorded much higher rates, 4.1% in large urban areas and 6.0% in the all urban areas, since the natural increase rate in the country was 3.1% during the same period. Thus, people in urban areas seemed to return to rural areas during the latest two censuses.

Table 2-4 Family Size and Population Density: 1990 Census

Code	District	District Feature				Urban Population				
		Population	Number of Households	Family Size	Area (sq. km.)	Pop. Density (per sq. km.)	Population	Number of Households	Family Size	Urban Ratio (%)
11	Lusaka-Urban	769,353	148,609	5.2	441	1,744.4	769,353	148,609	5.2	100.0
12	Lusaka-Rural	201,507	42,679	4.7	17,794	11.3	58,514	12,201	4.8	29.0
13	Luangwa	16,246	3,675	4.4	3,859	4.2	1,606	332	4.8	9.9
21	Ndola-Urban	334,531	60,679	5.5	993	336.8	334,531	60,679	5.5	100.0
22	Ndola-Rural	165,004	38,766	4.3	23,423	7.0	12,977	3,205	4.0	7.9
23	Chililabombwe	62,578	11,919	5.3	1,010	62.0	49,850	8,856	5.6	79.7
24	Chingola	161,058	29,557	5.4	1,751	92.0	142,379	24,679	5.8	88.4
25	Mufuilira	146,451	27,363	5.4	1,280	114.4	124,746	21,908	5.7	85.2
26	Katulusi	68,223	13,756	5.0	1,135	60.1	41,419	7,573	5.5	60.7
27	Kitwe	347,756	60,031	5.8	751	463.2	288,592	47,222	6.1	83.0
28	Luanshya	141,927	27,794	5.1	873	162.6	118,143	21,974	5.4	83.2
31	Kabwe-Urban	161,456	33,849	4.8	1,530	105.5	161,456	33,849	4.8	100.0
32	Kabwe-Rural	219,339	40,549	5.4	25,536	8.6	20,570	4,274	4.8	9.4
33	Mumbwa	127,895	22,587	5.7	21,576	5.9	15,103	3,097	4.9	11.8
34	Mkushi	108,466	21,810	5.0	22,470	4.8	7,804	1,662	4.7	7.2
35	Serenje	103,472	18,628	5.6	23,572	4.4	8,265	1,751	4.7	8.0
41	Sohwezi	124,624	27,472	4.5	30,122	4.1	26,223	5,579	4.7	21.0
42	Mwinilunga	81,496	18,189	4.5	20,894	3.9	6,342	1,404	4.5	7.8
43	Zambezi	68,365	16,290	4.2	18,746	3.6	7,739	1,550	5.0	11.3
44	Kabompo	53,197	11,190	4.8	14,533	3.7	5,005	971	5.2	9.4
45	Mfunbwe	22,979	5,152	4.5	19,078	1.2	4,860	1,116	4.4	21.1
46	Kasempa	36,893	7,850	4.7	21,965	1.7	4,151	932	4.5	11.3
51	Mongu	142,795	30,280	4.7	10,071	14.2	36,837	7,467	4.9	25.8
52	Lukulu	51,953	11,347	4.6	15,639	3.3	3,129	706	4.4	6.0
53	Kalabo	97,320	22,302	4.4	17,230	5.6	8,868	2,105	4.2	9.1
54	Kaoma	112,049	22,977	4.9	31,857	3.5	9,165	2,092	4.4	8.2
55	Senanga	137,768	27,702	5.0	29,522	4.7	9,326	1,930	4.8	6.8
56	Sesheke	64,928	14,355	4.5	23,024	2.8	8,416	1,775	4.7	13.0
61	Livingstone	82,952	17,150	4.8	1,041	79.7	76,875	15,404	5.0	92.7
62	Namivala	83,075	14,424	5.8	21,528	3.9	8,799	1,843	4.8	10.6
63	Mazabuka	155,436	26,373	5.9	4,901	31.7	42,991	8,556	5.0	27.7
64	Monze	126,039	19,701	6.4	7,008	18.0	17,585	3,723	4.7	14.0
65	Choma	163,050	27,314	6.0	6,625	24.6	35,520	7,540	4.7	21.8
66	Katondo	162,674	26,746	6.1	31,425	5.2	9,737	2,224	4.4	6.0
67	Siyonga	34,876	6,735	5.2	2,609	13.4	7,641	1,690	4.5	21.9
68	Gwenbe	33,462	6,577	5.4	5,262	6.7	2,013	406	5.0	5.7
69	Sinazongwe	63,586	11,623	5.5	4,800	13.2	10,823	2,182	5.0	17.0
71	Mansa	142,497	36,843	3.9	15,997	8.9	39,051	8,694	4.5	27.4
72	Nchelenge	112,039	30,827	3.6	7,944	14.1	16,398	4,023	4.1	14.6
73	Kawambwa	82,782	22,108	3.7	9,108	9.1	11,264	2,879	3.9	13.6
74	Mwense	80,356	22,939	3.5	6,672	12.0	3,695	847	4.4	4.6
75	Samfya	107,486	32,844	3.3	9,872	10.9	12,718	3,185	4.0	11.8
81	Kasama	189,369	46,319	4.1	20,457	9.3	48,045	10,422	4.6	25.4
82	Kaputa	49,993	12,007	4.2	12,388	4.0	2,936	636	4.6	5.9
83	Mbala	136,091	32,875	4.1	18,695	7.3	14,924	3,280	4.6	11.0
84	Mporokoso	52,505	12,181	4.3	11,933	4.4	4,818	1,051	4.6	9.2
85	Luwingu	66,699	15,945	4.2	8,831	7.6	4,664	999	4.7	7.0
86	Chilubi	39,874	11,978	3.3	5,269	7.6	1,366	371	3.7	3.4
87	Isoka	121,871	25,957	4.7	13,767	8.9	13,089	2,800	4.7	10.7
88	Chinsali	83,659	20,683	4.0	15,445	5.4	7,509	1,663	4.5	9.0
89	Mpika	115,125	26,812	4.3	40,505	2.8	20,950	4,094	5.1	18.2
91	Chipata	291,372	61,720	4.7	12,189	23.9	52,213	10,270	5.1	17.9
92	Chama	51,772	11,297	4.6	17,803	2.9	3,474	764	4.5	6.7
93	Lundazi	171,602	35,970	4.8	13,687	12.5	5,590	1,200	4.7	3.3
94	Chadiza	63,210	13,240	4.8	2,502	25.3	3,031	746	4.1	4.8
95	Katete	138,470	30,572	4.5	3,842	36.0	7,165	1,633	4.4	5.2
96	Petauke	249,542	50,526	4.9	19,123	13.0	11,277	2,405	4.7	4.5
10	Lusaka	987,106	194,963	5.1	22,094	44.7	829,473	161,142	5.1	84.0
20	Copperbelt	1,427,528	269,865	5.3	31,217	45.7	1,112,637	196,096	5.7	77.9
30	Central	720,628	137,423	5.2	94,684	7.6	213,198	44,633	4.8	29.6
40	Northwestern	387,554	86,143	4.5	125,280	3.1	54,320	11,552	4.7	14.0
50	Western	606,813	128,963	4.7	127,344	4.8	75,741	16,075	4.7	12.5
60	Southern	907,150	156,643	5.8	85,199	10.6	211,984	43,568	4.9	23.4
70	Luapula	525,160	145,561	3.6	49,594	10.6	83,126	19,628	4.2	15.8
80	Northern	855,177	204,737	4.2	147,292	5.8	118,301	25,316	4.7	13.8
90	Eastern	965,968	203,325	4.8	69,146	14.0	82,750	17,018	4.9	8.6
	Zambia	7,383,084	1,527,643	4.8	751,851	9.8	2,781,530	535,028	5.2	37.7

Source: (1) 1990 Census of Population, Housing and Agriculture, Preliminary Report, Dec. 1994, CSO
(2) 1980 Census of Population and Housing, Volume I, General Population and Migration Tables, September 1985, CSO
(3) Data by Demography Division of CSO

(d) Basin Distribution

Population distribution by major river basin is tabulated in Table 2-5. The population distribution by river basin area is estimated on the basis of the Census Supervisory Area (CSA) distribution, applying so called the "ratio method".

Table 2-5 Population by Major Drainage Area: 1990

Major River Drainage Area	Population (1000)
Zambezi river basin	1,699
Kafue river basin	2,864
Luangwa river basin	1,311
Chambeshi river basin	376
Luapula river basin	833
Lake Tanganyika basin	81

(2) Labour Force

According to "Labour Force Survey 1986" of CSO, there were 3.81 million people aged 12 years old and above in the country. Of these people, 2.72 million people or 71.3% were economically active and 1.08 million or 28.4% were economically inactive. Incidentally, labour force is defined as persons active economically who are either working or if not working are seeking work. Of the total labour force of 2.72 million people, 2.36 million or 87% were employed and 0.36 million or 13% was unemployed. The unemployment rate for urban areas was 19.2% while that for rural areas was 10.6%. The unemployment rate for female was 17.8% whilst that of males was 8.6%.

The survey defined employed persons to include those employed in the formal sector as well as those employed in the informal sector which includes the subsistence sectors. Hence, the informal sector is broadly defined as consisting of all subsistence farmers, all own accounted workers and all employers in unlicensed and unregistered businesses. The survey estimates that there were 1.83 million people in the informal sector and 0.54 million people in the formal sector. The total employment consisted of 55% in the subsistence sector, 22% in non-subsistence informal activities and 23% in the formal sector. Table 2-6 shows the detailed distribution of employment in 1986.

Table 2-6 Employment in Formal and Informal Sector by Industrial Group and Urban/Rural: 1986

(Unit: 1000)

Industrial Group	Informal Sector			Formal Sector	Total
	Total	Urban	Rural		
Agriculture, Forestry & Fishery	1,414.8	79.7	1,335.1	107.0	1,521.8
Agriculture, Forestry & Fishery	105.7	3.4	102.3	-	-
Subsistence Farming	1,309.1	76.3	1,232.8	-	-
Mining & Quarrying	0.5	0.3	0.2	50.0	50.5
Manufacturing	73.6	18.0	55.6	57.0	130.6
Electricity, Gas & Water	1.3	0.5	0.8	7.0	8.3
Construction	23.8	3.9	19.9	36.0	59.8
Wholesale, Retail Trade & Catering	252.8	132.4	120.4	59.0	311.8
Transport, Storage & Communication	5.7	4.0	1.7	33.0	38.7
Finance, Insurance, Real Estates, etc.	1.0	0.8	0.2	18.0	19.0
Social & Personal Services	46.3	26.8	19.5	166.0	212.3
Not Stated	6.5	0.9	5.6	-	6.5
Total	1,826.3	267.3	1,559.0	533.0	2,359.3

Source: Country Profile 1992, GRZ

2.1.3 National Accounts

In 1992, Zambia had serious drought. Although the worst effects of the drought on Zambia's populace were averted, it had significant negative effects on economic growth, fiscal and monetary operations, and domestic inflation. Agricultural production in 1992 dropped 33.1%. Although this was offset by rises of 12.4% in mining and quarrying and 8.5% in manufacturing, overall Gross Domestic Product (GDP) fell by 3.8%. In 1993, on the other hand, the national economy grew at 5.2%, and recovered to almost the same level to the 1991 economic level.

Sectoral contribution of economic sectors for GDP was given during the recent nine years from 1985 to 1993 in Figure 2-2. The leading sectors of the national economy were agriculture, manufacturing, and mining and quarrying, which accounted for 27.7%, 24.6% and 10.0% of GDP in 1993, respectively. Besides these sectors, wholesale and retail trading sector contributed about 8.3% of GDP. Government services which were shown in social and personal services accounted down to 5.0% only in 1993.

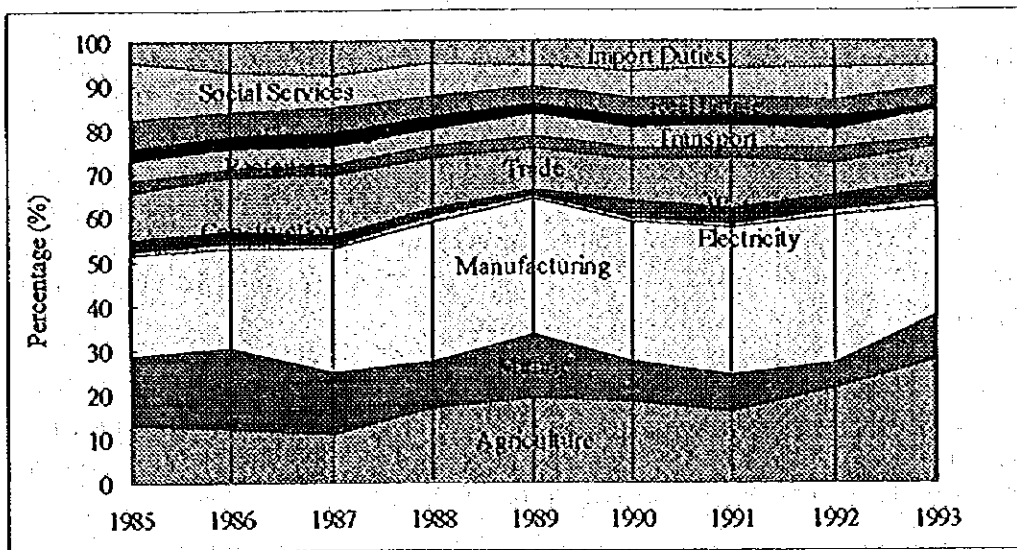


Figure 2-2 Percentage Distribution of GDP by Industrial Origin: 1985-1993

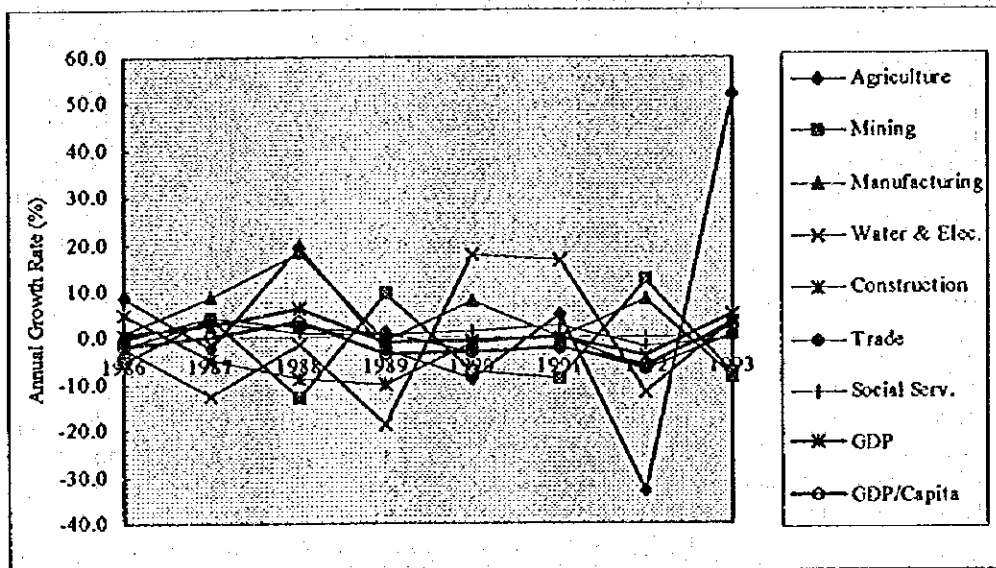


Figure 2-3 Real Annual Growth of Economic Sectors: 1985-1993

Figure 2-3 shows real annual growth of GDP and major economic sectors during the latest nine years. The highest annual growth of GDP was 6.3% in 1988 due to good rains and the lowest was -3.8% in 1992 because of the serious drought. An average growth rate was 1.24% for the nine years. This growth has been among the lowest in Africa. It is said that this low growth is due to worsening terms of trade, to low efficiency and to decreasing levels of investment.

Per capita GDP went down to K179,000 or almost US\$400 level in 1993. The growth rates of per capita GDP have shown many negative figures since 1985. In fact, an average of per capita GDP growth rates for the nine years was -1.35%, because GDP failed to keep up with population growth. Thus, living standards for an average Zambian have been worsening since 1985.

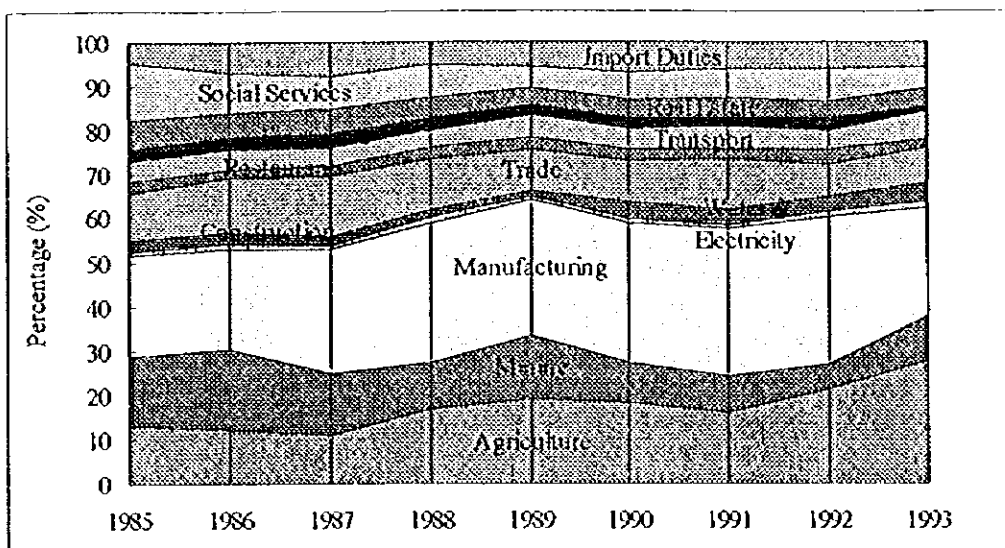


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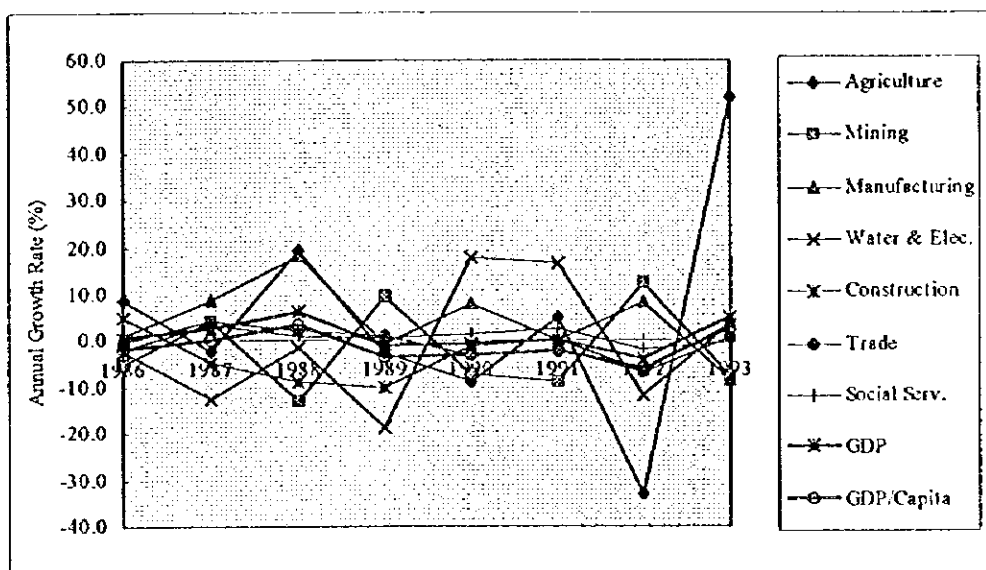


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GDP by type of expenditure was given in Table 2-7 at current prices and in Table 2-8 at 1977 constant prices. Expenditure by government and private sectors since 1985 has kept higher fraction of national economy. It ranged for 96.2% of GDP in 1989 and 77.4% in 1986, and 85.2% on average during the nine years. On the other hand, gross investment accounted for 23.8% in 1986 and 10.4% in 1992, and 14.7% on average. This investment rates seems to be relatively low as compared with other developing countries, because the average rate of low-income economies was 22% on average in 1992, according to "World Development Report 1994".

Incremental capital output ratio (ICOR) was 5.3 on average for the latest nine years and the ratios fluctuated between 49.7 in 1991 and -21.4 in 1990. The ratio, which is calculated as a quotient of gross investment divided by increment of GDP, indicates necessary points of investment to get one point of increment of GDP.

Table 2-7 GDP by Type of Expenditure at Current Prices: 1985-1993

Economic Sector	1985	1986	1987	1988	1989	1990	1991	1992	1993*1
I. GDP at Current Prices (Kwacha Million)									
1. Expenditure	5,981.3	10,032.9	16,219.3	24,407.2	53,091.0	93,185.8	178,590.2	525,563.3	1,219,860.5
Government Consumption	1,686.7	3,481.2	4,390.0	4,582.4	7,574.3	21,565.6	69,454.2	85,496.8	176,005.1
Private Consumption	4,294.6	6,551.7	11,829.3	19,824.8	45,516.7	71,620.2	109,136.0	440,066.5	1,043,855.4
2. Gross Investment	1,053.0	3,086.5	2,741.6	3,413.0	5,963.7	19,583.2	32,007.8	57,116.2	220,924.1
Gross Fixed Capital Formation	724.5	1,385.5	1,931.0	2,381.2	3,642.7	15,270.9	24,807.2	55,135.7	160,078.4
Increase of Stocks	328.5	1,701.0	810.6	1,031.8	2,321.0	4,312.3	7,200.6	1,980.5	60,845.7
3. Foreign Trade	37.6	-156.3	817.5	2,200.6	-3,873.5	571.0	7,677.8	-31,296.5	-17,597.7
Exports of Goods & Services	2,740.2	5,759.3	8,512.4	10,266.2	14,791.6	42,302.4	74,967.8	147,110.4	579,036.4
Imports of Goods & Services	2,702.6	5,915.6	7,694.9	8,065.6	18,665.1	41,731.4	67,290.0	178,406.9	596,634.1
4. GDP	7,071.9	12,963.1	19,778.4	30,020.8	55,181.2	113,340.0	218,275.8	551,383.0	1,423,186.9
II. Percentage Distribution (%)									
1. Expenditure	84.6	77.4	82.0	81.3	96.2	82.2	81.8	95.3	85.7
Government Consumption	23.9	26.9	22.2	15.3	13.7	19.0	31.8	15.5	12.4
Private Consumption	60.7	50.5	59.8	66.0	82.5	63.2	50.0	79.8	73.3
2. Gross Investment	14.9	23.8	13.9	11.4	10.8	17.3	14.7	10.4	15.5
3. Foreign Trade	0.5	-1.2	4.1	7.3	-7.0	0.5	3.5	-5.7	-1.2
Exports of Goods & Services	38.7	44.4	43.0	34.2	26.8	37.3	34.3	26.7	40.7
Imports of Goods & Services	38.2	45.6	38.9	26.9	33.8	36.8	30.8	32.4	41.9
4. GDP	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: National Accounts Statistical Bulletin No.4, June 1992, CSO
National Accounts Statistics Bulletin No.3, January 1990, CSO
Data by National Accounts Section of CSO

Note: *1 Preliminary estimation

Table 2-8 GDP by Type of Expenditure at 1977 Constant Prices: 1985-1993

Economic Sector	1985	1986	1987	1988	1989	1990	1991	1992	1993*1
I. GDP at 1977 Constant Prices (Kwacha Million)									
1. Expenditure	1,697.0	1,689.0	1,876.1	1,992.2	1,921.2	1,719.0	1,610.4	1,646.3	1,438.9
Government Consumption	460.1	464.4	377.6	331.3	415.7	492.2	665.7	341.7	362.0
Private Consumption	1,236.9	1,224.6	1,498.5	1,660.9	1,505.5	1,226.8	944.7	1,304.6	1,076.9
2. Gross Investment	261.2	385.3	233.9	245.0	228.7	382.9	457.9	407.0	594.4
Gross Fixed Capital Formation	198.8	168.6	158.9	178.1	123.2	172.9	149.9	151.3	209.1
Increase of Stocks	62.4	216.7	75.0	66.9	105.5	210.0	308.0	255.7	385.3
3. Foreign Trade	62.6	10.9	-35.5	-64.1	16.9	11.8	111.2	64.8	116.8
Exports of Goods & Services	527.8	537.8	505.9	476.3	469.6	435.6	455.5	427.1	560.8
Imports of Goods & Services	465.2	526.9	541.4	540.4	452.7	423.8	344.3	362.3	444.0
4. Statistical Discrepancy	23.7	-25.9	39.8	74.0	57.4	99.8	41.7	18.4	97.9
5. GDP	2,044.5	2,059.3	2,114.3	2,247.1	2,224.2	2,213.5	2,221.2	2,136.5	2,248.0
Increment of GDP	-	14.8	55.0	132.8	-22.9	-10.7	7.7	-84.7	111.5
6. Incremental Capital Output Ratio*2	-	17.6	7.0	1.8	-10.7	-21.4	49.7	-5.4	3.7
Average between '85 & '93	-	-	-	-	-	-	-	-	5.3
7. Gross Investment (%)*3	12.8	18.7	11.1	10.9	10.3	17.3	20.6	19.0	26.4
8. Gross Saving (%)*4	17.0	18.0	11.3	11.3	13.6	22.3	27.5	22.9	36.0
9. Resource Balance (%)*5	4.2	-0.7	0.2	0.4	3.3	5.0	6.9	3.9	9.6
II. Annual Real Growth (%)									
1. Expenditure	-	-0.5	11.1	6.2	-3.6	-10.5	-6.3	2.2	-12.6
2. Gross Investment	-	47.5	-18.7	-12.3	25.5	18.4	35.2	-48.7	5.9
Gross Fixed Capital Formation	-	-15.2	22.4	10.8	-9.4	-18.5	-23.0	38.1	-17.5
3. Foreign Trade	-	-82.6	22.4	10.8	-9.4	-18.5	-23.0	38.1	-17.5
4. GDP	-	0.7	38.7	4.7	-6.7	67.4	19.6	-11.1	46.0

Source: National Accounts Statistical Bulletin No.4, June 1992, CSO
National Accounts Statistics Bulletin No.3, January 1990, CSO
Data by National Accounts Section of CSO

Note: *1 Preliminary estimation
*2 Ratio of gross investment to increment of GDP
*3 Share of gross investment to GDP
*4 Share of gross saving (GDP minus gross investment) to GDP
*5 Difference of gross investment subtracted from gross saving

2.1.4 Economic Sector Profile

(1) Agricultural Sector

Value added (VA) of agricultural sector accounted for 18% of GDP on average during the recent nine years, which fluctuated between 11% in 1987 and 21% in 1992 as seen in Figure 2-2. Real agricultural growth averaged only 2.4% annually between 1985 and 1990. This rate was smaller than the population growth rate (2.7%) of the two censuses between 1980 and 1990. Agricultural production depends on investment, land availability and weather in general. In Zambia, variations in weather critically determine agricultural growth in particular.

The agricultural sub-sector might furthermore be broken down as follows: 55% of the sectoral VA by crop production or K217 billion and 28% by livestock sub-sector or K110 billion. Thus, Zambian agriculture depends on crops in general and on maize in particular. Maize is said to account for almost 85% of crop output in monetary terms. Agriculture's export base is almost non-existent. Export production consists mainly of small quantities of tobacco, cotton, coffee and beef. Zambia is one of the countries without a developed agricultural export sector.

(2) Industrial Sector

VA of mining and quarrying sector and 10.2% of GDP in 1993, as seen in Figure 2-2. For the recent nine years, VA of the sector accounted for 11% of GDP on average, which fluctuated between 8% in 1991 and 18% in 1986 as shown in Figure 2-3. Metal mining has been the largest and only one key industry in Zambian economy. Since the oil crisis, however, its share has been decreasing because of declining copper price. Real growth of the sector was -2.3% a year on average between 1985 and 1993.

VA of manufacturing sector accounted for 30% of GDP on average during the recent nine years, which fluctuated between 23% in 1986 and 33% in 1991. The top performing sub-sectors, with average share of more than nearly 3% of GDP, were food processing, chemical products, non-metallic mineral products and fabricated metal products. Recent real manufacturing growth averaged only 4.1% a year between 1985 and 1993. Consumer goods manufacturing recorded comparatively high growth, such as food processing with an annual rate of 7.7% on average during the nine years and paper products with 8.1% of annual growth.

(3) Services Sector

VA of wholesale and retail trade sector in Zambia accounted for 8.3% of GDP in 1993, as shown in Figure 2-2. This sector has been the largest among the services sector. Real growth of the sector averaged -0.5% annually between 1985 and 1993.

Tourism is expected one of the major sources of foreign exchange earnings. The tourism industry is centred on the game parks and Victoria Falls only at present. Agencies concerned are trying to develop new tourist spots in areas such as Lakes Kariba and Tanganyika. However, the tourism industry has not grown as expected at the first stage, so far.

2.1.5 Infrastructure

(1) Social Infrastructure

(a) Education Facilities

In 1990, Zambia's educational system consisted of the following institutions: 3,587 primary schools, 498 secondary schools, 14 teacher training colleges, 14 technical and vocational institutions and 2 universities of the University of Zambia and the Copperbelt University. Since the national census population was 7.38 million, a primary school was allotted for every 2,060 people on average and a secondary school, 14,800 in 1990.

(b) Medical Facilities

In 1993, there were 84 hospitals and 1,028 health centres in the country according to the data by Ministry of Health (MOH). Since the national population was estimated at 7.95 million in 1993, a hospital was allotted for every 0.95 million people on average and a health centre, 7,700. The total 84 hospitals were distributed as follows: 3 central hospitals; 9 general hospitals; 36 district hospitals; 5 specialised hospitals; 19 other mission hospitals; 8 industrial hospitals; and 4 other government hospitals.

(2) Physical Infrastructure

(a) Transport

The total length of all roads was 36,764 km in 1990. It was classified by type as follows: 6,507 km or 18% of the total was paved by bitumen; 8,360 km or 23% by gravel; and 21,897 km or 59% was earth road.

The railways system is run by two organisations, i.e., Zambia Railways and the Tanzania-Zambia Railway Authority (TAZARA). The former operates and maintains the total railway of 1,260 km which runs along Copperbelt, Lusaka and Livingstone line. The latter manages the tazara line of 1,860 km long, which provides Zambia with another outlet to the India Ocean port of Dar-es-Salaam in Tanzania.

(b) Water Supply and Sanitation

According to the "Economic Report 1993, NCDP", less than 25% of the rural people and 43% of the urban people had access to safe drinking water and sanitation facilities as of 1993. The "Social Sector Rehabilitation and Development Programme, 1993-1996", says that about 30% of the rural people and 43% of the urban people can access to safe water. Government policy aims at improving accessibility to 35% and 70% for the rural and urban population by 1996.

(c) Electrification

According to the 1990 census, electric lighting system covered only 1.21 million people or 16% of the total population in the country. In urban areas, 1.12 million people or 39% of the urban population were covered by the electric lighting system. In rural areas, however, only 0.088 million or 2.0% of the total rural population was using the electric lighting.

(d) Communication

The number of telephone subscribers lines was 60,750 in 1990. Since the number of households was 1.53 million in 1990, one telephone was installed per 25 households on average in the country.

2.1.6 Living Standards

An average family size of the country was around 4.8 in the 1990 census year, as shown in Table 2-4. An average family size in urban and rural areas was estimated at 5.2 and 4.6, respectively. According to the 1990 census, the average number of rooms per housing units was 2.6 in the country. It distributed as 2.8 rooms in urban areas and 2.6 rooms in rural areas. Then, the average persons per room were 1.8 in the country. In the same manner, those were 1.9 in urban areas and 1.8 in rural areas.

Table 2-9 Provincial Distribution of Average Household Income: 1991

		(Unit: Kwacha)		
Code	Province	Urban	Rural	Whole Area
10	Lusaka	15,229	10,253	14,535
20	Copperbelt	9,000	12,307	9216
30	Central	8,894	5,871	7,071
40	North-western	7,934	1,764	3,371
50	Western	7,045	2,247	3,003
60	Southern	10,528	5,163	6,581
70	Luapula	8,943	3,588	5,076
80	Northern	9,142	2,152	3,374
90	Eastern	7,708	2,764	3,561
	All Zambia	10,738	3,364	6,690

Source: Social Dimensions of Adjustment. Priority Survey I, 1991, November 1993, CSO

CSO conducted the study of "Priority Survey I, Social Dimensions of Adjustment" in 1991. The survey report presents data on average monthly household income by province. The data in Table 2-9 give that the provincial average income ranged between K14,500 in Lusaka Province and K3,000 in Western Province. The ratio of Lusaka to Western was 1:0.21. The range of urban household income decreased to K15,200:K7,000 or 1:0.46. Among rural areas, on the other hand, rural Copperbelt had the highest monthly average income of K12,300. Rural Northwestern had an average of less than K1,800. Their ratio reached down to 1:0.14.

The average household expenditure of the country was K5,042 in 1991 and distributed as K9,251 in urban area and K1,920 in rural area. Figure 2-4 shows household expenditure by urban and rural sectors in percentage share form. The largest expenditure item was food accounting for 60% of the total household expenditure in urban and 54% in rural. Housing expense accounted for 19% in urban and 11% in rural. Expenditure for water was only 0.57% of the total expenditure in urban and 0.11% in rural.

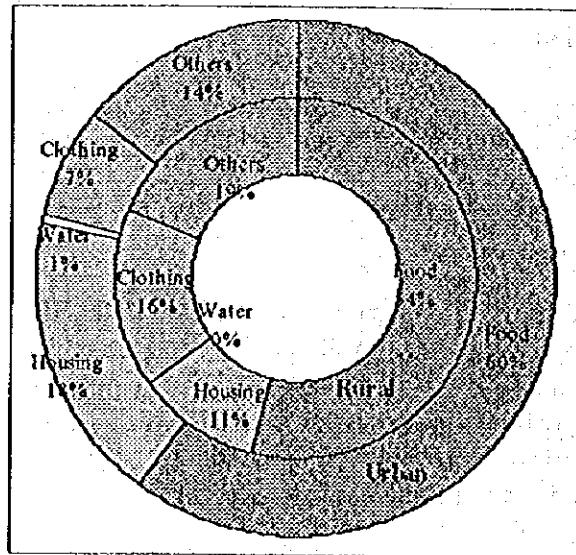


Figure 2-4 Provincial Distribution of Household Expenditure: 1991

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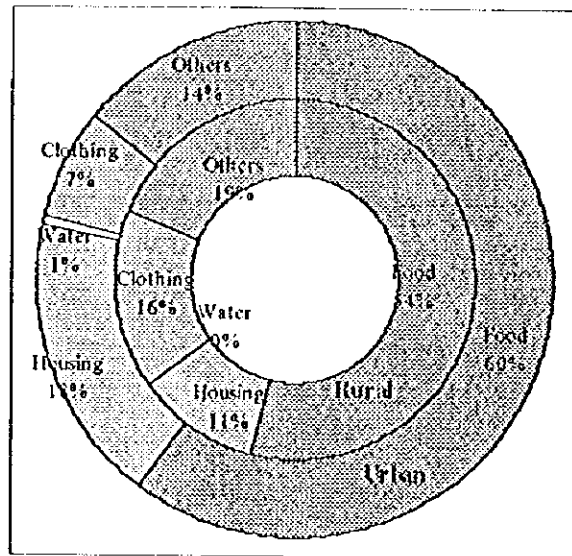


Figure 2-4 Provincial Distribution of Household Expenditure: 1991

2.1.7 External Trade

(1) Structure of External Trade

There have been export surpluses for six years from 1986 to 1991 as illustrated in Figure 2-3. In 1991, export surplus showed an upward trend, reaching K16.0 billion. The contribution of the total exports (K67.7 billion) of goods and services to GDP (K218.3 billion) in 1991 stood at 31%. The total imports of goods and services for the same year contributed 24%. In 1992, however, foreign trade recorded a deficit of K146 billion, because of serious drought.

Zambia's major exports are minerals, namely, copper, zinc, lead and cobalt, with copper being the largest foreign exchange earner. In 1992, copper accounted for K83.8 billion or 65% of the total exports in terms of value, while cobalt accounted for K2.5 billion or 2%. The share of other commodities was each less than 1%. This heavy dependence on copper for Zambia's foreign exchange earnings has resulted in a very volatile performance of the national economy due to fluctuation in copper prices on the world market.

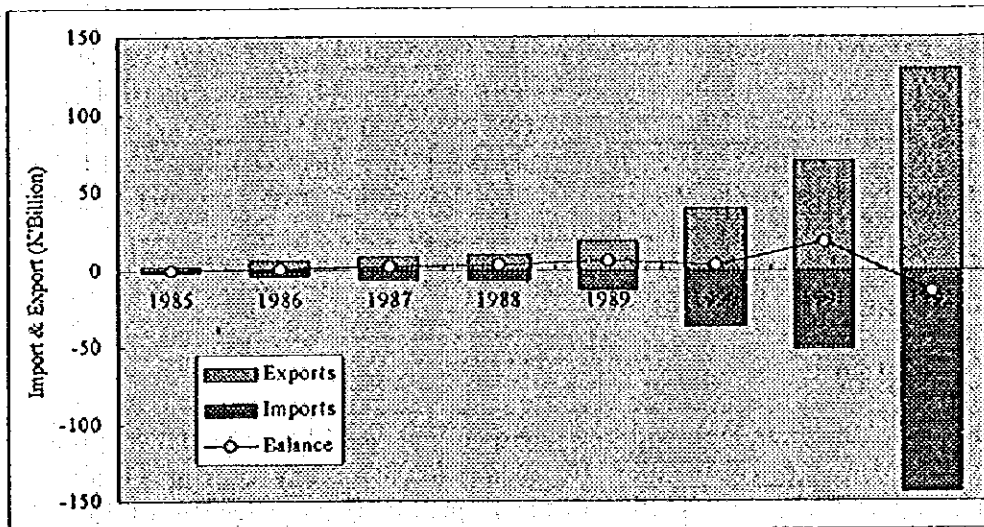


Figure 2-5 Exports and Imports: 1985-1991

(2) Balance of Payment

The improvement in copper prices helped significant improvements in the balance of trade and the current account after mid-year of 1987. However, the deficit on current account widened for the period 1987-1993, as shown in Table 2-10.

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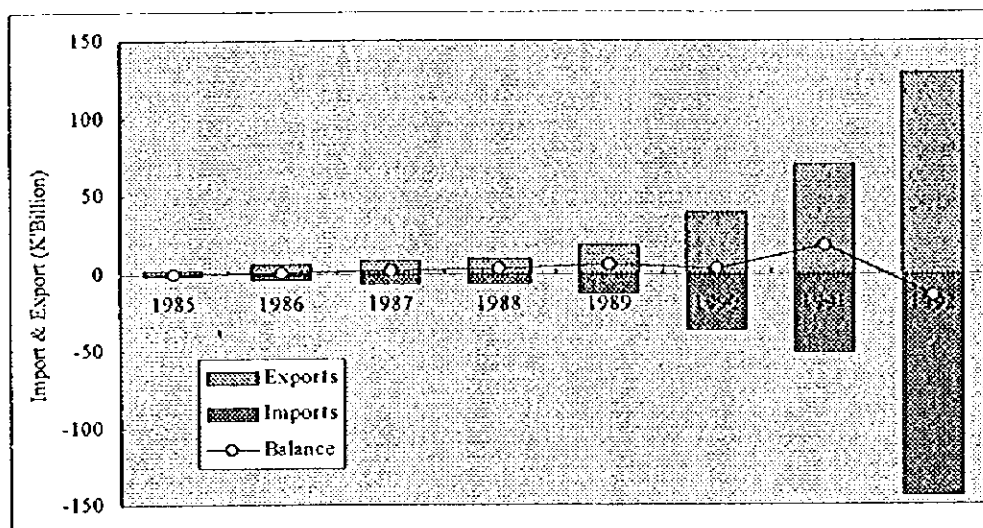


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Table 2-10 Balance of Payments: 1987-1993

Item	(Unit: K'Million)						
	1987	1988	1989	1990	1991	1992	1993
1 Exports (FOB)	8,059	9,786	18,434	40,707	67,668	198,160	535,296
2 Imports (FOB)	5,572	5,675	10,686	33,744	45,759	139,508	424,106
3 Trade Balance	2,486	4,111	7,748	6,963	21,908	58,652	111,190
4 Non-Factor Services (net)	-1,860	-2,123	-5,383	-7,920	-18,668	-49,664	-110,090
Freight & Insurance	-	-	-	-4,733	-5,905	-20,427	-63,397
Other Services	-	-	-	-3,188	-12,763	-29,236	-46,692
5 Investment (net)	-2,249	-3,925	-6,486	-10,950	-41,834	-109,195	-479,665
6 Unrequited Transfers (net)	-8	-25	-58	-8,041	15,424	51,692	240,940
Government	-	-	-	621	16,854	55,580	261,969
Private	-	-	-	-8,662	-1,430	-3,888	-21,029
7 Current Account Balance	-1,630	-1,962	-4,178	-19,948	-23,170	-48,515	-237,625

Source: Monthly Digest of Statistics, January 1991, CSO

Zambia, Prospects for Sustainable and Equitable Growth, August 1993, World Bank

Economic Report 1992, NCDP

Economic Report 1993, NCDP

The largest deficit during the period was K238 billion experienced in 1993. A large margin of the deficits on the current account balance was due to the ever increasing deficit on the invisible trade which is stated as non-factor service in the table. During the period, alone the deficit in invisible trade balance increased almost the same pace of the trade balance. Another contributory factor to the wide margin of deficit in the current account balance was lack of expansion of the net investment income.

2.1.8 Prices

(1) Inflation

Inflation in 1993 was high with the rate averaging 187.1%. The trend of inflation rates is shown in Figure 2-6. The inflation rate tends to rise in recent years. Since 1989 the rate looked to jump up to more twice level than that in the previous year. After 1992, furthermore, the rate abruptly increased as shown in the figure, due to the decontrol of the pricing system, devaluation and floating of the Kwacha, the increase in the rate of excise duties and the increase of free pricing on general commodities.

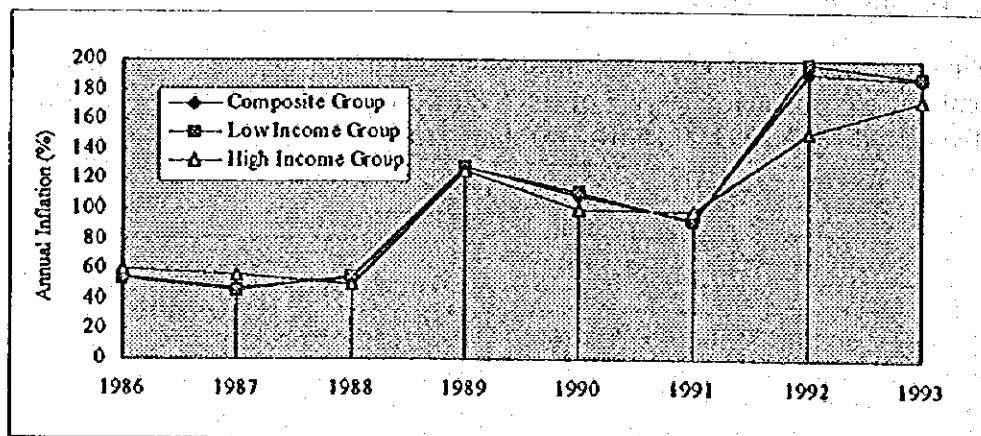


Figure 2-6 Annual Inflation Rates: 1986-1993

(2) Price Indices

The consumer price index is a measure of retail price change. The consumer price index of all items rose by 271.3% during the period of 1985-1993. For low income group, that registered an increase of 277.2%, and 231.3% for high income group. The wholesale and producer price index rose by 169.9% during the period of 1985-1993.

2.1.9 Public Finance

(1) Central Government

The central government has recorded a deficit balance in the fiscal accounts till the year 1994, as far as seen in Table 2-11. In 1993, the government tried to get out from the deficit conditions by means of a strict fiscal policy in the year with the use of the cash budget system to combat inflation. In this regard, the tight resource constraint confronts the economy. The government stresses the maintenance and rehabilitation of infrastructure and completion of projects already started rather than starting new projects. However, the government did not succeed to get into a surplus in 1993 as shown in the table, since it had to spend a special relief for drought victims in 1992. In 1994 as well, turning to a surplus condition is not expected, as far as seen in the estimate of the central government.

Table 2-11 Public Finance of Central Government: 1989-1994

Item	(Unit: K' Million)					
	1989	1990	1991	1992	1993*1	1994*2
Total Revenue and Grants	10,009	23,823	44,319	120,700	234,343	586,423
Total Revenue	9,888	23,507	41,629	113,469	234,343	395,791
Total Grants	121	316	2,690	7,231	0	190,632
Total Expenditure	12,376	31,382	84,724	156,401	303,127	686,806
Recurrent Expenditure	10,449	27,249	77,276	133,009	206,069	466,525
Capital Expenditure	1,928	4,132	7,448	23,391	97,058	220,281
Gross Surplus/Deficit	-2,367	-7,559	-32,957	-35,701	-68,784	-100,383
Rate of Total Revenue to GDP (%)	18.1	21.0	20.3	21.2	16.5	-
Rate of Total Expenditure to GDP (%)	22.4	27.6	38.8	27.5	21.3	-

Note: *1 Approved Estimate
*2 Estimate

Source: (1) Estimates of Revenue and Expenditure 1994, Volume I, II and III, MOF
(2) Financial Report for the Year Ended 31st December 1992, 1994, MOF
(3) Financial Report for the Year Ended 31st December 1991, 1993, MOF
(3) Financial Report for the Year Ended 31st December 1990, 1992, MOF
(4) Financial Report for the Year Ended 31st December 1989, 1991, MOF

Table 2-12 shows the detailed expenditure of the central government for the latest six years. The capital expenditure accounted for around 19% of the total expenditure on average and ranged from 8.8% in 1991 and 32.1% in 1994. The rate of capital grants to the capital expenditure ranged from the smallest 6.3% in 1989 and the largest 86.5% in 1994. The rate of the total expenditure to GDP ranged between 21% in 1993 and 39% in 1991. The capital expenditure of DWA accounted for only 0.5% of the total capital expenditure on average and ranged from K14 million or 0.2% in 1991 and K13,021 million or 1.4% in 1994.

Table 2-12 Expenditure of Central Government: 1983-1993

Item	1989	1990	1991	1992	1993	1994
	Actual	Actual	Actual	Actual	Approved Est.	Estimate
1. Recurrent Expenditures						
01 Personal Emoluments	1,828	5,732	12,172	31,442	59,107	86,415
02 Recurrent Departmental Charges	2,485	5,120	10,182	21,396	69,968	100,560
001 Allowances	-	-	-	-	3,817	6,709
002 Purchase of Goods	-	-	-	-	25,931	32,979
003 Purchase of Services	-	-	-	-	35,292	54,489
004 Training Expenses	-	-	-	-	4,928	6,382
03 Grants and Other Payments	919	2,337	5,277	9,781	30,503	80,810
Subsidies	1,658	2,531	13,205	3,447	0	0
04 Pensions & Gratuities	189	287	914	1,725	7,945	9,000
05 Constitutional & Statutory Expenditure	3,369	11,241	35,524	65,218	17,596	189,740
Total Recurrent Expenditure	10,449	27,249	77,276	133,009	185,119	466,525
2. Capital Expenditure						
01 Movable Assets	-	-	-	1,817	5,470	8,893
02 Projects	-	-	-	21,574	91,588	211,388
13 Min. of Energy & Water Development	-	-	-	193	1,897	14,247
02 Energy Department *1	6	26	44	125	534	1,018
03 Department of Water Affairs *1	9	14	14	67	1,312	13,021
- Others	-	-	-	0	50	208
46 Ministry of Health	56	128	233	503	6,651	12,798
64 Ministry of Works & Supply*2	-	400	1,077	8,817	9,712	26,848
02 Building Department	-	11	12	718	723	346
- Others	-	389	1,065	8,099	8,989	26,501
89 Min. of Agriculture, Food & Fisheries	153	333	583	917	7,588	24,145
* Loans & Investments						
20 Min. of Local Government & Housing*3	70	82	136	204	3,946	22,230
91 Loans to District Councils	70	82	136	204	3,946	22,230
21 Ministry of Finance	624	1,334	2,411	6,422	38,581	62,604
13 Min. of Energy & Water Dev. *1	-	-	-	0	172	0
37 Min. of Agri., Food & Fisheries	169	312	353	451	31,683	43,095
- Other Ministries	-	-	-	5,971	6,726	19,509
- Others	-	-	-	4,519	23,214	48,516
Total Capital Expenditure	1,928	4,132	7,448	23,391	97,058	220,281
3. Drought Relieves	0	0	0	0	20,950	0
4. Total	12,376	31,382	84,724	156,401	303,127	686,806

Source: (1) Estimates of Revenue & Expenditure 1994, Volume I, II & III, MOF
(2) Financial Report for the Year Ended 31st December 1992, 1994, MOF
(3) Financial Report for the Year Ended 31st December 1991, 1993, MOF
(4) Financial Report for the Year Ended 31st December 1990, 1992, MOF
(5) Financial Report for the Year Ended 31st December 1989, 1991, MOF

Remark: *1 Before 1991, Ministry of Energy and Water Development did not exist.
*2 Before 1989, MOWS did not exist.
*3 Before 1991, classified as Decentralisation Division (Office of the Prime Minister)

Water projects are mainly implemented by DWA, the water authority of the central government. Besides DWA, some other agencies concerned to water such as agriculture, energy and public hygiene are also investing for projects related to water. The rate of the total investment amounts for water projects to the total capital expenditure was 5.3% on average for the six years and ranged from 1.1% in 1992 and 15.4% in 1994. The total investment by DWA accounted for 20% of the total capital expenditure of water projects and ranged from 8% in 1991 and 38% in 1994. On the other hand, the total investment for water supply schemes through MLGH accounted for 62% of the total expenditure and ranged from 37% in 1992 to 81% in 1989, although that amount was disbursed not for direct investment by the central government but for loans to local governments.

(2) Local Governments

According to financial statements of local governments in 1990, there were 55 local governments since Siavonga and Sinazongwe districts were included in Gwembe district at that time. The total revenue estimate of 55 districts was K1,468 million, which accounted for only 4.7% of that of the central government. Moreover, the total revenue amount included K297 million (or 20% of the total amount) of the grants from the central government.

Among 55 districts, 33 district councils were managing water supply works for the people in the districts. Of the 33 district councils, only nine councils got surplus from water undertaking. Other 24 councils managed the water undertaking in deficit.

The capital investment for water projects by local governments themselves was K14 million, which did not include the investment of the central government. The amount accounted for only 12% of the total amount (K115.3 million) of the central government.

(3) Foreign Aid and Debt

According to OECD data, gross disbursements of official development assistance (ODA) has almost increased continuously except 1989, as shown in Table 2-13. In 1992, the total ODA aggregated to US\$1.13 billion, segregated as US\$0.79 billion of bilateral aid and US\$0.34 billion of multilateral aid. Before 1990, Japan kept the position of top donor in bilateral aid. Since 1990, Germany has kept the top position. Japan has got the second position since then. In multilateral assistance, the International Development Association (IDA) has been the top supporter since 1991 and ensured that there was an important increase in total ODA.

Of the total ODA of US\$1.13 billion in 1992, grants accounted for US\$0.79 billion or 69%. This percentage was close to the average rate of 73% during six years of 1987 to 1992. On the other hand, loan accounted for US\$0.35 billion or 31% in the same year.

In 1992, Zambia's total external debt stood at US\$ 7.04 billion. Of this, 40% was long-term debt owned to bilateral donors. The total external debt rated at 193% of GDP in 1992. Zambia is one of the world's most indebted nations, with a burden per head of about US\$900.

Most of the Zambia's debt owes public creditors who accounted for US\$4.40 billion or 91% of the total public debt (US\$4.81 billion). The total arrears on principal and interest payments amounted to an estimated US\$358 million, of which 54% was principal and 46% was interest.

Thus, debt-service ratio (DSR) became to 29% in 1992, which exceeded the critical line of 20%.

Table 2-13 Gross Official Development Assistance: 1987-1992

Item	(Unit: US\$ Million)					
	1987	1988	1989	1990	1991	1992
Bilateral Assistance						
Germany	37.2	52.0	28.3	337.9	113.1	129.0
Japan	41.7	114.2	63.0	40.1	103.9	126.4
USA	34.0	19.0	20.0	14.0	90.0	125.0
UK	40.1	29.7	30.6	42.9	67.1	102.5
Sweden	25.4	35.8	36.1	37.2	90.0	79.5
Norway	31.9	40.2	34.9	55.3	51.6	50.4
Others	137.6	144.4	103.4	239.1	168.4	177.5
Total	347.9	435.3	316.3	766.5	684.1	790.3
Multilateral Assistance						
IDA	40.4	5.0	4.0	3.0	213.0	173.7
EU	20.0	34.9	34.3	26.3	32.7	98.8
ADF	3.9	10.1	11.1	15.6	31.5	22.6
UNDP	1.7	3.6	6.1	7.3	7.3	4.7
Others	18.7	17.6	22.7	26.3	20.3	43.3
Total	84.7	71.2	78.2	78.5	304.8	343.1
Total ODA	432.6	506.5	394.5	845.0	988.9	1,133.4
Grants	316.0	362.7	321.8	792.5	554.2	785.5
Loans	116.6	143.8	72.7	52.5	434.7	347.9

Source: OECD Development Assistance Committee, Geographical Distribution of Financial Flows to Developing Countries.

Note: West Germany only until July 1990