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# Republic of Zambia

## Agricultural and Rural Sector Survey

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(In Three Volumes)

Volume I: Main Report and Maps

October 20, 1975

General Agriculture Division  
Eastern Africa Regional Office

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### CURRENCY EQUIVALENTS

US\$1	=	Kwacha 0.64
Kwacha 1 (K1)	=	US\$1.56
Ngwee (n) 100	=	Kwacha 1

### WEIGHTS AND MEASURES

1 hectare (ha)	=	2.471 acres
1 square kilometer ( $\text{km}^2$ )	=	100 ha = 247 acres
	=	0.386 square miles
1 kilometer (km)	=	0.621 miles
1 kilogram (kg)	=	2.2 lbs
1 metric ton (t)	=	2,204.6 lbs
1 liter (l)	=	2.116 US pints
1 bag maize	=	90 kg
1 bag groundnuts	=	80 kg

### ABBREVIATIONS

AFC	- Agricultural Finance Corporation
CIMMYT	- International Maize and Wheat Improvement Center (Centro Internacional de Mejoramiento de Maiz et Trigo)
CSB	- Cold Storage Board
IDZ	- Intensive Development Zone
LANDSAT	- Satellite undertaking program of land resource photography (formerly ERTS)
MLNR	- Ministry of Lands and Natural Resources
MRD	- Ministry of Rural Development
NAMB	- National Agricultural Marketing Board
SNDP	- Second National Development Plan (1972-76)
RGA	- Rural Growth Area
RGC	- Rural Growth Center
RRP	- Rural Reconstruction Program
TAZARA	- Tanzania-Zambia Railway
UNIP	- United National Independence Party
ZNS	- Zambia National Service

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This report is based on the findings of two missions which visited Zambia in September/October and November/December 1974 composed of Messrs. J.H. Cleave, C.R. Blitzer, H.M. Kim, W.A. McCleary, Miss F.F. Johansen, Messrs. G.B. Nkojo, J.F.A. Russell, and M.A. Wolf (of the Bank) and Messrs. R. Ambroggi (UNDP), W.O. Jones, R.C.E. Kapteyn, J.C.D. Lawrence (MOD), and E.H. McCauley (Consultants).

ZAMBIA  
AGRICULTURAL AND RURAL SECTOR SURVEY

TABLE OF CONTENTS

	<u>Paragraph(s)</u>
SUMMARY	
PREFACE	
I. BACKGROUND	1.01 - 1.07
A. Structure of the Economy	1.01 - 1.02
B. Agriculture and Rural Development	1.03 - 1.07
II. GOVERNMENT'S OBJECTIVES	2.01 - 2.10
A. Development Aims	2.01 - 2.03
B. Progress in the Rural Sector	2.04 - 2.08
C. Problems and Opportunities	2.09 - 2.10
III. A NEW STRATEGY FOR THE RURAL SECTOR	3.01 - 3.12
A. The Approach	3.01
B. Rural Development Rural Growth Areas	3.02 - 3.03 3.04 - 3.08
C. Production	3.09 - 3.12
IV. POLICY RECOMMENDATIONS	4.01 - 4.46
A. Organization for Rural Development The Organization of Agricultural Services Inter-Ministry Coordination	4.02 - 4.05 4.06 - 4.08 4.09
B. Pricing Policy The Price System Effects of Price Policy Policy Proposals	4.10 - 4.18 4.10 4.11 - 4.14 4.15 - 4.18
C. Marketing The Marketing System Policy Proposals	4.19 - 4.21 4.19
D. Producers Production and Prospects Production Policy	4.20 - 4.21 4.22 - 4.26 4.22 - 4.23 4.24 - 4.26

	<u>Paragraph(s)</u>
<b>E. Support Policies</b>	<b>4.27 - 4.46</b>
Budgetary Procedures and Allocations	4.28
Status for the Rural Areas	4.29 - 4.31
Non-Agricultural Investments	4.32 - 4.34
Land Tenure	4.35 - 4.38
Transport Policy	4.39 - 4.42
Research and Training	4.43 - 4.46
<b>V. DEVELOPMENT PROGRAMS AND PROJECTS</b>	<b>5.01 - 5.40</b>
<b>A. Investment in Rural Development</b>	<b>5.02 - 5.06</b>
Rural Growth Areas	5.02 - 5.03
Agricultural Credit	5.04
Peri-Urban Development	5.05
Rural Industries	5.06
<b>B. Crop Development</b>	<b>5.07 - 5.18</b>
Maize	5.08 - 5.09
Wheat	5.10 - 5.12
Rice	5.13
Cotton	5.14
Tobacco	5.15
Groundnuts	5.16
Sugar	5.17
Other Crops	5.18
<b>C. Market Development Programs</b>	<b>5.19 - 5.23</b>
Maize Storage	5.19 - 5.20
Crop Reporting	5.21
Training	5.22
Local Markets	5.23
<b>D. Livestock Development</b>	<b>5.24 - 5.29</b>
Demand and Supply	5.24 - 5.25
Problems and Proposals	5.26 - 5.28
Livestock Prices	5.29
<b>E. Water Resources Development</b>	<b>5.30 - 5.36</b>
Potential and Present Use	5.30 - 5.31
Development Proposals	5.32 - 5.33
Support Proposals	5.34 - 5.36
<b>F. Fisheries Development</b>	<b>5.37 - 5.39</b>
<b>G. Summary of Investment Proposals</b>	<b>5.40</b>
<b>VI. THE FUTURE PERSPECTIVE</b>	<b>6.01 - 6.07</b>

MAPS

Land Tenure	IBRD 11540
Ecological Zones and Traditional Agricultural Systems	IBRD 11631
Population Distribution	IBRD 11542
Transport Network	IBRD 11509
International Routes	IBRD 11510
Livestock, Tsetse and Fisheries	IBRD 11541
Water Resources	IBRD 11544
Water Use	IBRD 11548
Irrigation Potential and Development Proposals	IBRD 11545
Yearly Rainfall and Evaporation	IBRD 11546
Rainfall Distribution	IBRD 11547

ANNEXES

1. Comparative Data: Zambia and Other African Territories (1973)
2. Ecological Zones and Rural Growth Areas: Potential and Projects
  - Appendix I: The Chitemene Systems
  - Appendix II: A Note on the Rural Reconstruction Program
3. Migration and Rural Transformation
4. Recent Performance in the Agricultural Sector
5. Estimates of Demand and Supply for Food Products
  - Appendix I: Derivation of Demand Projections
  - Appendix II: Sources of Incremental Production
6. Organization for Rural Development
  - Appendix I: The Decentralized Situation
  - Appendix II: Distribution of Higher Grade Staff
  - Appendix III: Distribution of Planning, Financial and Personnel Staff
  - Appendix IV: Manpower: Serenje District, 1972
  - Appendix V: The Integration of Central Ministries
  - Appendix VI: Decentralization of Building Staff and Stores
7. Agricultural Services
  - Appendix I: Organization of the Ministry of Rural Development
8. Agricultural Markets and Prices
  - Appendix I: Estimates of Production, Consumption and Sales
  - Appendix II: Pre-Independence Trade
  - Appendix III: Zambian Market Places in 1974
  - Appendix IV: Border Prices and the Pricing of Major Agricultural Commodities
9. Incentives to Commercial Farmers
10. Rural Small-Scale Industries in Zambia
11. Land Tenure and Rural Development
12. Transportation in Agricultural Development
  - Appendix I: Tables
  - Appendix II: Roads Department Organization
13. Performance and Prospects in Crop Agriculture
14. Water Resources: Potential, Use and Development
 

(The Annex contains 22 Appendices covering documentation, water resource data, organization of administration, irrigation development costs, and project outlines. See Table of Contents to Annex.)

15. Livestock Development

    Appendix I: Offtake in Traditional Cattle Keeping

    Appendix II: Livestock Development Schemes in Progress

    Appendix III: Outline for Training Programs

16. Fisheries in Zambia

17. Summary of Investment Proposals

18. Development and Income Distribution in a Dual Economy: A Dynamic  
    Simulation Model for Zambia

19. Statistical Annex

## ZAMBIA

### AGRICULTURAL AND RURAL SECTOR SURVEY

#### SUMMARY

i. This report proposes a strategy, policies, and potential investments which would accelerate rural development and increase agricultural production in Zambia over the next two decades. It notes that, relative to Government's objectives, recent progress in the sector has been disappointing and that at present there is no coherent strategy for rectifying this situation. In particular the gap between rural and urban incomes has widened rather than narrowed, and in spite of some increases in production, the goal of self sufficiency in foods and agricultural raw materials is further away than a decade ago. Moreover, immediate prospects in the mining sector leave little room for optimism that it can continue to be relied upon to serve as a milche cow for the rural sector. Projections show that, even by 1980, copper production will be only 17% above the 1965 output, and prices in the next 5 years are predicted to stay low. Meanwhile, migration to the urban areas continues and stimulates the market demand for foodstuffs, calculated to rise at nearly 6% a year.

ii. The report highlights two major problems. On the one hand, there is the urgent need to close the widening gap (now over 40% by value) between market demand for agricultural produce and domestic supply: on the other, there is the need to direct more attention and resources to the rural areas in order both to redress the income imbalance between them and urban areas, and also to enable disadvantaged areas outside the line-of-rail to play an increasing role in production for domestic consumption and eventually provide agricultural exports to diversify out of copper.

iii. The strategy proposed for reaching these objectives is two-pronged, with action on each part to be initiated simultaneously. Immediate increases in output should be obtained from the areas with greatest comparative advantage, particularly the line-of-rail, making maximum use of all types of producers--smallholders, emergent farmers, company and private commercial farmers and state enterprises--principally by policy improvements. The transformation of traditional sector production and development of the rural areas requires a longer term program and should be achieved by concentrating social and production investment and recurrent expenditures in high potential areas across the nation. The rural provinces and areas outside the immediate line-of-rail might be covered by some 70-80 of these areas which we have called Rural Growth Areas. They are discussed further below. Zambia needs to tackle both elements of the strategy if the anticipated increase in effective demand for agricultural produce is to be met. The time required to achieve significant production increases is very different in the traditional sector from the existing commercial sector, but Zambia has the resources to carry out a twin strategy, there should be little trade-off between its two elements, and the balance of payments situation of the country makes immediate action on both fronts imperative.

iv. The rural population in Zambia is sparse and widely scattered. Rural real incomes are perhaps one-quarter of the urban level and rural social amenities are markedly poorer than in the cities. Consequently there is a continuing migration to the Copperbelt and other urban centers in the line-of-rail that has already made Zambia the most urbanized country in Africa. A major problem is how to improve the production potential--and therefore the incomes--of the rural areas, and how to provide social services to this dispersed population and thus counter the move to the conurbations. The Rural Growth Area approach to rural transformation would meet this problem. At the same time, it builds on a continuing tendency of the rural population to move towards lines of communication and urban centers within the rural areas. It is consistent with policy statements encouraging family farms, would be complemented by the Rural Reconstruction Program (RRP), meets the need to concentrate the provision of services, and enables substantial development to take place in all Provinces simultaneously, facilitating local participation and choice in the planning process, and simplifying coordination of development inputs. It thus avoids the problems found in the Intensive Development Zone (IDZ) program which became overdesigned, centralized in administration, and concentrated in one area: and at the same time avoids the cost, logistic and planning problems inherent in attempts to reach all of a dispersed population which is at varying stages of development.

v. A Rural Growth Area (RGA) would be selected on the basis of suitable soils and climate for agricultural development, existing communications and other infrastructure, and relative concentration of population. It might initially embrace some 10-20,000 people including those in the Rural Growth Center (RGC), a central place within the RGA which would develop as the urban market and service center for it, and which would be the site for rural small industry development. Around the RGC the growth of secondary centers would be fostered. These would be villages in which farm level production services, and local social facilities would be concentrated. One such center should normally be the rural reconstruction center in which young people are trained under the Zambia National Service, and from which successful trainees should settle in the RGAs or RGCs, according to the skills they have acquired. There should be a near-exclusive concentration of Government rural development expenditures in RGAs, both directly and through the Provincial administrations, and RGAs should also be the exclusive sites of rural projects and subprojects be they of a national, regional or local nature, funded from national, bilateral or international sources.

vi. For the RGA program to be effective it is essential that there is greater and effective decentralization of decision making and execution of Government's policies to the provinces where coordination of Government and quasi-government services and private operations can be most readily achieved. Because of manpower constraints decentralization should generally not go below Provincial level, at least for the next decade, and the task of national policy formulation and the setting of development guidelines should remain

firmly with the Central Government. The first powers to be delegated should be control over allocation of a significant proportion of development expenditure; provincial planning; and control over those personnel allocated to the provinces. Only when these three areas are clearly a provincial responsibility can the operations of specialist departments be made effective.

vii. Price policy has discouraged agricultural production, led to misallocation of resources, and favored the urban community over the rural poor, thus running counter to Government's welfare goals and encouraging the migration to the urban line-of-rail. Changes in price policies are crucial to development in the sector, both for the short-run production goals and for the longer-run objectives of rural transformation and development of production in the traditional sector. Although there are strong pressures against it one can see no alternative to the principle that world market levels be the guide to setting prices. Present indications are that most producer prices should be gradually raised. Similarly the policy of uniform national prices should be abandoned so that local prices more fully reflect regional comparative advantage. Floor prices, announced regularly ahead of planting time, should be retained to provide farmers with a firm guarantee. At the same time, controls and subsidies on consumer prices should be gradually removed, particularly those on non-staple items. To some extent improvements in producer pricing rest upon improving the transport tariff structure, both for internal services and on Zambia's external routes.

viii. Parallel with changes in price policy improvements are needed in the agricultural marketing system. The present system in which monopoly boards play a major role is costly and inefficient and has stifled rural enterprise. We recommend a policy of divesting parastatal buyers of their monopoly powers and gradually withdrawing their services from farm level whilst cooperative or private initiative in marketing is encouraged. This too requires changes in price policy to allow farmers, cooperatives or traders a margin for performing the essential marketing function. The boards should continue as buyers at main depots and retain a role as countervailing powers and as buyers of last resort at floor prices.

ix. Improved policies in the agricultural sector have to be viewed with other facets of Government operations. Among the actions needed are a critical examination of the relationship between capital and recurrent expenditures, and of the allocation of funds to maintain agricultural staff in the field, and positive measures which will attract staff to rural areas. Agricultural research needs to emphasize farming systems, the needs of small-holders, and traditional livestock. The links between research and extension work need improvement. The system of land tenure has changed little over the decade, probably because it currently presents few problems. However, there are already signs that difficulties will arise as development takes place and, before the pressure makes them urgent, changes should be made in the land law to facilitate registration of all lands and the issue of leasehold titles to individuals or groups. A start should be made in RGAs with a systematic program of land registration.

x. In the report we have identified an investment program for the next decade which, given the support of policy improvements, will further Government's goals for the sector within the framework of the two-pronged strategy. The program of nearly K 400 million (US\$620 million), of which over half would be directed to RGAs, compares with rather under K 170 million (US\$270 million) suggested (but not achieved) for the total Rural Sector Program for the 5 years of SNDP (1972-76). Among potential investments within RGAs are the development of smallholder rice, initially rainfed in Luapula and Northern Provinces, and later irrigated in Western, Southern and Northern Provinces; cotton, integrated with maize, groundnuts or burley tobacco in Southern, Central and Eastern Provinces; burley tobacco on limited sites in most provinces and Virginia tobacco as an expansion of existing projects. Confectionary groundnuts should be concentrated in Eastern Province, but suitable sites for oil groundnuts and other oil-seeds can be found in RGAs in most provinces. The development of maize production for the market, the keystone around which improved smallholder management will evolve, mainly rests upon improvements in pricing, timely input deliveries, and better marketing. Radical new programs are not needed. Proposals for increased beef and dairy production by smallholders envisage continuation of present programs and in addition concentrate on disease control, research programs geared to the traditional farmer, and training of Zambian staff. However, improved price policy is the key to progress in either the smallholder or commercial sector. Wheat, which is unlikely to develop as a smallholder crop, should be encouraged as an irrigated winter crop on commercial farms, although a proposal for mechanized rainfed production in Southern Province would also be worth investigating. Feasibility studies for the doubling of sugar production by 1995 possibly under irrigation by an estate and smallholder outgrowers close to TAZARA should be started in 1976.

xi. Irrigation development from surface and ground water for large-scale undertakings and smallholders is technically feasible and appears to have economic potential for a range of crops including sugar, wheat, rice, fruits, and vegetables, while about 10,000 rural water supply sources in RGAs will need to be constructed or restored over the next decade. Conflicting demands for the use of Zambia's considerable water potential are appearing and it is important that all future development is coordinated within river basins.

xii. The quantification of these policy changes and programs, if fully implemented, is subject to the usual hazards. However, the land resources exist to broadly meet the sector targets, and the capital investments needed appear to be achievable. In the mission's view, Zambia can close its import gap in agricultural produce and meet its rising demand in all except wheat and beef (and for these too if demand is curbed by increased consumer prices) and could produce major surpluses of maize, groundnuts, tobacco and possibly cotton. Much hinges on Government's ability to release the potential of the rural sector, in a way it has not done so far, and its willingness to tackle the organizational problem. In real terms overall market production in excess of 4 times the current value is projected for

1995, a growth rate of 7% a year. This growth would not be even throughout the sector, however. Initial rapid growth would be on the present commercial and emergent farmers lands, but over the two decades the proportion of market production supplied by them would fall from nearly 60% to one-quarter, and the most rapid growth rate and major expansion would come from half a million Zambian smallholder families in RGAs. These, in the process, should become by far the dominant agricultural producers in the country and would increase their cash incomes to some seven times present levels. Although it seems inevitable that average rural incomes will remain markedly below those of urban dwellers, the increased participation of rural families in market production and increased output of those engaged in cash crop production will be the key to reducing the gap. Developing the initiative and encouraging the self reliance of this group should be the major concern of Government, the key to the long-run strategy for the sector and the dominant consideration in agricultural policy formulation.



## PREFACE

i. This report presents the findings of a mission which made two visits to Zambia in the last quarter of 1974 1/ to examine the rural sector and to make proposals for a strategy, policies, and projects which would further rural development and agricultural production. It is intended to provide a perspective for Bank lending, bilateral aid, and government investment in the Sector, to be a direct input into the basic economic mission visiting Zambia in 1975, and also to assist Zambia in the preparation of the Third National Development Plan (1977-1981).

ii. The report consists of two parts: a General Report in Volume I, and a series of Annexes in Volumes II and III. The General Report has been kept brief: it contains little descriptive material or detail, but outlines the broad strategy, policy and project proposals. These are derived from the detailed reports in the Annexes which also contain explanatory materials and statistical data. A set of 11 maps illustrating the report is included at the end of Volume I.

iii. The Sector Mission was inevitably selective in its coverage. For example, because of manpower constraints, the forestry and fisheries sub-sectors were not examined, whilst important complementary areas such as rural industries, health services and education, although discussed by the mission, could not be studied in depth. However, a model of the Zambian economy described in an Annex and in part developed during the mission, provides some understanding of the interrelationship of the rural sector with other parts of the economy and the effects of the cross-sectoral influence of policy actions. The inclusion of an abbreviated version of a report of a 1974 mission on small industries, and a note on fisheries prepared in Zambia at mission request, provide perspectives on these topics, both important to the growth-area strategy which is proposed (see paras 3.04-3.08). Bank studies on copper pricing and population migration have also been drawn upon in the report. Some other matters such as the organization of rural credit received only cursory attention because they were considered low priority

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1/ On the first visit the mission concentrated on the definition of problem areas and on data collection: the second included technical expertise in key sub-sectors. The mission members and their major responsibilities were: First visit: J.H. Cleave (Chief of Mission), C.R. Blitzer (Macro-model), H.J. Kim (Statistics), G.B. Nkojo (Policy issues), J.F.A. Russell (RMEA, Agricultural Services), M.A. Wolf (Price policy); Second visit: J.H. Cleave (Chief of Mission), H. J. Kim (Demand projections), W.A. McCleary (Micro-economics), Miss F.F. Johansen (Transport policy), J.F.A. Russell (RMEA, Crop Agriculture) (Bank); and R. Ambroggi (UNDP, Water Resources), W.O. Jones (Marketing and price policy), R.C.E. Kapteyn (Organization), J.C.D. Lawrence (MOD, Land Tenure), and E.H. McCauley (Livestock) (Consultants). H. Olf (FAO, Agricultural Advisor to His Excellency President Kaunda) was observer to the mission throughout, and Messrs. M. Mufwaya and T. Kasapu (Ministry of Rural Development) as their work load permitted.

in the Zambian context. The selection of priorities and materials, and policy proposals and project suggestions obviously reflect judgments by the mission. These have been developed as objectively as possible, within the framework of Government's development aims. However, they do not, and should not, take account of all the political pressures which, in a democratic society, must strongly influence Government's actions. To that extent the report makes suggestions of direction, not firm prescriptions. It is recognized that some of the mission's proposals will involve hard decisions although throughout the report a conscious effort has been made to suggest the possible. We believe that the report presents a strategy and policies which logically derive from Government's aims and the country's problems in the Rural Sector. In this respect the proposals are a coherent whole, a package. But it is not a package which has to be accepted in its entirety or rejected as a whole. Providing it is understood how they are interlinked, different elements can readily be given the emphasis in scope and time that Government feels appropriate.

iv. The political philosophy of Zambia, the philosophy of Humanism, seeks to create an egalitarian society in which there is equal opportunity for self-development for all. We believe that the mission's proposals further the long-term implementation of these ideals, and much which is proposed reinforces Government policies and existing trends within the country. In some cases, indeed, events have overtaken the report during its drafting. Most important was the address of H.E. President Kaunda to the UNIP National Council on June 30, 1975, in which policy measures were announced on land tenure, water resource development and subsidies to parastatals which had been anticipated by the mission. Similarly, the price increases announced on July 26 were in the direction of mission recommendations. Less in line with mission views was the report of the Salaries Commission which, together with the white paper containing Government's comments, was published in September. Rather than attempt to change the text of the report to reflect these events they have, where appropriate, been discussed in footnotes. It has, however, been felt desirable to insert comment both in the Main Report (para 3.05) and in Annex 2 (at para 23 and Appendix II) on the role of the Rural Reconstruction Program under the Zambia National Service which has developed since early 1975. Details were omitted from the "Green Cover" draft because the mission had not at that time been able to assemble sufficient information.

v. The "Green Cover" draft of the report was issued on August 11, 1975. A mission 1/ visited Zambia in September to discuss the draft with Government officials, and was honored by a meeting with H.E. President Kaunda together with members of the Central Committee of the Party and of the Cabinet. Following these cordial and constructive discussions a number of factual errors have been corrected and several points which were inadequately explained in the draft have been clarified, either by text changes or footnotes. The general

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1/ Comprising C.H. Walton (Chief, General Agriculture Division), J.H. Cleave, and J.F.A. Russell, accompanied by H. Reichelt (Resident Representative, Lusaka).

argument of the report remains unchanged, however. For the gracious interest and encouragement of His Excellency and his advisors, and for much help especially from officials of the Ministry of Rural Development and Ministry of Planning and Finance, and for many personal kindnesses, the mission is grateful. Any mission, but particularly a large one such as a sector mission, inevitably makes heavy demands on the time of Government personnel and other concerned persons within the country. It is a pleasure to record that these demands were so generously met. The mission also records appreciation to the Government of Zambia and FAO for making available the services of Hans Olf as observer to both missions, and to Dr. Olf himself for his help and advice; and to the UNDP, through its Resident Representative in Lusaka, Winston Prattley, for providing the services and costs of Robert Ambroggi as Water Resources specialist on the mission.



## I. BACKGROUND

### A. Structure of the Economy

1.01 In many ways Zambia is unique in tropical Africa. 1/ It has one of the highest per capita incomes of the region; a large value in foreign trade, in spite of its land locked position; and is the most highly urbanized country with 35% of the 4.7 million population in 10 towns over 50,000, although it has a low average population density. Migration to the towns is such that virtually all the net population growth takes place in the urban areas, particularly those along the central line-of-rail linking the Copperbelt with Livingstone. This belt is the locus for over 85% of the economic activity of the country. Indeed, a key characteristic of Zambia is its dual economy, dominated by copper mining. Mining accounts for 43% of GNP, a large but varying share of Government revenue, and 98% of exports. Agriculture accounts for under 8% of GNP. The economy has also been characterized by a relatively slow growth in real GDP -- between 3.5 and 4% on average. Negligible exports, but nearly 10% of total imports, are of food and agricultural raw materials. Average incomes in mining at K 1,500 (US\$2,300) are 15 times those in traditional agriculture, and urban incomes are probably 4 times the rural average.

1.02 Policy making is centralized on Lusaka, but the Government machinery operates through eight Provinces--three along the line-of-rail and five so-called 'rural provinces'. Government's role in the economy is all-embracing. All mining and major industrial undertakings are state controlled and Government, typically through parastatal corporations, is more or less directly engaged in insurance and banking; wholesale and retail marketing; road, rail and air transport; tourism; agricultural production; and fisheries. It also directly operates a range of social and production services--education, health, water supplies, extension services, and credit.

### B. Agriculture and Rural Development

1.03 Implicitly the role of the agricultural sector in Zambia is to provide cheap and ample food and some raw materials for the urbanized mining, manufacturing and commercial sectors. It also remains the largest absorber of labor in the country, and is the major prospect for diversifying Zambia's export base.

1.04 The dualism seen in the economy as a whole is found in agriculture with large State and company farms and an economically important group of about 800 commercial farmers 2/ on one extreme, and about 600,000

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1/ Basic parameters of the Zambian Economy and other countries of tropical Africa are given in Annex 1.

2/ The number of large commercial farmers has halved since independence, but the net decline appears to have stopped.

small-holders, on the other. Between is a group of Zambian 'emergent farmers'. State farms are engaged in beef, maize and dairying and the large companies produce mainly maize and beef. The commercial farmers are located on State Land (see Map IBRD 11540) the leasehold 1/ area of which occupies 3% of Zambia. Their farms are large with generally fair land, close to the line-of-rail, and therefore with good access to market. They use modern, rather capital intensive methods to produce cereals, dairy produce, beef, poultry and eggs, for the urban market or tobacco for export. Although the proportion is declining about 65% of commercial farmers are expatriate. The emergent farmers are a growing but still small band of innovators who use improved seed, and ox equipment or tractors. They are variously located on State land or relatively favored areas of Reserve and Trust land especially close to the line-of-rail and are growing the same crops as the commercial farmers, plus cotton. It is estimated that over 55% by value of marketed domestic production (35% of market demand) is derived from commercial and emergent farmers, including nearly 60% of the legal market in maize, 35% of beef and over half the country's milk, pork and tobacco. Gross annual sales from commercial farms average about K 25,000-35,000 (about US\$40,000): emergent farmers' gross incomes are probably typically in the range K 1,000-3,000 but vary widely.

1.05 Of the smallholders, about half grow little but their own subsistence while others produce perhaps three or four times their family needs using hand tools and traditional technology. Those in the reserve areas of the line-of-rail provinces (about 30% of the total) and Eastern Province (20%) tend to be more market oriented than those, scattered and often remote, in the other provinces. Major crops are maize, cotton, groundnuts and free-grazed beef. Average family sales by smallholders are estimated at only K 50-60 (US\$85) a year. However, the importance of smallholders is better gauged by their share of total production, estimated at 85% of all cereals (and 80% of all maize) and 90% of domestic cattle slaughtered.

1.06 <sup>2</sup> The average density of the 3 million rural population is about 4 per km<sup>2</sup>--or nearly 140 ha of land per rural family. Much of Zambia's land is of poor quality and inaccessible, but there are many pockets with good potential and generally land is not constraining. Cattle grazing is limited by trypanosomiasis and other stock diseases; and the wide-spread chitemene systems of traditional agriculture, 2/ are forms of shifting cultivation which do not readily lend themselves to intensification. Although more developed systems are to be found, land productivity is generally low. The typical settlement pattern is a dispersed one, but, paralleling

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1/ Freehold was abolished on 1 July 1975 and all former freehold land is being converted to 100 year leases held by the State.

2/ The chitemene systems are described in Annex 2, Appendix 1.

the major migration from the rural provinces to the line-of-rail, there has been a marked tendency within the rural provinces for the population to move towards major lines of communication and townships.

1.07 Marked differences in ecology and agricultural potential are found, depending on climate and soils. Zambia thus has a fairly varied agricultural potential. Economic considerations, particularly access to markets, further differentiate the regions but reinforce the advantage of the line-of-rail provinces for agricultural production.<sup>1/</sup>

## II. GOVERNMENT'S OBJECTIVES

### A. Development Aims

2.01 Government's objectives affecting Zambia's agricultural and rural sector have been clearly and consistently stated for a decade. They are:

- (a) to achieve a more even distribution of real income, principally by redressing the imbalance of social and economic opportunities which has favored the urban worker, and particularly the mining sector, over the rural dweller;
- (b) to become self-sufficient in more foodstuffs and in cotton;
- (c) to diversify the economy and widen the export base by producing and selling abroad agricultural surpluses.

2.02 Underlying these objectives is the implicit goal of maintaining political stability, the achievement of which has been a major concern of Government since independence, and a desire to stem the migration from the rural provinces to the line-of-rail in order to avoid overconcentration of population and urban unemployment.

2.03 It is less clear that Government has had any coherent strategy to achieve these objectives in the rural sector, and many policies have been contradictory or inconsistent.

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<sup>1/</sup> See Annex 2 for an outline of the natural and agro-economic regions of Zambia and their potentials. The regions are shown on Map IBRD 11631 with the distribution of traditional systems of agriculture. Population distribution in 1969 is shown on Map IBRD 11542. Since then the concentration in urban centers and along communications has increased.

B. Progress in the Rural Sector

2.04 It is therefore not surprising that, for all Zambia's considerable achievements in the first decade of independence, progress towards Government's goals in the rural sector has been poor. The imbalance between the rural and urban sectors has grown rather than diminished. The terms of trade for Zambian farmers have fallen over 20% in the last decade and real incomes have probably also declined, in large part because of Government pricing policy for agricultural products. This is one of several reasons why the migration from the rural provinces to the main urban centers has continued. There are signs that the migration rate has slowed, but unless there is a marked change in conditions, over one-half of Zambia's population will be living in cities well before 1990: it is not clear how they will be employed. 1/

2.05 Performance towards the agricultural production objectives has been discouraging. Production of some crops - tobacco, groundnuts, milk - has actually declined. Although Zambia is generally self-sufficient in poultry, eggs, and maize, about 40% by value of marketed food is imported, particularly of wheat, barley, rice, vegetable oils, dairy produce, beef and cotton, all crops which can be produced in Zambia. 2/ With rising population and incomes, and further urbanization, the demand for food, particularly for superior foods, will increase. It is estimated that the market demand for basic foodstuffs, will grow at twice the rate of population increase. By the end of this decade it could be about 40% over 1974, and by 1995 is expected to be over double current demand. 3/ Moreover, a recent nutrition survey 4/ suggests that the rural areas of the country are undernourished, with calories (averaging only 80% of requirement) in shorter supply than protein. Clearly a major effort will be needed if the rural sector is to meet even the self-sufficiency requirement, let alone be a source of exports.

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1/ Recent trends in migration, the causes, and possible future developments in urbanization and employment are shown in Annex 3.

2/ Recent performance in the sector is detailed in Annex 4. Production and import data are in Sections II and IV of the Statistical Annex.

3/ Projections of demand for food products are shown in Annex 5. To give some measure of the size of the production problem: if all additional production were to be imported the import bill (at projected world prices in constant terms) could be K 110 million (US\$170 million) by 1980 and by 1995 over K 550 million (US\$860 million) or two-thirds of current export earnings.

4/ See: National Food and Nutrition Programme: The Food Economy of Zambia and Nutrition Status Survey. FAO, Rome 1974.

2.06 At present the only significant agricultural exports are tobacco, maize and groundnuts, with a value of 1% of Zambia's export total. Tobacco production is recovering, but is still essentially the same as immediately pre-independence and only 60% of the 1964 record volume. The erratic legal foreign maize trade has arisen from fortuitous surpluses or shortages. Exports of confectionary groundnuts have fluctuated and no trend is discernible. No significant new agricultural export has been developed in the last decade.

2.07 In the Second National Development Plan, 1972-76 (SNDP) the rural sector 1/ was allocated 18.8% of capital expenditures to be made by Central and Provincial Government combined (and 11.4% of total plan expenditure including the private sector). At the end of 3 of the 5 years of SNDP, by when about half of capital expenditures might be expected to have been made, total Government investment was about on schedule, but that in the rural sector was rather under three-quarters of expectation and running below 14% of total Government investment, all in real terms. This overall performance masks considerable variations within the allocations: and if we exclude investments by 3 primarily marketing boards whose expenditures, in 1971 prices, are running at double the anticipated level, government expenditures in the sector have been under 60% of expectation.

2.08 Budgeted annual recurrent expenditure for the ministries directly concerned with the rural sector has been under 5% of the total during the SNDP period to date. 2/ Recurrent expenditures represent under \$10 per head per year for the rural population, yet subsidies alone benefit urban consumers by about \$30 per head a year. Recurrent expenditures have been about 65% of capital: this level appears to be too low to maintain the absorptive capacity of the rural sector and has contributed to its poor performance.

### C. Problems and Opportunities

2.09 At the time Zambia became independent it had a rather poor communications network (except that linking the Copperbelt to its markets and suppliers), a dearth of training institutions and of trained manpower at all levels, and undeveloped social and production services in the rural areas aggravated by the wide scatter of the sparse rural population. The entrenched dualism

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1/ Defined as expenditures by the Ministry of Rural Development (MRD) and the Ministry of Lands and Natural Resources (MLNR), plus loans by the Ministry of Finance to agricultural parastatals.

2/ This excludes subsidies to consumers for agricultural products, to farmers for inputs -- mainly seeds, fertilizers, and tractor -- and to various agricultural marketing boards for trading and operating losses, which have totalled from K 24 to 33 million a year over the period, and have exceeded the combined remaining recurrent budgets of MRD and MLNR.

arising from contrast between the mining and rural sectors is now reflected in the great political strength of the urban areas. The resultant difficulty of developing national policies has been compounded by tribalism which for a decade diverted Government's energies towards the achievement of national unity. The boycott of the Rhodesian routes and support for independence movements in southern Africa have been heavy drains on human and material resources, and have made new demands on domestic producers. But with no clear strategy for the agricultural and rural sectors for either the country's immediate needs or its development aims, few projects have been thought through adequately or executed consistently. Ironically, Zambia's mineral wealth has been a major inhibiting factor. Copper earnings have made it easy to embark on costly projects, to import instead of encouraging domestic production, to cover inefficiencies with grants, and to pay out in subsidies instead of tackling tough policy issues. A spirit of dependence on a government seen to be liberal in hand-outs is found in the rural areas, and an expectation that their privileged position will be maintained is found in the towns. Social service expenditure has been at a high level: rural productive expenditure has not.

2.10 The need for action is pressing--possibly more so than is commonly realised. Although recent stagnation in Zambian copper production may be overcome and world copper prices are expected to show a long-term rise, the immediate foreign exchange outlook is poor (see Section VI) aggravated by expected adverse terms of trade and a rapidly growing market demand including that for food. On the other hand, its copper wealth does give Zambia an opportunity, rare in Africa, by making available the finance to tackle both its agricultural production and rural development problems without the usual need to tax agriculture to provide revenues for investment and recurrent expenditures in other sectors. Zambia has the natural resources to meet most of its agricultural production targets; and its stock of educated and trained people is growing, including many with valuable skills developed in the mining sector. Also, it seems that the struggle for national unity has been largely won, that Zambia is truly "One Nation", and a nation, in the changing political structure of Southern Africa, on the threshold of new trading opportunities and new competitive challenges. Now the time has surely come to establish a long-term, positive, and consistent strategy which will enable the sector to play its full role in the economy, and provide an ever increasing standard of living for the large proportion of the population who live in the rural areas.

### III. A NEW STRATEGY FOR THE RURAL SECTOR

#### A. The Approach

3.01 Zambia's need is for both country-wide rural development and immediately increased agricultural production. Whilst increased production is a necessary condition for rural development it is not a sufficient one:

rural development efforts must include both agricultural programs and investments in social overheads. On the other hand programs aimed at assisting the rural poor and the most deserving rural areas are not necessarily the speediest or most cost-effective way of increasing production. Some trade-off between efficiency and welfare considerations is inevitable, especially when full weight is given to the time-value of early production increases. In many countries because of resource constraints, the sacrifice of either production or welfare may be considerable. In Zambia, however, it should be feasible to pursue both objectives in parallel with relatively little trade-off, because:

- (a) investment in infrastructure and social facilities is not dependent on the prior development of market agriculture on which taxes can be levied, but at most times can be financed from copper revenues;
- (b) agricultural production can be expanded rapidly from existing relatively efficient farms, especially along the line-of-rail, mainly through the adoption of improved policies and with little diversion of incremental resources from the rural provinces;
- (c) the expected growth of domestic demand and exports, is great enough to provide adequate markets for production on both the line-of-rail and the rural provinces. 1/

It is important to recognize the different time perspectives involved in increasing agricultural production in the most advantaged areas and making a major impact on the rural areas. Whilst production increases can be achieved rapidly in the modern sub-sector--the import gap could be greatly narrowed within 5 years of the adoption of an effective strategy--the effective absorption of resources by the traditional sector tends to be slow and a rural development program, although initiated immediately, should embrace a 20-30 year horizon.

#### B. Rural Development

3.02 Rural development is concerned with improving the standard of life of all the people living in the rural provinces, but particularly those with the lowest incomes. It is concerned not only with farms and villages, but with the whole range of communities in those provinces including the large and small towns which are centers serving, and dependent on, the surrounding areas. It not only involves agricultural production, but also the range of infrastructure, social services and productive services which support production and provide amenities. It not only involves government investment and expenditure in these fields but includes also facilities typically provided

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1/ Annex 5, paras 19 and 20. In 20 years the market demand for maize, pork and poultry is expected to double: that for wheat, beef, milk and vegetable oil to treble.

by quasi-government organizations or private businesses--postal and communications facilities; power and light; retail shops for food, clothing and household needs; garages; marketing organizations; input supplies; credit and banking services; schools and churches; and recreation. It involves primary production, and also processing and other industries located in the rural area to be near raw materials and labor or markets.

3.03 A rural development program has a number of basic requirements: (a) it requires close coordination among ministries, and between government, its agencies, and the private sector because it embraces activities in many sub-sectors; and because the process involves a time sequence of development both by nature of investment and in the spacial allocation of investment; 1/ (b) it should cover the rural sector on as wide a geographical and equitable basis as possible; but (c) it should concentrate on the areas with good production potential and greater population density, particularly because financial and human resources are limited, and the aim is to reach as many people as possible with these resources; (d) the program should be adaptable to local conditions because the resource base, location, and historic and social factors will vary from area to area; (e) the aim should be self-sustaining growth; (f) there should be maximum local participation and local self-help in the development process.

3.04 Rural Growth Areas. In Zambia it is proposed that these principles should be applied to a rural development strategy based on rural growth areas (RGAs) outside the immediate line-of-rail. These should be selected on the basis of firmly established criteria which should be developed by the central planners and should include agricultural production potential, population concentration, and the existence of major communications links. 2/ Each would have a nodal point or central place which would be, or could expand into, the major urban service center for the area. In most cases these Rural Growth Centers (RGC) would be existing rural townships, but not necessarily present administrative headquarters. Administratively the RGA could be subdivided into divisions around secondary centers, villages which would be to greater or lesser degree nucleated according to the custom of the area. The most important aspect of Rural Growth Areas, their urban nuclei and the secondary villages around them, is not that they become the sites for massive, exhaustively planned, project-type investment, but rather that, once designated, they become the foci for all rural investment programs, for the encouragement of all private inputs, and the major vehicle for making a nationwide impact on the traditional sector over the next two decades. The form of development will depend particularly on the crop and stock potentials of the area, and

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- 1/ The sequence may be due to the complementarity of investments, e.g. access tracks before erection of a store; or due to the sequence of production, e.g. crop development before the processing plant. It also arises because of resource limitations.
  - 2/ The concept of Rural Growth Areas, criteria for their selection, and the nature of investments in RGAs, is developed in Annex 2, paras 16 to 23.

criteria for selection will include these potentials, existing communications and other infrastructure, population density, and water supplies. Although tribal considerations must be expected to exert influence on the selection of growth centers, growth villages, and growth areas, a major challenge for participatory democracy in Zambia will be the ability to define and declare these areas as near-exclusive foci for government services, and adhere to that declaration. Major investments would not be made outside these areas until the population within them reached a target capacity: investment would then typically be directed to peripheral areas--i.e., the RGA would be expanded. Less frequently, new RGAs would be identified. Within RGAs Government's major role should be facilitative, aimed to encourage Provincial authorities to develop self-sustaining growth programs with the minimum of formal planning. Planning and the control of investment within national policy guidelines, should be a strictly local (i.e., provincial) function.

3.05 The RGA proposal, in encouraging a reasonable concentration of population, seeks only to accelerate and rationalize a movement that is already happening spontaneously in the rural areas. It is consistent with several policy statements made in recent years <sup>1/</sup> and has recently been incorporated in a number of planning documents. <sup>2/</sup> It is also complementary to the recently initiated Rural Reconstruction Program (RRP) (Annex 2, para 23 and Appendix II) which provides 2-3 years of training in rural skills and military discipline to volunteer school leavers and unemployed youths. In the first year some 10,000 young people have started training in 50 centers, each in a different District. On completion of the course the youths are to be settled and receive continuing guidance from the centers. There could be an annual outturn of 30,000 young farmers and artisans from 1979. It is suggested that the typical Rural Reconstruction Center should be a secondary center within an RGA. It would become the focus for rural training within the RGA which would, together with its urban growth center, absorb successful graduates.

3.06 The RGA proposal is totally logical for the Zambian situation of a scattered, sparse but highly mobile population. An alternative approach might be the concentration of additional resources into a program comprising the integrated development of whole provinces. As a national strategy this would have several disadvantages: some areas would receive no concentrated attention

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<sup>1/</sup> Including for example the statement of H.E. President Kaunda to the Rural Development Seminar, 1970, which outlined a similar concept. In its execution, however, the policy for the creation of Intensive Development Zones (IDZ) failed to achieve its objective. Execution was overcentralized, overplanned, did not reach all parts of the country at once, and became over-costly and grandiose. The differences between IDZs and RGAs are expanded in Annex 2, paras 23 to 26.

<sup>2/</sup> See for example the NorthWestern Province Indicative Development Plan, and (less clearly) the Regional Study and Plan of Western Province, both by Ministry of Planning and Finance, May 1974; and the Bank's Urban Sector Survey, 1974.

for years because resource limitations would require that the provincial projects were implemented in sequence (with selection variously based on potential to achieve rapid production increases or greatest need): they would probably have limited replicability, and any one would cover areas of high and low potential and a limited range of ecological conditions. At the other extreme could be envisaged a package program which attempts to cover all areas and reflect the existing population distribution. In Zambia this would involve spreading resources thinly over a scattered population at high unit cost, lead to great logistic problems and, however technically sound the package, have limited effectiveness. It is essentially similar to the present approach. The RGA approach lies between these extremes, utilizing the package of agricultural inputs but within specified selected areas throughout the country. It is envisaged that these would grow simultaneously under the stimulus of concentrated ongoing Government investments and components of integrated development programs which are readily replicable with only local modification.

3.07 The rural provinces of Zambia might be covered by 70-80 RGAs each initially embracing 10-20,000 people, i.e., in total perhaps one-third of the rural population, and each encompassing 500-1,000 km<sup>2</sup> of useable land in a radius of up to 25-30 km round the RGC. This excludes the extensive grazing land which can be expected to surround many RGAs. There might be 6-10 selected secondary centers within an RGA serving subdivisions of perhaps 100 km<sup>2</sup>. Typically all parts of a subdivision would be within two hours walk of the secondary center. These centers would be the base for agricultural extension officers and other Government service staff, the site of clinics or dispensaries, and cooperative or private buying centers, and the natural focus for small retail outlets. The proportion of people included within RGAs would grow as the population moved into them in response to the lure of social and productive services, and could include two-thirds of the rural population in 10 years (of which perhaps 20% would be in RGCs). By 1995 there could be 90-100 RGAs embracing over 3 million people or 85% of the then rural population.

3.08 The nature of RGAs would vary from region to region, depending on the human and physical resource base (para 5.02). In most areas RGAs would be separated from each other and draw population from the intervening hinterland: in some already more densely settled areas several RGAs might be contiguous. Although most RGAs can be expected to fall entirely within a single ecological zone, some will be diverse, offering a wide range of agricultural and related activities. If any agricultural program requires diverse growing conditions it can embrace several RGAs in different areas each developing sub-projects. It would be important that selection of RGAs and RGCs be done locally, with maximum agreement by the people of the area and the fullest coordination of the Government and quasi-government bodies involved. The Party is the obvious mobilizing force which should encourage people to move towards facilities, and to instill interest in local self-help which should be a key feature

of the program. Government should consider a system of generous matching of funds raised locally for road building and construction as a means of overcoming the existing Zambian expectation that all will be provided free. The importance of encouraging a sense of self-reliance and initiative cannot be overstressed.

C. Production

3.09 Equally bold, simultaneous action is needed specifically to increase agricultural production in Zambia, for, although production for local consumption and sale will accelerate within RGAs as the package programs and sub-projects (Annex 2, para 27) within them reach more and more people, the initial impact will be small and Zambia's need is immediate. The strategy for production should therefore be to design policies for areas and producers which have comparative advantage and can respond rapidly. Such areas will include the line-of-rail, parts of Eastern Province, and the peri-urban areas of the Copperbelt: producers will be commercial farmers, emergent farmers, corporations, existing state farms, and also some favorably situated small-holders. Zambia should look beyond mere self-sufficiency--still, however, a considerable goal in itself--and prepare for the challenges of competition from, and the opportunities for, exports to its neighbors and overseas markets.

3.10 Initial production increases can be achieved while still increasing resources to the rural provinces: the first need is for changes in price policies and creation of an environment which will encourage producers with spare capacity, mainly commercial and emergent farmers, to utilize this. For these, input supply and access to commercial credit facilities would be major needs, with some top quality farm management and extension advice concentrated on emergent farmers.

3.11 In the medium-term, effective in about 5 years, further production increases should be derived from newly established parastatal and private developments on unutilized State Land: these will call for new capital and management, farmer training and extension services.

3.12 A projection of sources of incremental agricultural production to meet increased market demand and substitute for imports over the next 20 years suggests that if expansion were to be exclusively on State Land, resources on commercial, company and emergent farms would only be adequate until about 1980. Thus early increases in production would have to come from smallholders in RGAs and it is projected that by 1995 they would satisfy over half the market demand. There would also be a shift in the pattern of production. Wheat, milk and oilseeds would be drawn largely from State Land whilst incremental maize, rice, cotton and beef production would come from Reserve and Trust Lands. 1/

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1/ See Annex 5, paras. 19-27 and Appendix II for an indicative projection of production and production areas in 1995.

IV. POLICY RECOMMENDATIONS

4.01 To implement the proposed strategy for the agricultural and rural sector several policy improvements are prerequisites. These focus on:

- (a) the organization of government administration and services;
- (b) pricing of agricultural products and inputs;
- (c) the system for marketing agricultural produce and inputs;
- (d) attitudes towards agricultural producers and the rural areas;
- (e) a series of changes which are needed to facilitate action on key policies.

A. Organization for Rural Development

4.02 If there is to be effective rural development in Zambia, decision making and policy execution must be decentralized to the rural provinces where the involvement of the many Government and other organizations can be coordinated. Decentralization has been a plank of Government policy since 1969. The implications were clarified with the publication in 1972 of the Simmance Report. 1/ The Report has not been formally accepted by Government and progress towards decentralization has been slow. Planning and implementation as well as policy making remain concentrated in Lusaka. However, recognising that decentralization is a fundamental tool for the implementation of a RGA program, it is suggested that three basic issues should be addressed immediately:

- (a) that Government should draw up a firm, detailed, and realistic timetable for decentralization which takes full account of needs for house and office construction, retraining, and staff posting, and should earmark funds to effect the move;
- (b) that planning and control of rural programs should, at this stage, be decentralised to the Provincial level and not below. Although further decentralization to District level should be the ultimate goal, talent should not be dispersed to a level where it cannot be fully effective. For at least a decade trained manpower will be limiting;

1/ Report of the Working Party Appointed to Review the System of Decentralized Administration (Cabinet Office, Lusaka, May 1972).

(c) that the critical areas for early decentralization are planning, control of financial allocations and management of the public service. Each Province should have a competent planning team, power to allocate a significant slice of the National budget to Provincial development, and full disciplinary control over staff. 1/

4.03 The task of national policy formulation and direction should remain firmly with the Central Government: there is no question of regional political autonomy in these proposals. The Provinces would be responsible executive organs working within a national policy framework but according to local needs following the principles of participatory democracy. Adequate manpower is now available in Lusaka and the Provinces to carry out this function, but it needs to be released from low priority work and mobilized for the rural effort. The working of and coordination between the Central Ministries should be greatly enhanced by removing from them responsibilities for field execution, and the number of ministries could probably be reduced. 2/

4.04 The District organization retains a crucial role in development. It is the meeting place of popular participation and the activities of Government: it is through the District organization, with the Party as the major mobilizing factor, that Provincial plans should be carried out. Delegation to Districts should vary according to local need and capability, and can be expected to grow with time and experience. The role of the Rural Council, and Ward and Village Productivity Committees is considered in Annex 6 (especially paras 24-30).

4.05 A start should be made immediately on planning the full implementation of decentralization. Over about three years some 250 staff could be transferred from Lusaka to boost provincial cadres (Annex 6, paras 33-38). An early need is for housing and office space in the Provinces: the staff and funds should be made available as soon as plans are finalized. The first powers to be delegated to the office of the Provincial Permanent Secretary, and the first staff to move, should be in finance, planning and personnel. As soon as these are set up the staff and authority of specialist departments can be transferred.

4.06 The Organization of Agricultural Services. 3/ Decentralization of the Ministry of Rural Development is crucial to any effective development program in the rural provinces and should closely follow on the move of finance, planning and personnel. A major reorganization of the whole Ministry and its departments and parastatals is called for. The exact scope should be settled by an independent review committee: a restructuring into regional responsibilities might be considered. The following points may assist in establishing terms of reference of a committee.

1/ Organizational proposals geared to facilitate rural development are treated in Annex 6.

2/ Annex 6, Appendix IV.

3/ See Annex 7.

4.07 The overall ratio of technical and professional staff in the Department of Agriculture to farmers is one of the highest in Africa, better than 1:350. However, nearly half are poorly trained "demonstrators"; there are over 10% vacancies among the remaining establishment, mainly of key experienced technical staff; many are diverted to posts dealing with specialized enterprises or schemes; there is a high concentration of experienced staff in Lusaka; there is no closely supervised program for extension work, and little extension advice geared to small-holders; and the imbalance between personal emoluments and recurrent funds for travel and transport has reached such ridiculous proportions 1/ that perhaps 80% of an extension officer's time is being spent in the office. In a word, the extension service, for all its size, is ineffective. Decentralization, and a drastic transfer of specialized extension workers to general work will strengthen the provincial staffing and facilitate gearing programs to local needs. It should be supported by (a) a retraining program to embrace all extension staff and to include upgrading of suitable crop demonstrators; (b) a strengthened research program which emphasizes an inter-disciplinary approach to farming systems and commodities and for which firm priorities are set; (c) a small, well-qualified research/extension unit with the dual role of framing research proposals based on needs identified by field workers, and adapting research results to an extension program (Annex 7, paras 6 and 7); (d) a complete review of approved expenditures for travel and transport to ensure that funds are adequate to keep needed staff fully effective (para 4.28); (e) introduction of a system of inducement allowances rewarding posting to the rural provinces (para 4.29).

4.08 In keeping with the proposed strategy for rural development, extension services should be available principally to those farmers who are in RGAs, and within these areas should concentrate on the receptive farmers. The mobilization of other farmers, to bring them to the point where they can benefit from extension advice, is not a task for extension services, but is a valuable role for the Party organization, members of which should accordingly receive locally prepared briefings on the development potential and extension activities in the RGAs in their area. Within a RGA ratios of contact staff to farmers could be of the order of 1:200, using existing staff; a team or teams totalling about 20 staff, including supervisors, might cover the area. The few highly specialized activities not suited to general extension agents should be covered by mobile teams operating over several RGAs and even between Provinces.

4.09 Inter-Ministry Coordination and Central Planning. Rural development affects nearly all parts of Government. It is important therefore that all ministries accept and work within the strategy for the rural provinces on a consistent, coordinated basis. Coordination of policy will be facilitated by full decentralization which will leave smaller and possibly fewer 2/

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1/ In the early 1960's the ratio in Zambia was about 1:1; in 1974 it was about 4:1.

2/ See Annex 6, Appendix V.

ministries to agree to policy. The Development Planning Division, reduced from its present size by allocation of at least half of its staff to the Provinces, should be used to the full to provide a basis for consistent macro-policy, and MRD should have a small experienced planning team to provide policy advice to the Ministry and help frame investment and procedural guidelines for Provincial planners. Policy execution in the Provinces would be coordinated by the Provincial Minister (principally through the Provincial Development Committee of which he is chairman) and its secretariat under the Permanent Secretary.

B. Pricing Policy

4.10 The Price System (Annex 8, paras 86-118). Many prices to both agricultural producers and consumers are controlled by Government. Minimum producer prices for crops, reviewed annually, are based on estimates of production cost and supply response. Where there is a sole legal buyer, these floor prices become de facto fixed prices for the crop. For maize, the sole buyer, the National Agricultural Marketing Board (NAMB), is required to buy at a uniform price regardless of location, and most prices are set without consideration of seasonal variations in supply. Maximum consumer prices are decided separately, and are fixed in detail for a wide, but incomplete, range of commodities. Price fixing is an attempt to stabilize the cost of living, and the obvious contradiction between the two price policies is met by the payment of subsidies which allow sales to consumers at prices below cost of production and distribution. Subsidies are also used to keep down the price to farmers of fertilizer and improved seed: the combined cost in 1973 was nearly K 34 million (US\$53 million).

4.11 Effects of Price Policy (Annex 8, paras 119-124). Most producer prices have tended to be fixed below world market levels, such that in 1974, for seven major items, Government in effect levied a tax on producers of over K 16 million, or 28% of gross value. (If sugar is also included the implicit levy would have been K 47 million.) (Annex 8, para 105.) Consequently, production of many items has stagnated or declined. This situation has been aggravated by distorted relative prices of competing crops, and by the policy of geographically uniform prices. At the local level, because of this practice, it is not worthwhile for farmers to deliver their produce to main depots. Instead NAMB has to send vehicles to remote areas to collect small loads of maize, and the heavy transport bill which results is borne by Government. Worse, the uniform price pattern inhibits the development of grassroots cooperative marketing societies or small traders 1/ who would rely on the margin for their income. At a national level, uniform prices have resulted in production in areas lacking comparative advantage. These have, for example, directly contributed to the decline of the cotton and groundnut

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1/ One of the surest signs of rural growth is small farmers adding such enterprises as local transporting or small-scale retailing to their farm business. There are few cases of the former in Zambia and less examples of the latter than might be expected.

crop. In consequence Zambia has been faced with an ever-growing volume of imports of agricultural commodities. These frequently have been at higher financial cost than if produced in Zambia, (and, in effect, foreign countries have been subsidised at the expense of Zambian farmers), have eaten into foreign exchange resources, and have aggravated the imbalance between the volume of imports and exports. Government's reaction has often been to promote state enterprises which have been inefficient and costly. The marketed supply has suffered further from large scale smuggling into Zaire, Malawi and Tanzania, with consequent further losses in misspent subsidies and potential loss of further foreign exchange on compensating imports. Prices which do not vary by season increase the need for storage by the marketing boards--and this may be higher cost than farm-level storage and deprive farmers of an opportunity to earn from on-farm storage--and raises transport costs. Controlled prices can actually increase farmers' uncertainty and adversely affect production when, as in Zambia, (a) the prices are announced late, (b) they are the unpredictable result of largely political factors, and (c) they are set without due attention to the effect on competing crops. Worse, fixed prices may de-stabilize incomes from crops which are subject to inter-year yield fluctuations, and this further adversely affects production for the market.

4.12 Consumer price controls have been costly to enforce and have tended to reinforce the effects of the producer price system, encouraging illegal exports of subsidized items and illegal trade in others in short supply. During the last two years shortages of maize meals, cooking oils and fresh milk have been frequent. An artificially low price of sugar may have adverse effects on nutrition.

4.13. The overall effect on income distribution of the complex of consumer and producer pricing and subsidies is difficult to quantify. Urban consumers at all income levels and the wealthier rural dwellers benefit from retail price controls whilst the rural poor gain little or nothing. Domestic and overseas manufacturers of consumer goods and overseas producers of agricultural produce imported by Zambia have benefited relative to domestic cash crop producers who have received low prices (para 4.11) and against whom the terms of trade have worsened (para 2.04). The larger producers of maize away from the line-of-rail have gained from transport subsidies, whilst line-of-rail farmers, subsistence producers, and producers of other cash crops have not. Commercial and emergent farmers and other maize and tobacco growers are the major beneficiaries of input subsidies: this partly offsets low prices, although the gain for the first is, correctly, limited by a high marginal rate of income tax. Subsidies to processors of imported foods benefit consumers and may make producers of competitive outputs worse off. On balance the bulk of benefits goes to urban workers (thus increasing intersectoral real income inequalities and contributing to the continuing flow of people to the towns) and to selected cash-crop farmers in Eastern Province. Subsistence farmers--the rural poor--receive few benefits. Line-of-rail and other non-maize farmers are taxed. (Annex 8, paras 105, 109, 111-118.)

4.14 The diversion of budget resources into subsidies has limited expenditures on essential services, particularly in the rural areas, and the subsidy system has grown so complex that its financial and economic implications are now difficult to understand, difficult to control, and seriously reduce Government's scope for effective action. The whole system of price controls, and of State dominance in marketing which largely arises from it, has been an effective barrier to the growth of commerce, industry and agriculture; has been a major barrier to the economic development of the country; and is in direct conflict with the basic aims of Government. The importance of improving on Zambia's price structure can hardly be overstated. Getting prices right is not the end of economic development. But getting prices wrong frequently is. 1/

4.15 Policy Proposals. The situation can be alleviated by better use of the present pricing system: improvements could be made immediately, but some are linked to changes in the marketing system. The basic policy should be to permit market forces to act as a guide in setting all prices--farm, wholesale and retail-- and to deviate from this only in clearly defined cases.

4.16 Analysis suggests that in 1974, sugar, fresh milk and groundnuts were greatly underpriced, maize and pork producer prices were significantly low, some increase would have been justified in beef prices, but cotton and sunflower prices were about correct and tobacco growers probably were protected. These price indications apply only to production areas close to the major market, usually the line-of-rail. Collection and transport differentials should normally reduce producer prices in the remoter areas. The yardstick which should be used to set producer prices is the border price for those goods which can be traded internationally. This concept was found to be generally misunderstood in Zambia and is therefore explained in detail in Annex 8 Appendix IV.

4.17 Under a free price system, farm gate prices would take account of the cost of moving produce from farm to depot as well as from depot to market. It is important that this pattern be reflected in Zambia's regulated price system, and the present nationwide uniform price system be dropped. Equal prices are assumed to be equitable prices in Zambia. This is clearly not so when the resource endowments and, therefore, the productivity of areas differ but there are social barriers preventing free movement of growers from the poorer to the better endowed areas. The simple but fundamental change away from uniform prices will increase the efficiency of production, allowing the natural advantages of areas to be exploited; will encourage the movement of people towards Rural Growth Centers; will encourage the grassroots growth of cooperative marketing societies or farmer/traders (para 4.11); will reduce the heavy transport bill and focus transport investment in the most desirable areas; and help to eliminate such anomalies as the current import of maize into Northern Province from the line-of-rail.

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1/ This most apposite aphorism is due to C. Peter Timmer.

4.18 Declared producer prices should become floor prices in fact as well as in law, and should be consistently announced well ahead of planting time. Subsidies on fertilizers should be gradually lowered, although price advantages could be given to the rural provinces.

C. Marketing

4.19 The Marketing System. 1/ Agricultural marketing is carried on by a mixture of public and private merchants and processors. Some of the largest markets--maize, dairy products, vegetable oils--are in the hands of statutory monopolies: others--beef, fish, poultry and groundnuts--are primarily handled by competitive merchants but often within the framework of legislated prices. However, in monopolizing the handling of maize, principally to provision the major urban centers, Government has substantially weakened the trade that could be the basis of a major crop distribution system. Not only is there a conspicuous lack of enterprising merchants engaged in legal trade who could provide merchandising, transport and handling facilities and develop market opportunities, but the national growth of cooperative marketing, which is an alternative, is also inhibited. In spite of this, gaps left by the cumbersome high cost 2/ parastatal organization and controlled price system are filled by producers and traders engaging in considerable smuggling and arbitrage activities.

4.20 Policy Proposals. The strategy should be that increasingly parastatal buyers should be divested of their monopoly powers and should instead become major countervailing powers in the market, and buyers of last resort for all controlled crops. An exception should be where the structure of the industry is such that competition cannot be assured (as for cotton and tobacco): in these, closely scrutinized monopolies should be allowed to continue. (To deal with markets that can be satisfied by few suppliers and therefore are open to collusive pricing, legal powers for investigation and prosecution should be provided to the price controller.) Because of the lack of traders particularly in the rural areas the withdrawal of parastatal activity should be gradual, but must be consistent and backed by a long-term policy. The key would be a reduction in the nearly 1,000 rural buying points operated by NAMB and the introduction of price differentials that would encourage farmers either to deliver to larger NAMB centers in RGAs, to utilize the services of local traders as primary buying agents, or to form marketing societies whose costs would be met from the differences between farm gate and depot prices. Both private traders and cooperative groups will need recourse to capital and guidance. A public service which should be provided is the collection and dissemination of information on planting, yield prospects and stock levels: this is woefully lacking at present. Cooperatives should not need, and

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1/ The marketing system is analyzed in Annex 8, paras 18-85, 128-132.

2/ Large subsidy payments are made to the marketing boards which are partly, and to unknown extent, to cover board inefficiencies: the rest result from various aspects of Government's pricing policy and the boards' role as extension agents.

should not be given monopoly powers. The existing unions in Eastern and Northern Provinces, which have been notably inefficient and unresponsive to the needs of their members, should be divested of their monopolies and preferably broken up to encourage the grassroots development of new marketing societies which might ultimately form new Unions at District level. (Annex 7, paras 27 and 28).

4.21 The Dairy Produce Board is essentially a monopoly importer and converter of processed milk: the marketing of fresh milk is a secondary activity and the Board does little to serve the interests of dairymen or producers. It operates a price policy which adversely affects equity, efficiency, and nutrition (Annex 8, paras 40-44, 85). Private fresh milk sales should be allowed at prices which reflect market conditions. If Government wishes to encourage fresh milk consumption it should do it with a consumer subsidy on milk drunk by children in school.

D. Producers

4.22 Production and Prospects. Of a total annual production value from agriculture, forestry and fisheries of K 170 million (US\$256 million), about one-third is traded, providing 60% of the market demand. The gap is made up by imports. It is estimated that about 1,600,000 ha of land are currently cultivated each year by the traditional sector; on commercial farms a further 65,000 ha are under crops out of a total of 260,000 ha of arable land available. Farm land formerly held by expatriates has in part been taken up by remaining commercial farmers, by new farmers including emergent farmers, or by the State, but the area actively farmed has probably fallen and production declined slightly. Even so, commercial and emergent farmers on State Land are currently responsible for nearly 60% of crops grown for sale. Over the last decade there has been modest absolute growth in agricultural output but except for maize (the staple for the urban centers and for much of the rural area), most of this appears to have been in such produce as sugar, poultry, pigs, fruits and vegetables grown in the line-or-rail in enclaves and making little development impact on the broader sector.

4.23 To achieve broad self-sufficiency in crops the land requirements for additional production at present yield levels are calculated to be between 35,000 and 75,000 ha by 1980 and up to one million ha, possibly doubling of the present cultivated area, by 1995. Grazing land requirements could go as high as 29 million ha even with greatly improved offtake. 1/ Overall, land is available but by the early 1980s the commercial sector on State Land will not be able to provide its present proportion of the production needs of the country, and increasing reliance will need to be placed on smallholders to meet market demand (para 3.11). Market demand will particularly grow in the line-of-rail, and locational advantage for crops which cannot be readily transported will be there. Paradoxically, in a country with such large land resources, increased intensification of cultivation would be justified in these areas. Increasingly, also, there will be urban demands

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1/ See Annex 5, Appendix I-10.

within the rural provinces which should be met locally, and for which more intensive production methods may also be justified.

4.24 Production Policy. Policy for achieving Zambia's production needs should therefore be a composite one affecting both commercial farmers and smallholders. The immediate goal of closing the import gap can be most effectively met by the private sector, and in particular the commercial and emergent farmers should be given a positive role. The position of expatriate commercial farmers has long needed clarification: Government has recently moved to give the right indications, 1/ by its promise, in the 1975 budget, to permit repatriation of a proportion of profits and to increase access to capital. What is now needed is an adjustment in relative prices and a clear long-term policy on prices, which will encourage farmers, Zambian and expatriate alike, to invest in those crops which are in the national interest. In particular commercial and emergent farmers should be encouraged to move increasingly into management-intensive dairying, irrigated wheat, beef, and pork, at the expense of maize. Given the right mix of incentives, commercial farmers could expand production and alter their product mix rapidly and without making demands on scarce managerial and extension staff or competing with the smallholder sector for resources.

4.25 There is, however, a considerable although unquantified area of State land along the line-of-rail which is not presently utilized. Some is in privately held farms, but will not necessarily be brought into use simply in response to price incentives because the holders lack complementary resources to develop it. Other land is held by the State or occupied by squatters (para 4.36). Steps should be taken to ensure good use of this land. The recent incentives on production offered to expatriate farmers may have this effect (Annex 9, para 7). More certainly, a correctly applied land tax would encourage the release of idle land, and fuller utilization and intensification of production on the remainder. Two major preconditions for a tax on State land are met: i.e. that land titles be registered and that there be a market for investments in land (Government should be a residual buyer in this situation). It is also necessary that land quality can be assessed and demarcated, and that survey staff be available to facilitate subdivision. There is presently a serious shortage of qualified surveyors which has contributed to the underutilization of land. For unoccupied farms, and any land later released, Government should consider a mixture of: lease to selected, trained tenants who could have an option to purchase after proving their farming worth; controlled smallholder settlements for which that developed by Family Farms Ltd. provides an admirable model; 2/ and State-owned operations which

1/ Any incentive scheme has problems, but Government has probably chosen the best option. See Annex 9.

2/ The ill-fated Mixed Farming Development Project was aimed in the right direction. It has been held to be too structured and management intensive, but it should be born in mind that settlement projects should be regarded only as supplementary to increasing production from established farms, and long-run in their effect on production.

should be managed, with maximum possible independence from Ministry staff, by experienced managers paid both a salary and a production bonus. It should be possible to utilize the skills and experience of existing commercial farmers to provide training to apprentice tenants. The major problems in earlier attempts at this approach have arisen from poor selection of both pupils and teachers and a lack of a will or means to discipline the trainees: these should not be insurmountable.

4.26 The longer term production goals can only be met by utilizing the resources of the rural provinces (Annex 5, paras 19 and 20): a greater proportion of maize, groundnuts, vegetables, cotton, tobacco, and rice should be produced by smallholders. The major prerequisite for such production increases is the price incentive already suggested--there is massive evidence of the responsiveness of African smallholders and none that Zambians are any less economic men than their neighbors. They will need extension advice, inputs, and improved access to markets. These should be developed within RGAs in package programs supported by a rational sequence of investments in growth centers and their surrounding areas. The package programs require an integration of existing research results and their application to smallholder conditions, and in many cases they will need to be developed in the light of results of new farm-systems research (para 4.45). Because of the time needed for this and to build up infrastructure, work should be started as soon as possible, whilst commercial farms and existing State enterprises expand production to bridge the gap and buy the time needed for smallholder development to make an impact. At the same time there is a need to mobilize Zambian farmers currently operating outside the cash economy--probably nearly half the rural population--to make them aware of the market opportunities and the welfare gains from developing surplus production for sale. By the end of the century about 65% by value of the marketed agricultural production for Zambia's needs--let alone for export--must be derived from production from outside the present State Land area.

#### E. Support Policies

4.27 Improved policies in the agricultural and rural sector cannot be viewed in isolation from other facets of Government operations which vitally affect performance. Attention is therefore drawn to some policy measures needed to remove hindrances to action in the sector or to support the policy proposals made above.

4.28 Budgetary Procedures and Allocations. Government's Capital and Recurrent budgetary allocations for the sector are out of balance, and do not reflect the country's declared priorities. Inadequate provision is made for operating schemes financed from the development budget; support funds are not available to enable agricultural staff to do their work; and expenditures in real terms on the rural people are declining both absolutely and relative to those on their urban counterparts. Fundamental policy changes are needed to counter this malaise, for the Ministry of Planning and Finance has little

room for manoeuvre because of priority to security expenditures and subsidies.<sup>1/</sup> The scope for budget adjustment when revenues decline is further limited by Government's virtually fixed salary bill, inflated by lavish recruitment in times of high copper prices. Indeed, the only possible cuts are on expenditures which would make these staff effective--particularly travel and transport allocations which affect not only their capacity to reach farmers but also the supervision they receive. Worse, largely because it is highly centralized, the system for budget adjustment is frequently arbitrary. Expenditures vital to a project may be deleted without understanding of the implications for the Provincial development program, the staff on which are rarely consulted. An extreme example is the purchase of motor vehicles, done through a single Ministry which has neither the power, nor the knowledge to make rational allocations of the few vehicles remaining for the service ministries after the toll exacted by budget cuts, meeting security requirements, and failure to procure by the close of the financial year when all funds revert. The cost to Zambia in terms of waste, demoralization of personnel, and lost production of these poor procedures is incalculable.

4.29 Status for the Rural Areas. Government's priority for the rural sector needs to be matched by a policy of improving the conditions of staff in the rural areas and the status of agriculture as an occupation. Decentralization will help provide new staff promotion channels outside Lusaka. There should also be positive financial incentives for those posted to the rural Provinces and to staff living outside major urban communities within the Provinces particularly whilst housing and amenities are below urban levels.<sup>2/</sup> Retention of staff would also be aided by unifying conditions of service for civil servants and parastatal employees, and by recognizing, in enhanced contract terms, the value of second and subsequent tours by non-pensionable staff, both Zambian and expatriate. Special provision should be made to attract and retain good people to agricultural research (para 4.45). Whilst some rotation of key staff between Provinces and Districts is healthy, the present very high rate of transfers is counter-productive and bad for morale, and should be slowed.

4.30 More use should be made of contract employment, and means should be found of reducing the large number of ineffectual permanent staff, by instituting periodic re-evaluations for all civil servants and strengthening powers of discipline over staff. This would be effected more readily in a decentralized organization.

4.31 The status of agriculture as a means of livelihood, and its practice, may be enhanced most effectively by its inclusion as a major subject within school curricula. Clearly such a program has long-term rather than short-term effects, and there are major problems in implementation, not least the need

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1/ Subsidies, 8% of recurrent budget in 1973 and nearly twice the combined remaining budget for the Ministries of Rural Development and Land and Natural Resources, could exceed K 75 million in 1975.

2/ This proposal was discussed and rejected by the Salaries Commission, 1975. The Commission's argument is not convincing.

to develop and provide teaching materials, and facilities for training or retraining teachers. Commendably, Government has accepted this challenge and progress is being made with introducing agriculture into secondary schools. However, with only 20% of primary leavers entering secondary school (and a heavy urban bias even on primary schooling) the need to teach practical subjects related to agriculture in the early school years is clear: priority should be given to schools in RGAs.

4.32 Non-agricultural Investments in Rural Areas. It has been emphasized that rural development includes the growth of facilities in urban centers within the rural areas. Government investment, and the encouragement of private investment, in the centers should be a keystone of policy. Government has stated its aim of encouraging Zambian small-scale enterprises, but has been ambivalent on how this should done. The economic reforms of 1968 facilitated the take-over of rural retail trade by Zambian private traders: but lack of finance and training facilities, together with parastatal monopolies and controlled prices has inhibited growth. The encouragement of rural small-scale industries is the responsibility of a parastatal subsidiary, Rucom Industries Ltd., mainly active only since 1969. Its original aims were to assist small rural Zambian entrepreneurs set up manufacturing and service industries, but since 1971, Rucom has been required to operate on a short-term break-even basis and consequently has gone in for direct operations, frequently by take-over of existing businesses, to the point that it offers virtually no assistance to small entrepreneurs. Lacking staff, short of finance for loans and for operations, and with no consistent policy, it is not surprising that Rucom has made little impact. 1/

4.33 The opportunity for profitable investment in rural industries is tied to performances in agriculture and the markets it develops. Rural Growth Centers will encourage, and be encouraged by, small industry investments within them, and policy in the two fields should be integrated.

4.34 Government should provide greater management and technical assistance to entrepreneurs: if this is through Rucom it should not be bound to meet the costs from its own operations. Preferably Rucom should liquidate at least the smaller of its present enterprises and concentrate on identifying projects, locating and training potential rural craftsmen and entrepreneurs, and facilitating the establishment of new businesses. Government should assist Rucom to establish a link with a financial institution ready to make credit available to potential entrepreneurs. At present Rucom is ill-equipped to carry out these tasks and further external long-term technical assistance should be sought. This will only be useful, however, when Government has clarified its stand on rural enterprises and established a coherent policy.

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1/ The background to, and needs for, Rural Small Industry Development are examined in Annex 10.

4.35      Land Tenure. With the exception of the recent abolition of Free-hold land, 1/ the system of tenure, administration and law affecting rural land in Zambia remains virtually as inherited at Independence. Land is categorized as State Land (which may be leased), Reserves, and Trust Land. On these last leases or rights of occupancy may be granted by the President, in whom all land is vested, subject, however, to consultation with rural councils and to subsisting customary rights. 2/

4.36      State Land presents few problems. Tenure is secure, although the future of expatriate holders of the land is uncertain; there is an operating market in land which facilitates adjustment of holdings, although a shortage of survey staff does limit this and procedures under the new Act have still to be tested; and there are no features which strongly operate against good farming, although squatters have been allowed to remain on areas of physically and locationally good land which should be put to skilled use. A firm Government policy is urgently needed for this. 3/

4.37      On Trust and Reserve Land, mostly sparsely populated and farmed under traditional systems, tenure is generally secure and there are few problems at present. Access to land is somewhat limited by exclusive attitudes of tribal authorities, but it is noticeable that in areas where this might become inhibiting an embryo land market has appeared. Communal grazing rights, suited to extensive herding techniques, are probably only limiting where improved practices are desired; and fragmentation of land, although it exists in some areas, is not a major problem. However, problems with customary tenure typically arise when improve agricultural techniques are adopted, and where population densities are greatest, and already there are strong indications that in a few areas customary tenure does not provide adequate security for the needs of development. These will increase as Rural Growth Areas become the focus for agricultural production for the market, and a review of tenure policies will become increasingly pressing.

4.38      The need is for a clear statement of policy, and a revised land law under which all lands can be registered and statutory leasehold title can be issued to individuals or groups. Registration should be systematic, at a pace in keeping with resources available, starting with RGAs. There should be maximum local participation in the allocation, demarcation and registration of land within these areas.

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1/ By the Land (Conversion of Title) Act which received assent on 18 August 1975.

2/ The system of land tenure and its effects on agricultural and rural development are elaborated in Annex 11. The distribution of the land categories is shown on Map IBRD 11540.

3/ Powers of eviction are given in the new Land Act.

4.39 Transport Policy. 1/ Zambia depends crucially upon its well-developed transport network, not only because of its remoteness and scattered population but also because imports and exports account for half of the value of its GNP. The volume of imports, of which agricultural products make up over 10%, greatly exceeds the volume of exports. Rail, including the TAZARA line to Dar-es-Salaam, due to open in 1975, provides the major external mode to both the Atlantic and Indian Oceans whilst over 11,000 km of all-weather roads are the key internal links. There are 3 motor vehicles per 100 of the population, a high ratio for Africa.

4.40 Road network development seems to reflect the country's needs. Correctly, increased emphasis has recently been put on feeder roads, but more will be justified in Rural Growth Areas, which will facilitate concentration of investment. Provincial development programs should be drawn up as soon as RGAs are identified. There is a need for a local road inventory so that maintenance funds can be properly assigned: overall, present allocations need at least doubling to preserve existing roads. Better axle-load control is also required to the same end. Local road works should be the responsibility of only one agency. A continuing training program for central and local staff is urgently needed.

4.41 Although shortages of transport are frequently referred to in Zambia, carrying capacity appears to be adequate, but policies, regulations and procedures impede optimum utilization and services. Uniform, aseasonal, agricultural prices impose extra demands on transport resources and limit the services available; uniform bus tariffs reduce rural services; road service licensing for goods transporters is restrictive and administratively burdensome; the centralization of licensing in Lusaka is unnecessary. NAMB has a major influence on the use of internal transport. It needs to improve its planning of produce movements, storage capacity, and coordination of loads; improve its loading/unloading operations; decentralize its contracting procedures; and review its tariff levels which are unrelated to operating costs (Annex 12, paras 35-43).

4.42 It is also essential that Zambia's external tariff policy is reviewed in the broadest possible framework. Presently, some import transport costs are subsidized with the effect of discriminating against domestic producers in favor of foreigners, and aggravating the considerable excess carrying capacity on outward journeys. An improved tariff structure based on

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1/ Details of internal and external transport links and policy suggestions are given in Annex 12. The internal transport network is drawn on Map IBRD 11509 and international links on Map IBRD 11510.

economic principles would directly increase national income and foreign exchange reserves by: encouraging domestic agricultural production, reducing the needed transport capacity and reducing costs, and facilitating and encouraging agricultural exports. A high level study is urgently required, and should include the operation of TAZARA the tariff for which has still not been announced even though much production planning is dependent upon it.

4.43 Research and Training. Recurrent themes in this report are the need for further investigations and for training. In both relevant research and manpower development Zambia has considerable leeway to make up. Research for rural development on various levels is called for concerning, for example: the transformation of traditional agriculture; the economic and social effects of agricultural price and subsidy policies, and their improvement; transport tariffs and policies; rural road requirements; identification of growth centers; market potentials for small industries; the need for agricultural credit; the needs for fisheries development; and optimum storage policy.

4.44 Effective national and regional planning will make new demands on research facilities and Zambia should make best use of its resources particularly, perhaps, those in its growing university. The existing National Council for Scientific Research appears to be ineffectual and does not provide the necessary lead for allocating research priorities. Its own ventures in the agricultural field concentrate too much on basic fundamental research, inappropriate to Zambia's urgent need for adaptive research for the traditional and emergent farmer. The Council should be revitalized into a National Rural Research Council with considerable autonomy, and charged with the task of setting research priorities, encouraging and coordinating research by and between Government, quasi-government, and private organizations. The council should have representation from Planning and Finance and should have control over allocation of funds for research in agricultural and rural affairs.

4.45 In agricultural research more emphasis should be placed on commodity programs geared to farming systems and particularly on needs of smallholders and traditional livestock. An effective research/extension liaison unit (para 4.07) in the Council should be charged with translating research results into usable farm advice, and improving the feedback on farm level problems into research programs. Its staff should coordinate Provincial Experimental Committee meetings between extension and research staff and revise their procedures to ensure that the feedback from extension does result in appropriate research programs. To provide a basis for its long-term work the unit should establish and oversee a program of detailed investigations into the economics of smallholder agriculture, concentrating initially on the chitemene systems and traditional livestock, and areas with potential for dry-land and irrigated smallholder cash crops. Help should be sought from the UNDP project

to fund CIMMYT support for agricultural economics research in Eastern Africa. 1/ Vigorous efforts should be made to attract and retain professional Zambians into agricultural research--there are at present only 5 working in this vital area--and in particular in farm management and animal husbandry. Meanwhile continuity can be improved by enhancing second and third contracts for satisfactory expatriates (para 4.29) and recruiting whole research teams through bilateral aid or private organizations contracted to carry out complete, pre-determined research projects. Continuity on ongoing and future programs should be improved by guaranteeing research budgets for the program period instead of making annual allocations which vary according to the vicissitudes of the copper market (Annex 4, paras 22-23 and Annex 7, paras 4-9).

4.46 The wide range of training needs--from instruction in farming techniques and in nutrition for the rural household; through courses for depot staff in produce handling, for road maintenance staff, and local Government employees; to technical training of surveyors and extension personnel--calls for high priority in this field and similarly requires coordination particularly in use of facilities. As more effective and better coordinated training can be achieved if implementation is decentralized, more responsibility should be placed on the Provinces: but course curricula and teaching materials should be developed centrally for local application.

## V. DEVELOPMENT PROGRAMS AND PROJECTS

5.01 Within the framework of the strategies outlined above, and given the support of policy improvements, a number of programs and possible projects which will further Government's goals for rural development and agricultural production can be suggested. The certainty of identification varies, and in most cases fuller investigation and in all cases detailed preparation and evaluation are needed before Government investment should be made or external financial assistance sought. As a direct follow-up to the sector survey FAO has expressed its willingness to field an appropriately staffed project identification mission to further this aim.

### A. Investment in Rural Development

5.02 Rural Growth Areas. The key principle behind Rural Growth Areas (paras 3.04-3.08) and their urban nuclei is that once they are designated, as much Government investment as possible, and the encouragement for all private inputs, would be concentrated in them on a long-term, declared, strategy. Planning and the control of investment within national policy guidelines, should be a Provincial function. It follows that most investments

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1/ Project GLO/74/009, approved by the Governing Council in June 1975 offers technical assistance to local research on farming systems and marketing.

should be allocated for the defined growth areas on a program basis rather than for a predetermined nationwide or province-wide project or single class of infrastructure. Capital allocation to a Provincial Development Committee (PDC) may be divided between the growth areas within its jurisdiction as the PDC deems appropriate, and variously applied to feeder roads, schools, dispensaries, water supplies, cattle crushes, storage, or other needed facilities in the center, villages, or surrounding area in the proportions and order appropriate to that RGA and to the implementing capacity available.

5.03. A somewhat false but useful distinction may be made between productive and social infrastructure, and the priority to be accorded each. The political desire to stress social investment frequently has to be sacrificed to the economic necessity to expand production. A balance always has to be struck between the two, as it does between capital and recurrent expenditures. Zambia has been able to afford more social investment than many countries: whether or not this situation will continue will depend on revenues from copper taxes (about which there is little reason to be sanguine), other demands on the budget, and the success of policies to increase domestic agricultural production. Long-term policy guidance on the relation of productive to social investment, the logical sequence of investments, proposals for national investments to which provincial programs will have to be related, and the relationship between capital investments and consequent recurrent expenditures should be issued to provincial planners by the central policy makers.

5.04 Agricultural Credit. It is clear that, in spite of recent efforts to improve performance, the present agricultural credit operations of the Agricultural Finance Corporation (AFC) are not effective and should be re-examined critically. However as it is widely disputed how far credit is a major constraint on smallholder development, a review of AFC operations should be combined with a study of smallholder credit needs. This could later become the basis of a credit program in Rural Growth Areas and should be instituted as soon as possible.

5.05 Peri-urban Development (Annex 2, paras 54-56). There is potential for the development of small-scale commercial production of fruit, vegetables, dairy produce, pigs, poultry, beans and groundnuts near line-of-rail cities. A project would consist of replicable sub-projects close to major provincial urban centers. Close to Lusaka and the Copperbelt, Government would only need to release State Land, demarcated into small holdings and with road access; make credit available for water supply; and provide water resource information derived from a detailed study. This should be supported by a package of extension advice, input supplies on credit (either using AFC or providing guarantees to local commercial banks), and market information. A project of this nature would provide impetus to existing spontaneous development about which, however, little is known. Present peri-urban production, and schemes on the Copperbelt and near Lusaka, should be studied as a guide to project preparation.

5.06 Rural Industries. The first priority for rural small industry development is for Government to clarify its policy regarding small entrepreneurs and to revise measures which currently favor capital intensive large-scale industry (Annex 10, para 3). Given this, there are small but significant potentials in manufacturing and processing projects such as vegetable boxes, egg trays and poultry equipment, blocks and bricks, soap-stone carving, furniture, bags, mats, agricultural implements, hand pumps and wind pumps, coffee and skin processing, fruit juices, and packaging of produce, as well as in bakeries, restaurants, dry cleaning and garages, in which Rucom is already engaged. Continued international technical assistance should be sought to help draw up a coherent policy framework and a development program for rural industries in Rural Growth Centers (Annex 10, para 36).

B. Crop Development in Growth Areas

5.07 Investments to encourage agricultural production should be viewed in a regional context, integrated with social and production infrastructure investment, as part of the twin strategy for directly closing the production gap and stimulating development in Rural Growth Areas. This area perspective is developed in Annex 2. The potentials for individual crops are examined in Annex 13 and are summarized below.

5.08 Maize. The strategy for maize production should be to encourage local self-sufficiency in rural provinces where this can be achieved at below the cost of purchase from the line-of-rail, an early shift of market production from State Land to Reserve and Trust Land areas in the Central line-of-rail region, and a gradual increase in the proportion of production for sale taking place away from the line-of-rail. The domestic market demand for maize by 1995 is estimated to be over 14 million bags, 2-1/2 times present levels. By that time, 80-90% of the commercial supply should come from smallholders, against 40% now (Annex 5, Appendix II). If export markets are to be retained, they must be viewed as continuing commitments for which production should be planned, rather than as convenient dumping grounds for surpluses when they occur.

5.09. Improved pricing is crucial to expanded production. 1/ Maize is a familiar crop to a majority of Zambian farmers and in many farming systems is the keystone around which improved farm management will evolve. With satisfactory hybrid seed and subsidized fertilizer already available, the need is to improve upon delivery systems already set up (timely inputs in packs suited to small farmers; a supervised extension service which can reach more farmers, more frequently, and more efficient marketing including prompt and on-the-spot payment for purchases). Radical new production programs are not needed.

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1/ See Annex 8. And also if production is not to be smuggled outside Zambia. The 1974/75 price in Tanzania was equivalent to K 6.12/bag against K 5.00 in Zambia: the declared prices in 1975/76 are, however, in line at K 6.50.

5.10 Wheat. So far wheat has been grown in winter under irrigation, but price policies have discouraged production which has declined from providing 15% of demand in 1964 to nil a decade later. Current imports are over 100,000 tons and demand is estimated at 260,000 tons by 1995. A long-term policy statement including price rises to import parity levels<sup>1/</sup> is a precondition for any investment, public or private, in this crop. A new price set for 1975/76 of K 16.00/bag should encourage farmers to devote existing irrigated areas to wheat and bring about limited investment in new irrigation works.

5.11 Irrigated production may be expected mainly from commercial farms, but a proportion of the 20,000 ha Munkumpu project planned for completion in 1980, should also be under a rotation including winter wheat. Other potential areas for irrigated wheat are Kafue, Mpungwe, Kandu-Mswebe and Chambeshi (see Annex 14, para 104); they should be subjected to detailed feasibility studies. A Canadian proposal is under consideration for rainfed wheat to be grown on mechanized farms on Reserve Land northwest of Livingstone. A pilot farm should be developed, for if successful the project will make a significant contribution to wheat supplies. At this stage, however, it must be viewed as highly risky. Wheat is unlikely to develop as a smallholder crop.

5.12 The resource requirement for wheat self-sufficiency is so large--65,000 ha under irrigation or the equivalent of mixed irrigation and dry land by 1995--that it is hard to envisage more than 40% of projected demand being met from domestic sources by that date. Even for that the capital cost involved, in 1974 prices, could be K 70 million (US\$110 million). The advantage of encouraging private investment to cover as large a part as possible is clear: the need to curb demand by reducing consumer price subsidies, from which the wealthy benefit, is even more apparent.

5.13 Rice. Ninety-five percent of present marketed rice requirements are imported: domestic production is mainly of rainfed paddy in Luapula and Northern provinces. Most rapid production increases can be achieved from encouragement of smallholder rainfed rice development in these provinces: package programs within RGAs could meet 70% of requirement in 5 years (Annex 13, paras 9, 10). Longer-term increases should be based on production on irrigation projects proposed for the Barotse Flood Plain, Lake Kariba, Kafue, Chambeshi, and Lake Bangweulu. Self-sufficiency, requiring 2,500 ha of irrigated paddy or its equivalent, should be achievable in the early 1980s, and export to Zaire and possibly Mozambique should be possible thereafter. Development has been hindered by lack of funds for and technical information on, processing equipment. About 25 small mechanical units would be needed to process the 12,000 ton domestic market demand of the early 1980s.

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<sup>1/</sup> Shadow priced to reflect true transport and input costs. Present parity is about K 20/bag.

5.14      Cotton (Annex 13, paras 16 to 19). Low producer prices caused a rapid decline in cotton production from 1971 through 1974. Prices, now double 1972 levels, are close to border-price equivalents but will need careful review, particularly in relation to maize and other alternative crops, if production is to recover and reach the level needed to satisfy the demand of Kafue Textiles. Given satisfactory absolute and relative prices, smallholder production in Southern, Central, and Eastern provinces should be boosted through projects within RGAs, in which production is integrated with complementary crops (maize, groundnuts, or burley tobacco). The aim should be to reach some 20,000 farmers with extension services, and improved varieties and ULV sprays presently being developed, and to provide local storage and marketing facilities, and feeder roads. Ginning capacity is adequate. The economic feasibility of siting a textile plant in Chipata rather than expanding Kafue should be investigated.

5.15      Tobacco (Annex 13, paras 20-26). Both Virginia and Burley tobacco offer scope for expansion as smallholder crops. However, Virginia production in the Bank-assisted Family Farming Project (Ln 882-ZA) is only half of that projected, apparently in part because of low tobacco prices relative to maize. The Project should be reviewed and current problems solved before any attempt to develop a second phase, for which areas have been identified. Burley production, integrated with other crops on red clay loams in RGAs in most Provinces could be expanded to over 2,000 ha in the next decade. Training of extension staff in the crop is needed.

5.16      Groundnuts (Annex 13, paras 27-33). Confectionary groundnuts, grown by smallholders in Eastern Province, are exported; while nuts for oil are grown throughout Zambia for the domestic soft vegetable oil market for which oil is also imported. In Eastern Province, which accounts for 40% of marketed production, sales have declined to one-third of the 1967 level in the face of low producer prices offered by the inefficient monopoly buyer, the Eastern Province Cooperative Marketing Association. Producer prices there are about 40% below the border price equivalent and, like cotton, groundnut production in the area suffers further from the high relative price for maize, caused by Government's uniform-price policy. Producer prices in other areas are free but are constrained by controlled consumer prices, and increased production and sales of both confectionary nuts for export and oil nuts for self-sufficiency can only be achieved by increasing prices and improving requisite supply and marketing. Expansion should be within integrated developments in RGAs.

5.17      Sugar. Sugar production in Zambia is from a single estate, Nakambala, founded and still managed by an international sugar company. Production is expected to be 80% of demand in 1975 but expansion planned for that estate would satisfy domestic demand through 1982 and leave some surplus for export. By 1995 a further 90-100,000 tons of sugar would be needed. Additional expansion at Nakambala may be the least cost approach but this would take up

most of the available water on the Kafue. Given this restriction and the desirability of spreading investment, the feasibility of developing elsewhere a further 100,000 ton factory and estate, with outgrower participation in about one-third of production, should be studied. The area of the Chambeshi crossing with TAZARA is a possible site. Development should start not later than 1979 and the study, investigating this site and pinpointing alternatives, should therefore start in 1976.

5.18 Other Crops. There is scope for large-scale commercial and small-holder production of sunflower and soya beans; the establishment of a minimum tea estate and factory with expansion through outgrowers at Kawambwa; limited coffee expansion within RGAs in Northern Province; small-scale irrigated fruits and vegetables in peri-urban projects; and further cashew production in Western Province.

#### C. Market Development Programs

5.19 Maize Storage. The most vital improvements in agricultural marketing are in the fields of policy and organization (para 4.19). Government has, however, expressed an intention of establishing a maize reserve of 50% of annual consumption to counter annual fluctuations in supply and to provide for regional needs. Present storage capacity is nearly 10 million bags comprising:

Silos, and silos under construction	1,230,000 bags
Covered sheds	1,330,000 bags
Open hard-standings /1	7,105,000 bags

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/1 Concrete rafts on which bagged produce is stacked and covered with tarpaulins.

In total this is adequate for seasonal supplies including some exports and for the reserve. However, much of the covered space is used for inputs, and open hard-standing involves high running costs and results in grain losses. Justification for further silo construction thus rests on the relationship between construction costs and annual savings. Tentative calculations suggest a project would be of marginal economic merit.

5.20 A further question is how much storage is needed. Government's 50% reserve objective is arbitrary, and the demand for local and centralized storage could be reduced by improved pricing policy (para 4.11). However, Zambia should certainly have a major role in any regional strategic grain reserve program. The Bank is examining price and storage policy and the results of its study could be an input into a badly needed economic evaluation of the long-run strategy for maize in Zambia including the amount, type and location of maize storage needs.

5.21     Crop Reporting. 1/ A major problem of NAMB and MRD is uncertainty over the size of the maize crop, volume of trade and stock positions. This is aggravated by poor communications between depots. The crop forecasting service needs overhaul and reinforcement and a new census of agriculture is needed to verify baseline data. The use of remote sensing imagery for crop forecasting should be explored (para 5.35). International technical assistance in these projects would be justified.

5.22     Training. Courses in grain handling, stock control and staff management are recommended for NAMB executives, and training programs are needed for depot managers in merchandising farm requisites.

5.23     Local Markets. The scope for the establishment of regular market places, including cattle markets, in RGAs should be investigated. Rural bulking markets should be encouraged by the provision of support services including lockable stores, cattle holding pens, weighing points, vehicle loading and servicing areas, telecommunications, packaging and credit facilities.

D.     Livestock Development 2/

5.24     Demand and Supply. Beef and dairy production are the major concerns: in recent years one-third to one-half of beef needed for the market and over 80% by value of all commercial dairy produce has been imported. For 1995 market demand for beef is projected to be 2-1/2 times current levels, or 5 times present domestic supply while milk consumption, 220% of 1974 intake, would be nearly 7 times current Zambia production. These increases are worth K 96 million (US\$150 million) a year even at present producer prices.

5.25     About one-third of organized domestic beef sales is supplied from a 275,000 head commercial herd on the line-of-rail and the remainder from 1-1/2 million cattle under traditional management, particularly from Southern and Western Provinces. A parastatal, the Cold Storage Board (CSB), operates slaughter houses, does much of the cattle buying and imports beef, but private buyers and butchers are also allowed to operate, and are able to offer better producer prices within the limits set by retail price control. Commercial milk production is dominated by state farms and about 75 large-scale farmers on the line-of-rail. The parastatal Dairy Produce Board has a monopoly on organized milk collection, importation, and distribution.

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1/ See Annex 8 for further discussion on the next 3 items.

2/ Details of the Livestock sub-sector are given in Annex 15. The distribution of cattle and tsetse fly is shown on Map IBRD 11541.

5.26      Problems and Proposals. Constraints on livestock production include lack of trained manpower; low prices, especially for dairy production; and inadequate marketing systems for the traditional producer. Prices and management problems on state ranches and in parastatal organizations were major factors in the failure of the Bank's 1969 beef and dairy development project (Ln 627-ZA).

5.27      Overseas graduate education for Zambians in veterinary medicine, epidemiology and administration of animal health programs, and expansion of domestic training facilities for extension workers and veterinary assistants is needed, and the potential for training Zambians in advanced dairy management as trainees on commercial farms and State ranches should be re-explored (para 4.25). Increased support is needed for animal disease and tsetse fly control programs (Annex 15, paras 23, 30). Research programs should emphasize assistance to the traditional farmer (Annex 15, paras 24, 41-42).

5.28      State ranches have potential for providing beef breeding animals, but their efficiency should be raised before any new ranches are developed (Annex 15, para 34). The National Beef Scheme, presently reaching 2,500 smallholders, should be developed within Rural Growth Areas. Similarly the existing Rural Milk Production Scheme is worthy of development in and around Rural Growth Centers, but may need to be revamped using improved local breeds. In the traditional sector the need is to develop a simple dependable milk collection and processing organization to supply growth centers.

5.29      Livestock Prices. No scheme for improving dairy production for the organized market by commercial farmers or smallholders will succeed unless the producer price structure is revised. The retail price of milk is controlled at a level which gives producers under 2/3 of the real cost of competing with reconstituted imported dried milk. However, even restoration of prices to border price equivalents will probably do no more than stem the decline of commercial production: long-term price guarantees and special incentives to develop breeding stock will be needed to secure a build-up of dairy herds. A detailed study of this situation should be given priority, as a precursor to the preparation of a dairy development project. 1/ For beef excessive margins by CSB probably deprive producers of 10-15%.

#### E. Water Resources Development 2/

5.30      Potential and Present Use. Although much of Zambia's water resource is lost in evaporation, the developable potential in stable river run-off and groundwater is good. Current use is only 3-4% of this potential, and in the

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1/ Any such project should draw upon the experience of the 1969 Livestock Project and be designed to minimize management requirements.

2/ Details of Zambia's water resources, problems in their full utilization, and development proposals including outlines of possible projects are given in Annex 14. Resources, use, and locations of development proposals are shown in Maps IBRD 11544, 11545, 11546, 11547, and 11548.

rural areas use is only about 0.1%. Most rivers have a flow adequate for irrigation development without heavy capital cost in weirs and pumping stations, but the surface water network is limited: on the other hand groundwater is widely available although often in small quantities.

5.31 Hydropower is the major user of water in Zambia, and with the completion of the Iteishiteshi Dam in 1978 will double. Power generation is usually a non-consumptive use of water but the siting of the Kafue generating station downstream with prevalent water rights limits water available for other purposes. Domestic water supply is currently the second user of water, and irrigation--covering only 7,700 ha of which 6,500 ha is in one sugar estate--is the least, but irrigation demand could overtake domestic uses in the next decade in spite of a doubling of the latter.

5.32 Development Proposals. In spite of the general availability of land, irrigation is justifiable in some areas with good access to markets both for crops for which Zambia is unsuited for rainfed production and to raise incomes and reduce climatic risk in smallholder production. In all cases careful economic evaluation is needed before projects are developed. Large-scale irrigation development is technically feasible for the major rivers, the Kafue (Munkumpu, Kafue Flats) and Chambeshi, (Chambeshi Flats), and groundwater could be utilized near Mpongwe: while medium-scale (up to 200 ha) investments should be justifiable on commercial farms and in peri-urban areas, and small-scale (up to 20 ha) developments in some Rural Growth Areas close to villages. Excluding sugar cane requirements some 15,000-20,000 ha in large-scale irrigation and 10,500 ha in small- and medium-scale schemes could be developed by 1986 and this could double by 1995 at a cost, in 1974 prices of over K 70 million (US\$109 million). Potential crops include wheat, rice, oilseeds, coffee, fruits, vegetables and pasture for dairying.

5.33 Rural water supply sources--wells and boreholes--will need to be constructed or restored at a rate of about 1,000 a year over the next decade to reach all the population in rural growth areas by the mid-1980s. Watering points are needed for cattle in Western Province. Possible irrigation and water supply projects are detailed in Appendix 14, Annex 22.

5.34 Support Proposals. To date developments in power, irrigation or domestic water have not been coordinated to ensure optimum water use. Conflicting demands for water use are now appearing and it is important that immediate steps are taken to review and improve the management of water resources. Planning and management should be based on the four major River Basins (Map IBRD 11544), and the Department of Water Affairs should be strengthened and reorganized on this basis. The Water Act needs revision to facilitate improved management of water resources. An Irrigation Coordination Committee, charged with defining national irrigation policy including pricing of water and supervising implementation of development should come under this authority (see Annex 14, Appendix XX). River basin water plans should be developed as soon as possible: a Kafue Basin water plan is urgently needed and preparation should not be delayed for reorganization.

5.35 The country's water potential and needs should be evaluated. Present knowledge of groundwater potential should be mapped, groundwater irrigation tests established, run-off gauging improved, and a Central Water Archive set up. Information of enormous value for water resource development (as well as for land planning and crop forecasting) could be obtained cheaply from LANDSAT 1/ imagery. A technical assistance project to obtain mosaics, and train Zambians in ground-truthing, interpretation and overlay preparation is proposed (Annex 14, para 122).

5.36 Action should be initiated to reduce the considerable manpower constraint, including creation of a National Irrigation Institute and provision of courses for administrators and technicians. Constraints on the import of high discharge pumps should be removed and local manufacture of hand pumps encouraged, while improved budgetary allocations especially for recurrent expenditures are needed to facilitate the development program.

F. Fisheries Development 2/

5.37 Zambia has large fisheries resources which should be further developed to keep up with rapidly increasing domestic market demand and to augment protein supplies. Present production of about 35,000 tons is only some 40% of sustainable yield. 3/ Imports exceed 23,000 tons, worth K 2.7 million (US\$4.2 million). Production for the market is in the hands of about 35,000 full- and part-time fishermen, some of whom market their catch themselves, mostly as dried fish. This is low quality product, and there is considerable wastage, estimated at 20% of the catch.

5.38 In 1974 a parastatal Fisheries and Fish Marketing Corporation was established under a new Fisheries Act to implement Government's objectives for fisheries, which are: to raise the harvest to 55,000 tons by 1976, to

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- 1/ Formerly ERTS, the Earth Resources Technology Satellite. Zambia is well covered in 28 scenes by existing imagery and soon will be able to draw on the receiving station being established in Kinshasa. To illustrate their potential 2 paired examples of LANDSAT scenes have been presented to Government with this report.
  - 2/ Fisheries were excluded from the terms of reference of the mission. However, because of the importance of the sub-sector, an outline of the present and prospective position, based on reports prepared for the mission in Zambia, is included at Annex 16 and the location of fishing centers and fisheries facilities is shown on Map IBRD 11541.
  - 3/ Recent evaluations of the potential of Lake Tanganyika suggest that an even lower proportion of the potential is harvested.

establish an effective marketing organization, to improve fishing techniques, and to improve quality. Consumer prices for different types of fish are set by Government.

5.39 Constraints on the industry include lack of facilities for deep-water fishing, need for access roads, and storage facilities. The research base is considered sound and extension services are being developed. With the assistance of an FAO consultant a proposal for a K 4 million (US\$6 million) project to develop marketing infrastructure was prepared in 1972. 1/ However, there is evidence that the small-trader marketing system is rather efficient and the desirability of increased Government participation in marketing and the influence of price policy on performance have not been evaluated. The economics of the proposal need to be appraised and the project widened to reduce all constraints on fisheries development (Annex 16, paras 32-39). As much fishing is done part-time by cultivators, small-scale fish production development proposals should be integrated with crop agricultural developments within RGAs.

G. Summary of Investment Proposals

5.40 These program and project suggestions, together with others developed in the Annexes are summarized in Annex 17 and tentative costs given. A possible bi-annual phasing of these expenditures, totaling nearly K 400 million (US\$620 million) over the next decade, is shown in Table 1.

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1/ FAO: Fish Marketing and Processing: Republic of Zambia, Rome, 1972.

Table 1: PROJECT POSSIBILITIES 1976-85 (K Million: 1974 Prices)

	1976- 77	1978- 79	1980- 81	1982- 83	1984- 85	Total
1. Sugar:						
Study	0.13	-	-	-	-	0.13
Development	-	30.00	50.00	-	-	80.00
2. Cotton	1.50	3.50	5.00	(second phase)	10.00	
3. Tea	0.40	0.25	-	-	-	0.65
4. Other Crops and Stock in RGAs	7.00	16.00	30.00	60.00	70.00	183.00
5. Peri-urban:						
Surveys	0.20	-	-	-	-	0.20
Investment	0.20	0.70	1.10	(second phase)	2.00	
6. Maize Storage:						
Study	0.05	-	-	-	-	0.05
Construction	5.00	15.00	20.00	10.00	-	50.00
7. Irrigation	1.00	5.00	10.00	10.00	10.00	36.00
8. Rural Water Supplies	0.50	3.00	4.00	4.00	4.00	15.50
9. Cattle Watering Points	0.50	-	-	-	-	0.50
10. Rural Industries	0.30	0.50	0.80	0.80	0.60	3.00
11. Tsetse Control	0.85	0.90	0.95	1.00	1.00	4.70
12. Fish Marketing	-	2.50	2.00	0.50	-	5.00
13. LANDSAT Imagery	0.35	-	-	-	-	0.35
14. Other Studies	0.48	0.30	0.04	-	-	0.77
Bi-annual Totals	18.46	77.65	123.89	86.30+	85.60+	391.85+

#### VI. THE FUTURE PERSPECTIVE

6.01 This report attempts to look 20 years ahead. Clearly prediction over such a long period is highly speculative, but there are a few parameters, such as population growth rates and movements, the physical resources of the country, and government policy objectives which provide a basis for judgments about the future of the Zambian economy and provide a perspective for the arguments above.

6.02 Zambia is critically dependent on copper for foreign exchange earnings, revenue and wage employment. Short- and long-term fluctuations make price forecasting hazardous, but current expectations are that although real prices of copper will rise, even by 1985 they will still be 10% below

1974 levels. Zambian production has recently been stagnant, affected by the flooding of the Mufulira mine, by the closure of the southern border, and by smelter and refinery problems. All of these problems should be overcome in the near future, and, with the investment needed to further expand production already in place, a growth in copper exports of 3-4% a year at least through the next decade is expected. However, during this period the terms of trade facing Zambia are expected to be 10-30% below the 1974 ratio and consequently the real value of gross foreign exchange earnings will probably remain below the 1974 level until into the 1980's. Given, in addition, Zambia's high import elasticity of demand, severe balance of payments constraints are therefore likely with even a modest growth in GDP.

6.03. Copper earnings also have major effect on Government's revenues, and unless there are some major moves to curb recurrent expenditures the budgetary situation will be very tight. Although it is expected that adequate surpluses would be available for a program of rural development, this can only be done by trimming other capital and recurrent expenditures. What happens to copper will clearly also affect the rate of urbanization and rural transformation. But migrations tend to continue under their own momentum, and, projecting recent rates, by 1995 nearly 60% of Zambia's population of 8.9 million could be living in urban centers (Annex 3). On this basis the population of the rural areas would be expected to increase at about 1% a year, but all or most of the growth would probably be in Rural Growth Centers, and, although increasing numbers of farmers could be expected to enter the cash economy, overall the farm population would remain about stationary. Meanwhile the number of people dependent on purchased foods would grow.

6.04 Thus, the need to transform the rural economy and change the approach to the sector arises from: a need to reduce reliance on the mining sector as employer, wage earner, earner of foreign exchange, and source of revenues; a need to produce more food; a need to narrow the rural/urban income gap as soon as possible to slow migration and limit the potentially agonizing readjustment which stagnating copper income could require. Moreover, with short-term prospects even more threatening than the longer term, the need to stimulate immediate agricultural production, in order to conserve foreign exchange and to provide a core of growth in the sector, is clear. Thus the strategy proposed in this report: to concentrate on production where it can most easily and quickly be stimulated, while at the same time working towards the transformation which will allow the wider sector to play its future role to the full.

6.05 Government's role is crucial, and decisions both directly within the sector and in other areas of the economy will critically influence Zambia's future. To clarify the interaction of these variables, a number of policy and investment alternatives have been tested in a 20 year (1972-1992) dynamic simulation model of the Zambian economy which was developed as part

of the Sector Mission and a Bank research project on shadow pricing and project evaluation. 1/ A series of simulations under different assumptions regarding government policy and exogenous factors illustrates the inter-sectoral interactions of policies, and provides support for the strategy proposed by the Mission: in particular they suggest the importance for both overall growth and income distribution of closing the gap between domestic and world commodity prices and the efficacy of concentrating rural investment in RGAs to achieve rural transformation and stimulate agricultural production.

6.06 Given improved policies and investments in the direction indicated by the report, there is no reason why Zambia should not become self-sufficient in most agricultural produce. Exceptions may be wheat and beef (unless demand for these is curbed by major changes in consumer pricing), but exportable surpluses of maize, tobacco, groundnuts and cotton may be anticipated, and further opportunities in rice, fruits and vegetables may arise from new markets in Mozambique. It is calculated that the increase in production to close the import gap and keep up with future expansion of demand to 1995 calls for an average real growth of 7% a year over the next 20 years. Initially the faster growth would be in the commercial sub-sector, but this would be overtaken by growth of smallholder production so that over the 2 decades the latter would grow at nearly 8% a year whilst the average expansion of commercial farms would be only 3% a year. In the process, the proportion of market demand met by commercial farms would decline from the present 55% to about 23%; smallholders in RGAs would be responsible for 55%; and the remainder would be accounted for by sugar (probably by 1995 grown on 2 estates with outgrower participation, and worth about 12% of value of output), and by parastatal activity and smallholder settlements on State Land (10%). Participation in market production might be by 90% of all farm families, each with an average of rather under 2 ha in cash crops. Smallholder family cash incomes are calculated to grow 5 times to an average of about K 350 in 1974 prices. Even allowing for subsistence valued at about K 200, and assuming that real incomes in urban occupations can be held at present levels, it seems that there would still be a considerable gap between the urban and rural average incomes and this would remain a continuing concern of Government.

6.07 This underlines the fact that rural transformation is necessarily a slow process and that even the 20 year perspective chosen here--only double the time since Independence--is still a short period in this context. If it is to reach its goals, Government cannot afford to falter. It must embark on a consistent, long-term strategy for the sector, as it has not done so far. It is hoped that the ideas set out in this report will contribute to the development of such a strategy, guide policy formulation within it, and suggest investments which will be in keeping with both.

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1/ The model was designed to pay special attention to development in the agricultural sector. It is presented, largely as prepared by Charles R. Blitzer, in Annex 18. Further refinement is anticipated as new data become available.













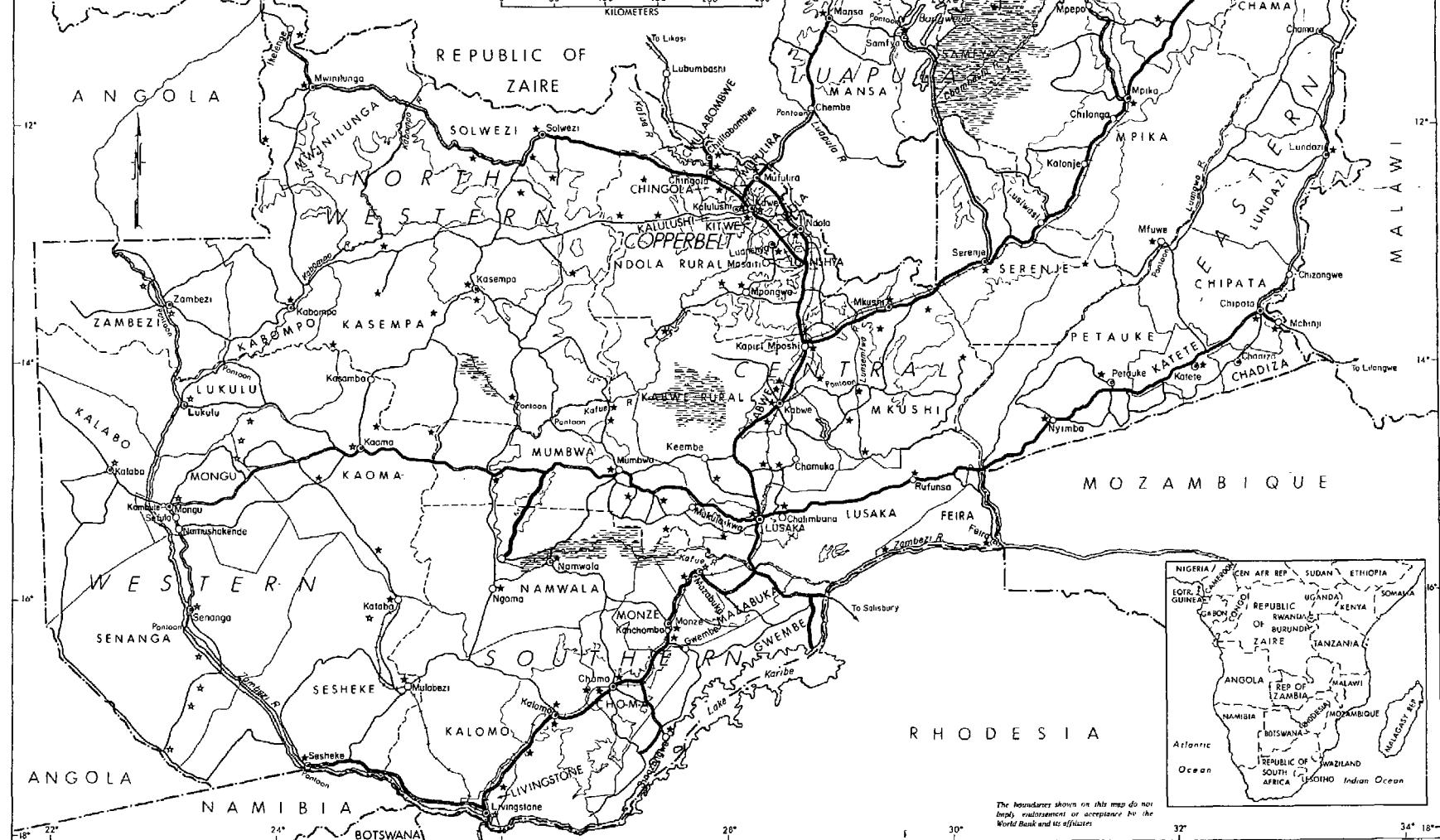
**REPUBLIC OF ZAMBIA**  
**TRANSPORTATION NETWORK**

ALTITUDES  
1829 - 2438 METERS  
1219 - 1828 METERS  
 LESS THAN 1218 METERS

- PAVED ROADS
- OTHER ROADS
- PAVING, UNDERWAY OR TO BEGIN BEFORE 1977
- RAILROAD
- RIVERS
- SWAMPS
- ★ AIRFIELDS
- ◎ DISTRICT HEADQUARTERS
- PROVINCIAL HEADQUARTERS
- DISTRICT BOUNDARIES
- PROVINCIAL BOUNDARIES
- INTERNATIONAL BOUNDARIES

MILES

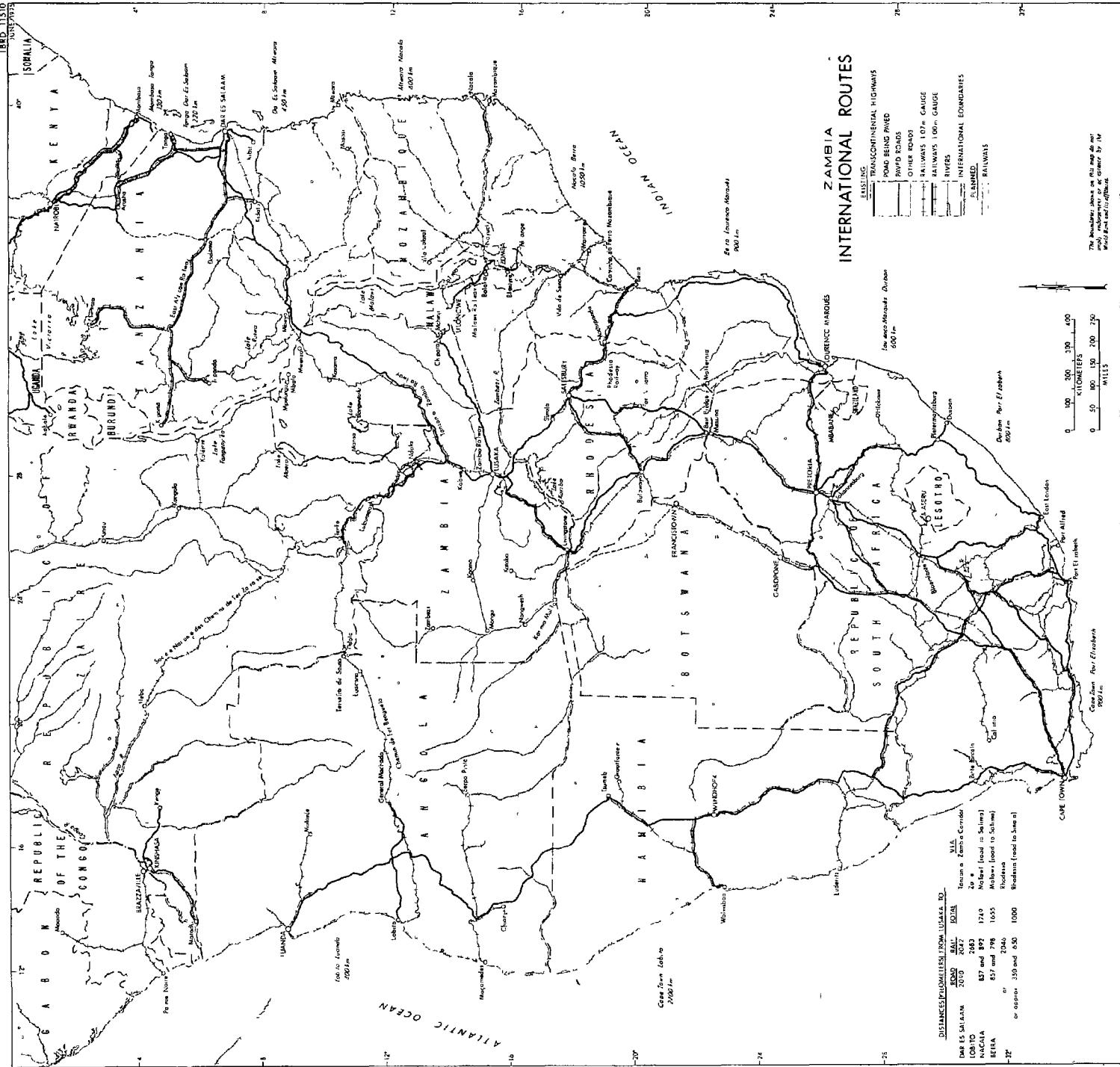
50	100	150	200	250
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The boundaries shown on this map do not imply endorsement or acceptance by the World Bank and its affiliates.



IBRD 11510





24°. REPUBLIC OF ZAMBIA 25°  
LIVESTOCK, TSETSE DISTRIBUTION,  
AND FISHERIES

**Traditional cattle areas**

**Commercial cattle areas**

**State beef ranches**

**Tsetse fly influence up to 1972**

- Glossina morsitans
- Glossina fuscipes
- Major expansion of tsetse fly influence since 1972

**Existing game fences**

**Game fences under construction**

**Provincial boundaries**

**International boundaries**

**Lakes**

**Rivers**

**River flood plains**

**Swamps**

**Fish storage - cold rooms**

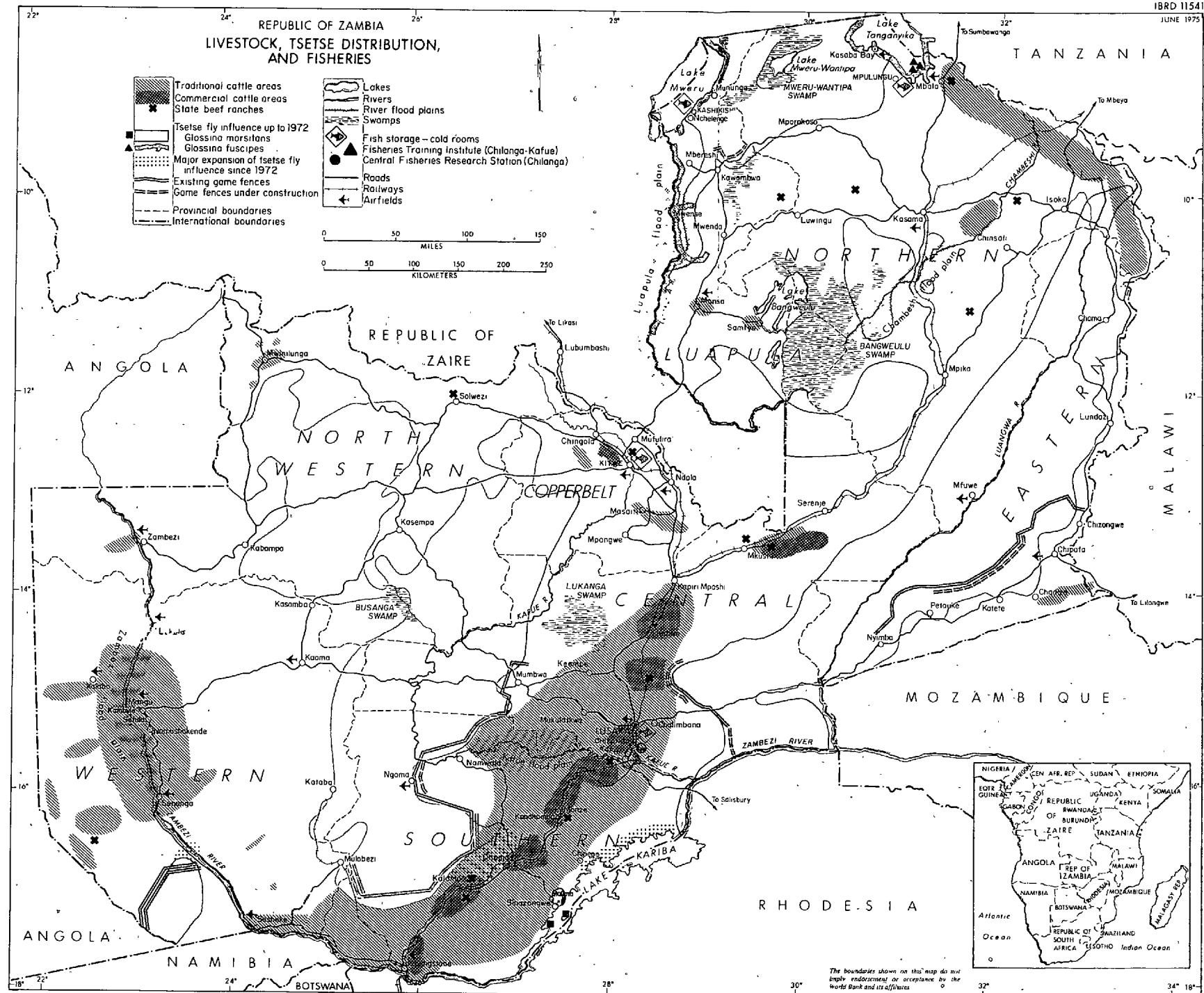
**Fisheries Training Institute (Chilanga-Kafue)**

**Central Fisheries Research Station (Chilanga)**

**Roads**

**Railways**

**Airfields**







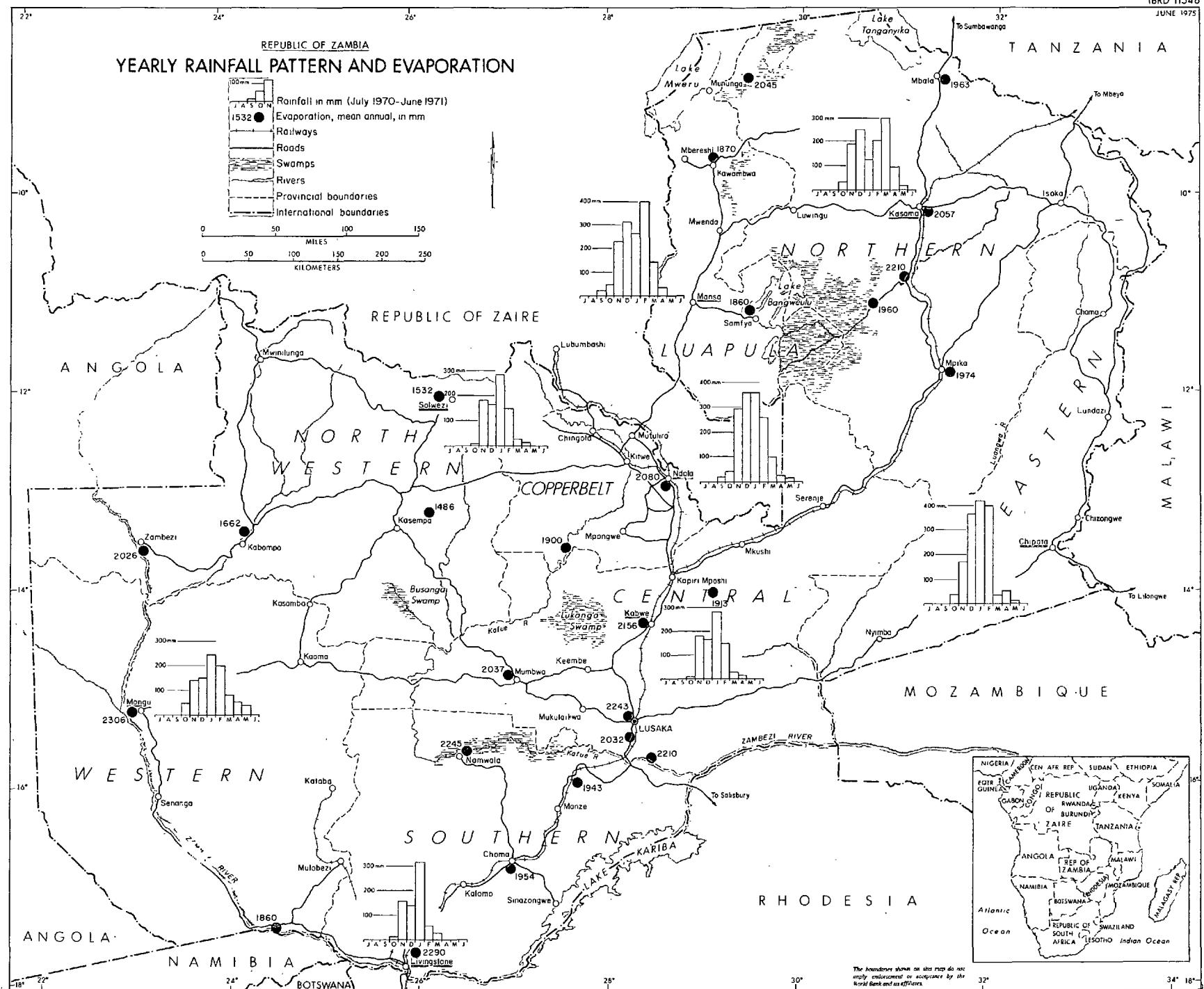














REPUBLIC OF ZAMBIA  
MEAN ANNUAL RAINFALL

- 916 Average annual rainfall 1931-1960, in mm  
 Long term rainfall stations  
 Roads  
 Railways  
 Swamps  
 Rivers  
 Provincial boundaries  
 International boundaries

