REPUBLIC OF ZAMBIA

RESTRUCTURING IN THE MIDST OF CRISIS

VOLUME 1

DEVELOPMENT POLICIES AND OBJECTIVES

Consultative Group for Zambi
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VOLUME I

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ABBREVIATIONS

A/C	-	Account
ADT	-	Average Daily Traffic
ADB/AFDB	-	African Development Bank
AFC	-	Agricultural Finance Company
BOZ	-	Bank of Zambia
CAPC	-	Central African Power Corporation Ltd.
CFC	-	Cattle Finance Company Ltd.
CG	-	Consultative Group of Zambia
CHL	-	Contract Haulage Limited
CIDA	-	Canadian Internation Development Agency
cif	-	cost, insurance and freight
CSO	-	Central Statistics Office
DBZ	-	Development Bank of Zambia
DCO	-	Direct Capital Outflow
EEC	-	European Economic Community
EP	-	Expenditure Programme
fob	-	free on board
FRG	-	Federal Republic of Germany
GDP	-	Gross Domestic Product
GRZ	-	Government of Republic of Zambia
IBRD	-	International Bank for Reconstruction and Development
IMF	-	International Monetary Fund
INDECO	-	Industrial Development Corporation
IPD	-	Industrial Plantations Division
L & I	-	Loans and Investment
LINTCO	-	Lint Company of Zambia
LMA	-	Livingstone Motor Assemblers Ltd.
LME	-	London Metal Exchange
MAWD	-	Ministry of Agriculture and Water Development
MCD	-	Ministry of Cooperative Development
MCI	-	Ministry of Commerce and Industry
MINEX	-	Mineral Exploration Department
MLNR	-	Ministry of Lands and Natural Resources
MPTC	-	Ministry of Power Transport and Communications
MSD	-	Mechanical Services Department
MWS	-	Ministry of Works and Supplies
NCDP	-	National Commission for Development Planning
NHDC	-	National Hotels Development Corporation Ltd.
NOSCO	-	Ndola Oil Storage Company Ltd.
QZ	-	Zambia Airways
RD	-	Road Department
RDC	-	Recurrent Departmental Charges
RSA	-	Republic of South Africa
RTC	-	Road Traffic Commission
SDR	-	Special Drawing Rights of the IMF
SIDO	-	Small Industries Development Organization
SNDP	-	Second National Development Plan

UBZARA	-	Tanzania Zambia Railway Authority
TNDP	-	Third National Development Plan
T & V	-	Training and Visit
UBZ	-	United Bus Company of Zambia Ltd.
UDI	-	Unilateral Declaration of Independence
UK	-	United Kingdom
US, USA	-	United States of America
VFR	-	Visiting Friends and Relatives
ZADB	-	Zambia Agricultural Development
ZAFFICO	-	Zambia Forestry and Forest Industries Corporation Ltd.
ZCCM	-	Zambia Consolidated Copper Mines Ltd.
ZCF	-	Zambia Cooperative Federation
ZESCO	-	Zambia Electricity Supply Corporation Ltd.
ZIMCO	-	Zambia Industrial and Mining Corporation Ltd.
ZR	-	Zambia Railways
ZTRS	-	Zambia Tanzania Road Services Ltd.

FOREWORD

On behalf of the Party and its Government, I would like to present this document "Zambia: Restructuring in the Midst of Crisis" to my fellow citizens and the international community. It sets out the Party and its Government's current development objectives and describes a number of measures which we intend to take to restructure the economy, reduce its heavy dependence on the mining sector, and accelerate the country's social and economic development.

For a number of years, the Zambian economy has experienced severe external financial difficulties: foreign reserves have dwindled and external payments arrears have built up; fiscal deficits have led to a high rate of domestic inflation; the scarcity of external and domestic financial resources has caused imports, investments and the maintenance of capital stock to decline. As a result, the economy's productive capacity has become increasingly underutilized, and production and employment have stagnated.

To a large extent external factors have contributed to these developments. Weak copper prices and the increasing cost of production in the mining sector have adversely affected foreign exchange earnings and government revenue. Droughts in recent years have made substantial food imports unavoidable. Zambia's economy has also suffered from the unsettled political situation in the region, from increases in oil prices and from disruptions of transport routes outside its borders.

The Party and its Government recognize that in the changed circumstances the objective of economic policy must, more than ever before, be the creation of conditions for achieving financial equilibrium and economic growth. To this end a number of policy reforms have been adopted in the recent past and I wish to affirm that such policy initiatives will continue in the future. In this regard, economic restructuring will require continued diversion of an increasing share of resources from non-productive to productive uses; the increased utilization of local materials; the increased efficiency and competitiveness of the mining sector, the development of a wider range of exports and import competing industries, the improved performance of the agricultural sector and in particular, the adoption of measures to make the peasant farmer, who is the focal point of the Party's agricultural strategy, more productive. This is the challenge which faces Zambia and which we are determined to meet.

The Party and its Government are grateful to the international community for the financial and technical assistance that it has given us. This assistance has contributed significantly to the economic and social progress of the country. I am confident, indeed I know, that we can count on the continued goodwill and increased support of our partners in development in the challenge that lies ahead.

Kenneth D. Kaunda
PRESIDENT

State House
Lusaka

PREFACE

The last Consultative Group on Zambia was held in 1978 and Zambia welcomes the opportunity to present a fresh account of its policies and programs and to seek the support of the international community.

While much has changed in the last five years, Zambia recognizes that the countries and international institutions who have given her aid are familiar with the problems that Zambia has faced. This report does not therefore give a lengthy review of the development of the Zambian economy. Instead, the focus is on GRZ's analysis of the situation and on the new policies that are now being adopted.

Zambia has been caught in a vicious circle. As the copper price has fallen, lower foreign revenue has meant a build up of foreign debt and lower imports. Lower imports in turn have reduced domestic production (including copper production) and this plus the fall in profits in the mines has increased the budget deficits. Subsequent attempts at restraint, both external and internal, have just reduced efficiency still further. Government departments, the mines, other parastatals and the private sector are all short of crucial inputs.

The impact on Zambia has been catastrophic. Real income per head measured in US dollars and adjusted for the terms of trade has fallen to less than one third of its 1974 level. It is doubted whether any other country in the world has suffered such a fall (except in the midst of a war or a revolution).

Since 1981 GRZ has conducted a fundamental review of its short and long-term debt position and of its policies for restructuring the economy. Much has already been done. A standby agreement was reached with the IMF for 1983. All performance criteria were met and the appropriate drawings made on the first three tranches. The fourth tranche has been held up pending settlement of arrears with members of the Paris Club. A re-scheduling of debt was agreed under the auspices of the Paris Club in May 1983, and in September 1983 terms were announced for reducing the backlog of commercial payments.

During this same period Zambia has been devoting attention to the problem of restructuring the economy. The four priorities are (a) to economize on foreign exchange in both the short term and the long term, (b) to make better use of existing capacity, (c) to diversify from copper and to generate new forms of exports and import substitution and (d) to reduce capital intensity. GRZ has already set in train a series of fundamental

policy changes geared to these objectives. These include adjusting the exchange rate and increasing tariffs, reducing the budget deficit (while increasing non-staff operating expenditure on agriculture), reforming the operation of the parastatals so that they raise more internal finance, increasing agricultural prices in real terms and removing price controls on all but three commodities.

Nevertheless, the reforms and the new policies cannot work immediately -- nor can they work without supplies to run the economy.

What is required is an urgent injection of foreign assistance for a series of programmes of input support, plus a number of more specialized projects to rehabilitate and replace capital so that the economy can function and restructure in the longer term.

GRZ considers the policies and plans it is now adopting to be based upon a realistic analysis, both of the world economy and of Zambia's own capabilities. To demonstrate the seriousness that GRZ attaches to this programme, GRZ wishes to make more regular presentations of its position to the Consultative Group than has occurred in recent years, and, therefore, would like to discuss with the Consultative Group the possibility of a review of the existing program being presented to the Group in late 1985 or early 1986. GRZ hopes the international community will respond positively both to this suggestion and to the policies and programmes presented below.

CHAPTER 1

INTRODUCTION

The Nature of the Crisis in Zambia

1.1 The crisis in Zambia dates from 1975 when in the space of a year her terms of trade halved. This chapter traces why Zambia has found it so difficult to adjust and why the crisis has been cumulative. The development of the crisis is considered in two periods, 1975-79 and 1980-84. While there has been a number of factors at work, it is argued that the behavior of the world economy has proved consistently worse than could reasonably have been foreseen and that this external influence has dominated the Zambian economy.

1975 - 1979

1.2 Until 1975 Zambia had one of the most prosperous economies in Sub-Saharan Africa. Mining was the central activity and the basis of this prosperity. Copper was virtually the only source of foreign exchange, and over the period 1965-73 nearly half of central government revenue came from this source and this allowed investment in public services. But the relationship was not one way. Transport, health and education were all performing important complementary activities. The transport system was geared to the export of copper, the health services brought malaria under control in the mines, and the education system was designed to replace a gradual shift away of expatriates and to rectify the lack of attention that had been given before independence to any real responsibility or training for Zambians.

1.3 In 1975, as the world economy declined, this system fell apart. Export receipts fell by more than 40 percent, the balance of payments deficit was 30 percent of GDP, government revenue from minerals fell to less than one fifth of its previous level, and the budget (which was in surplus in 1974) moved to a deficit, equivalent to 24 percent of GDP.

1.4 From 1975 to 1979 a painful adjustment, at least of some of the macroeconomic aggregates, was achieved. The budget deficit was halved but only at the cost of cutting recurrent expenditure by a quarter and capital expenditure by as much as three quarters. With the help of some recovery in the copper price the balance of payments deficit on current account was actually eliminated, but here also the cost was a decline in the real quantity of imports of nearly 45 percent and, as a consequence, a fall in output and real income. Moreover, another cost of this period was the accumulated debt that Zambia acquired.

1.5 At the same time, during these years Zambia continued to be adversely affected by the situation in the rest of Southern Africa. Political and military turbulences in Angola, Mozambique, Zaire, Zimbabwe and Namibia severely affected Zambia's economy by increasing its need for defence expenditures, by disrupting access routes to the sea and thus the pattern and cost of importing and exporting, and by reducing agricultural output in the areas closest to the military activities.

1.6 Overall, by 1979, real income per head measured in US dollars and adjusted for the terms of trade had fallen to only just over half of its 1974 level.

1.7 Over this same period Zambia had only a limited success in adjusting its pattern of production. The need to diversify away from such a heavy reliance on copper was clear but this was not achieved. Agriculture increased its share of output by only 1-2 percentage points from 1975 to 1979. The reasons for this are complex and are considered in later chapters, but one contributory factor was the decline in the real value of the capital and recurrent budgets of the Ministry of Agriculture which fell by 29 percent and 43 percent, respectively. In other words, the economies of expenditure that the macroeconomic position made essential also constricted the restructuring that was so essential for a longer term recovery.

1980 - 1984

1.8 The problems of Zambia from 1975-79 have been compounded by the events of 1980-84. Not only has there been a second world recession on a scale that nobody predicted in the late 1970s but each year's forecasts have been too optimistic about the timing and amount of the recovery . Subsequent events illustrate this vividly. As recently as August 1983, international experts predicted that the copper price in 1984 would average 101 US cents per pound but by December 1983 this prediction had fallen to 81 cents. Then in January 1984 the forecast fell further to 77 cents. The change in these forecasts occurring in less than six months worsened the outlook for Zambia's access to foreign exchange by nearly 280 million dollars, lowered the estimate of achievable output by over 20 percent, and increased the prospective budget deficit by about 300 million Kwacha. Thus, in the space of few months, GRZ has been forced to look for new economies in both domestic and foreign expenditure on top of nine years of previous cuts in real terms.

1.9 It is not just the behavior of world demand that is the problem. Four other major difficulties add to one another to produce a situation of cumulative decline.

1.10 First, Zambia entered 1980 with accumulated medium and a long-term external public debt of 1.8 billion US dollars (as compared with 0.8 billion at the beginning of 1975). Moreover, the further (almost unavoidable) balance of payments deficit of 1980-83 meant that by the end of 1983, this debt had grown to 2.6 billion US dollars. In addition, debt service including interest equal to US dollars 380 million was rescheduled in 1983 bringing total foreign debt outstanding to 2.7 billion US dollars at the end of 1983 (excluding use of IMF resources and the pipeline).

1.11 Secondly, the dollar has not only risen more but stayed persistently higher than most forecasters predicted. This increases the real burden of the dollar denominated debt -- especially as copper prices are effectively determined in sterling in the short run.

1.12 Thirdly, interest rates have risen. Following the changes in the United States monetary policy in 1979, US Treasury Bill rates averaged 11.6 percent from 1979 to 1982 compared with 5.8 percent from 1976 to 1978. This has raised the whole structure of international interest rates and as Zambia's debt has been rolled over, the interest burden has increased. In particular, it has become much more expensive to borrow short term and Zambia has been forced to do this.

1.13 Fourthly, as Zambia's access to foreign exchange has declined, its real income and output have fallen and the tax base has shrunk. Tax rates have increased but it has still not been possible to maintain revenue in real terms.

1.14 The interactions among these factors came to a head at the end of 1981 when Zambia was unable to meet the terms of the extended fund facility with the IMF and its international creditworthiness slumped to an all-time low. Since then, Zambia has introduced some major changes in policy and a new program was agreed with the IMF for 1983. In addition, a rescheduling of debt was agreed under the auspices of the Paris Club in May 1983 and in September 1983 terms were agreed for reducing the backlog of commercial payments.

1.15 In spite of the new financing arrangements, the outlook for 1984 is that the foreign exchange available for imports will be significantly less than in 1983. Further declines in output therefore seem inevitable. With tax rates already high and the tax base declining with output, further cuts in domestic expenditure also appear unavoidable. This comes on top of cuts in operating expenditure and capital expenditure of 10 and 20 percent in real terms, respectively, this past year. The consequence will be further downward pressure on output.

Economic Restructuring: An Action Programme

1.16 Zambia's immediate creditworthiness problems are but a manifestation of serious underlying economic difficulties. The challenge facing the country is to develop alternative sources of income, employment and exports. Mineral-ore reserves are rapidly becoming depleted with no major new ore bodies in sight. It is estimated that economically exploitable ore reserves are sufficient to maintain present levels of production for only 15 years or so, after which production is expected to decline sharply.

1.17 The policy measures that GRZ has taken in the last twenty-four months to restructure the economy in order to bring about the structural adjustment necessary for the medium-term economic viability and accelerated development in the long run are described in Chapter 2. The immediate objective of these policies is to restore financial stability. Without financial stability, the resources necessary to carry out the restructuring program would not be available. These policies are further aimed at increasing the efficiency of resource use generally and at addressing constraints in specific sectors or activities, such as in the growth of non-traditional exports. Zambia has the potential to meet this challenge. The greatest potential is in agriculture, where there are good

opportunities for import substitution and exports. Once progress has been made with agricultural development, possibilities will be expanded for agro-based industries.

1.18 For any long-term growth strategy to succeed the mining industry, which is the major provider of foreign exchange, must play a important role. This means that the mining industry, which is facing many technical and financial difficulties, should be restored to previous levels of efficiency to make it once again profitable and competitive in world markets. Without a rehabilitated mining industry providing foreign exchange and budget resources, GRZ's restructuring and diversification efforts are likely to fail for lack of financial resources. Zambia's recent actions and future plans and programs for revitalizing the mining industry are discussed in Chapter 3.

1.19 Agriculture is the priority sector in the restructuring effort. It has enormous potential (only one-fifth of its good arable land is cultivated); it is the only sector that can provide employment for large number of people in the short run and can absorb the large population increase of the next twenty years; it is the subsector with the greatest capacity for expansion; it uses little foreign exchange; and it is not capital intensive. Previous attempts at raising agricultural production have not been very successful. The reasons for this are given in Chapter 4. That Chapter also describes GRZ's strategy for the development of the sector and the policy and institutional changes it is making to implement the strategy. Some of the main elements are: concentration of resources on smallholders; reform of incentive structures to ensure better prices; more open and competitive marketing system; a major effort in research and extension; a focus in the short term on getting the most out of existing capacity in the commercial farming sub-sector through the provision of critically needed inputs; and greater availability of consumer or wage goods in rural areas.

1.21 A turn around in agriculture is a pre-condition for economic recovery and restructuring in Zambia. But economic growth will also require attention to the other productive sectors, particularly industry which is now facing serious problems reflected most pronouncedly in a severe under-utilization of capacity. Not only will much of the non-traditional exports and import substitution have to come from industry but also the agricultural and industrial sectors cannot exist independently of one another if diversification is to succeed. Agriculture needs industrial goods as inputs -- even the smallholders need hoes and fertilizer -- and the goal of higher rural incomes implies increased demand for industrial output. The problems of the industrial sector and GRZ's strategies and policies for achieving its objectives are the subject of Chapter 5. That Chapter also examines the major issues and GRZ's policies in the energy sector.

1.21 Zambia has a relatively well-developed infrastructure especially in transport and communications. However, the maintenance and effective utilization of this capital stock is being impaired by lack of budgetary funds and foreign exchange. GRZ's strategy in the medium term focuses on making existing facilities work better and on rehabilitation of existing

infrastructure. This is the subject of Chapter 6 which also looks at the potential of tourism as a foreign-exchange earner.

1.22 The social sector cannot be considered in isolation from the economic system. Social progress is an important and necessary component of economic development. In Chapter 7, the development of the social provision is described, concentrating primarily on education and health services. A candid description of the sector's problems is given together with GRZ's objectives and priorities for the next three years. Finally, the policies the Government intends to follow and the projects it hopes, with international support, to undertake are set out.

1.23 The reforms and new policy initiatives, while necessary to creating an environment conducive to economic recovery and restructuring, cannot work without additional donor assistance. A major effort is needed to increase capacity utilization in the productive sectors and to rehabilitate and maintain the infrastructure necessary for the efficient operation of the productive sectors. This should put the economy on the path of recovery, arrest the decline in per capita incomes and generate the resources required for long-term economic restructuring. Volume II of this report provides details of an expenditure programme for the period 1984-1986 that would begin this process. It covers both operating and capital expenditures of projects at an estimated total cost of US$1,699 million. Aid commitments needed to carry out this expenditure programme are estimated at US$1,432 million. It is shown in Chapter 8 that this level of assistance is the minimum required over the next three years to prevent a further deterioration in real per capita incomes. Because of the critical need to raise capacity utilization in the economy and to rehabilitate and replace capital about half of the foreign exchange component of this expenditure would be needed in the form of quick disbursing programme aid. Because of the serious debt problem facing the country, GRZ hopes it will be concessionary.

CHAPTER 2

THE REFORM OF POLICY

Introduction

2.1 In the past year GRZ has made major changes in economic policy. This chapter describes the Government's objectives, explains why changes in policy are thought necessary and shows how the new policies link with the objectives.

2.2 The areas of policy that are described here cover economy-wide policies, including exchange rate and budgetary policy, and the institutional changes that have been and are being made, e.g., in policy-making itself, in the organization of the parastatals and in the role of the private sector. This Chapter also presents the criteria that GRZ thinks should guide requests for, and acceptance of, external assistance. Details on policies towards individual sectors are given in Chapters 3-7.

Objectives

2.3 The four main issues which GRZ wishes to tackle are:

(i) the critical shortage of foreign exchange;
(ii) the massive underutilization of capacity;
(iii) the excessive level of capital intensity; and
(iv) the excessive dependence on copper exports.

2.4 The need to deal with these four issues is well recognized. Nevertheless, the following facts may be mentioned. First, the Bank of Zambia estimates that in 1984 the foreign exchange available for general imports after allowing for priority claims on foreign exchange (especially debt repayments and the reduction of the pipeline of foreign commercial arrears) could show a drop as large as 40 percent on the already extremely low figure of 1983.

2.5 Secondly, industrial production (excluding the mines) is estimated to have fallen slightly in 1983 and is expected to fall much more in 1984. In addition, much of industry reports itself as running at only 30-50 percent of capacity and throughout this report numerous instances are given of the shortages of inputs constraining output.

2.6 Thirdly, copper still provides 90 percent of exports. Moreover, as Chapter 3 shows, copper output will probably begin to decline sharply in the late 1990s.

2.7 Fourthly, at the existing level of capacity intensity, Zambia cannot employ all of its labor force. Indeed, if the increments to the capital stock in the next few years show the same level of capital intensity as the previous average of the INDECO companies (excluding ZCCM), and if Zambia were to continue investing at the same rate as in the past, she would be able to employ only about one-fifth of the people entering the labor force each year.

2.8 As mentioned, these four problems are well known. It is therefore salutory to ask why better progress has not been made in dealing with them in the past. Some of the reasons were outside Zambia's control and have already been analyzed. These include Zambia's adverse terms of trade position and the severe impact of the independence struggle in Zimbabwe on agriculture and transport. Others concern the policies used and the institutional environment thought appropriate for particular sectors. In these cases, the changes that Zambia is making by learning from the past are described in Chapters 3-7.

A New Direction for Economic Policy

2.9 GRZ has made significant progress in the last year towards establishing the policy framework essential for bringing about the structural changes required in the economy.

2.10 The main reforms of macro-economic policy currently underway involve:

(i) reduction of the budget deficit;

(ii) institution of a medium-term financial plan;

(iii) changes in exchange rate policy;

(iv) the structure of tariffs and taxes;

(v) increases in export incentives;

(vi) improvements in foreign exchange budgeting and allocation;

(vii) steps to strengthen debt management and to evolve an appropriate borrowing strategy.

Budgetary Reforms

2.11 Faced with declining copper revenues and long-term expenditure commitments, GRZ has been forced to raise large amounts of new revenues with tax increases. In addition, GRZ has had to increase substantially its indebtedness to both external and domestic lenders. Nevertheless, the new revenue measures and increased borrowing were insufficient to prevent a decline in real terms in total government expenditures. Thus, national budgeting since the second half of the 1970s consisted largely of administering real cuts in expenditure rather than distributing increases. Large budget deficits have become a persistent feature of public finance; deficits averaged 16 percent of GDP during 1975-1982 period.

2.12 A recent study concluded that the pattern of expenditure has not been supportive of Zambia's development objectives, which include growth and diversification, with an emphasis on human concerns, such as health, education and an equitable distribution of income. Yet actual expenditures have given insufficient support to the productive sectors (only 20 percent on average since 1975) and, relative to the productive sectors, perhaps too

much support to social services (another 20 percent). In contrast, about 45 percent of expenditures has been for subsidies, debt service and other statutory and constitutional expenditures. Existing capital assets have not been fully utilized because of insufficient recurrent allocations (estimated to be 40 percent below desirable levels), and capital expenditures have been spread thinly over too many projects. This has delayed project implementation and lowered the return on investments.

2.13 A number of steps are being taken to deal with these problems. In the first place, expenditures are being restrained overall. In 1983 total expenditures were reduced by 15 percent and revenues increased by more than 20 percent. As a result, the budget deficit which was 21.5 percent of GDP in 1982 was cut to 7.3 percent. The cutback in expenditure was achieved through reductions in subsidies and a freeze on government employment and wages. A 10 percent limit on wage increases in the public and parastatal sectors was also imposed. It is GRZ's intention to continue to restrain expenditures and in particular to reduce and eventually eliminate subsidies. Specifically, it is the intention to reduce the budget deficit to 6 percent of GDP in 1985 and to about 5 percent in 1986.

2.14 Secondly, changes are being made in the way budget estimates are drawn up. The roles of the Ministry of Finance and the National Commission for Development Planning in the budget process have been better defined and the budget document itself has been refined to present a clearer distinction between capital and current expenditures. Guidelines are now provided for expenditures by individual Ministries for the year immediately ahead as well as expenditure plans for the next two subsequent years giving a budget cycle of three years. These changes are designed to make the budget system more responsive to national priorities by moving the decision-making process forward in the budget cycle and by providing guidance to the operating Ministries. This should improve the overall composition of expenditure and enable the Ministries to plan their work programmes more effectively.

2.15 Thirdly, an attempt is being made to ensure that expenditure requirements are matched against the availability of resources through the introduction of medium-term financial planning. The financial plan is to be used to check whether existing policies and assumptions concerning future levels of expenditure and revenue are compatible with the overall financial position which the Government wishes to maintain in the medium-term future.

2.16 GRZ considers that this new system must be made to operate more efficiently. To begin with, the one year guidelines for ministries need to be extended to two and then three years. It is not satisfactory to settle spending plans on the 27th January for a fiscal year beginning on the 1st January. GRZ, therefore, intends to prepare by mid-1984 an expenditure plan for 1985 and 1986 which will be used in establishing the budget guidelines for these years. In 1985 this system should be repeated for 1985-1987. The intention is that eventually there should be a three-year rolling programme with guidelines extending to the end of year 3, but with tighter guidelines for the more immediate years. The body responsible for drawing-up this program and for framing each year's budget guidelines would

be a Planning and Budget Committee, which GRZ intends to fo comprising staff from the Ministry of Finance and the National Commission for Development Planning.

2.17 Fourthly, in the 1984 budget, resources have been allocated to Ministries in accordance with development priorities and the importance of each functional activity in achieving government objectives. Most significantly, the total budgetary allocations for agricultural development excluding subsidies is 9.1 percent of total expenditures, as compared to 8.7 percent in 1983 and an average of 6 percent in 1980-82. Recurrent departmental charges -- operating expenditures -- in priority sectors were increased in both absolute and relative terms. It is GRZ's intention to continue this practice in subsequent budgets.

2.18 Fifthly, GRZ considers that some of the problems of implementation that have arisen in the past are the result of too many projects and the practice of starting new projects when earlier ones were still uncompleted. It is, therefore, giving priority to finishing existing projects that are consistent with the four issues identified in paragraph 2.3 above.

2.19 At the same time, because of the slowness of implementation, GRZ would like to invite donors to review with it some of their existing projects which may not meet the above criteria. It may be necessary to wind up such projects if, for example, the project was started some time ago, has made little progress and, making due allowances for sunk costs, is no longer worthwhile. In these cases, GRZ would like to discuss with donors the possibility of shifting undisbursed funds to other programs and projects that are more relevant to today's needs, input support in particular.

2.20 Careful selection of this kind is particularly important in agriculture where a large number of aid agencies are involved and where there are a wide variety of projects. Careful coordination is also required. For this purpose, GRZ would like to discuss with donors the possibility of convening a meeting, chaired by the World Bank, with donors representatives and officials of the Ministry of Agriculture and Water Development (MAWD) to review ongoing projects from this persepctive. GRZ would hope that such a review could be completed well before a possible second meeting of the Consultative Group.

Exchange Rate System and Foreign Exchange Management

2.21 There is a large gap between the supply and demand of foreign exchange. Past reliance on quantitative restrictions to control imports while maintaining an over-valued exchange rate, has introduced distortions into the economy. For instance, the import intensity of both production and consumption is too high and debt service on foreign borrowings to cover balance of payments deficits is excessive. In turn, these distortions, have hampered the restructuring of the economy, particularly by dicouraging the growth of non-traditional exports.

2.22 The debt problem is especially burdensome. At the end of 1983, Zambia's total medium and long-term debt outstanding was US$2,641 million. To this must be added SDR 635 million net use of IMF credit, making US$3,295 million in all, or about 98 percent of 1983 GDP. The Bank of Zambia and ZCCM together had about US$400 million of short-term debts at the end of 1983, raising the ratio of debt to GDP to 110 percent. In addition, the pipeline on commercial payment arrears totalled SDR 639 million at the end of 1983. The debt service ratio, prior to rescheduling and excluding the short term debt, payments to the IMF and commercial arrears, is in the range of 35-40 percent for the next couple of years.

2.23 The large external indebtedness has adversely affected Zambia's creditworthiness, and the existence of the arrears pipeline is compounding Zambia's problems. It causes foreign suppliers to raise the price of imports and damages commercial confidence in Zambia.

2.24 GRZ has recently taken severe policy measures and introduced a number of institutional reforms to rationalize the exchange rate system, improve foreign exchange allocation and budgeting, and strengthen debt management. The Kwacha was devalued by 20 percent against the SDR in January 1983 and in July 1983 an adjustable rate system was adopted. As a result, by the end of January 1984, the Kwacha had been devalued by a further 20 percent and it is estimated that a net improvement in competitiveness of nearly 10 percent had been achieved (see Chapter 5, Appendix II). Zambian goods are now thought to be competitive in international markets and it is GRZ's intention that this gain should be maintained.

2.25 The improvement in the exchange rate is an essential part of the long-term program of diversification. It also helps in the short term. Every 1 percent fall in the exchange rate raises government revenue by about 1 million Kwacha because it raises the value of ZCCM's sales measured in Kwacha. Provided local costs do not increase at an equivalent rate to the depreciation, the exchange rate change thus generates funds both for ZCCM to carry out replacement investment and in good years for the Government to invest in other sectors.

2.26 GRZ has made a significant effort in the last twelve months to reform the foreign exchange budgeting and allocation procedures. The Foreign Exchange Committee has been reconstituted at a technical level, with representation by ZIMCOM and the Commercial Farmers Bureau, opening avenues of communication between Government and those in the private sector affected by the system. An effort was also made to bring the licensing system under control by recalling outstanding import licenses and by establishing a quarterly foreign exchange budgeting and license allocation system.

2.27 Efforts are currently being made to improve the monitoring of actual authorizations for general imports in comparison with budgeted amounts and of approvals and maturities of letters of credit and suppliers credits. In addition, committees of associations of manufacturers in various sub-sectors have been organized through ZIMCOM, to review and provide advice on import license allocations. This represents a step towards decentralization of the system, that hopefully will help eliminate some of its abuses.

2.28 For the future, GRZ realizes that better foreign exchange budgeting is the most urgent priority. More careful forecasting of receipts and expenditures is one essential step. To this end, GRZ intends to develop proper procedures for forecasting and budgeting foreign exchange resources.

2.29 In May 1983, an agreement was reached with members of the Paris Club under which a large part of the 1983 debt service and arrears owed the members was rescheduled (about US$380 million of principal and interest, including arrears from 1982 of US$180 million). Rescheduling exercises with non-Paris Club members and financial institutions to whom about one-half of debt service is due have taken place subsequently. However, as the analysis in Chapter 8 below shows, the balance of payments position will continue to be under severe pressure for sometime and will require rescheduling in 1984 and 1985, and possibly beyond.

2.30 But even after debt rescheduling, the debt service ratio on external obligations will remain high in the medium term. GRZ accepts the importance of strengthening its capacity in debt reporting and management so that it can identify timely corrective measures to herd off the worsening of debt problems. A start has been made with the establishment of a National Debt Management Unit in the Bank of Zambia. A Debt Advisor has also been appointed to assist in developing an integrated accounting and records system and in the training of staff. The objective is the eventual computerization of external debt data and the development of a capacity for formulating an external borrowing strategy consistent with national development goals.

Tariff System

2.31 A properly designed tariff system can be a very effective economic policy instrument and make an important contribution to Zambia's restructuring efforts. GRZ recognizes that there are shortcomings in the existing tariff system. These include high tariffs on finished manufactured goods and low duties on imported raw materials, thereby affording high protection for import-substitution industries and discouraging exports; low tariffs on imported capital equipment, thus fostering high capital intensity; and generally low tariffs on materials and partly finished goods, which encourages the consumption of goods with high import content. The effect of these factors on Zambia's manufacturing sector is summarized in Chapter 5.

2.32 Recent improvements in the tariff system include raising the duty on industrial capital equipment to 15 percent and increasing duties on selected agricultural commodities and luxury goods. In the 1984 budget duties were increased on a selected list of capital goods. A number of additional improvements are under consideration by GRZ. One is the application of a basic duty to imported intermediate inputs to provide an incentive (protection) for domestic production of inputs currently being imported, reduce excessive protection to final-stage processing (resulting from high tariffs on non-essential consumer goods and no tariffs on their inputs), and reduce the incentives for import-intensive production. Another is to shift the tariff basis from f.o.b. to c.i.f. While these improvements are important, to be useful as an instrument of long-term

structural adjustment, tariff policies must be an integral part of the package of policies including subsidies, exchange rate adjustments, quantitative restrictions and exchange control regulations. With the assistance of the World Bank, GRZ intends to carry out a comprehensive review of the current tariff structure and its protective effects to provide an appropriate basis for future modification of rates.

Export Promotion

2.33 The projected long-run decline in copper production underlines the urgent need for launching an aggressive drive to develop alternative lines of exports.

2.34 Zambia has export potential. The products which offer the greatest potential as earners of foreign exchange are those that are predominantly resources-based and are relatively less skill-intensive in production. In agriculture, the leading candidates are beef, coffee, tobacco and confectionary groundnuts. The development of these products is largely dependent upon improved policies in the agricultural sector which would stimulate their domestic production. Agricultural policies for economic diversification are examined in Chapter 4. There is also a potential for resource-based manufactured exports. INDECO companies are already exporting cement, explosives, bottles, molasses, cable and a number of other products. With appropriate incentives, there should be scope for exporting more resources-based industrial products, particularly those of high value relative to their weight or volume, thus enabling them to bear the high transport costs. Examples of such products are textiles and clothing, agricultural implements, pumps, furniture, household wares, and construction materials (such as wood products, floor tiling, ceramic wall tiling and glass).

2.35 The exchange rate adjustments of recent months and GRZ's intention to maintain the competitiveness it has achieved should assist manufactured exports. In addition, GRZ has taken steps to provide appropriate export incentives and/or to remove the constraints that have prevented exports of products other than those of the mining industry.

(i) Since 1983, exporters have been allowed to retain 50 percent of the foreign exchange earned from non-mining exports. This will be available to the exporting companies for the purchase of imported inputs and to clear commercial payment arrears. The administrative procedures for this have been simplified in the 1984 budget. Exporters can hold the 50 percent retention in their commercial banks, instead of it having to be remitted to the Central Bank and then reclaimed.

(ii) Since January 16, 1984, companies with claims in the commercial pipeline may use the corresponding Kwacha deposits for domestic investments and may obtain foreign exchange if they export new categories of Zambian goods.

(iii) Beginning 1984, profits arising from the export of non-traditional products is taxed at the rate of only 15 percent. This concession does not apply to exports of electricity or mining products, other than emeralds exported through the Reserved Minerals Corporation.

(iv) Producers of emerald exporting through the Reserved Minerals Corporation may utilize 10 percent of their export proceeds to import inputs and other acceptable items for their industry or to clear commercial arrears.

2.36 In order to effect improvements in the institutional framework for export promotion and to assess the adequacy and effectiveness of the existing financial and non-financial facilities available from the banking and financial institutions to the export sector, GRZ is currently undertaking a study to:

- define and recommend the optimal institutional framework and relationship for export promotion, particularly the organization and methods for operating the Zambian Export Promotion Board and its secretariat;

- indicate the extent to which an Export Revolving Fund is likely to remedy the deficiencies or to strengthen the existing system of export financing and incentives and if substantially positive, propose the optimal arrangements for the Fund, and its linkages to the foreign exchange retention scheme and other export promotion measures.

2.37 GRZ welcomes the financial assistance of donors in setting up the Export Revolving Fund should this prove propitious.

Prices and Incomes Policy

2.38 Until December 1982, most commodities deemed to be "essential" came under price control, both at the wholesale and retail levels, and whether produced by parastatal or private companies. While Government involvement in controlling prices was justified by the desire to protect consumers from exploitation by producers and distributors, it led to economic consequences far beyond what had originally been foreseen or intended. Consequently, in December 1982, GRZ announced the general decontrol of wholesale and retail prices. Only three commodities (maize meal, wheat flour/bread, and candles) have continued to be classified as "essential"; price increases for them are approved by the Government. The prices of all other commodities are now set by the enterprises themselves. Agricultural producer prices and input prices are still subject to price regulation, as are electricity tariffs and hotel rates.

2.39 Since the announcement of price decontrol, the prices of a wide range of commodities, including politically-sensitive products like beer, sugar, cooking oil, soap and washing powder have risen by up to 30 percent

and the prices of petroleum products on average have risen 11 percent. The prices of maize meal products and fertilizer were raised in May 1983 by an average of 32 percent and 62 percent, respectively. As a result of such price increases, inflation in 1983 jumped to almost 20 percent.

2.40 On the other hand, GRZ imposed a 10 percent limit on public and parastatal sector wage increases; there were no salary increases in the Civil Service in 1983. These guidelines were considered an essential component of the programme of economic stabilization. Nonetheless, it has meant a further decline in real wages. In 1980, earnings of Zambians in real terms fell to the level of 1968.

2.41 The reduction of income differentials among different groups of the population has long been a central objective of GRZ wage policy. The policy to close the gap between African and non-African incomes has been a success, although it has contributed to a widening of the gap between wages in the organized sector and rural incomes. The attempt to narrow the government wage scale has been generally successful. Until the recent establishment of the Prices and Incomes Commission, there was no central agency charged with the responsibility of formulating an overall prices and incomes policy.

2.42 The determination of wage guidelines by the Prices and Incomes Commission will be dictated by a realistic assessment of the various prospects and constraints facing Zambia at any given time. Among the factors to be taken into consideration are changes in productivity and profitability, trends in import and export prices (terms of trade), and consumer price movements. Given the current economic difficulties facing the country and the identification by many observers of high wages as a major contributing factor to these difficulties, it seems likely that the establishment of wage guidelines, primarily with the objective of restraining wage increases, will become an increasingly important policy instrument, at least over the short run. Over the longer term, it is not the objective of GRZ to keep wages low. Indeed, the most basic goal of GRZ development policy is to raise the real income and improve its distribution among the population. This can only be attained if real labor and farm incomes rise over time. For this reason, rural development is at the heart of GRZ's development strategy. Thus, in the two productive sectors of agriculture and industry, the principal objectives of policy are to raise the productivity and incomes of the smallholder farmer and to increase the supply (particularly in the rural areas) of manufactured inputs and consumer goods (or wage goods) that can be regarded as a necessary condition for increasing marketed output from agriculture. Details of this strategy are provided in Chapter 4.

Parastatal Efficiency

2.43 Public enterprises form an extremely important part of the Zambian economy, and a major pre-occupation of GRZ is to ensure that the ZIMCO Group of companies operates efficiently under a commercial environment to the maximum extent possible. In the past three years, GRZ has worked to improve the efficiency of parastatal enterprises in the ZIMCO Group. The result has been a major restructuring of ZIMCO's management, including:

(i) the severing of direct links between company management and government ministries; and

(ii) the establishment of a new Board of Directors and an executive management group at ZIMCO headquarters responsible for Group policies, financial and corporate planning, conditions of service for Group employees and investment decisions.

2.44 These measures aim at increasing the commercial orientation of the enterprises and have resulted in the institution of a new corporate salary structure and conditions of service, an annual corporate budget to establish performance criteria and to review policies including investment decisions, monthly and quarterly reviews of performance and production constraints, periodic management audits aimed at identifying areas for improvement, project evaluations, and a weekly fact sheet to inform the ZIMCO Board, managers and government agencies of the current status of major financial indicators.

2.45 There has been a substantial effort towards coordination of Group activities, and towards reductions in costs and improvement in managerial efficiency. The merger of the two mining companies has resulted in significant cost savings and greater rationalization of operations. The overall financial position of the Group improved appreciably, in the last twelve months, with many individual companies in the finance, energy, commercial and particularly manufacturing sectors showing improved profitability.

2.46 GRZ intends to continue to improve the operations of the ZIMCO Group by strenthening the technical capacity of the management of ZIMCO in the fields of investment analysis. With the assistance of the World Bank, an improved capacity for economic analysis is to be provided to help formulate sound economic criteria for incorporation into ZIMCO's procedures for project and performance evaluations. This capability would also be used in the review of ongoing publicly-owned enterprises. The objectives of this are: first, to avoid future uneconomic investments; second, to identify existing plants that are operating uneconomically and third, to encourage economic pricing.

2.47 In the effort to restructure and improve existing industries, evaluations which reveal problems internal to a number of firms have been carried out. Others are to follow. Many enterprises are likely to require added or modified equipment or rearranged plant facilities in order to raise their efficiency and performance. Others would require technical advice on production, or perhaps help in specific areas such as accounting or quality control. Not a few may need reorganization. GRZ continues to welcome private participation in joint-equity ventures with ZIMCO, recognizing the technical contribution which private participation can offer to the success of existing or new enterprises.

Economic Management

2.48 The preceding sections sum up the major effort that GRZ is making in economic policy to tackle the very serious problems facing the country, and to restructure the economy in order to bring about the structural adjustment necessary for medium-term economy viability and accelerated development in the long run. Before turning to the next Chapter for an examination of development objectives and policies in specific sectors, a brief account of institutional changes that have been made in policy-making or are planned to upgrade economic management is necessary.

2.49 Economic restructuring requires strengthening GRZ's decision-making, planning, project preparation and implementation capabilities. A number of institutional reforms, some of which have been referred to already, have been introduced to improve economic management. The most important of these is the creation of a "Special Economic Unit" composed of senior officials from the main economic ministries, the Cabinet office, State House, the Bank of Zambia and the parastatal organizations. Its main function is to prepare and recommend strategies for economic stabilization and structural adjustment and to monitor their implementation. It has proved invaluable for instituting important policy reforms.

2.50 Agriculture must play a central role in Zambia's economic restructuring. The sector offers the greatest potential for replacing mining as the primary source of growth and foreign exchange earnings. GRZ attaches considerable importance to strengthening MAWD's capacity for agricultural planning and policy analysis, with a view to improving the capacity to initiate sound policy reforms and resource allocation (and hence, the growth environment) within the agricultural sector. In this respect, efforts are being made to strengthen the Planning Division of MAWD in order to enable it play the role of being the primary adviser to GRZ on the implementation of agricultural sector policies and programmes. A number of donors have been assisting in this effort. Finally, with the assistance of the World Bank, an in-depth study is to be carried out of MAWD's organizational structure, administrative procedures and investment portfolio. Proposals for the future with a view to improving the effectiveness of the institution in carrying out its anticipated role are also being considered.

2.51 At independence, only one percent of the Zambian population had completed primary school. Just over 1000 had completed secondary school. There were few, if any, technically trained Zambians and fewer than 100 university graduates. The country's progress since independence in the area of human resources development has been impressive. In less than two decades, adult literacy has increased to more than 45 percent; primary enrollment is 95 percent with nearly 80 percent completion rates; secondary enrollment increased to 16 percent and higher education to 1.5 percent, which translates to more than 500 University graduates per year. Despite this progress, Zambia relies heavily on expatriates to fill many of the managerial and technical positions in the economy. GRZ is also cognisant of the fact that its economic and social development have been hampered by lack of effective planning and technical, administrative and managerial skills, needed to implement effectively government policy and programmes.

The solution to this problem must focus on a further expansion of the existing human resource development system and an improvement in the quality of education. In the short run, GRZ intends through technical assistance and training to upgrade the skills of the administrative, technical and managerial staff in key institutions. In this regard, discussions which are currently underway with three major donors should result soon in the implementation of a series of human resource development programmes, whose principal aims include:

(i) improving the Ministry of Finance and the National Commission for Development Planning's capacity to manage the economy;

(ii) strengthening the sector Ministries planning and project preparation, monitoring and evaluation capacities; and

(iii) strengthening the capacity of Zambian training institutions to conduct on-going education and training programmes in skills that are in critically short supply.

CHAPTER 3

MINING

Introduction

3.1 The mining industry has dominated Zambia's economic development, contributing consistently over 30 percent of GDP, and 95 percent of foreign exchange earnings. It is the second largest employer after the government, with about 56,000 salaried people, or 15 percent of total paid employment. Of all minerals produced in the country, copper is by far the most important, accounting for about 90 percent of Zambia's total mineral export value.

3.2 Since the mid-1970s, however, the mining industry has become increasingly less able to sustain itself financially, and its contribution to government revenues has been negligible. The sector is also confronted with many constraints that are threatening its viability. Ore reserves are becoming depleted with no major new ore bodies in sight; economically exploitable ore reserves are only sufficient to maintain present levels of production for another 15 years or so, after which production can be expected to decline sharply. Production costs are rising, narrowing gross profit margins; and foreign exchange scarcities constrain needed capital expenditures.

3.3 In other words, Zambia is now contending with the fact that its mineral wealth is exhaustible. GRZ is facing up to the challenge of restructuring the economy to develop alternative sources of income, employment and exports. Zambia has the potential to achieve this goal. The greatest potential is in agriculture, where there are opportunities for import substitution and for exports. Once good progress has been made with agricultural development, possibilities will be expanded for agro-based industries.

3.4 For any long-term growth strategy to succeed, the mining industry, which is the major provider of foreign exchange, must play a prominent role. However, it is essential that previous levels of efficiency be restored to make the industry profitable again and competitive in world markets. Without a rehabilitated mining industry, GRZ's restructuring or diversification effort would fail for lack of financial resources.

Background and Past Performance

3.5 The mining sector in Zambia comprises the large scale copper/cobalt operations run by Zambia Consolidated Copper Mines Ltd. (ZCCM), a 60 percent owned ZIMCO subsidiary; one lead and zinc mine with its own smelter and refinery, also owned and operated by ZCCM; a coal mine and processing plant, run by Maamba Collieries Ltd., a fully owned ZIMCO subsidiary; and several smaller operations in gemstones (amethysts, tourmaline and emeralds), industrial minerals (limestone, lime, magnetite, manganese, tin). These are exploited by small private operators and by other ZIMCO and ZCCM subsidiaries, such as Mindeco Small Mines Limited, Crushed Stones Sales Limited, Chilanga Cement Limited and Ndola Lime Company Limited.

3.6 The sector, and indeed the whole economy, is however dominated by copper, which together with cobalt provides about 95 percent of export revenue; copper alone accounts for about 90 percent. Until the mid-1970s the mining and quarrying sector generated about one-third of GDP and about one-half of Government revenue. As a result of the fall in copper prices after 1975, these percentages went down considerably. In 1982-83, the contribution of the sector to GDP in current prices was 13.4 percent and its contribution to fiscal revenue had virtually disappeared by 1981-82. In 1982 an Equity Levy, payable at 1.5 percent of the government share of ZCCM was introduced, followed in 1983 by a mineral export tax payable at 8 percent of the gross sales revenue of the company. The two taxes together yielded some K100 million in 1983, i.e., slightly below 10 percent of total government tax and non-tax revenue.

3.7 Current estimates of copper reserves -- including fully and partially developed reserves as well as those to which access already exists or is planned -- allow for some 16-17 more years of production at current levels (Table 3.1). Although additional inferred ore resources

Table 3.1: ZAMBIA: Copper Ore Reserves, 1983

	000 tonnes	% copper	000 tonnes contained copper	expected recovery (000 tonnes)
Fully developed	21,334	3.58	764.6	489.3
Partly developed	57,799	3.53	2,039.0	1,305.0
Undeveloped	428,922	2.96	12,687.5	8,120.0
	508,055	3.05	15,491.1	9,914.3

Source: Based on data contained in ZCCM, Annual Report 1983

could potentially extend the productive life of the operations by over 25 more years, it is highly unlikely that they could all be exploited economically at foreseeable prices.

3.8 Since 1975, the copper industry has exhibited a pattern of declining output and increasing unit costs. The total cost of sales in current Kwacha went up at an annual average of 11 percent between 1970-74 and 1982, even though the increase in real terms was no more than 2 percent per year. At the same time, the real price of copper went down by 60

percent over the period. The producing company has shown decreasing pre-tax profits and eventually large losses in 1981-82 and 1982-83, and its financial position has deteriorated accordingly (Table 3.2).

Table 3.2: ZCCM: Basic Data, 1970-83

	1970-74 Ave.	1975-78 Ave.	1979-81 Ave.	1982	1983
1. Annual copper production (000 tonnes)	683	668	585	584	580
2. Total cost of sales (K/tonne)	619	936	1463	1775	1637
3. LME Copper price (US ¢/lb)	158	83	89	67	71
4. Pre-tax profits/(losses) (annual averages, K'000)	279.4	43.7	119.0	(170.9)	(123.0)
5. Current Ratio	1.16[a]	1.18	1.13	1.12	0.97
6. Debt/Equity Ratio	1:9.12	1:3.36	1:4.67	1:1.97	1:1.08

a 1974 only.

Source: (1), (2), (4), (5), (6) based on data in RCM, NCCM, and ZCCM, Annual Reports: (3) World Bank Report No. 4624-ZA; (2), (4), (5) and (6) are estimates for the 12 months ending on March 31 of the years shown, and must only be regarded as approximations.

3.9 There are some technical reasons for the fall in production and the increase in unit cost. An important one is the decline in the grade of ores, which has gone down from 2.54 percent in 1970-74 to 2.13 percent in 1982-83. Everything else being equal, a decline in the grade of ores will reduce the output of refined metal and increase unit costs more than proportionally to the fall in output, as the cost of extracting and treating each additional tonne of ore is higher. Also the share of underground mining in the Zambian copper industry has increased and within it the depth has also increased; underground mining is also costlier than open pit and deeper shafts are costlier to mine than less deep ones. Together with the geological features of the deposits, this predominance of underground mining makes the Zambian copper industry a high cost one by international standards: total unit costs are between 25 and 35 percent higher than in Chile and Peru.

3.10 The most important determinant of the fall in output and the increase in cost, however, has been the fall in the price of copper, parti-

cularly in 1975-78 and in 1981-83. This has triggered a self-reinforcing negative process, which operates as follows: as the sales revenue of the company and, consequently, the foreign exchange revenue of the economy go down, the company is forced to cut foreign expenditure, both in running costs and in capital expenditure. This principally affects equipment, maintenance and replacement and the availability of inputs and spare parts. Output is thus directly affected, and in addition, mine development -- i.e., the driving of shafts and tunnels to reach the mineralized sections of the rock underground -- and the removal of overburden or waste material in the open pits are reduced. This increases dilution -- the mixing of waste rock with ore -- which leads to further drops in output, with reduced foreign exchange receipts and increased costs per unit; the further result is yet more cuts in inputs, maintenance, capital replacement and preparation work. In 1982-83 ZCCM was allocated 45 percent of its foreign exchange requirements. The decline in mine development and overburden removal levels can be seen in Table 3.3.

Table 3.3: ZCCM: Mine Development, 1970-83
(yearly averages)

	1970-74	1975-80	1982-83
Underground: metres of mine development per 000 tonnes of ore extracted	12.6	11.8	10.3
Open pit: cubic metres of overburden removal for mine development per tonne of ore extracted	5.69	3.05	2.86

Source: ZCCM

Table 3.4 in turn shows the decline in labor productivity in the copper mines between 1970 and 1983; the output of finished copper per employee went down by 25 percent in that period. As this figure conflates the effect of the process described above with the effect of the decline in the grade of ores, the Table also shows the decline in the amount of ore mined per employee, which goes down by 15 percent in the same period; the amount of ore mined is, of course, independent of the grade of ore.

Table 3.4: Zambiar Copperbelt: Labour Productivity, 1970-83

	1970-74	1975-80	1982-83
Finished copper produced per employee (tonnes)	13.26	11.26	9.96
Ore mined per employee (tonnes)	648.35	557.67	550.73

Sources: Based on data in Zambia Mining Yearbook, various issues and ZCCM, Annual Report 1983

3.11 An additional problem which has affected the performance of the copper sector is transportation, both in terms of the exports of copper and of the import of inputs and spare parts. While the origins of the problem go as far back as the Rhodesian UDI of 1965, in its present form it stems from the closure in 1975 of the Benguela railway to the port of Lobito as a result of the civil war in Angola. The Benguela route handled most of Zambia's exports and imports. Its place was taken by the Tanzania-Zambia Railways (TAZARA) to Dar es Salaam, but the operation of the latter has been continuously hampered by shortages of equipment and spares and maintenance problems, as well as by inadequate facilities in the port. At present the TAZARA route is supplemented by the road route to Dar es Salaam and by the railway to East London via Zimbabwe. The latter two, however, are considerably more expensive. In early 1983 stocks of copper held by ZCCM increased by 25,000 tonnes because of reduced exports via Tazara, and the company had to maximize exports via South Africa. The regularization of the export and import routes for the mines is a central issue concerning the mining sector, and is discussed further in the section on Transport and Communications.

3.12 The main by-product of copper production in Zambia is cobalt. Zambia has about 18 percent of known world reserves; Zaire, the largest producer, has 59 percent. Cobalt production in Zambia for the period 1970-83 averaged 2,336 tonnes per year. There was a 50 percent increase in output in 1976-80, a deliberate move on the part of the Zambian companies to take advantage of the spectacular increase in the international price of cobalt, which rose from US$5.58 per pound in 1977 to US$11.53 in 1978 and US$24.58 in 1979. In 1979-80 cobalt sales represented some 11 percent of ZCCM's total sales revenue. By 1981 there were signs of a glut in the market and the price in 1982 fell to US$12.50; in 1983 the price had gone back to 1977 levels in current terms, and cobalt sales were down to 5 percent of total sales revenue.

3.13 The other non-fuel minerals produced in a relatively large scale in Zambia are lead and zinc. As indicated above, the lead and zinc mines of Kabwe with associated leaching, smelting and refinery facilities is run

by ZCCM, which derives between 3.5 and 4 percent of its total sales revenue from lead and zinc sales. Existing reserves are small; at present rates of production, the deposits should be exhausted in about 5 years.

3.14 Zambia has large coal resources, estimated at about 250 million tonnes. The deposits presently being exploited by Maamba Collieries alone have proven reserves of 58 million tonnes, which at current output rates should last for over 48 years. The colliery itself has a rated capacity of 1.2 million tonnes per year of washed coal. Output, however, started in 1972-73 at about 800,000 tonnes and has declined since to 559,000 in 1982-83; i.e., 47 percent of capacity. As a result, the unit cost of producing coal in Maamba is high, and labor productivity is low; the proportion of engineering and administrative to production workers is 2.67 to 1.

3.15 As in the case of copper, some of the fall in output can be imputed to technical factors. Thus, the stripping ratio (the ratio of overburden to coal) which in the early 1970s was 1.5:1 has gone up to 3.3:1 in 1982/83 and to 6.5:1 in April-September 1983. The operation also suffers from design defects in the mine, the beneficiation plant and the aerial ropeway that connects the two. But the lack of foreign exchange and the consequent shortage of inputs and spare parts as well as the neglect of maintenance work have played a major role. In 1982-83 the colliery was allocated 700,000 Kwacha of foreign exchange against requirements of 4 million Kwacha. The allocation for 1983-84 improved, and at mid-year it was averaging about 50 percent of requirements. It would appear that inadequate management techniques and insufficiently trained engineering and technical staff are also important contributing factors to the colliery's inefficiency.

3.16 The demand for coal from the copper mines was significantly higher in absolute terms until 1974 when smelting operations were converted to fuel oil to coincide with the commissioning of the Ndola refinery. The increase in the price of crude oil in the world market made this move uneconomic and the possibility of reconverting some of the smelting operations to coal (or electricity) has been raised. The colliery is currently exporting a small proportion of its output to Zaire and Malawi. It is believed that exports could expand if production increases and the cost goes down.

3.17 The activities of Mindeco Small Mines Limited concentrate in the production of calwhite, feldspar, magnetite and amethyst. The company earns some 100,000 Kwacha in foreign exchange per year, and is allocated about half that amount to cover foreign costs and expenditure.

3.18 There are small private operations in tin, emeralds and gemstones. These are labor intensive operations which are modest net earners of foreign exchange and which are supported by the Ministry of Mines through its Small Mines Development Project.

Objectives and Policies

3.19 GRZ recognizes that in order for the mining sector to optimize its contribution to Zambia's development, and in particular, in order for the sector to become again a net contributor of resources to the rest of the economy, and buy time for the restructuring effort, it is essential that ZCCM remains a financially healthy company, and conducts its affairs in accordance with sound business, financial, industrial and administrative practices. The mandate of ZCCM, under those conditions, is to optimize net foreign exchange earnings, and net contribution to the Government's budget.

3.20 The policies that GRZ wishes to pursue to achieve these objectives may be summarized as follows:

(i) improve the efficiency of ZCCM, its productivity at the mine, at the plant and its central services to reduce costs;

(ii) review and establish capacity and production levels for ZCCM which -- for the short, medium and long-term -- can be justified from an economic, financial and market point of view;

(iii) undertake major replacement and rehabilitation investments for high priority equipment and spares to rehabilitate existing mine and plant facilities;

(iv) introduce a training program to upgrade skills of the technical and supervisory work force;

(v) ensure timely availability of foreign exchange as a necessary ingredient to ZCCM's successful operation;

(vi) undertake technical remedies to rationalize ZCCM's, operations.

3.21 In the last two-three years, significant progress has been made in rationalizing the operations of the mining industry and reducing costs. In May 1981, the merger of the two companies (RCM and NCCM) into ZCCM was accomplished. In 1982/83 ZCCM implemented a program of cost cutting measures, which succeeded in reducing the costs per unit by nearly 8 percent and the pre-tax loss of the company by 28 percent as compared to 1981-82, even though the price of copper in the same period went down 15 percent. The cut was achieved basically by reducing the local labor force from 56,223 to 55,644 and the expatriate employees from 2,572 to 2,032. Further reductions (to 52,211 and 1967, respectively) are envisaged for 1983-84, but the overall cost per unit is expected to go up by some 12 percent in Kwacha of each year. Given that there was a 26 percent devaluation of the Kwacha and that some 46 percent of ZCCM direct costs are in foreign currency, the cost in real terms in 1983-84 will in fact be below that of 1982-83; at the same time, the price of copper is expected to be some 8 percent higher in real terms. It would appear that no further reductions in real costs are likely unless major efforts to improve productivity at the extraction stage are undertaken.

3.22 Productivity improvement is therefore critical. In this regard rather than expanding productive capacity, the fundamental aim of any investment program in the copper sector should concentrate on increasing the utilization of existing capacity and its efficiency by removing the backlog of maintenance, replacement and development and keeping these activities at reasonable levels in the future. ZCCM's present 5-year investment program (1984-88) prepared in early 1983 totals about K 1.1 billion. Of this, 61 percent is budgetted for rehabilitation, 35 percent for major projects, and 4 percent for ancillaries. About half of this is budgeted for on-going projects leaving another half which can directly be adjusted to allow for possible future financing limitations. An investment program of this magnitude will depend heavily on market conditions and on ZCCM's ability to generate internal funds and to borrow to fill the financing gap.

3.23 Details of ZCCM's investment program are presented in Chapter 2 of Volume II of this report. In summary, the major projects include preparation of new blocks for future excavation, modifications of the concentrators and metallurgical plants, and conservation of the tailings leach plant. The replacement and rehabilitation component of the investment program consist of numerous projects to maintain the productive capacity of the existing facilities. Replacement means total replacement of worn and obsolete equipment, while rehabilitation is the rebuilding and replacing of small components of large facilities in order to improve on their efficiency, availability or safety. A first phase of the rehabilitation and replacement component covering the period 1984-86 and costing US$300 million has been appraised by the World Bank and the financing of the bulk of the foreign components is as follows: US$75 million from the World Bank, US$46 million from the EEC and US$27 million from the African Development Bank. The remainder of the replacement and rehabilitation component is expected to be financed by ZCCM itself. However, the principal financial risk facing the rehabilitation program is the possibility of insufficient or untimely availability of internally generated cash for equity financing. Internally generated cash may not materialize mostly because of low copper prices: for example, a drop in copper price of 1 cent/lb would mean a loss in cash generation of about US$10 million a year for ZCCM. To the extent that ZCCM's foreign exchange earnings are already committed to financing operating expenses and to financing ongoing projects, the room for maneuver is fairly limited. Hence, it is important, for the success of the rehabilitation program, that priority investments for which financing has not yet been secured be implemented, even in cases of serious cash shortages for ZCCM, because (i) without them, ZCCM's objectives of increased productivity and economic operations would not be met, and (ii) this would further deteriorate ZCCM's ability to generate cash in the following years. ZCCM has identified 12 projects within its priority rehabiltiation program for which outside financing has not yet been identified and has decided that in order to reduce the risk of their not being implemented for lack of funds of its own, these projects be financed by outside sources along with those financed by the World Bank, the EEC and the ADB. Such projects are presented in Chapter 2 of Volume II of this report.

3.24 Efficiency and productivity increases will also come about through an accelerated training program consisting of:

(i) training of mining engineers at the University of Zambia to increase the number of graduates from 30 per year at present about 50 per year by 1985;

(ii) training of technicians and technologists at the Zambia Institute of Technology (ZIT) to increase the number of students in mining, metallurgy, surveying and ventilation from 30-40 per year at present to 120-150 per year by 1985;

(iii) on-the-job training courses, to support crafts training in existing facilities and catering for training of 120 craftsman per year in electrical and plant fitter trades and 50 welding specialists per year;

(iv) on-the-job training abroad for engineers, technicians and craftsmen, in the form of about 30 fellowships; and

(v) management training courses for supervisory staff from junior supervisors to top management, in supervisory work, financing, budgeting and communications skills, with a particular emphasis on cost reduction.

3.25 The efficient operation of the mining industry is based on ZCCM's ability to make long-term production plans, and the corresponding large development investments. Timely availability of foreign exchange is essential for this as it is for the financing of necessary inputs to produce. In recognition of these facts, GRZ has instituted procedures to ensure that ZCCM receives automatically a proportion of their foreign exchange earnings from mineral exports. In the first six months of 1983, the proportion was 25 percent amounting to over 60 percent of ZCCM's requirements. It is the intention of GRZ to raise the proportion in 1984.

3.26 In order to assist GRZ and ZCCM in translating the broad corporate objectives described in para. 3.20 above into specific production and investment plans, consultants have been engaged to carry out technical and management studies. These studies are well underway. The management studies are reviewing the organization of each of ZCCM's divisions and associate services so as to recommend changes to improve their operations and the information reporting among the divisions and with the head office in Lusaka. The aims of the technical studies are to review and rationalize ZCCM's mining and metallurgical operations, and to introduce technical, accounting, purchasing and other financial practices which would permit further improvement of ZCCM's efficiency.

3.27 The preceding discussions relate mostly to the copper industry. In coal, a rehabilitation program is called for in order to increase capacity utilization of Maamba Colliery. There is the potential for expansion to meet internal demand. At present, the bulk of the demand for coal is accounted for by the copper mines, the fertilizer plant and the cement factory. A study leading to a proposal for a comprehensive rehabilitation

program is currently being carried out by British Mining Consultants Ltd., financed by the World Bank. Negotiations for the financing of the most urgent components of the rehabilitation program are advanced with the African Development Bank. Subject to the recommendations of the consultants study, a project covering the medium and long-term rehabilitation needs of the Colliery will be undertaken. A project profile on this is included in Volume II, Chapter 2.

CHAPTER 4

AGRICULTURE, FISHERIES AND FORESTRY

Introduction

4.1 The agriculture sector is at the centre of GRZ's strategy for economic recovery and restructuring. The majority of Zambians earn their living from agriculture. Zambia is blessed with sufficient resources of land and water to enable agriculture to replace mining as the principal source of economic growth. Agriculture is the only sector that can provide employment for larger numbers of people in the short run and can absorb the population increases projected for in the next twenty years. The subsector with the greatest capacity for expansion, the smallholder (emergent and traditional) farmer, uses little foreign exchange and is not capital intensive.

4.2 At present agriculture contributes less than 13 percent of GDP; for it to become the major source of economic growth, it would have to more than double its present contribution to equal or surpass the mining sector's share. The potential exists for this to occur. Only 16 percent of arable land with reasonable potential is presently cropped annually. Several commodities can be produced efficiently for domestic consumption to replace imports. Some, including beef, coffee, tobacco and confectionary groundnuts, can be produced profitably for export.

4.3 The principal objective of GRZ's policies in agriculture is to create an environment in which commercial, smallholder, cooperative and state farms can operate efficiently and profitably, and investment projects can be implemented successfully.

Background

4.4 It is estimated that Zambia has about 9 million ha of arable land with good to high potential for agricultural purposes, and that only about 1.4 million ha or 16 percent of the potential is utilized. But while the available suitable land is considerable, its utilization is seriously constrained by a number of factors. Although the rainfall tends to be erratic, the climate is generally favorable for a wide range of crops. Maize is by far the predominant crop in terms of volume produced, number of farms, and cropped area; it accounts for over 70 percent of the total value of the marketed agricultural products. The other significant crops are cassava, sorghum, millet, groundnuts, sunflower, cotton, tobacco, sugarcane, paddy rice, soyabean, and a variety of legumes and vegetables.

4.5 The country also has a sizeable number and variety of livestock, notably cattle and poultry. In the areas free of tsetse fly, cattle are a major source of cash income to most of the farmers and offer a substantial potential for animal-draft power. The national cattle herd is estimated at 2.1 million head. Although it has existed for many years, Zambia's dairy industry is still in its infancy and has suffered some setbacks in the recent past. Poultry keeping is widespread throughout the country as nearly all the rural households raise chickens for subsistence,

using no purchased inputs and thus producing a cheap source of animal proteins. There is a fairly well-established commercial poultry industry, centered along the line-of-rail and catering to the urban centres.

4.6 The agricultural sector is predominated by a traditional farming system which is characterized by an extremely low level of productivity. This system entails about 460,000 or about 76 percent of the estimated 600,000 farm households who cultivate an average of slightly less than 2 ha, using family labor and simple hand tools, and producing for subsistence purposes with only occasionally marketable surpluses. Crop yields under this system are very low, averaging, for example, 0.9 tons/ha for maize. On the other extreme, is a small, but highly productive commercial farming system, comprising about 4 percent of the farm households and producing about 40 percent of the value of maize and 55 percent of the other marketed agricultural products, using a full range of inputs, and characterized by high yields, estimated at over 5 tons/ha for maize. This farming system includes about 22,000 medium-scale farmers, cultivating an average of 5 ha, using mostly hired labor, oxen or tractors; and about 700 fully mechanized large-scale farmers, cultivating an average of 60 ha. The extreme dualism has been slightly moderated by the development of smallholder (emergent) farmers, numbering about 125,000 or 20 percent of the farm households, cultivating an average of 3 ha, using mainly hand tools and labor but also oxen and hired tractors, and modest amounts of purchased seasonal inputs, especially fertilizers. These farmers produce for the market, and generally obtain much higher yields compared to traditional farmers, averaging at 2.4 tons/ha for maize. Together with the occasional surpluses from traditional farmers, the market-oriented smallholders account for 60 percent of the value of maize and 45 percent of the other marketed agricultural products.

4.7 Of the estimated 2.1 million head of cattle, 1.8 million is in the hands of the traditional farmers. Although the commercial farmers account for only 0.3 million head or 14 percent of the total herd, they contribute about 37 percent of the total beef production, reflecting a much higher off-take rate than in the traditional farming system. The commercial farmers also account for 71 percent of the 11,000 tons of marketed milk from domestic production.

Sectoral Performance

4.8 Despite various programs and projects during the past twenty years to increase crop and livestock production, the achievements have fallen short of the desired goals. Specifically, both the total and per capita crop production have been on a declining trend, particularly since the mid-1970s. After rising sharply during the 1960s and early 1970s, the volume of marketed maize has fallen about 6 percent annually since 1977; and while the country was a net exporter during 1972-76, it has become a net importer of maize. The overall self-sufficiency ratio for cereals has fallen from 97 percent during 1964-66 to 79 percent during 1979-80. Production of groundnuts and tobacco, the two traditionally major export crops in Zambia, declined during most of the 1970s, at an annual rate of 20 percent and 17 percent, respectively. Export earnings from agricultural crops in recent years amounted to K 12 million, which is virtually the same

as it was during 1964-66, thus indicating a considerable deterioration in real terms. The sector's contribution to diversification of the economy from mining has been minimal, with the agricultural share of real GDP remaining much the same as it was at independence; the slight improvement that has taken place in this respect has been primarily due to a relatively stagnant or declining growth in the other major sectors, rather than to an increase in real agricultural production.

4.9 Neither has the sector made a significant contribution towards raising incomes among the majority of the rural population, or redressing the regional disparities. The average rural income has remained far less than half of the urban income, and this has been a significant factor behind the exodus of people from the rural to urban areas, especially since rural-urban terms of trade have persistently deteriorated. The historically more developed provinces along the line-of-rail continue to account for over 90 percent of the marketed agricultural products, more or less as they did prior to independence.

4.10 The livestock subsector has performed equally poorly. During the post-independence period, the growth of the cattle herd has averaged 2 percent annually while the population increased by over 3 percent, and the offtake rate has stagnated at between 7 percent and 10 percent. Marketed milk from domestic production has fallen steadily from 18,000 tons in 1965 to an average of 11,000 tons during 1978-81, despite heavy investments in state dairy farms. Total domestic milk production, including subsistence production, increased by only 1 percent annually during 1975-81. Although the commercial poultry industry was marked by a phenomenal annual average growth rate of 75 percent for poultry meat and 41 percent for eggs between 1965-75, the growth rate has since decreased considerably to only 12 percent for meat and 3 percent for egg production. Whereas Zambia had a thriving one-day old chick export trade to the neighboring countries, this has declined from the peak of over 1.4 million chicks exported in 1977 to only 0.2 million chicks in recent years.

4.11 It is clear from the preceding discussion that the past performance of smallholder (traditional and emergent) farmers has not been encouraging. Their share of agricultural output declined from 82 percent at independence to only 59 percent in 1982. By contrast commercial farmers increased their share from only about 19 percent to 41 percent during the same period. Nonetheless, GRZ is convinced that the greatest potential for agricultural growth in the long run lies with the smallholders and that policies and programmes directed to relieving the constraints on their productivity should be the main thrust of the country's agricultural strategy. In other words, improving and expanding production by traditional and emergent farmers is the surest way of raising the living standards of the majority of Zambians, ensuring an equitable distribution of income and enhancing regional balance in development.

Factors Constraining Agricultural Growth

4.12 Most analyses agree on the factors that have inhibited agricultural growth and made it difficult for GRZ to achieve its sectoral objectives. Among the factors frequently mentioned are that:

(i) producer incentives were inadequate in the late 1960s and the 1970s; the terms of trade turned against agriculture and reduced real producer prices. Moreover, prices are set uniformly across the country, inhibiting the development of crops in accordance with regional comparative advantage. This has discouraged the production of non-maize crops, such as sorghum, cassava, and millet in the outlying provinces. The uniform pricing policy has also been costly and has required scarce budgetary resources for transportation subsidies. The price fixing methodology is also defective.

(II) inefficiencies in the marketing system have resulted in high marketing costs and the parastatals engaged in the agricultural sector have generally not been efficient. Since independence, more budgetary resources have been allocated to agricultural subsidies to cover operating losses of parastatals than to capital expenditure. One reason for these parastatal and marketing inefficiencies is that there is very little competition in marketing arrangements;

(iii) budgetary allocations to agriculture have been insufficient. The problem of budget underfunding has been severest in respect of recurrent departmental charges (operating costs for materials and services). At the same time, the number of established positions in MAWD has grown, and many millions of Kwacha have been spent on direct capital outlays. The result is that not only has MAWD had fewer supplies and materials to work with but it has spread its operations thinly over a greatly expanded capital base. Consequently, increased public investment has resulted in marginal increases in output, and poor agricultural performance;

(iv) deficient research and technical advisory services have become a major drawback. In particular, there is little readily available information on traditional crop production and farming systems practiced by the smallholder farmer.

(v) requisite production inputs, especially those that have to be imported, are in short supply. The acute shortage of foreign exchange facing the country during the last eight years has seriously impaired the maintenance of agricultural farm machinery. This has contributed to the decline in production since the mid 1970s; and

(vi) the capacity within MAWD to formulate a coherent development strategy, to initiate, monitor and supervise development projects is weak.

Sectoral Objectives, Strategies and Policies

4.13 In the last three years, GRZ has been re-evaluating its agricultural policies and is instituting several reforms to overcome many of the identified policy deficiencies and to meet its sectoral objectives.

Objectives

4.14 The Government's main objectives for the agricultural sector in the next decade are as follows:

(i) to achieve a satisfactory degree of self-sufficiency in the production of major staple foodstuffs, particularly maize, cassava, and sorghum, so that incremental demand can be met by domestic production;

(ii) to expand production of export commodities in order to increase the sector's contribution to the country's balance of payments, with particular initial emphasis on increased production of beef, tobacco, coffee and poultry; and

(iii) to increase production of import-replacing commodities with proven domestic comparative advantage, especially dairy products, poultry products, and vegetable oils and cakes, in order to meet increasing domestic demand for these products.

4.15 The achievement of these objectives would lead to a greater degree of diversification in the economy than hitherto, and would result in the attainment of other national objectives such as generation of rural employment and income distribution. In order to realize these growth and distributional objectives, the Government intends to pursue strategies and policies which are centered on promoting the efficient use of resources and a more active participation by smallholder farmers.

Strategies

4.16 The Government strategy in the agricultural sector is intimately linked to the overall development strategy of the country which emphasizes policy reform, economic diversification, increasing capacity utilization and institution building. The agricultural strategy consists of three elements:

(i) to start the process of policy and institutional reform and investments required to promote smallholder agriculture in the long-run;

(ii) to improve incentives for economically efficient farming, including large-scale farming, via improvements in the setting of producer prices, elimination of subsidies, improvements in the efficiency and effectiveness of marketing, input delivery and credit systems, etc., in the medium-term; and

(iii) to expand the utilization of existing capacity in commercial agriculture by relieving the scarcity of critical imported inputs (e.g., fertilizer, farm machinery, spare parts, and agro-chemicals) and thereby increase market output in the short-run.

The specific reforms in policy and institutions required to provide the requisite incentives for investments in the sector by individual farmers, traders and industrialists are outlined in the following paragraphs, while the public investments proposed to complement and facilitate private and corporate investments in the sector in the next five years are outlined in Volume II, Chapter 3 of this submission. The major thrust of these reforms and investments is to lay the groundwork for sustained and efficient production in the sector as a whole and in smallholder agriculture in particular.

The Reform Program

4.17 GRZ is aware of the need to remove or minimize the above constraints in order to improve growth and efficiency in the sector in the future. The Government has, therefore, embarked on a reform program in key policy and institutional areas involving pricing policy, marketing policy, public investment policy, land tenure policy, the Ministry of Agriculture and Water Development, as well as agricultural parastatals. These are briefly discussed in the following paragraphs.

Pricing Policy and Producer Incentives

4.18 GRZ recognizes that, until three years ago, inappropriate pricing policies were a major constraint on agricultural development, particularly as the past policies led to a persistent worsening of the domestic terms of trade against the rural areas. GRZ has since taken the bold measure of decontrolling all consumer prices except, as far as agriculture is concerned, for maize and wheat products. It has also increased producer prices for all the main commodities to a level which is now well above the world price equivalents. Except for maize, wheat and a few cash crops which are exclusively marketed by parastatals, the official producer prices now constitute floor prices, with the marketing parastatals acting as buyers of last resort. In addition, several non-price incentives have been instituted by reducing the tax rate on farm incomes, allowing rapidly accelerated depreciation for farm machinery, and providing payment in foreign exchange to those who produce above a set target for the major food crops.

4.19 These measures have had some effect on increasing the cropped area. Unfortunately, this has not led to increased production partly due to recurrent droughts during the past three years, and shortages of key inputs such as farm machinery and spare parts arising from the foreign exchange shortage. GRZ is committed to maintaining producer prices in real terms so as to avoid a decline in production and will keep the matter under active review in order to carry out any warranted adjustments.

4.20 Hand in hand with producer prices, the GRZ has been increasing consumer prices of the controlled commodities. Between January 1982 and May 1983, the price of the high grade maize (breakfast) meal was increased by about 120 percent from K 13.26 to K 29.15 per 50 kg while the price of low grade (roller) meal was increased by about 62 percent from K 10.45 to K 16.90 per 50 kg. This reflects the Government's commitment to eliminate subsidies which have placed a heavy burden on the Government's finances and worked to the detriment of agricultural production.

4.21 Although justified to some extent from the social point of view, GRZ is aware that its policy of uniform prices throughout the country, irrespective of widely varying transport and other costs, is inconsistent with efficient use of resources; and that this policy cannot be continued if subsidies are to be eliminated. The Government, therefore, accepts the principle of regionally differentiated prices as the only way of ensuring a more efficient utilization of resources in accordance with the varying regional comparative advantages. To this end, GRZ is carrying out a study of the structure of marketing costs, relating to the cooperatives and Namboard, for the purpose of determining the margins that should be allowed to these agencies to enable them to cover all their costs within a regionally differentiated price structure. The findings of the study will be implemented promptly.

4.22 In the past, GRZ has exclusively focussed on domestic cost of production as the basis for determining producer and consumer prices, and is aware of the deficiencies arising from such a methodology, particularly as it fails to adequately reflect the opportunity costs facing the country in the light of world commodity prices. GRZ, through the Planning Division of MAWD, has initiated action to establish a more appropriate pricing methodology, and also to help in policy decisions regarding the emphasis to be placed on the various farming systems (large and medium-scale, emergent and traditional farmers, and state farms) with a view to ensuring a more efficient use of scarce foreign exchange resources. The prices so derived would support the system of floor and ceiling prices, with the marketing parastatals serving as buyers and sellers of last resort.

4.23 Although GRZ will continue to control consumer prices of maize and wheat products, it appreciates that the case of wheat products is not as strong as that of maize, given that the consumption of wheat products is not critical to the majority of Zambians living in the rural areas. On the other hand, in view of the fact that domestic production is highly inelastic relative to price, and given the need to control wheat imports in the interest of conserving foreign exchange, the Government considers it necessary to continue price control on wheat products. This will also prevent prices from rising to include an inordinate proportion of "scarcity rent". Nonetheless, GRZ is concerned that the prices of both wheat bread and flour have remained relatively stagnant over the past several years, thereby making these commodities comparatively cheaper than the other available cereals and artificially stimulating consumption and imports. GRZ also recognizes the need to ensure that the recent readjustments of the domestic currency does not lead to a situation where the wheat industry operates at losses or requires budgetary subsidies. Partly for these reasons, GRZ intends to pursue a policy of economic pricing to ensure full

cost recovery and is in the process of reviewing the situation for the purpose of adjusting the prices of wheat products to a level consistent with this policy.

Marketing Policy and Operational Efficiency

4.24 Being land-locked and far from the sea, Zambia faces high transport costs for its exports and imports. The situation is made worse by the fact that the volume of imports considerably exceeds that of exports, thus precluding the economics of a two-way full load transport. This severely constrains the potential for increased production of agricultural exports, except for a few commodities such as tobacco and confectionary groundnuts which have a high value relative to volume.

4.25 Although internal transport infrastructure is comparatively well developed by African standards, the vast size of the country (the combined size of France and Germany), coupled with sparsely and widely scattered population and a limited and poorly maintained fleet of vehicles, result in internal transport costs that are very high and constitutes a major constraint on agricultural development especially in the areas located away from the line-of-rail. This is particularly serious for the bulky commodities, such as maize, for which transport costs amount to over 40 percent of the retail price. Thus, although the demand for agricultural products has been increasing rapidly, the supply response among the farmers off the line-of-rail who make up the majority of the farm households has been severely constrained by the high transport costs.

4.26 The high transport costs dictate that, from the economic efficiency point of view, most of the marketed agricultural surpluses have to be produced close to the main consuming centers along the line-of-rail. Consequently, the large majority of Zambian farmers, located as they are away from the line-of-rail and producing mostly bulky commodities, have a limited opportunity to benefit from the available markets. GRZ has in the past sought to remove this constraint by wholly subsidizing the transport costs through a country-wide uniform price structure. Due to the economic and financial crisis facing the country now and in the foreseeable future, these subsidies can no longer be sustained. Accordingly, GRZ has been compelled to gradually scale down the amount of subsidies to the marketing agencies, with a view to eliminating them eventually.

4.27 Without improved efficiency in the operations of the marketing agencies, the removal of subsidies could impose a heavy burden on both producers and consumers.

4.28 The principal marketing agencies, of which Namboard and the Provincial Cooperative Unions are the most important, have been running at heavy losses partly because of the past inappropriate pricing policy but equally so because of internal inefficiencies stemming primarily from poor financial and operational management; for example, Namboard's deficits rose sharply from an average of K 19.2 million during 1970-74 to K 85.7 million during 1980-82. To a significant extent, the poor performance of Namboard has been due to over-expansion with regard to commodities and areas it covered which precluded economies associated with specialization. The

shortage of appropriately qualified and experienced manpower has also been a major contributory factor to the poor performance of the parastatals in general and cooperatives in particular. Furthermore, dependence on virtually assured budgetary subsidies has had the effect of making these agencies less conscious of the cost-and-return imperatives, thus diluting their commitment to cost reducing practices.

4.29 GRZ has already taken various measures to increase the efficiency of the principal agricultural marketing agencies. In addition to decontrolling prices and changing the price structure of the controlled goods to enable the marketing agencies cover a greater part of their costs, such measures have including transfering most of its formerly diverse functions (such as handling of horticultural products, seed and farm machinery) to specialized agencies, and more recently, giving all intra-provincial distribution of maize and fertilizer to the Provincial Cooperative Unions. As a result, Namboard managed to reduce its staff from 6,000 in 1979 to about 2,000 in 1983, and its deficits from about K 110 million in 1980 to K 84 million in 1982.

4.30 GRZ is fully aware that many of the Cooperative Unions are still weak and is continuing to take advantage of bilateral technical assistance to strengthen them through a broad-based training program of their members and officials, not only with regard to the cooperative principles and philosophy, but also with regard to sound business practices. The proposed regionally differentiated price structure will allow the cooperatives to cover all their costs. Furthermore, GRZ is in the process of instituting measures aimed at increasing the degree of competition in the agricultural marketing and input distribution systems and allow farmers a wider freedom of choice regarding the channels through which they market their produce and obtain their production inputs.

4.31 Unlike many other African countries, Zambia has not gone so far as to discourage or exclude wholly private traders in the marketing of agricultural commodities and distribution of farm inputs. The private sector plays a major role with regard to the marketing of cassava, millet, sorghum, rice, sunflower seeds, soyabeans, various livestock products, and fruits and vegetables. Similarly, private enterprise predominates in the distribution of agro-chemicals other than fertilizers, and farm machinery and implements. Although a transport parastatal exists, Namboard and the cooperatives are not bound to use its services unless its charges are at least equal to what private transporters charge.

4.32 As a first step towards liberalizing maize marketing, GRZ intends to allow cooperatives to buy and sell maize across provincial boundaries. The ultimate objective is to evolve a degree of healthy competition by allowing participation by private traders, subject to the institution of a workable mechanism to guard against hoarding, smuggling and the likely exploitation of scarcity situations by individuals, for personal gain at the expense of society as a whole. To this end, a study would be undertaken within the next eighteen months to determine (i) appropriate ways of promoting a broad-based participation of the private sector in the marketing of maize and distribution of fertilizers; (ii) ways and means of increasing marketing efficiency among cooperatives and Namboard; (iii)

policy guidelines for the management of a national grain food reserve; and (iv) the appropriate mechanisms for public interventions to ensure stable prices and market expectations, and adequate returns to producers.

4.33 GRZ is also aware that further measures are needed to strengthen the cooperatives, particularly now that they have had to assume greater responsibilities from Namboard. Such measures should include improved management and financial control through training of the cooperative officials, intensified supervision by the Ministry of Cooperatives, and the institution of timely management information systems with special reference to financial management and control. GRZ is seeking technical assistance to this end.

Sectoral Resource Allocations

4.34 Budgetary allocations to the agricultural sector during the last decade averaged about 3.1 percent of the total annual Government expenditure, and grew at a rate less than the rate of inflation, thus leading to a decline in real terms of about 1.3 percent annually. The underfunding of the sector is especially reflected in a widening imbalance between personnel emoluments, covering salaries and related costs, and recurrent departmental charges, covering material and logistic support (such as travel allowances and vehicle operating costs). As a proportion of the total budget of MAWD, the latter outlays declined from 26 percent in 1970 to only 9 percent in recent years and have been declining in real terms whereas personnel emoluments have been growing at about 4 percent annually. The Government has increasingly become aware that this situation has progressively resulted in under-utilization of MAWD's manpower resources, and to a substantial curtailment of research and technical advisory services to the farmers and fishermen. It has also led to a decline in personnel morale and productivity as most of the staff have been increasingly compelled to work with less and less materials and logistic support.

4.35 GRZ is committed to increasing budgetary resources to the sector in real terms and to redressing the imbalance between personnel emoluments and recurrent departmental charges. A major step has already been taken under the 1984 budget, with the increased allocation to the sector as a percentage of the total Government expenditures from 8.7 percent in 1983 to 9.1 percent by increasing departmental charges by 33 percent. A large part of the agricultural budget has in the past consisted of subsidies on maize and fertilizer and to cover deficits incurred by the various parastatals. More resources will be directed to productive uses within the agricultural sector as savings are realized from the reduction in subsidies.

Research and Technical Advisory Services

4.36 The Ministry of Agriculture and Water Development (MAWD) is responsible for agricultural research work and the delivery of advisory services to the farming community in the country. Although agricultural research has been going on for many years, the available technological packages are still not sufficiently appropriate for the majority of the farmers consisting of smallholders and traditional farmers; little work has

been done to fit extension recommendations to the farming system prevailing among such farmers. In addition, because of the past underfunding, coupled with shortage of sufficiently qualified personnel, research support to the commercial farmers has deteriorated to the extent that, for example, maize yields have declined and have fallen behind the yields in Zimbabwe. Furthermore, research has been concentrated on the cash crops grown along the line-of-rail, with inadequate attention to the traditional crops such as cassava and millet.

4.37 Lack of sufficiently appropriate research support has had a weakening effect on the extension services because there is hardly any technical message at present which the extension staff can convey to the majority of the smallholders with the confidence that can only come from the availability of technically proven, location-specific and financially rewarding packages. MAWD is now preparing a long-term program to improve both agricultural research and extension services which, among other things, will define ways and means to re-orient these services towards the needs of the smallholders and traditional farmers. On the other hand, there are several ways in which the extension services could be made more effective over the short run. The extension staff are now largely immobile for lack of vehicles, spare parts and fuel mostly because of foreign exchange and budgetary constraints. For example, at present the Department of Agriculture in the Northern Province has only one landrover in working order and only enough fuel to permit the Provincial Agricultural Officer to visit the districts once a month; his subordinate staff have no vehicles. Spare parts and some vehicles are urgently needed for middle and senior staff; motorcycles, bicycles and associated spare parts are similarly required for the extension staff who need to be in contact with the farmers.

Parastatal Operations and Agricultural Credit

4.38 The marketing of agricultural inputs and products and the administration of agricultural credit are largely handled by parastatals and cooperatives. GRZ is concerned about the poor performance of the parastatals, as reflected in the chronic deficits that have characterized their operations, and have had to be covered by subsidies. The annual amount of such subsidies has been rising sharply, partly as a result of an increase in the number of recipient parastatals, but also because of persistently deteriorating efficiency in their operations; these deficits increased from about K 132 million during 1970-73 to K 361 million during 1978-82. Thus, contrary to the original objectives of creating agricultural parastatals to generate financial surpluses for investment within the sector, the parastatals have constituted a big drain on public funds. While several external problems have contributed to the parastatals' inefficiencies, internal deficiencies have also been major factors behind the poor performance.

4.39 On the other hand, the mere abolition of the parastatals would not resolve the problem and, provided efficiency is safeguarded, parastatals have a role to play especially in areas where private enterprise may be hesitant to enter even though social benefits are high. Priority should be placed on improving the efficiency of existing parastatals. To this end, GRZ intends to initiate a major study during 1984, to be followed

by implementation of its findings in 1985-86. The study would cover all the agricultural parastatals including input and credit delivery agencies, and would review their entire operational, organizational and financial policies, objectives and practices. To ensure the effective implementation of the recommendations of the study technical assistance is being sought (Volume II, Chapter 3). GRZ also wishes to introduce computerized accounting systems to improve the financial management among the provincial Cooperative Unions. Some of these Cooperatives handle substantial business transactions ranging up to K 80 million in annual turnover. Closely linked to this is the need to provide general financial accounting services to the primary societies. Pilot exercises are already underway in this regard and additional assistance is needed.

4.40 To some extent, the need for credit is increased by the delayed payment by Namboard and the Provincial Cooperative Unions (PCUs) to the farmers after they have delivered their product to the marketing agencies. These agencies are unable to raise funds from the commercial banking system to finance payment to the farmers without Government guarantee, and are heavily dependent on budgetary subventions. As a result of the financial crisis facing the country, it has become increasingly difficult to obtain the required budgetary funds or Government guarantee in a timely manner. Consequently, delays in paying the farmers have become progressively longer, frequently amounting to six months. This has caused a cash flow problem down the marketing chain, thereby artificially increasing the demand for credit at the farm level. It has also resulted in a disincentive to producers in terms of the opportunity cost of the delayed revenues. Inadequate availability of credit is a constraint particularly on those farmers on the verge of moving into the market economy and who are increasingly becoming dependent on purchased inputs to enable them to realize marketable surpluses.

4.41 At present, the small-scale farmers' credit is provided by the Agricultural Finance Company (AFC), the Cattle Finance Company (CFC) and the Zambia Cooperative Federation Financial Services (ZCFFS), a subsidiary of the Cooperative Federation. ZCFFS now lends about K 4.6 million to 10,000 farmers through group lending schemes; repayment rates have been very high. The agency intends to gradually expand its lending operations, but is handicapped by very limited loanable funds. GRZ seeks assistance to enable this agency to expand its lending program.

4.42 The Zambia Agricultural Development Bank (ZADB) became operational in 1983, with an initial capital of K 18 million. It is expected that this Bank would gradually replace the other two agricultural credit parastatals as it becomes better established organizationally and financially. The poor equity conditions of both AFC and CFC preclude ZADB from strengthening its financial position by taking over their assets. There is need to inject more capital into ZADB to enable it to carry out its objectives. The Government is therefore submitting a request for a project to increase ZADB's financial resources. Technical assistance to strengthen the operations of ZADB has already been requested from EEC and the World Bank. Details of these requests are to be found in Volume II Chapter 3.

Input Supply

4.43 Given the considerable size of the unutilized agricultural land in Zambia, inadequate tillage power is one of the most significant constraints on agriculture as it severely limits the area that a farmer can cultivate in readiness for the optimum planting time. The constraint is made all the more critical by the relatively short rainy season; late planting by even one week may result in a 50 percent reduction in yields. It has a significant adverse effect on the productivity of the market-oriented farmers whose farming system is geared to mechanization either in the form of tractors or ox-drawn implements. Owing to the shortage of foreign exchange, it has not been possible to replace the existing stock of farm machinery and implements or to provide sufficient spare parts for their maintenance. Tractor imports have had to be reduced from an annual average of 840 units during 1970-74 to 490 units during 1975-80 and to an estimated 230 units during 1981-82. The import of essential spare parts have similarly declined to the extent that out of a fleet of 6,000 operable tractor units in the country, only about 2,300 or 38 percent are in reasonable operating condition; the balance lies idle thereby locking up a considerable amount of scarce capital resources in unproductive assets. The shortage of foreign exchange has not only reduced the supply of spare parts but has also increased their demand by reducing the availability of new tractors. The result has been a serious impairment of the productive capacity available to the market-oriented farmers.

4.44 Also, the supply of ox-drawn implements has been declining; for example, all the ox-ploughs this year were sold out early in the season and no spare parts were available. As a result, a considerable proportion of the trained oxen could not be used. The situation is very similar with regard to the supply of the whole range of seasonal inputs, including fertilizer, insecticides and herbicides. The local manufacturers of farm machinery and implements are unable to utilize their installed capacity because of inadequate spare parts and raw materials.

4.45 In the past, GRZ sought to ease this constraint by providing tractor-hire services to the smallholders. However, the charges for these services have until recently been far below the level sufficient to cover full costs, including replacement. In keeping with the policy of economic pricing, GRZ has increased the charges from K 16/hr in 1982 to K 22/hr in 1983. It intends to review the issue periodically to ensure that the charges are maintained at a level to cover full costs. The adequate provision of foreign exchange for farm machinery would have an immediate impact on production by activating unused capacity in terms of already developed land, managerial skills, and technological packages.[1]/ It is recognized that provision of foreign exchange alone is not a sufficient answer to the problem. At present, there are 21 dealers distributing 90 different models of tractors. Some of these models have proven to be unsuited to Zambian conditions. The Government is therefore considering the establishment of a system to reduce the number of makes of tractors

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1 GRZ's request for input support to rehabilitate the agricultural sector is made in Volume II Chapter 3.

imported into the country. Technical assistance is being sought for a study to identify measures to improve purchasing procedures for spare parts and machinery, and also to set up a programme for improving maintenance, and the training of mechanics.

4.46 Government also recognizes the urgent need for improving procurement and distribution systems to ensure that an adequate supply of inputs is available on time. It has made a number of institutional changes with this in mind. For example, Namboard is no longer responsible for the import and distribution of inputs. Agricultural chemicals have been handed over to the private sector. Further changes are under consideration. Fertilizer distribution poses special problems and MAWD has just completed a study of this. Usage appears to be unduly high, partly because some fertilizer is smuggled to neighbouring countries, partly because of wastage estimated at 30 percent due to poor handling and storage and partly because commercial farmers are heavy users of fertilizer. Government has reduced the subsidy and it is therefore expected that both the over-usage and the smuggling will be reduced. On the other hand, the reduction of subsidies means that the smaller farmers may find it difficult to finance fertilizer unless maize prices are increased accordingly. Government has already made the necessary institutional changes, but requests technical assistance under the parastatal efficiency programme.

4.47 The foreign exchange constraint has also had an adverse impact on the operation of agro-processing industries. Cotton production, which has been increasing sharply since 1975, is threatened by inadequate processing capacity. The two existing cotton ginneries have been working three shifts to clear the 1983 harvest of 32 million kgs, but it will not be possible to finish ginning this crop much before the next crop is harvested. As the next crop is expected to be 50 million kgs, the problem will be far worse next year. The normal practice is to run a ginnery for four months a year and to spend the next eight months overhauling it. LINTCO will not be able to do any maintenance this year, so its heavily-worked, eighteen year old ginneries are bound to have major breakdowns. It is likely that 30 million kgs will be left unginned at the end of the season, incurring interest and storage costs and quality losses. New equipment which will increase output by 8 million kgs is now being installed, but there is still an urgent need for another ginnery.

Large-Scale Farming

4.48 While GRZ's strategy focuses mainly on the smallholder as the surest way of raising the living standards of the majority of Zambians, it is the Government's policy to encourage the utilization of all available land. It is in this spirit that the "Operation Food Production Programme" was launched by GRZ in May 1980. As part of the food production programme, two State farms of 20,000 ha, on average, were to be developed in every province. To date, reconnaissance surveys and pre-feasibility studies have been carried out on all the farms. Detailed feasibility studies have been completed for 9 of the 18 farms. A State Farms Planning Committee has been set up and charged with the responsibility of developing pilot farms of about 200 ha each on all farms before GRZ undertakes any massive developments on them. This approach is intended to avoid uneconomic investments.

4.49 The State farms are to be large-scale commercial ventures in joint partnership with private enterprise such that GRZ may not necessarily be the majority shareholder. The farms would aim at attracting foreign capital and management, and would produce whatever crops would be suitable and desirable for domestic and export markets. To this end, GRZ invites private participation, both local and external, in the development and management of these farms. The existing government farms under the Rural Development Corporation are also, as a matter of policy, looking for both financial resources and expertise from private enterprise so as to improve their efficiency.

Land Tenure Policy

4.50 There are two land tenure systems in Zambia. First, there is the customary land tenure, which has served traditional farmers by providing broad, if not strictly equal, access to land for subsistence (food) production. Second, there is the tenure system in state lands which provides long-term leaseholds (up to 99 years). The Government realizes the need for a land tenure system that provides satisfactory and conducive conditions for agricultural development in the future. Although traditional systems of land tenure have generally served the subsistence needs of farms, some problems have arisen in the process of changing from purely subsistence to market-oriented agriculture. Demand has developed for a tenurial regime which meets the needs for security in land and for the credit facilitation required by commercial agriculture. Realizing that commercial production in agriculture will continue to be carried out, in large part by private individuals utilizing their labor and capital, the Government is committed to providing a system of medium and long-term leasehold rights in land which provides incentives for investments in land development by individuals or groups and, at the same time, continues to provide broad access to development opportunities in agriculture to all Zambian farmers. In this respect, it should be pointed out that the Government is currently looking at the land tenure system with a view to making appropriate amendments.

Prospects for Agricultural Irrigation

4.51 Under Zambia's climate and soil conditions, a large range of irrigated crops including wheat, rice, tobacco, coffee, etc. could be grown in the dry season as a second crop if a low-cost stable supply of water is provided. Farming under rainfall conditions has, until now, received priority in agricultural development programmes. However, rainfed agriculture is restricted to one crop per year and to the limited number of crops, such as maize, beans, groundnuts, etc., which can be grown under the unpredictable rainfall conditions.

4.52 GRZ recognizes the medium and long-term potential of irrigation and is developing a strategy to take advantage of this potential. The following principles will govern the strategy:

(i) Small-scale schemes using simple methods and requiring small capital investment will be developed on a self-help basis. Such schemes will concentrate on simple

crops, such as beans and vegetables, mainly for local markets. The main motive for this strategy is to build up irrigation skills in the farming community in order that they eventually adopt more advanced and productive techniques. Rural reconstruction centers might act as focal points from which surrounding villages could learn irrigation techniques by demonstration; and

(ii) Large-scale irrigation schemes will be restricted to the cultivation of some specialized crops such as wheat, sugarcane, rice, fruits, vegetables, etc. Such schemes would largely aim at producing crops for export.

4.53 GRZ has initiated action for the setting-up of an Irrigation Division within the Land Use Service of MAWD as a first step towards a full-fledged department or authority which would take full responsibility for the planning, implementation and operation of irrigation activities and the management of irrigation schemes. GRZ is seeking technical assistance for this purpose.

Storage

4.54 Lack of storage and poor management of storage facilities increases marketing costs and wastes, leading to high consumer and low producer prices. If all-weather storage were available, it is estimated that maize losses could be reduced from the present 5-10 percent to 1-3 percent; also downgrading loss would be eliminated. Furthermore, a study done recently indicated that if sufficient storage was available, the marketing organizations would be able to reduce their costs by half through the optimum utilization of vehicles, the use of backloads and the avoidance of double handling. MAWD is in the process of completing a thorough study of storage needed in Zambia.

Fisheries, Forestry and Wildlife

Fisheries

4.55 Zambia has a sizeable fishery resource base. The major fishing areas are Lakes Tanganyika, Mweru wa-Ntipa, Mweru Luapula, Bangweulu, and Kariba; the Lukanga Swamps, and the Upper Zambezi and Kafue Rivers. Most of the fishing is carried out by some 28,000 artisanal fishermen, using simple fishing boats of which about 3 percent is motorized. These activities are located mainly in the less developed areas of Luapula, Northern Province and the Zambezi Valley. Large-scale commercial fishing is confined to Lake Tanganyika, where a fleet of three steel purse seiners operates. Commercial fishing has also started recently in Lake Kariba. Total production of fish has fluctuated in recent years, but is about 54,000 tons per year on the average. At present, the Department of Fisheries of the Ministry of Agriculture and Water Development (MAWD) is responsible for regulating the industry. It is the Government's intention, however, to transfer the responsibility to a semi-autonomous entity, the Fishery Development Authority (FDA).

4.56 Domestic fishery production appears to have stagnated at about 50,000 to 54,000 tonnes annually, and has failed to capture the market released by import restrictions imposed in 1974. As a result, per capita fish consumption has declined from about 15 kg in 1974 to 8.7 kg at present.

4.57 The fishery subsector shares with agriculture most of the constraints described above. But the subsector is particularly handicapped by marketing problems as most of the fishing camps are inaccessible during a considerable part of the year. In addition, half of the fish catch is dried or smoked usually using inefficient methods. An on-going SIDA/GRZ project to improve roads in the Northern and Luapula Provinces is expected to alleviate this problem.

Forestry

4.58 About 370,000 square km or 50 percent of the land area in Zambia is covered by forest consisting mostly of indigenous trees, only a few of which are commercially exploitable. However, the indigenous forests continue to be the chief source of sawn timber, poles and mining timber, in addition to fuelwood. At present, about 7 million m^3 of fuelwood, equivalent to the output of 135,000 ha, is cut annually, most of which is converted into charcoal. Sawn milling dominates the processing industry, with 15 sawn-milling firms, most of which are quasi-government. Other significant wood-based industries are plywood, paper and pulp, furniture and joinery and matches. The Forest Department of the Ministry of Lands and Natural Resources is responsible for forestry policies, management, research and training.

4.59 The country's forestry resources continue to shrink at the rate of about 135,000 ha per year as population pressure leads to increased exploitation, mostly for fuelwood. The effect has been sharply rising fuel costs particularly for the urban poor who depend on charcoal for fuelwood and whose limited financial sources preclude the use of the available alternative sources of energy. In the case of Lusaka, most of the utilization sources of fuelwood within a radius of 150 km have been depleted and natural regeneration would take 50 to 60 years. To rectify the situation, GRZ proposes to establish an eucalyptus plantation near Lusaka for charcoal production using modern kilns and a project relating to this is submitted for external assistance (Volume 11, Chapter 3).

4.60 GRZ attaches high priority to the development of its forest resources with the objectives of achieving self-sufficiency in timber, sawn wood and wood-based products, complementing acitivities in agriculture and diversifying the economy and broadening its productive base. The Government also recognizes the importance of forests in preventing soil erosion and river silting. To achieve the above objectives, the GRZ has adopted an active programme of protecting and controlling the exploitation of natural forests and since the late 1940s has implemented an afforestation programme aimed at arresting the depletion of natural forests. The afforestation programme was stepped up in the early 1960s with the launching of the industrial plantation programme executed by the then Industrial Plantation Division (IPD) of the Forest Department. Since then about 36,000 ha of

pine and 7,500 ha of eucalyptus have been established in the Copperbelt area (Ndola, Chati, Lamba and Ichimpe) with World Bank assistance. The annual roundwood production potential of these plantations is about 200,000 cu m each of pine and eucalyptus saw logs and 120,000 small logs. However, the actual exploitation levels are much lower this potential because of management problems, inadequately trained and experienced staff and deficiencies in the processing facilities. These problems are being addressed with World Bank and FINNIDA assistance. To help the Government formulate a long-term development strategy for the sub-sector, a study financed by the International Development Association (IDA) is being carried out with primary focus on the following issues: ensuring an adequate supply of fuelwood, the major source of energy for rural and low-income urban dwellers; developing the potential for wood-based industries to utilize existing and future forest resources; delineating the respective roles of the public and private sectors in developing the sector; and improving the efficiency and productivity in existing sawmilling and wood-based manufacturing industries.

Wildlife

4.61 Zambia has 19 national parks covering 8 percent of the country, and 30 game management areas covering a further 24 percent of the country. These are the major attractions for the tourist industry which generated about K 55 million in foreign exchange during 1982, and which employs about 29,000 people.

4.62 The main problem facing the wildlife sub-sector in Zambia is widespread poaching. The elephant population in the Luangwa Valley has halved during the last ten years. Although the Government enacted strong legislation in 1982, implementation has been ineffective largely because the National Parks and Wildlife Service (NPWS), which is responsible for the management of the sub-sector, seriously lacks the means and equipment to ensure satisfactory compliance with the provisions of the legislation. NPWS has only 351 scouts and this number is inadequate to cover the large area of parks and game reserves, particularly as poachers out-number scouts by a wide margin. The problem is made worse by lack of transport (vehicles) and insufficient budgetary funds which have now fallen in real terms to only 9 percent per officer compared to 1975. Most of the staff have to live under difficult conditions with regard to housing and the availability of essential services. It has proven increasingly difficult to maintain the parks because of lack of maintenance equipment, and most of the tourist roads are deteriorating rapidly. The Government is committed to preserving the wildlife resources, but financial constraints do not allow the Government to allocate sufficient funds for this purpose. Accordingly, projects for external assistance are submitted in Volume II, Chapter 3.

CHAPTER 5

INDUSTRY AND ENERGY

Introduction

5.1 Industry has a vital role to play in the diversification strategy for the Zambian economy. This sector has to shift its emphasis towards the development of non-traditional exports and import-competing manufactures. In order for this to occur, an immediate increase in existing capacity utilization is essential in order to bring down production costs and lay a foundation for new investments.

5.2 At the same time, as the agricultural sector expands, the focus of the industrial sector will have to change. In the past, it has been looking towards mining. In the future, it will have to center on supplying inputs to agriculture, intermediate inputs to itself, and wage goods to meet rising rural incomes.

5.3 A major reassessment of policy is being undertaken to strengthen this shift in strategy. Some measures have already been taken to increase the international competitiveness of Zambia's industrial products. This will be supported by a restructuring of tariff policies to reflect priorities and reduce import dependence. At the sectoral level, incentive structures are being changed to adjust the relative prices of labor and capital so as to discourage capital intensity. In addition, most prices have now been decontrolled, the parastatal sector is moving purposefully towards a more commercially-oriented operating framework, and the private sector is being encouraged.

5.4 Zambia's commercial energy demands depends largely on the needs of the copper mining sector. In 1981, copper mining alone consumed (out of the total energy demand in the country) over 74 percent of electricity, 53 percent of coal, 94 percent of fuel oil and about 24 percent of diesel oil; conversely, over 90 percent of the demand of households' energy is provided for by woodfuel (firewood and charcoal).

5.5 Zambia's energy situation has been made more difficult by problems in the mining sector, as well as by inadequate energy planning and policies, coupled with shortages of skilled manpower and management expertise. In other words, the measures that GRZ is taking to deal with the other problems of the economy should have a positive impact on the energy sector.

INDUSTRY

Background and Past Performance

5.6 In the face of growing economic difficulties, the manufacturing sector fared poorly in the latter part of the seventies, and overall manufacturing output declined in real terms by nearly 9 percent between 1974 and 1980. Over the same period, manufacturing investment fell, and while employment in the sector rose by 6 percent from 44,070 to 46,800,

output per person fell. The sector began to improve from 1981, with output increasing by 10.5 percent between 1980 and 1981, but performance fell in 1982, as the foreign exchange crisis worsened. In 1983, responding to Government policies, growth was restored, and manufacturing GDP rose by 6.6 percent and contributed 15 percent to GDP, a higher share than in 1974.

5.7 Industrial and manufacturing activities are divided almost equally between the private sector and the Government sector, the latter being vested in the parastatal companies under the overall umbrella of ZIMCO, and managed through a holding company (INDECO) which reports to ZIMCO. The private sector contributes 44 percent of manufacturing value-added, and accounts for about 45 percent of manufacturing employment.

5.8 The parastatal organizations are concentrated in the food and beverage sector, together with textiles and chemicals. The breweries and maize mills dominate the parastatal foods sector, accounting for some 4,800 employees, while Zambia sugar accounts for a further 6,800 workers. The domination of the private sector in the metal fabrication (and engineering) sector is striking. Although there are exceptions, the private-sector companies are generally smaller and less capital intensive. Of a total of some 540 manufacturing establishments, only 37 (7 percent) are within the INDECO group.

5.9 There are serious problems facing the manufacturing sector. The capital-output ratio for the sector increased from 1.16 to 1.24, between 1975 and 1980, indicating declining capacity utilization and while this pattern has clearly been reversed in recent years in some subsectors, others are still operating well below capacity. In this section, the structure of the manufacturiing sector is examined, and through highlighting the key aspects of capital intensity and import content, clear policy guidelines emerge, which have become the basis of GRZ's strategy in both the short and medium-term.

5.10 The performance of the manufacturing sector is shown in Appendix 1, Table 1. The textiles and garments sector is the only one to show continued real growth since 1975. The "non-traditional" sectors show wide fluctuations from year to year, with chemicals holding a good growth pattern between 1980-81, but falling off in 1982-83. Non-metallic mineral products appear to have suffered badly in 1982/83, and the metal products sector has been consistently weak. Nonetheless, this subsector contributes an unusually high proportion of manufacturing value-added for a developing country, and its strength is a direct spin-off from the mining sector. High levels of skills have been developed over the years in manfuacturing inputs for the mines, and this is an area in which Zambia has some comparative advantage vis-a-vis her neighbors.

5.11 It is clear that the relative strengths of the sectors are inversely linked to their import content. Table 2 in Appendix 1 shows the import content of each manufacturing sector; those with the lowest import-content-food manufacturing, beverages and tobacco, non-metallic mineral products and fabricated metal products have been the most resilient in the difficulties of the past years, and particularly in the face of the immediate foreign exchange crisis.

5.12 In the immediate term, the manufacturing sector is seriously constrained by shortages of foreign exchange for inputs, and capacity utilization across the whole sector is around 60 percent, although again the "non-traditional" sectors are worse hit. Low capacity utilization has a direct impact on unit costs; data from some companies suggests that production costs per unit of output would fall by between 20-30 percent with an increase in capacity utilization from 55 percent to 80 percent.

Table 5.1: AVERAGE CAPACITY UTILIZATION BY SECTOR 1982-83
(Percent)

Sector	Average Capacity Utilization
Food, Beverages and Tobacco	58
Textiles, Garments and Leather	72
Wood and Wood Products	30
Paper and Paper Products	35
Non-metallic Mineral Manufactures	75
Chemicals and Chemical Products	40
Metal Manufactures, Machinery, etc.	50
TOTAL (Average)	58

5.13 Appendix 1, Table 3 shows the relative capital intensity of each manufacturing subsector measured as the value of fixed capital employed per operative, in 1975 and 1980. Overall, capital employed per operative declined by 11 percent. As employment in manufacturing increased by 6 percent over the same period, a decline in investment may be inferred. There has been a de-facto reduction in the relative capital intensity in the sector, which may be due to a fundamental shift in investment and output patterns, towards a more labor-intensive structure. Over the same period, the average capital-output ratio for chemicals, base metals and metal manufactures increased, indicating declining capacity utilization.

5.14 In terms of their capital labor ratios, the least capital-intensive subsectors are food, beverages and tobacco; textiles, wood, and wood products; and metal fabrication, machinery and equipment, with capital employed per employee ranging from K 6,200 to K 15,400. At the other end of the spectrum, the chemicals sector averages K 73,200. Data on the level of investment per job created in the recent past have been discouraging. An anlysis of the INDECO group of companies shows that between 1979/80 and 1982/83 the average cost per job has been K 275,000. This is clearly too high if GRZ's objective of absorbing the growing labor force is to be realized.

Objectives and Strategies

5.15 Given the prevailing circumstance in the industrial sector, GRZ's general strategy for the next few years is to concentrate efforts on strengthening the industries that already exist. This would involve making them qualitatively better in their output and technical performance, more competitive against foreign products, more supportive of other economic sectors and each other, a better training ground for management and skilled manpower, and more efficient in their use of scarce resources -- fixed and working capital, raw materials, foreign exchange, public financial support, etc.

5.16 There are a number of implications of the above strategy. First, the country needs to concentrate on sectors where foreign exchange utilization is the most efficient -- where there is a low import content, or where the import content in other sectors can be consequently reduced, through domestic production of more manufacturing or agricultural inputs. In terms of specific sectors, those that are relatively low import users and/or use domestically produced resources will assume priority -- food processing, wood and wood products and non-metallic mineral products. In addition, the engineering sector (fabricated metal products) has several strengths which are of a strategic importance to Zambia. Firstly, it is the area where the country has some comparative advantage through a developed skilled labor force. Secondly, it can provide intermediate inputs to itself and to other sectors such as agriculture. Thirdly, the development of broadly based engineering skills is central to the efficiency of service sectors such as transport.

5.17 These sectors are consistent with a less capital intensive approach. The development of an engineering sector through small and medium-scale fabricating workshops for example, builds skills far more rapidly than large-scale automated assembly lines.

5.18 As shown in Chapter 4, the future performance of the Zambian economy will depend to a great extent on what happens in agriculture; agriculture has the place of pride in the restructuring effort. In this regard, consumer goods bought by people in agriculture can be considered wage goods, and supplying them in rural areas can almost certainly be regarded as a necessary condition for increasing marketed output from agriculture, at least over a period of years. In this sense, wage goods are producer goods at the same time that they are consumer goods; when commercially distributed, they produce a harvest of farm output as well as direct satisfaction to consumers in agriculture.

5.19 Soap, candles, footwear, metal pots and pans, flashlights, transistor radios, and cotton textile fabrics are examples of wage goods that may be in short supply. A systematic effort would be made to overcome such shortages and to offer a more attractive assortment of goods in rural areas. GRZ recognizes the important role that small-scale industry can play in developing labor-intensive industries to supply wage goods. It has therefore established a Small-Scale Industries Development Organization (SIDO) to give advice to small-scale enterprises, covering such areas as project identification and formulation, preparation of feasibility studies,

procurement of equipment and securing of raw materials and inputs, as well as the identification of investment funds through the banking system.

5.20 An important aspect of GRZ's industrial strategy is to encourage manufactured exports directly. Fundamentally, the potential for exports is limited by Zambia's high cost structure. Improvement in overall manufacturing performance will help to stimulate a better environment for exporting. Some export successes have occurred, for example, in agricultural implements, and there is generally thought to be good export potential in the engineering sector, in industrial inputs (tin cans for example), as well as in textiles and timber.

5.21 In the immediate term, the Government's emphasis is to concentrate on regaining fuller capacity utilization in existing plants since the overall structural changes required in the country cannot be realized without a reversal of the downward spiral of the past years. As existing industry regains its momentum, new investment can develop in sectors consistent with the strategic priorities listed above, supported by a series of policy changes.

5.22 As noted already, the immedite shortages of foreign exchange are creating serious problems for the manufacturing sector. Low capacity utilization has an immediate impact on operating costs. The foreign exchange shortages have both a direct and indirect impact on costs. Often, companies are simply short of raw materials and inputs; but there are knock-on effects to downstream processors. Acute shortages in basic inputs encourge profiteering and shortages of foreign exchange for spare parts has led to the deterioration of plant and equipment - increased downtime from breakdowns is an inevitable consequence - and production costs are again pushed upwards.

5.23 The GRZ considers therefore that an input support program for the industrial sector is of central importance to the economy in order that reasonable levels of capacity utilization may be realized and production costs brought down, thus assisting Zambia's international competitiveness as well as easing the burden of the recession to the consumer.

5.24 In 1983, industrial inputs totalled US$242 million (K 320 million), 35 percent of total imports. In 1984, funds available for industrial inputs are expected to fall to US$211 million -- a decline of 17 percent in real terms. Support for industrial inputs will therefore be necessary simply to maintain existing capacity utilization. Increasing capacity utilization in existing plants is more efficient, and has a more immediate impact on the state of the Zambian economy than investment in new industrial capacity. This program will therefore begin the reversal of Zambia's economic performance and stimulate the industrial sector. Support with an input program of US$75 million in 1984, increasing to US$120 million in 1986 would cause capacity utilization in the sector to rise from 60 percent in 1983 to 75 percent in 1986. Easing the extremely tight bottleneck of foreign exchange shortages will have a further impact on costs through enabling efficient budgeting and ordering of industrial inputs and reducing the opportunity for monopoly profits.

Table 5.2: TARGET CAPACITY UTILIZATION AND INPUT SUPPORT PROGRAM

	1983	1984	1985	1986
Target Capacity Utilization (%)	60 (actual)	68	73	75
Forecast Industrial Imports ($M)	242 (actual)	211	223	249
Required Imports for Target Capacity Utilization ($M)	N/A	286	323	369
Input Support Program ($M)	N/A	75	100	120

NOTES: Inflation of imports assumed at: 1983/84 5 Percent
1984/85 5 Percent
1985/86 10 Percent

5.25 The emphasis on increasing capacity utilization is apparent in the industrial projects which have been identified in Chapter 4, Volume II of this report, for which donor support is requested, for implementtaion during 1984-86. Rehabilitation of existing plants in food processing, timber processing, textiles and in suppliers of industrial inputs such as fertilizers and industrial gases - dominates the expenditure program. New projects are confined to those which can make a major contribution to relieving bottlenecks caused by foreign exchange shortages, such as the proposed small steel re-rolling mill; or which have an immediate payback in foreign exchange terms - such as the industrial veneer manufacturing project which will use domestically available timber to produce presently imported industrial veneers. As industrial vitality is regained, the balance in the expenditure program in industry shifts from input support and rehabilitation to new projects.

Policies

5.26 While donor assistance with an input support program would have an immediate and strong impact on manufacturing activity, GRZ recognizes that in the long run, strengthening the competitiveness of Zambian industry to achieve its objectives would require policies that involve:

(i) economy-wide measures to reduce the disequalibrium between aggregate demand and aggregate supply and encourage efficiency of resource use;

(ii) adjusting incentives relating to the manufacturing of particular products;

(iii) channeling scarce resources (such as credit and foreign exchange) to the more efficient enterprises (efficiency being defined to take social benefits into account);

(iv) using expert consultants to obtain economic and technical evaluations of existing industries and enterprises, then making findings available to managers;

(v) helping with the provision of technical assistance and advice to enterprises needing them;

(vi) fostering, within the parastatal sector, the takeover of weaker firms (and assets of failed firms) by well-managed, efficient firms;

(vii) fostering competition as appropriate between the private and parastatal sectors to promote overall efficiency; and

(viii) providing appropriate incentives to encourage private direct investments.

5.27 Many of the economy-wide measures described in Chapter 2 that GRZ has taken in the last twenty-four months are at the heart of the issues of concern here. The principal ones are those regarding exchange rate policy, tariff policy, foreign exchange allocation and budgeting, export promotion, and price and incomes policy.

Exchange Rate Policy

5.28 A combination of factors have contributed to Zambia's present high cost manufacturing structure. The high exchange rate of the past decade has encouraged a high level of imports and at the same time ensured that Zambian goods are overpriced in export markets. The continuing downward crawl of the Kwacha will help realign the price structure, and this, in conjunction with other measures to reduce the import and capital intensity of Zambian industry, will provide a more favorable climate for exports (see Appendix II).

5.29 At the same time, the declining Kwacha offers increased real protection for domestic industry, which will offset to a large extent the short-term Kwacha cash flow problems which individual companies may face with devaluation. The current steady crawl represents a significant improvement over earlier stop-go exchange rate policies, which can be very disruptive to industry in the short-term.

Tariff Policies

5.30 The country's tariff policy is under review. Until recently, tariffs have afforded very little protection to manufacturers of intermediate goods. At present, after rebates, the only sectors with nominal tariff rates high enough to afford protection to domestic manufacturers are durable and non-durable consumer goods (apart from alcoholic beverages); this is reflected in the mix of industrial output. At the same time, there has been zero duty payable on capital goods, which encouraged the highly capital-intensive structure of industry. (This is partly

because a major part of capital goods are imported under aid programmes.) A 15 percent duty has now been levied on imports of most capital goods. In the 1984 budget, duties have been further increased on a selected list of capital goods.

5.31 GRZ recognizes the need for further tariff reform to reflect the new policy directions and objectives and intends to initiate the necessary studies to determine the changes required. In the meantime, however, certain actions to reduce the disparate effects of the present tariff system could be adopted, e.g., a minimum tariff on all imports. Government intends to take action on this and other similar measures as soon as possible. Once the studies are completed, its results would be reflected in a new tariff structure.

Allocation of Foreign Exchange

5.32 While our ultimate objective is a market-based system of foreign exchange allocation, in the interim period and in order to maximize the benefits from the proposed input support programme, it is essential that the existing mechanism for allocating foreign exchange be rationalized.

5.33 Foreign exchange is allocated through a system of import licenses, which are then submitted to the Bank of Zambia (BOZ) for foreign exchange cover. The BOZ budget forecasts of foreign exchange availability are becoming increasingly reliable, providing a sounder basis for allocation of import licenses. Responsibility for the allocation of these licenses lies with the Ministry of Commerce and Industry. The industrial sector, both private and parastatal, has an important advisory role in this process through a series of sectoral subcommittees on which it is represented. This representation helps to ensure that those receiving import licenses are indeed bona fide companies with bona fide needs. Recognizing the importance of an efficient allocation mechanism in the context of the input support program, further improvements are being initiated by the Government.

5.34 The essential complementarity between the Bank of Zambia (BOZ) and the Ministry of Commerce and Industry (MCI) in the allocation mechanism is recognized, with the BOZ being ultimately responsible for the preparation of foreign exchange budgets and the administration of funds, while the MCI is best placed to ensure that allocations follow the criteria that have been identified. The relation between the allocation of import licenses and the provision of foreign exchange funding will be streamlined, to ensure that each license issued is immediately backed by letters of credit (or funds from credit lines). Hitherto, the whole procedure from submission of an application for an import license to receipt of letters of credit has taken between 6 to 12 weeks. This has had a detrimental effect on costs, importers have discounted the time lag and often requested excess foreign exchange, and the system encouraged stockpiling and hoarding.

5.35 The introduction of regular rolling budgets for the allocation of foreign exchange will enable importers to take advantage of bulk buying and discounts, i.e., for such basic commodities as steel. This will enable

certain commodities such as tin plate or rubber to be sourced from the cheapest supplier, even if the delivery time is several weeks, instead of being bought at short notice from brokers whose prices may be substantially higher.

Investment Criteria

5.36 Although GRZ's strategy for the next few years focuses on strengthening existing industries, it is not meant to rule out entirely investments in new industries or manufacturing of new products. However, the underlying drive to increase efficiency and competitiveness of Zambia's industry would logically lead to a requirement that new projects, to be acceptable, would have to yield quite high rates of return, taking into account shadow prices and the opportunity cost of the resources required.

5.37 It is for this reason that GRZ wishes to develop an enhanced capability within ZIMCO for the analysis and appraisal of operations, projects and investments. The objectives are three: first, to avoid future uneconomic investments; second, to identify existing plants that are operating uneconomically and third, to encourage economic pricing. Consultants will soon be engaged to work with personnel of ZIMCO in elaborating the relevant concepts and in training local staff.

Pricing Policy

5.38 In Chapter 2, it was stated that GRZ's policy of price control at the wholesale and retail levels, which was intended to protect consumers from exploitation, had led to economic consequences far beyond what was intended. Three shortcomings of price controls and the related process of fixing parastatal prices should be mentioned:

(i) in the past, parastatal companies themselves first had to decide on the price, following which INDECO and the ZIMCO Board had to accept the proposals, and then the Ministry of Commerce and Industry had to agree. The Cabinet, in some cases, finally decided what price should be charged. This often led to considerable delays in adjusting prices for cost changes, which imposed a real financial burden on the companies until the new prices were approved.

(ii) often the approved prices did not cover costs, and the INDECO companies made losses. Low prices were a contributory factor to the liquidity problems of parastatal companies, and investments and other activities were held back as they could not be financed internally; and

(iii) the existence of price controls compounded the natural transport problems of supplying the rural areas. Goods with controlled prices and low value/weight ratios could not be transported from

the line of rail and sold at reasonable profit. Hence, there are frequent shortages of basic products (or wage goods) such as salt, flour, cooking oil, soap, etc, in these areas.

5.39 The decontrol of prices announced in December 1982 was a major step towards solving these problems and already is having a positive impact. In particular, the profitability of INDECO companies has improved significantly. GRZ is committed to charging economic prices, and the decontrol of prices therefore is one of the more important policy measures in favor of economic restructuring.

Export Promotion

5.40 The steps that have been taken by GRZ to provide incentives for exports, particularly those of manufactured goods, were described in Chapter 2. The major step was the introduction of a 50 percent retention scheme for export earnings in foreign exchange. With demand for foreign exchange heavily in excess of supply, this is the most telling incentive available. Under a new proposal developed by the Bank of Zambia, exporters will have automatic access to their foreign exchange receipts through their commercial banks for a period of up to three weeks of the foreign exchange funds being credited.

5.41 GRZ is aware that the present system of export licensing is cumbersome and long-winded, and acts as a disincentive to would-be exporters. GRZ is considering modification of the present system to reduce the licensing of exports to a limited number of "essential goods", while establishing a general system of export registration for purposes of determining eligibility for export incentives, regulating foreign exchange transactions and gathering statistics. It is our intention to promote exports by giving manufacturers an incentive to maintain and increase exports of competitive items, and indeed to produce at competitive prices. The present revitalization of the Export Promotion Board is a move in the right direction as is the proposal to set up Export Revolving Fund (see para. 2.36).

Industrial Development Act

5.42 The Government is aware that the incentives available under the Industrial Development Act for industrial investment have been rather too broadly defined, with an over-emphasis on incentives to capital. A clearer relationship between the Act and priorities within the sector is required and thus the criteria for eligibility for incentives under the Act need to be simplified. A preliminary list of criteria would cover:

- agro-processing and small/medium-scale industries located in rural areas;
- export enterprises, regardless of location; and
- "priority enterprises," to be defined. These will emphasize low import content and capital intensive products.

5.43 Duty-free imports of capital goods, tax allowances, and accelerated depreciation of capital assets will no longer be available automatically. Tariffs will be payable on most industrial inputs and raw materials to provide protection for domestic manufacturers and to encourage the use of domestic inputs.

5.44 The availability of incentives will also be clearly tied to specific criteria, such as cost per job created. GRZ is considering the introduction of employment incentives related to the number of jobs created by an investment and inversely proportional to investment cost per job. The reformulation of the Act will take into account the fact that across the board subsidies to all industries in rural areas is likely to encourage capital intensity and the establishment of unprofitable enterprise. Similarly, across the board subsidies on the use of domestic inputs may encourage inefficiencies. Domestic costs are indeed high, but maintenance of an appropriate exchange rate and improvements in tariff policy should help to redress the imbalance between Kwacha costs of imports and domestic raw materials.

5.45 Above all, incentives will only be applied to enterprises which can show sound economic viability. In particular, the foreign exchange implications of either new enterprises or expansions will be examined carefully, and where the project is concerned with domestic manufacturing of a presently imported product, it must be an import-competing project, not merely an import-substituting one.

The Role of the Public Sector

5.46 In line with other measures to stimulate the industrial sector, GRZ is anxious to ensure that the parastatal sector improves its overall efficiency, and that there is a complementarity between the public and private sectors. Details have been given in Chapter 2 of efforts that are underway to improve the efficiency of the ZIMCO Group, including the industrial enterprises under its subsidiary, INDECO.

5.47 There are two main roles for the parastatal sector within the context of contemporary Zambia; firstly to maintain control over certain strategic industries, and secondly to provide a sound counter-balance to the private sector. Within the present INDECO holdings, those that can reasonably be described as strategic are:

- basic food supplies - cooking oil, maize meal, and sugar;
- explosives for the mines; and
- possibly fertilizer supply and distribution.

Because of their socio-political importance, it is likely that these sectors may be subject to external controls which may conflict with financial objectives. This does not prevent factories from operating to basic efficiency criteria - for example, careful cost control, target yields, and outputs.

5.48 In all the "non-strategic" sectors, the parastatals face -- or could face -- competition from the private sector. The key role for INDECO companies here is to act as a countervailing force in the market, setting price, peformance, and quality standards. The introduction of a more rigorously commercial environment lays the foundation for this more constructive role. The Government recognizes that implicit in this objective is the willingness of INDECO to allow fundamentally weak companies to cease trading. Maintaining inefficient firms in the long-term unnecessarily ties up resources that could be used to earn a higher economic rate of return elsewhere in the economy.

5.49 The need for complementarity with the private sector is also recognized, as there is no sense in pursuing a competitive role for the sake of it - when the unit size of plant or other reasons make competition impossible. There is room for parastatals to draw on some of the positive contributions that the private sector can make; for example, private sector management has had a longer history for working in a strong commercial environment than have the parastatals, and present attempts to move into joint ventures with private sector companies can help the state sector in its present transition.

ENERGY

Background

5.50 Zambia consumes some 4.5 million tonnes of oil equivalent (TOE) of energy per year, provided by the following sources.

Table 5.3: ENERGY DEMAND BY SOURCES
(Percent)

Petroleum	16.5
Coke	1.3
Hydro-electricity	30.4
Coal	6.1
Charcoal, Firewood and Bagasse	45.7
TOTAL	100.0

Source: World Bank Report No. 4110-ZA

The bulk of the country's commercial energy demand comes from the copper mining sector; conversely, over 90 percent of the demand of households is provided for by wood fuel (firewood and charcoal)(Table 5.4).

Table 5.4: SECTORAL PATTERN OF ENERGY CONSUMPTION
(Percent)

Sector	Petroleum	Coal	Electricity	Woodfuels
Mining	37	52	74	6
Industry	18	48	18	-
Transport	35	-	-	-
Agriculture	1	-	-	-
Others (Households)	9	-	8	94
TOTAL	100	100	100	100

Sources: As in Table 5.3. The figures for petroleum consumption in agriculture includes only direct supplies to commercial farmers. Total agricultural consumption might be 3-4 percent of petroleum demand.

Prior to 1974, the copper mines used coal for smelting and heat generation. With the commissioning of the petroleum refinery in that year the mining companies agreed to substitute fuel oil for coal provided the price was subsidized.

5.51 Zambia is self-sufficient in hydropower, coal, and wood fuel at present levels of consumption, and exports about one-third of its electricity output to Zimbabwe. On the other hand, it produces no crude oil and has no known petroleum deposits, although the possibility of discoveries is not excluded. A prospecting survey is currently underway.

5.52 Electricity is produced by the Zambia Electricity Supply Corporation (ZESCO), a wholly-owned ZIMCO subsidiary, and by the Central African Power Corporation (CAPCO), a joint venture between the governments of Zambia and Zimbabwe, which owns and operates the Kariba hydropower complex. The portion of CAPCO's output required in Zambia is distributed by CAPCO to ZESCO, which in turn refunds half of the cost of operating the Kariba complex and the whole of the cost of distribution in Zambia. CAPCO also distributes the Zimbabwe share and is responsible for exports from Zambia to Zimbabwe. The total installed capacity in hydropower in Zambia is some 20 percent above current consumption; both local use and exports can therefore be expanded without additional investments.

Energy Sector Issues

5.53 As indicated already, Zambia produces no crude oil. Crude imports are handled by major international companies, shipped from the Persian Gulf to Dar es Salaam and transported to the refinery in Ndola by the Tazama pipeline. Tazama Pipelines Limited is jointly owned by the governments of Zambia (66.6 percent) and Tanzania (33.3 percent). The refining is done at the Ndola refinery of the INDENI Petroleum Refinery

Company, owned by ZIMCO and AGIP (Italy) in equal shares. The storage of refined products is done by the Ndola Oil Storage Company (NOSCO), a ZIMCO subsidiary, which also handles the wholesale trade. Retail sales are done by local subsidiaries of five international oil marketing companies.

5.54 The basic issue concerning the refinery has to do with the fall in overall petroleum consumption in the country and the change in demand mix following the 1973-74 increase in international petroleum prices. As a result, the refinery capacity is underutilized, the cost of production is very high, and the refinery's own fuel use is twice as high as comparable operations elsewhere. It is unlikely that total consumption and/or the demand mix will go back to pre-1973 levels; in fact, it is government policy to reduce the consumption of fuel oil in the Zambian economy. At present, fuel oil is a major component (20 percent) of the design yield of the refinery, which furthermore does not have conversion units to alter the product yield pattern. In the context of the policy of substituting coal and electricity for fuel oil that will be discussed below, there is the need for modification of the refinery, and the first stage of a World Bank-financed study to specify the project has been completed.

5.55 The main problem currently affecting the power sector is the high level of distribution losses due to inadequate maintenance. This, in turn, is due to foreign exchange shortages, skilled manpower problems and, to a lesser extent, shortage of Kwacha funds due to sub-economic pricing (notably to the mining sectors).

5.56 The government is strongly committed to a program of rural electrification comprising two elements:

(i) connecting areas now served by isolated diesel generating units to the national grid; and

(ii) extension of electricity to new areas, either by inter-connection or through local production in hydropower plants or diesel generating stations.

5.57 The situation of the Maamba Colliery was discussed in the Chapter on Mining. Here it should only be added that if increased consumption of coal in the copper mines is to take place, an improvement of the railway link between Maamba and Ndola is necessary (see Chapter 6 on Transport and Communications.

5.58 The supply of wood fuel is basically adequate, but the efficiency of charcoal production and use could be substantially improved. The issue of fuelwood reforestation in the vicinity of urban concentration areas is touched on in Chapter 4.

5.59 Currently, energy pricing is government controlled, attempting to serve overall policy objectives through cross-subsidization. Thus, in 1982-83 the price of fuel oil ex-NOSCO was about 2/3 of import parity, while that of gasoline to consumers was 2.75 times import parity plus distribution expenses. Diesel oil prices to consumers were 83 percent higher, and kerosene prices about 20 percent higher. In the case of coal, the selling price and the cost per ton for 1981-83 are shown in Table 5.5.

Table 5.5: MAAMBA COLLIERIES: SELLING PRICE AND COST OF COAL 1981-83
(Kwacha per ton)

	1981-82	1982-83	April - September 1983
Cost	40.14	40.65	49.76
Price	35.33	37.86	45.17

Sources: ZIMCO, Group Annual Review, 1982-83 and Group Half-Yearly Review, 1983-84.

5.60 In the case of electricity, ZESCO sells power to the copper mines at about 60 percent of the actual cost. In both the coal and the electricity cases, it should be remembered that cost has increased due to inefficiencies, and that rehabilitation work will in all likelihood reduce the cost per unit in real terms.

5.61 A comprehensive study of energy pricing should be undertaken with a view to eliminating distortions which run contrary to the basic aims of energy policy as defined below. One such study for electricity tariffs has been commissioned to Electricite' de France, but lack of foreign exchange has delayed its implementation.

Objectives and Policies

5.62 The Government objectives in the area of energy are as follows:

(i) to maximize the use of locally produced sources of energy and therefore to minimize imports and foreign exchange expenditure;

(ii) to expand possibilities of exports, notably in electricity and coal;

(iii) to extend electricity to the rural areas;

(iv) to improve the efficiency in the production of household fuels (charcoal and firewood);

(v) to maximize the efficiency in the use of energy generally; and

(vi) to develop new sources of renewable energy, such as solar.

5.63 The policies aimed at serving the above objectives are the following:

(i) to encourage the substitution of coal and electricity for imported liquid fuel. In the case

of the copper mines, implementation of this policy is dependent on rehabilitation of the colliery, the improvement of the transportation system for coal, and the modification of the refinery, all of which might take 3-5 years to complete; however, work should proceed now on establishing the feasibility of this option;

(ii) to improve efficiency in the operation of the petroleum refinery by modifying the refinery to reduce fuel oil production;

(iii) to improve efficiency and reliability in power transmission and distribution through rehabilitation and improved maintenance and through reinforcement and power augmentation in cases of demand overload;

(iv) to rehabilitate the colliery so as to expand production and reduce costs;

(v) to review the pricing policy to make it serve the objectives specified above. This will probably entail a reduction in subsidies and cross-subsidization, and relative prices will probably move closer to the international levels. The fundamental aim of the review must be to serve the energy policy objectives described above and not **per se** to bring internal prices closer to relative import parity costs.

(vi) to continue implementation of the rural electrification programme, but in conditions compatible with available resources and with economic efficiency. It is intended to commission a series of studies on how to carry out the programme to fulfill these objectives and funds are being sought to finance the studies; and

(vii) to improve traditional charcoal production methods as well as the efficiency in charcoal use. Government-financed projects are underway at the University of Zambia and the Forest Products Research Division on improved steel kilns and on clay-lined charcoal stoves.

5.64 GRZ's priority investment needs (defined to include rehabilitation and maintenance) in the energy sector are contained in Volume II, Chapter 5. The principal ones are: implementation of a modification program for the INDENI Refinery, rural electrification program, and rehabilitation and improved maintenance of the electricity transmission and distribution system.

Table 1: Performance in Manufacturing Industry
(Growth Rates, Percent Per Annum)

	1975-80	1980-81	1981-82	1982-83
Food	0.75	9.15	-5.00	15.60
Beverage & Tobacco	1.83	15.10	-3.00	7.60
Textiles & Wearing Apparel	11.90	12.50	4.75	0.30
Wood & Wood Products	-6.40	34.80	-11.30	-30.90
Paper & Paper Products (Including Printing)	-6.80	-5.00	0	71.10
Chemicals & Chemical Products	-30.40	-15.00	24.15	-0.60
Non-Metalic Mineral Products	4.20	19.80	-1.90	-28.70
Basic Metal Products) Fabricated Metal Products) Machinery & Equipment)	-4.12	-16.00	3.80	-1.20
Others	-10.60	0.00	-25.00	0.00
Total Manufacturing	0.66	10.50	3.90	6.65

Source: CSO, Monthly Digest of Statistics.

Table 2: IMPORT CONTENT BY MANUFACTURING SUBSECTOR, 1975

	Direct Import	Indirect Imports	Total Import Content	Total Inputs	Imports as % of Inputs	Units of VA Per Unit FX
Food Manufacturing	0.099	0.122	0.221	0.824	26.8	0.9
Beverages & Tobacco	0.035	0.042	0.077	0.326	23.6	8.9
Textiles & Wearing Apparel	0.446	0.084	0.530	0.709	74.8	0.6
Wood & Wood Products	0.130	0.206	0.336	0.705	47.7	1.0
Paper & Paper Products	0.356	0.125	0.481	0.741	64.9	0.6
Chemical & Chemical Products	0.570	0.091	0.666	0.806	82.0	0.3
Non-Metallic Mineral Products	0.020	0.061	0.081	0.676	12.0	4.1
Basic Metal Products	0.502	0.003	0.505	0.593	85.2	0.8
Fabricated Metal Products	0.105	0.387	0.492	0.807	61.0	0.6
Other Manufacturing n.e.s.	0.389	0.043	0.432	0.643	67.2	0.9

Source: Input/Output Tables 1975.

Table 3: CAPITAL INTENSITY IN MANUFACTURING INDUSTRY
(Kwacha - Constant 1983 Prices)
Capital Employed Per Operative

	1975	1980	% Change
Food	15715	12810	-18.5
Beverages & Tobacco	22975	15430	-33.0
Textiles & Garments	6210	6210	-
Wood & Wood Products		9115	-
Paper & Paper Products	11945	8145	-31.8
Chemicals - Basic	73265	318795	335.0
Chemical Products	18970	9375	-51.0
Petroleum & Coal	218255	47600	-78.0
Rubber Products	16975	10135	-40.0
Plastics)	25070	32480	29.0
Chemicals & Chemical Products)			
Non-Metallic Mineral Manufactures	53800	28420	-47.0
Base Metals	15875	7860	-50.0
Metal Products & Machinery	10790	10000	-7.3
Other	5240	19985	281.0
All Manufacturing	21115	18755	-11.0

Source: CIP, 1975, 1980: Central Statistical Office.

Measuring the Competitiveness of Non-Mining Sectors

One important factor holding back both non-traditional exports and production of goods currently imported is the high level of the local cost component, which makes Zambian products uncompetitive in foreign trade. In part, this is due to the low levels of capacity utilization prevalent throughout the industrial sector, which raises unit costs. To prevent the relative level of local costs from rising to excessive levels, the Kwacha has drifted downwards against other currencies. Indeed, it is estimated that the competitiveness of Zambian products improved by 9 percent relative to competing suppliers from 1982 to 1983. GRZ is aiming to repeat the improvement from 1983 to 1984 by following appropriate exchange rate policies and by restraining the growth of money wages.

Table A shows how current policies have been appraised. In Part I, U.S. dollar wholesale price index is calculated for Zambia's three main suppliers (the U.S., the U.K. and the Federal Republic of Germany) and for South Africa, which represents the main source of competition in the markets around Zambia. The final column shows a combined index, in which the four component indices are averaged with equal weights, as corresponds roughly to each country's impact on Zambia's competitiveness. Part II shows the equivalent U.S. dollar cost index for Zambia. Both sets are forecast for the year 1984 overall. The final column in Part II shows the ratio between Zambian and the suppliers' costs, with 1980 = 100 as a benchmark.

It will be noted that the index varies very little from 1976 to 1982. In 1983, however, the index dropped to a much lower level, 0.92 as against 1.01 in 1982, mostly because of the new flexible stance on the Kwacha exchange rate. It is projected to drop further in 1984, to 0.80, if the U.S. dollar/Kwacha rate averages 0.60 over the twelve months. (In January 1984, the rate stood at approximately US$ 0.64 to the Kwacha.) GRZ intends to maintain this gain in competitiveness by constraining the growth of wages and salaries and by setting the exchange rate to offset future rises in Kwacha costs.

Table A

ZAMBIA'S COMPETITIVENESS, 1976-84
Part I - (Wholesale Price Indices)
(in U.S. Dollar Terms)

Year	U.S.	FRG	U.K.	RSA	Combined Suppliers
1976	68.10	61.75	47.32	54.29	57.86
1977	72.30	69.51	54.08	61.96	64.46
1978	77.90	82.40	65.18	68.02	73.37
1979	87.70	94.28	79.80	80.26	85.51
1980	100.00	100.00	100.00	100.00	100.00
1981	109.10	85.28	95.40	101.81	97.90
1982	111.40	83.51	88.63	92.50	94.01
1983	112.70	81.97	79.55	100.17	93.60
1984[a]	117.21	85.94	86.45	111.19	100.20

Part II - ZAMBIAN WHOLESALE PRICE INDEX, 1976-84
(In Kwacha and U.S. Dollar Terms)

Year	A Kwacha	B US$/K	C* Zambia (US$)	D RATIO Zambia/Suppliers
1976	51.90	1.40	57.21	0.99
1977	63.30	1.27	63.30	0.98
1978	73.70	1.23	71.38	0.97
1979	91.60	1.26	90.88	1.06
1980	100.00	1.27	100.00	1.00
1981	105.30	1.15	95.35	0.97
1982	112.30	1.07	94.61	1.01
1983	137.17	0.80	86.41	0.92
1984	171.46[b]	0.60[c]	80.46	0.80

[a] Based on forecasts for U.S., FRG, U.K. and RSA.
[b] Assumes 25 percent increase 1983-84.
[c] Assumes 25 percent fall in the value of the Kwacha against the US$, 1983-84.
* Column C is derived as $\frac{\text{Column A}}{1.27}$ & Column B.

Column D gives the ratio of Column C to the Combined Supplier's Index in Part I above.

CHAPTER 6

TRANSPORT, COMMUNICATION, AND TOURISM

Introduction

6.1 Zambia's transport and communications sector faces considerable problems. Some of these, such as the exchange rate and the system of foreign exchange allocation, affect the economy as a whole, but the situation has been worsened by inadequate sector planning and policies and by shortages of skilled manpower and management expertise. GRZ recognizes that these factors have been a constraint to economic growth and that the sector will play an important role in improving future prospects.

6.2 The tourism sector could have a helpful impact in the overall diversification strategy for Zambia's economy. Although the sector is still small, it has high growth potential, and the unspoilt rarity of the tourism product will enable the country to capture the high spending segment of the market. Tourism is a net foreign exchange earner, and is labor-intensive with high employment multipliers. It also has strong linkages with other sectors, requiring food, furnishing and accommodation, and handicrafts, all of which can be supplied domestically with a minimal foreign exchange content (though care has to be taken to ensure that this occurs).

Transport and Communications

Background and Performance

6.3 The transport system comprises approximately 37,000 km of roads, 2,000 km of railways, the oil pipeline from Dar es Salaam to the refinery at Ndola, 18 commercial airports and limited water transport facilities. Its main characteristics have been determined by three features:

(i) transport demand is essentially derived from the needs of the copper mines;

(ii) the country is large and sparsely settled; and

(iii) the country is land-locked.

The earnings of the copper industry have shown a declining trend since 1975. This in turn has led to a shortage of foreign exchange, the curtailment of activities in other sectors of the economy, a reduction in the volume of imported goods, and consequent stagnation in the level of the demand for transport.

6.4 About 60 percent of the population live along the relatively urbanized and industrialized "line of rail" corridor between the Copperbelt, Lusaka, and Livingstone; and the major traffics, consequently, originate in, or are destined for, this region.

6.5 Responsibility for the transport and communication system lies with the following bodies: the National Commission for Development Planning (NCDP) has a major role in the country's overall development; the Ministry of Power, Transport and Communications (MPTC) is responsible for formulating transport policies and for the overall planning and development of transport and communications. The actual process of development has in the past been placed, to an extent, in the hands of executing agencies, such as the Roads Department (RD) of the Ministry of Works and Supplies (MWS) and Zambia Industrial and Mining Corporation (ZIMCO), where planning decisions may have a significant effect on the country's transport policy.

6.6 A number of projects have been completed during the Second and Third National Development Plans (SNDP and TNDP), but progress in implementing these programs has generally been hampered by shortages of funds and the consequent lack of materials and spare parts.

6.7 Until the launching of the TNDP in 1979, Zambia's transport policy was dictated by considerations other than those of basic needs. As a result, in spite of the general commitment to the development of rural areas, effective access to transport services was unsatisfactory (only 43 percent of the population were within 7.5 km of all-weather roads in 1977) and the TNDP recognized for the first time the need to improve transport in rural areas. As in the case of other sectoral programs however, progress has been hampered by the lack of investment funds and, given the need to accommodate other demands on resources, targets have not been achieved.

6.8 During the period of the SNDP and TNDP, there was a large deviation between the funds required for adequate road maintenance and the amounts actually allocated for the purpose. Expenditure in the years up to 1982 amounted to no more than one-half of Roads Department's (RD) estimated requirements. Maintenance of rural roads is practically non-existent because rural authorities lack the required skills and resources.

6.9 Recognizing that it is essential to safeguard the high level of investment already made in roads, GRZ signed the loan agreement for the Third Highway Project with the World Bank in June 1978. The project places emphasis on improving maintenance of the country's road network and provides for new road maintenance equipment, workshop equipment, and tools, as well as rehabilitation of existing equipment. Implementation of the project was delayed initially due to difficulties over the hiring of technical assistance personnel and later as a result of insufficient counterpart funds. Significant progress has been made in the last six months in implementation. In the meantime, maintenance expenditure by RD was increased by K 16 million in 1983, 70 percent over the actual 1982 level, in an effort to reduce the backlog (see Appendix III, Table 1). Government's regulatory policies in the transport sector can be considered under three heads, international freight, domestic freight, and passengers.

6.10 GRZ presently seeks to maintain control of the country's external trade corridors through the two national railways (Zambia Railways (ZR) and TAZARA) and through the two parastatals responsible for international road haulage, namely (Zambia/Tanzania Road Services Limited (ZTRS) and Contract Haulage Limited (CHL). Emphasis has been placed on using TAZARA because of

its lower potential costs, but the severe operational difficulties which have beset the line since it opened in 1976 have encouraged the expansion of ZTRS beyond its envisaged role as a subsidiary carrier. About 60 of TAZARA's 97 mainline locomotives are serviceable, though often not more than 20 are actually running.

6.11 ZTRS presently holds the franchise on road movements between Dar-es-Salaam and Zambia, subject to the provision that it can employ other firms to augment its own fleet capacity. The performance of ZTRS has been generally unsatisfactory, however, and turn around times have been consistently excessive. As a result, copper shipments on the southern route have recently been increased (to 46 percent of the total between April-September 1983), but transport capacity has been insufficient to prevent a build-up in the level of stocks at the mines. The rehabilitation of TAZARA's original locomotives and the purchase of new ones should, however, enable an improvement in haulage by rail and a reduction in road haulage movements.

6.12 As far as the domestic market is concerned, potential operators must obtain a license issued by the Road Traffic Commissioner (RTC), who has to be satisfied that there is a demand for the proposed service and the applicant can meet his obligations to provide capacity. In practice, however, few applications are turned down, and there are no effective restrictions concerning either entry into the road haulage industry or operations in specific areas or routes. In view of the inter-and intra-model choice open to users, and the fact that only nominal returns are earned by private carriers, government concludes that the competitive process is working well, and that the structure of the transport sector is appropriate to the national economy.

6.13 The responsibility for control of bus licensing is again taken by the RTC, although strictly, United Bus Company of Zambia Limited (UBZ) has the concession for operating all bus services in the country and must therefore approve applications from private operators. The RTC has the power to overrule any UBZ objections, but this would be self-defeating in today's situation given the poor state of the company's fleet and the inadequate number of buses available. Private operators may now have as much as 75 percent of the total bus market, but they normally only operate in the urban areas or along paved roads. UBZ has been under pressure to continue to operate on rural routes (or even to open new ones) which are unprofitable because of poor road conditions and low load factors, when the profitable routes which used to sustain them through cross-subsidies have been lost. It is the Government's policy that transport companies will in the future only be given special subsidies for undertaking service obligations at less than proper commercial rates.

6.14 A major issue in the sector is the present inability of transport companies operating under ZIMCO to maintain their services efficiently. The public enterprises are largely operating below capacity and their financial performance has been very bad over the years (see Appendix III. Table 3). This situation is related to a dependence on imported materials and equipment and to the lack of adequate foreign exchange allocations, but Government is conscious that efficiency levels have also been affected by management, planning, and technical problems.

6.15 Owing to the weak capitalization of the companies, which has been exacerbated by uneconomic pricing structure, and the shortage of foreign exchange, they have generally been unable to finance replacement investments and have consequently had to place a greater reliance on loan capital (with a consequent burden of heavy debt servicing) and supplier credits. Licenses requested by the transport sector between May-November 1983 amounted to K 199 million, of which K 43.5 million (22 percent) were granted by MCI; actual allocations by BOZ for the whole year were around K 24 million, excluding special allocations.

6.16 For the carriers, the overall result has been both a lack of vehicles and equipment and the means to replenish or modernize them, a shortage of spare parts and inadequate facilities, and undue repair costs and down-time (see Appendix III, Table 2).

6.17 A particular constraint on efficiency has been that the selection of vehicles has frequently been dictated by the availability of loans from specific sources. Such loans have had to be accepted, but have led to a multiplicity of makes of vehicles, some not suitable to Zambia, and it has been impossible to plan fleet structures on a consistent basis.

6.18 ZIMCO has already taken steps to provide the ground for development of transport companies as viable entities. For example, the level of operating losses in the sector has been reduced from 14.5 percent of turnover in 1981/82 to 5.1 percent in the six months ended 30 September 1983 (Appendix III, Table 3). Active steps are now being taken to rebuild them into a commercially viable operation as speedily as possible. Elements of the plan include immediate strengthening of the company's financial base by tackling their liquidity and financing, as a prelude to giving them clearly defined financial objectives and decontrolling fares and tariffs in line with the recent moves towards the general lifitng of price controls.

Objectives and Policies

6.19 In order for the transport sector to play its required role in Zambia's economic and social development, its efficiency must improve. The preceding analysis of the constraints on the sector's performance indicates that this objective can be achieved by:

(i) developing an effective planning capability which will make it possible to identify transport issues, establish priorities to resolve them, assess the impact on other sectors, and implement necessary changes in policy;

(ii) placing emphasis on the completion of ongoing projects and the maintenance and rehabilitation of existing ones;

(iii) using pricing and regulatory policies to obtain a more rational allocation of traffic between the alternative modes of transport; and

(iv) improving the performance and efficiency of transport companies in the parastatal sector.

6.20 GRZ realizes that in view of its large involvement in the sector, much of the improvement which is required in service and efficiency must come about by government actions or policies. This will require measures such as:

(i) developing minimum acceptable criteria for the approval of new projects;

(ii) developing an inputs and rehabilitation program to make fuller use of existing capacity;

(iii) rationalizing pricing policies in order to improve the efficiency of transport use;

(iv) improving the technical and operational capabilities of the parastatal transport companies; and

(v) establishing technical assistance programs to develop efficient and skilled manpower and managerial expertise.

Transport Planning

6.21 GRZ recognizes that ideally there should be a single agency responsible for the development of effective transport planning by identifying transport issues, establishing priorities to resolve them, assessing the impact on other sectors, and implementing necessary changes in policy. Steps will therefore be taken to examine how best to develop an appropriate plan of action.

6.22 A major item to be considered in this context is the availability of data and information. Government is aware that reliable statistics on, for example, the road transport fleet, physical characteristics of domestic routes and the volumes of traffic on them, and operating costs, do not presently exist. Policies and measures needed to meet present and future market requirements efficiently at the lowest cost can only be prepared if adequate data are available, and government undertakes to develop such information as a matter of urgency.

6.23 An important objective in the transport sector is the increased coordination among the different forms of transport in order to avoid wasteful competition. It is Government's intention to divert certain goods from road transport to rail, particularly in areas where national trunk roads run parallel with the railway network. Given the capacity limitations which are apparent on both ZR and TAZARA at the moment, and the lack of data on the transport supply situation and on transport needs, this objective must be considered as one for the medium/long term rather than for the next few years. Again, any new regulatory measures will be

carefully reviewed to ensure that they are sufficiently flexible and that any reallocation of traffic does not in fact result in a change away from the least cost mode.

6.24 There is already, to some extent, control of the distribution of domestic traffic through road user charges (see below) and weighbridges, although it seems most likely that heavy lorries do not pay sufficiently for their use of the road system and that there are insufficient weighbridges to control the overloading of vehicles. The maximum axle load permitted under the Roads and Road Traffic Act is 8 tons, but overloading seems to be common. Four or five weighbridges are in operation; two more are planned for 1984, and three more which were delivered in 1981 will be installed as soon as possible.

Investment Program

6.25 With respect to investment programming, GRZ continues to place emphasis on the completion of ongoing projects rather than embarking on new schemes. It is appreciated that Government's ability to implement projects will continue to be constrained by the overall financial situation, and priority is therefore being given to those actions that will have a large and quick pay-back and can stimulate growth in the other sectors of the economy. Thus, the rehabilitation of existing infrastructure and equipment and the improvement of operating efficiency is to be preferred to the construction of new facilities. At the same time, Zambia has generally sufficient potential capacity to satisfy the country's needs in the short/medium-term, and investments are being analyzed on the basis of their appropriateness to handle traffic economically at the levels existing in recent years. It is believed that the vehicle fleet, for example, should be held at about the present operational size and investments in new vehicles will not be implemented until vehicles needing major repairs have been rebuilt.

6.26 There is a similar need for the repair and maintenance of existing vehicles rather than the purchase of new ones. The difficulty of getting spare parts has been a major reason for shortfalls in the performance of companies in the transport and communications sectors.

6.27 Government accepts the view that too many projects have been attempted during the TNDP and that project choice may have been poor, with initiatives for cetain projects conceived outside the Plan having to be undertaken in support of political and social objectives rather than a sound economic or commercial rationale. For the future, a well-defined and objective set of criteria will be drawn up as the minimum acceptable standards for approval of new projects. It is realized that the same standards should apply both to new projects financed by ZIMCO and those financed directly by Government through the development budget.

6.28 It has always been Government policy to upgrade roads between all provincial headquarters to bitumen standard, but much of the road construction program has not been economically justified and has diverted resources from other projects with higher returns, which have then had to be postponed or cancelled owing to the lack of funds. A review of the most

recent feasibility studies indicates that minor improvements, costing say K 25,000 per km, are appropriate for a traffic level of 50 ADT and the Class 1C standared (say K 220,000 per km) is only economically justified above 250-350 ADT.

6.29 Within the context of the preceding discussion, Volume II, Chapter 6 lists a number of projects that have been drawn up for which GRZ seeks financial assistance from the international community. The projects have been designed to help the rehabilitation of road transport operations through the reconditioning of workshop facilities, the procurement of equipment and spares, the improvement in technical skills and the purchase of some vehicles. Again, the emphasis of the Fourth Railway Project is on improving operational efficiency through modernization and rehabilitation.

Pricing Policy

6.30 From the national point of view, the correct allocation of traffics depends on resource-use cost, i.e., the economic costs of the movement wherever they are borne within the economy. In turn, the financial results of the operators will depend on their perceived costs including taxation. Total revenues accruing to central government through road user charges (taxes and duties on vehicles, fuel and spares, license and registration fees) were etimated at about K 36 million in 1975 and are now substantially higher. Although these revenues appear to be sufficient to cover road maintenance expenditures and contribute to road construction, GRZ must also take account of the role of taxes in its general policy with respect to revenue needs and sumptuary taxation.

6.31 Given the high cost to Zambia of imported petroleum (estimated as 21.7 percent of total imports in 1980) and the shortage of foreign exchange, Government believes that there is a sound economic case for increasing the price of petroleum over a period of years - increases in excise duty will not only raise additional government revenues, but also contribute substantially to its new policy framework.

6.32 It is also important to determine the costs which are imposed on the road system by different types of vehicles and borne by RD. Government believes that heavy goods vehicles do not at present make a sensible contribution towards their use of the road system. Road maintenance expenditure should be allocated almost entirely to these vehicles, but the annual license fees paid by the heaviest truck-trailer combinations (say a gross vehicle weight of 50 tons) are currently less than K 350. It has therefore been decided that attention will be given in future to the establishment of highway user charges which reflect the economic cost of government in constructing, maintaining, and operating roads and bridges and hence assist moves towards a more rational transport system.

6.33 It is suggested that the scope of any pavement strengthening study project should include such an evaluation. GRZ accepts that pricing policies in the other sub-sectors, e.g., landing fees and air navigation charges, should also be examined in this way. It should be noted that internal implementation of the 1983 Tolls Act will take place at 17 toll gates during 1984. Charges have initially been set at a low level (ranging

from K 0.60 for private cars to a maximum of K 3.00 for heavy lorries with trailers), and it is recongized that, in terms of costs of collection and possible dilution of revenues, the approach may be less efficient than the application of vehicle license fees or fuel taxes. Other gates will only be constructed when it is seen that the scheme is working properly.

6.34 With respect to the structure and level of transport charges, GRZ accepts that in the past the overriding factors in reaching its decision have generally not been the opportunity costs of production, but rather the political and social desire to keep the price of transport low. In the case of UBZ, only two fare increases have been granted since 1972 (20 percent in 1978 and 50 percent in 1982) although ZR and the postal services have been more readily compensated for increases in their costs, albeit with substantial delays between the initial application and the granting of the increase.

6.35 With respect to road freight transport, the gazetted rates are currently:

KM	K/Ton Km
Up to 100	0.25
101 - 200	0.20
201 and above	0.15

These are "ceiling" rates, however, and actual charges depend on market factors such as the route served and the commodity to be carried. Average rates for long distance trucking are not more than K 0.12 per ton km.

6.36 The ZR tariff follows the traditional "value of service" principle, with rates determined on the basis of the value of goods and the distance to be transported. ZR has an established costing system however, and changes in the tariff structure have been implemented in recent years so as to take more account of the costs of particular commodity movements.

6.37 Following the decision to decontrol all prices in the economy at the end of 1982, it is intended that the state sector and parastatal organizations shall lead the pricing trends in order to protect the people from any possible commercial exploitation. In the medium term, transport tariffs will be allowed to rise to a level that will generate sufficient revenue to cover full economic costs, debt service and funds to finance sector development and maintenance programmes. At the same time, it is hoped that both costs and prices can eventually be lowered in real terms as a result of the increased attention being given to efficiency through rehabilitation of the system and to assessing the costs of providing, operating and maintaining transport equipment.

6.38 The Government has undertaken a review of all ZR commodity tariffs based on recent traffic costs, on the basis of which a new tariff schedule was introduced with effect from April 1, 1984. Increases in the

passenger tariff will also be introduced in the near future to reduce the existing losses on passenger services (rail passenger traffic is estimated to have made a loss of K 5.4 million in 1981-82, but contributed K 3.2 million to indirect and fixed costs). It is also recognized that the present structure of bus fares is unsatisfactory in that, apart from decreases in rates with distance travelled, they are identical throughout the country and make no allowance for differences in road conditions or passenger loadings between different routes.

Parastatal Operational Efficiency

6.39 GRZ accepts that the losses sustained by the public enterprises in recent years have eroded the shareholder's capital and cast doubts on their viability as going concerns. It is also appreciated that much higher performance standards are presently being achieved by private sector companies, whose lower overheads and staffing ratios enable them to be more competitive on price while still making a profit. In this situation, Government has considered whether (loss-making) parastatals should not be phased out where they are already supplemented by (profit-making) private firms. IT is concluded, however, that although the transport enterprises may continue to make losses for the next few years, they are of strategic importance and should continue to play an important role in the economy.

6.40 Given realistic financial and operational targets, it is hoped that the inflow of funds can provide the various enterprises with sufficient fixed and working capital to achieve a self-sustaining operation. It is realized, however, that funding should be made conditional on the companies meeting certain performance criteria over a period, at the end of which Government and ZIMCO would review the situation and decide whether the objectives had been realized or not, whether they should be changed, and what the financing for the next period should be.

6.41 It is also essential that a clear role for the parastatals be defined by Government and ZIMCO, and it is intended that they should be treated as purely commercial operations to be judged on their financial viability. Rate of return targets will be set and the setting of fares and tariffs and wages will be left to the organizations. It has already been shown that private companies can compete in principle for all commodities on all routes in the domestic market, and it is not foreseen that any one carrier will be in a position to exploit a monopoly situation.

6.42 A major problem here, as elsewhere in the economy, is the shortage of appropriately skilled Zambians to fill senior management and technical posts in all of the transport and telecommunications subsectors. This has resulted in poor management, planning and development and, together with overstaffing and inefficiency, has had an adverse effect on operations. It is accepted that staffing ratios are generally out of line with the private sector.

6.43 Government is therefore seeking financial and manpower assistance from external donors to satisfy its manpower needs - investment in the transport sector will otherwise not be effective. Many posts will

necessarily have to be filled by expatriates during the next few years but they should be given specific objectives for passing on their skills to their Zambian counterparts. Consultancy studies have already been carried out on ways of making the various ZIMCO operating companies more efficient (including CHL, UBZ, ZR and Zambia Airways), and GRZ will ensure that the recommendations contained in these studies are implemented.

6.44 At the same time, it is accepted tha the parastatal companies must achieve a reduction in staffing which will result in work-forces more consistent with the number of vehicles operated. Coupled with improved management systems, this should lead to much more effective management and a higher level of vehicle utilization which will come through the greater operational availability of vehicles. This, in itself, will lead to greater reliability, punctuality, and speed, and allow the companies to become more competitive on price. These changes will generate more business for the companies and bring the necessary improvements to cash flow and profitability.

Tourism

Development in the Sector

6.45 Since the 1970s, tourism has been seen as a sector which could have significant benefits for Zambia. The Victoria Falls, with their unrivalled and perennial attractions are rightly seen as the center of the Zambian Tourist product. A Master Plan Study for the sector was commissioned in 1978, and in 1979, a Ministry of Tourism was established.

6.46 The number of visitors to Zambia has, in fact, risen dramatically over the past five years, to 146,000 in 1981, following the resolution of the political situation of Zimbabwe, although in 1982, the total fell back to 116,250. Of these 14,000 were holiday visitors; 22,000 came for business, and the balance was made up to 27,000 visitors in transit, and tourists visiting friends and relatives (VFRS). Despite this growth, it can hardly be said that the tourism industry has taken off; few of the recommendations made in the Master Plan have been implemented, and the Ministry has not received the required resources to provide the necessary stimulus that the industry needs.

6.47 Zambia's tourism product is sufficiently strong to support 5 and 10 day tours from overseas visitors. As well as being the Falls destination, Livingstone itself is an attractive centre, and contains sufficient interest to detain the visitor for 4 or 5 days - the Livingstone Museum is widely considered to be the best in Africa, and the new Railway Museum is a splendid development which may attract special interest groups as well as proving of interest to the ordinary visitor. The availability of river trips, the nearby Game Park, and a water safari adds to the appeal of the place. In addition to the Victoria Falls, Luangwa Valley offers extremely good game viewing possibilities, and the walking safari is almost unique to Zambia. Other elements of the tourist product include the Kafue Flats offering a particularly interesting bird habitat as well as fishing and game viewing; Lake Kariba, with beaches and water sports potential and Kafue National Park; and the copper mines themselves which offer a special interest.

6.48 The product mix identifies Zambia's potential market in the upper-income groups; this is not a mass market, but a smaller number of typically high-spend-per-head visitors is compatible with maintaining the unspoiled aspects of Zambia that give the country its main competitive strength vis-a-vis neighboring tourist destinations.

6.49 With the advent of wide-body jets between Europe and Lusaka, there is greater potential for increased tourist arrivals. In the short term, the availability of tourist beds in Lusaka, the inevitable focal point for visitors, constrains growth, but planned investment in the hotels sector will alleviate this particular bottleneck.

6.50 The GRZ recognizes the significance of tourism in the country's present strategy to diversify the economic base of the country. The direct, net foreign exchange earnings from the sector are likely to lie between US$ 0.7-0.8 per dollar spent; and typical employment multipliers indicate that each job in the direct tourism sector can generate a further one or two jobs elsewhere in the economy. Thus, the foreign exchange return is high, and tourism is essentially a labor-intensive industry - both of these objectives underly the Government's economic strategy.

Tourism Policy Development

6.51 Following from this recognition, the GRZ wishes to stimulate further the tourism sector. The National Hotels Development Corporation (NHDC), a ZIMCO subsidiary, has prepared a tourism development program for the country; the shortage of high quality tourist accommodation has been recognized as a constraint, but NHDC has now secured funding for projects to expand the Intercontinental Hotel in Lusaka, and to rehabilitate its counterpart in Livingstone. A project to develop a resort facility at Siavonga on Kariba Lake, which is also committed, will provide facilities for both international and domestic tourists. Other hotel projects, which are less closely related to tourism, have also been initiated. These projects form part of a well-prepared 10-year investment program.

6.52 A series of projects has been started by the National Parks and Wildlife Service, which are directly linked with tourism. The most important is a US$6 million programme for the upgrading of tourist roads throughout the National Parks. This investment will also provide support for the staff of the Wildlife Administration. It is to be accompanied by a Wildlife Anti-Poaching Programme, aimed particularly at maintaining the elephant and rhino stock, as well as by a Central Reseach Programme in Chilanga to provide a wildlife research infrastructure to accommodate ecologists engaged in the management and planning of Zambia's wildlife resources.

6.53 Nevertheless, as GRZ is aware, there are still weaknesses in the overall planning and management of tourism in Zambia; four specific weaknesses have been identified:

(i) Lack of Marketing, Planning and Research. Marketing is concentrated in three overseas promotion offices which lack specialist skills,

and their narrow geographical impact suggests that they are not the most cost-effective way of promoting Zambia as a tourist destination. There is almost no planning or research.

(ii) Shortage of Competent Staff. There is a critical shortage of competent staff in the tourist industry. This problem is compounded by a lack of adequate training facilities.

(iii) Weaknesses in Infrastructure. Air access to Zambia may be the greatest constraint, but poor conditions of roads and services in the National Game Parks and weaknesses in the internal transport network are also a problem, although the widespread availability of commercial airports throughout the country is a strong bonus.

(iv) The Political Situation. Political instability is anathema to most tourist, and Zambia's proximity to Southern Africa may inhibit the development of the industry. This is largely a problem of marketing, however, since Zambia itself enjoys political stability.

6.54 Furthermore, there are some institutional problems in the sector, with responsibility for tourist development shared among the NHDC, Zambia National Tourist Board (ZNTB), and the Ministry of Tourism. In the absence of clear policies and direction, roles are ill-defined, with consequent overlaps and gaps.

6.55 In short, the main policy thrust therefore is to strengthen the planning and institutional aspects of tourism. Tourism is rightly seen as a complex industry, requiring specialized skills for its development. A long-term technical assistance program should be at the centre of tourist development initiatives over the coming three years. The main purpose of this programme will be to assist in strengthening and rationalizing the existing tourism institutions; to examine the economic costs and benefits of tourism for Zambia; and to prepare a short-term action programme in the context of overall objectives emerging from the economic analysis of the sector. Hotels are the major foreign exchange user in the tourist industry although their foreign exchange requirements are quite modest. Over the next three years, some additional foreign exchange will be required; the technical assistance programme should be supported by foreign exchange for implementaion of immediate projects, and perhaps for strengthening the marketing efforts of the industry. Details of such a technical assistance program and other priority projects in the tourism sector for the period 1984-86 are given in Volume II, Chapter 6.

Table 1: CAPITAL AND RECURRENT EXPENDITURE OF RD AND MSD 1979-83
(Kwacha Millions)

	1979	1980	1981	1982	1983*
RD					
Expenditure					
Recurrent	7.33	9.60	8.52	11.44	18.34
Capital	36.13	37.88	30.60	51.27	33.19
TOTAL	43.46	47.48	39.12	62.71	51.53
of which:					
Maintenance	6.26	8.14	6.89	9.00	16.01
Maint. Exp. at Constant Prices (Index)	100	120	90	104	175
Maintenance as Proportion of					
Recurrent Expenditure (%)	85.4	84.8	80.9	78.7	87.3
Capital Expenditure (%)	17.3	21.5	22.5	16.7	42.0
MSD					
Expenditure					
Recurrent	10.68	14.42	12.79	13.71	15.14
Capital	8.49	4.47	28.21	17.18	10.42
TOTAL	19.17	18.89	41.00	30.89	25.56
of which:					
Maintenance	8.34	10.65	7.81	8.40	10.29
Maint. Exp. at Constant Prices (Index)	100	118	76	73	85
Maintenance as Proportion of					
Recurrent Expenditure (%)	78.1	73.9	64.1	61.3	63.8
Capital Expenditure (%)	98.2	238.3	27.1	48.9	98.8

* Authorized.

Table 2: OPERATIONAL PERFORMANCE OF ZIMCO ROAD TRANSPORT COMPANIES 1981/82 - 1983/84

	1981/82	1982/83	6 Months to 30 September 1983
Zambia/Tanzania Road Services[a]			
Fleet Strength	435	410	394
Vehicles Operated	226	130	162
Vehicle Availability (%)	51.9	31.7	41.1
Traffic[b] (000 Tons)	204	139	26
Number of Employees	1506	1308	1262
United Bus Company			
Fleet Strength	819	728	778
Operational Vehicles	298	281	262
Vehicle Availability (%)	36.9	38.6	33.7
Traffic (Million Passengers)	53.7	58.0	19.9
Number of Employees	3641	3486	3482
Contract Haulage			
Fleet Strength	420	263	263
Operational Vehicles	262	185	197
Vehicle Availability (%)	62.3	70.3	74.9
Traffic (000 Tons)	505	460	190
Number of Employees	1311	986	984

a ZTRS figures are for three months to 30 September 1983.
b Excludes sub-contract.

Source: ZIMCO.

Table 3: PROFITABILITY AND FINANCIAL STRUCTURE OF ZIMCO TRANSPORT COMPANIES 1981/82 - 1983/84

	1981/82	1982/83	6 Months to 30 September 1983
Zambia Railways			
Profit/(Loss) - % of Turnover	(51.3)	(10.1)	0.2
Debt : Equity Ratio	1.0	1.3	1.3
Zambia Airways			
Profit/(Loss) - % of Turnover	(12.2)	(7.6)	(0.1)
Debt : Equity Ratio	Neg.	4.9	4.7
Zambia Tanzania Road Services			
Profit/(Loss) - % of Turnover	(10.8)	(29.6)	(127.9)
Debt : Equity Ratio	2.0	2.8	2.8
United Bus Company			
Profit/(Loss) - % of Turnover	(18.9)	(8.6)	(10.6)
Debt : Equity Ratio	Neg.	Neg.	Neg.
Contract Haulage			
Profit/(Loss) - % of Turnover	(18.2)	(26.5)	(3.2)
Debt : Equity Ratio	0.4	1.3	1.2
Total			
Profit/(Loss) - % of Turnover	(14.5)	(11.5)	(5.1)

Source: ZIMCO.

CHAPTER 7

THE SOCIAL SECTOR

Introduction

7.1 Since independence, the Government has accorded high priority to social development. The goal of Humanism - the philosophy that has guided Zambian policy - is the betterment of man, which has been interpreted not merely in terms of material production, but also of the quality of life and of equity in society.

7.2 Social development is not merely an end in itself. Human skills and a healthy environment are basic to economic progress. Human skills depend on education, both formal and informal. A healthy environment requires adequate nutrition and clean water as well as preventive and curative health services.

7.3 In the urban and industrial sectors of the economy, the need for education in technical skills and the need for water supplies and health services is clear. What is perhaps less clear, but no less true, is that productive and dynamic development in rural, predominantly agricultural areas, is equally dependent on the social sectors.

7.4 The development of agricultural skills depends on the educational system, and the capacity to carry out the necessary physical toil depends on being healthy. Furthermore, adequate social provisions in rural areas are essential if people are not to be attracted to towns and cities - a pattern of migration that can deprive rural areas of their most capable, forward-looking young people and add to social costs in urban areas while retarding economic development in rural areas.

7.5 This chapter is concerned with the social sector. It is not merely concerned with the social services, the formal education and health care systems. Most education in agricultural methods is now provided outside the formal education system for the great majority of the population. Health depends on nutrition and on clean water supplies and sanitation as well as on preventive and curative health services. For example, malnutrition - a serious problem in Zambia - depends not only on total agricultural production, but on how food supplies are distributed, on how supplies fluctuate and on storage facilities. Malnutrition among infants may not only be due to lack of food, but also to lack of time for mothers to prepare meals because of the pressure of agriculture and household tasks - planting, weeding, harvesting, preparing food, collecting firewood, drawing water, and caring for children. Malnutrition is intertwined with many other issues. The social sector cannot be considered in isolation from the economic system. Social progress is an important and necessary component of economic development.

7.6 In the next section of this Chapter, the development of social provisions is described, concentrating primarily on education and health services. Next, the current problems are described with some candour. Then, the Government's objectives and priorities for the next three years

are explained. Finally, the policies the Government intends to follow and the projects it hopes to undertake, with international support, are set out.

The Development of the Social Sector

7.7 In the two decades since independence, substantial progress has been made in the social sector. In 1964, there were only 100 Zambian graduates, all trained abroad, and the health services were almost exclusively concentrated in urban areas. Since then expansion of services has been rapid as shown in Table 7.1 below.

Table 7.1: Social Sector Indicators

	At Independence 1964	Current (or Most Recent Year
Education		
Primary School Enrollment	380,000	1,100,000
Proportion of Children Entering Primary School (%)	50	85
Secondary School Enrollment	14,000	100,000
Proportion of Children Entering Secondary School (%)	4	15
Zambian Graduates:		
Total	100	7,000
Graduating Each Year	-	550
Adult Literacy (%)	29 (1960)	45
Health		
Health Centers	306	680
Hospitals	40	82
Infant Mortality per Thousand	151 (1960)	104
Life Expectancy (Years)	40 (1960)	51

7.8 It will be seen that not only have services expanded, but also incomes - as measured by literacy, infant mortality, and life expectancy - have improved.

7.9 The goal of educational policy has been to provide universal primary education and to develop secondary and higher education as far as resources permit, so as to meet the need for skilled manpower. Priority has been given to expanding facilities, so that more seven-year old children can enter Grade 1. In urban areas, most children reach Grade 7, whereas in rural areas about half of the pupils do not continue beyond

Grade 4. Nationally, about 20 percent continue beyond Grade 7 into Junior Secondary School. From 1975, Production Units - primarily agricultural - were introduced in all education institutions although performance has been variable. In 1982, the Ministry of Education was divided into two parts: the Ministry of General Education and Culture, dealing primarily with schools, and the Ministry of Higher Education, dealing with technical and vocational education, teacher-training, and the university, as well as a particular brief for developing science and technology education.

7.10 Health service policy is directed to provide an integrated system based on primary health care. The overall structure of care has three levels:

(i) primary care based on rural health centres and urban clinics, which engage in preventive health measures and the treatment of common diseases and injuries through a network of community health workers;

(ii) district level services based on district hospitals and zonal health centers; and

(iii) tertiary level services based on central hospitals.

7.11 The development of both education and health, in common with much else in the Zambian economy, can be divided into two phases.

7.12 Up to the early 1970s, progress was rapid with real expenditure increasing: since then there have been expenditure reductions and real expenditure per head has fallen substantially as shown below.

Table 7.2: Indices of Expenditure

Year	Index of Expenditure in Real Terms* (1975 - 100)		Index of Expenditure per Head** in Real Terms* (1975 - 100)	
	Education	Health	Education	Health
1970	72	97	84	113
1975	100	100	100	100
1980	63	83	54	71
1981	66	81	55	67
1982	83	110	67	89
1983 Budget	74	103	58	81

* Deflated by GDP deflator.
** Of total population.

7.13 Education and health now form 15 percent and 8 percent, respectively, of total recurrent expenditure. The reductions in expenditure have fallen much more on capital than on recurrent expenditure and, within recurrent expenditure, much more on supplies than on personnel.

7.14 Turning to the wider social context, three important features of the past two decades may be noted:

(i) rapid population growth - over three percent per year - has put a major strain on social services;

(ii) rapid urbanization has particularly strained the social infrastructure of towns and cities; and

(iii) low levels of rural incomes and poor agricultural performance have resulted in increased malnutrition in recent years.

Current Problems in the Social Sector

7.15 The most immediate and obvious problem in both education and health services is the lack of necessary supplies: books and teaching materials are in desperately short supply - sometimes altogether lacking - in schools, colleges and university, and drugs and equipment are not available in parts of the health service. As indicated in the last section, real levels of spending have fallen, and this has borne most severely on supplies. Shortages are most severe in rural areas, but all areas are affected. It is hard to quantify the effect of these shortages on the standard of education and health services, but there is general agreement that overall standards have fallen sustantially.

7.16 Thus, the most evident problem of the social sector is similar to that in other sectors of the economy - the inputs necessary to enable existing services to perform effectively are lacking. Past capital projects have added to recurrent costs at the same time as recurrent expenditure was falling. Again, in common with other sectors, shortages are exacerbated by foreign exchange constraints. The health service relies on imported pharmaceuticals and equipment and higher education requires imported books and equipment.

7.17 Although the supply of resources has diminished in recent years, the demand for services had increased, and will continue to do so. Population growth has resulted in ever-increasing pressure on the social sector, and the total population continues to increase rapidly. In order to provide services to keep pace with rising population, a steady growth in real expenditure is needed. Rapid urbanization adds to this problem. For example, the shortage of school buildings results in lower rates of enrollment of seven-year old children in urban more than in rural areas and heavy capital expenditure is required simply to adjust for population movements.

7.18 In addition to problems associated with the level of total resources, there are also problems associated with how the resources are used and distributed.

7.19 While the development of Production Units in schools has been a positive step, the educational system has not been adequately focussed on agriculture and rural activities - where the majority of the population earn their living. This neglect of agriculture has encouraged the tendency of many young people to look at cities for their advancement. The system of education has not been sufficiently relevant to the nation's manpower needs.

7.20 Rural areas remain disadvantaged in numerous ways. Resources devoted to education, health services, and water supplies are all lower in rural areas than in urban areas. Rural incomes are much lower than urban ones. For example, health expenditure per head ranges from 60 percent of the national average in rural Eastern Province to 220 percent in urban Lusaka Province. These differences make the development of the rural agricultural sector more difficult and encourage urban migration. Yet, tackling these inequities poses a major problem: either a large increase in spending is needed - which is not conceivable - or the better-off provinces must suffer sharp reductions in services.

7.21 A different type of inequity is that between men and women. The group with the heaviest burden is almost certainly rural women. For a variety of reasons, these burdens may have increased. The migration of men and young people to cities leaves more work to be done by women; the depletion of the nation's forests makes the search for firewood, usually the province of women, more time-consuming, and the introduction of fertilizer may add to women's work in cultivation. In seeking to improve the nutrition of the rural population, it is necessary to consider the overall economic and social situation of women and how they are affected by the pattern of economic development.

7.22 The foreign exchange cost of supplies has been noted: for example, the Ministry of Health spends K 15 million p.a. on drugs, most of which are imported. There is another major foreign exchange cost arising from the reliance on expatriate staff. The largest group of these is the non-Zambian doctors: of 900 doctors in the country, only 200 are Zambian. The foreign exchange cost of these doctors is nearly K 5 million per year. Expatriate teachers probably transfer about K 2 million abroad per year. There is an urgent need to train Zambians in these areas to minimize this cost.

Objectives and Priorities

7.23 The overall objectives for the next three years as far as the social sector are concerned may be defined as follows:

(i) to develop human skills with the education resources available, to make the maximum contribution to economic development;

(ii) to improve standards of health as far as possible within available resources; and

(iii) to ensure that economic development results in equitable improvement in social conditions.

7.24 Within the broad strategy set out in this report, a number of sub-objectives can be defined:

(i) priority should be given to basic needs;

(ii) priority should be given to the rural, agricultural sector;

(iii) developments that save foreign exchange should be pursued;

(iv) the effectiveness of existing services should be increased by providing essential supplies; and

(v) less capital-intensive methods should be used wherever possible.

7.25 These sub-objectives may be considered in relation to education and health. In education:

(i) the goal of providing some education for all children should take priority over extending the duration of education;

(ii) agricultural education should take a more prominent part in primary and secondary schooling;

(iii) the vocational content and rural involvement of higher education should be increased; and

(iv) priority should be given to providing adequate supplies of books, equipment, and materials.

7.26 For improved health, the implications are:

(i) priority should be given to preventive measures over curative services;

(ii) available food supplies should be used in the most nutritionally effective way;

(iii) priority should be given to improving water supplies;

(iv) rural health services should be developed; one way of doing this is by requiring urban-based personnel to spend more time in rural areas; and

(v) priority should be given to providing rural health centers with adequate supplies of drugs and equipment.

Government Policy

7.27 The Government has in the past followed a number of policies which are broadly consistent with the objectives set out above. Examples of these are the following:

Education
- The development of Production Units
- Research on curriculum reform
- The development of technical and vocational education

Health
- The primary health care strategy
- The introduction of a national formulary of pharmaceuticals to keep down costs, particularly foreign exchange costs.

Nevertheless, as has been acknowledge above, developments have occurred which have not always conformed with the stated objectives: capital projects have been undertaken when resources were not adequate to meet their recurrent costs; developments have occurred that primarily benefitted urban interests; sometimes goals far surpassed the means to achieve them and hindered rather than helped progress.

7.28 Recognizing the problems that have now built up, the Government intends to take a number of steps in the social sectors that should assist the programs of economic recovery. The Government recognizes that these steps will not solve the difficulties of these sectors instantly and even to try to do so would impose intolerable costs - but it believes these are positive steps in the right direction. Such is the scale of the problems that there is little prospect of tackling them without substantial support.

7.29 The Government intends for its part for the next three years:

General

(i) to review the relative salaries of teachers and health personnel in urban and rural areas with a view to paying more in rural and less in urban areas so as to increase the attraction of working in rural areas and help to reduce the loss of staff;

(ii) not to undertake any major new capital projects in the Education and Health Services - unless there is ear-marked provision for additional recurrent costs;

(iii) to promote self-help and community participation in the maintenance and running of schools and health centers -- so as to reduce costs to the national budget;

(iv) to give priority to making basic provision available to a majority of the growing population as opposed to the improvement of high-cost services for a minority, so as to keep down recurrent costs; and

(v) to undertake a review of long-term methods of keeping down the costs of services while meeting the needs of a growing population.

Education

(vi) to undertake an urgent review of the feasibility of introducing a system of school fees - so as to reduce the net budgetary costs of education;

(vii) to develop Production Units in schools - so as to provide more agricultural education and production, the latter contributing towards the cost of education; and

(viii) to introduce agriculture as a separate subject of study in all Primary Schools from 1985, based on work in Production Units and to include performance in production work as part of a pupil's assessment - so as to relate education to the nations's priorities.

Health

(ix) to undertake an urgent review of the feasibility of introducing a scheme of cost recovery in the health service that retains the principle that vital health services should be free at the time of use, whereas non-essential provisions such as dental care and spectacles may be charged for - so as to reduce the net costs to Government of health care;

(x) to introduce further controls on the use of high-cost imported pharmaceuticals - so as to reduce foreign exchange costs;

(xi) to develop a program of rural training of medical students and rural attachments of urban health personnel - so as to provide more equitable care in rural areas;

(xii) to give priority to the development of rural water supplies - so as to prevent water-related diseases; and

(xiii) to concentrate maize subsidies on roller meal (rather than subsidizing both roller-meal and breakfast meal) - so as to encourage consumption of roller meal which, like brown bread, is more nutritionally valuable.

Expenditure Priorities

7.30 As has been argued above, new capital projects may only exacerbate the existing problem of recurrent expenditure. It is necessary to shift to modes of service involving lower costs, and this is being urgently pursued in the ways described in the last section. But, this cannot be done immediately. Put simple, the Government cannot afford the cost of the supplies needed over the next three-years, especially the foreign exchange cost. The Government is therefore faced with an emergency short-run problem.

7.31 It is recognized that donor countries and agencies may be extremely reluctant to assist with financing inputs which form part of recurrent costs. But certain considerations should be borne in mind:

(i) such assistance is the most useful form of help to strengthen education and health services;

(ii) the Government recognizes that without a shift in policies which will lower costs, short-term assistance with supplies would leave a worse situation in three years than at present; and

(iii) the Government is determined to make the necessary changes in policies and provisions so that in three years the necessary supplies can be financed within the feasible recurrent expenditure budget.

CHAPTER 8

MEDIUM-TERM PROSPECTS OF THE ZAMBIAN ECONOMY

Objectives of Economic Stabilization

8.1 The preceding chapters have outlined GRZ's program for economic recovery and restructuring. Its principal elements are specific policy and institutional reforms designed to achieve financial stability in the short run and efficient resource use in the longer run, supplemented by a judicious choice of investments and public expenditures to promote economic growth by making better use of existing capacity initially, and by diversifying the sources of income, employment and exports in the longer run. More specifically, the program falls within four areas:

(i) the restructuring of incentives, which covers pricing policies, tariff reforms, budget subsidies, exchange rate policies, and foreign exchange allocation and budgeting system;

(ii) the revision of public investment priorities to emphasize the rehabilitation of existing assets and increase capacity utilization in the short run, and agricultural export-led growth in the longer run;

(iii) improvement in budget and debt management; and

(iv) the strengthening of institutions, particularly public enterprises and the improvement in economic management capacity of the Government.

8.2 These policies need time to work. Over the next three years, the prospects of the Zambian economy will continue to depend on the international price of copper. This will largely determine the balance of payments and external debt positions. Copper prices are projected to rise only slowly. Under these circumstances, GRZ's principal macro-economic objective in the short run is to maintain a sustainable balance of payments position and to restructure the budget to better serve the country's medium- to long-term growth and developmental objectives.

Balance of Payments

8.3 Even though GRZ is attempting to create a favorable environment for non-traditional exports, it is not unreasonable to assume that non-mineral exports will show rates of growth in real terms that are close to zero over the next three years. Export revenue will come mainly from copper and cobalt. The rehabilitation of the mines is expected to arrest the decline in copper production and increase the industry's international competitiveness and productivity. Copper prices are expected to rise slowly from 74 U.S. cents per pound in 1983 to 76, 82, 94 cents in the following three years. This view is slightly less favorable for 1984 and 1985 than that found in the most recent World Bank projections; while

somewhat more favorable for 1986, the average for the three years is the same in both projections, however. Thus, unless cobalt prices rise dramatically in the next three years, GRZ projects total exports to rise from around US$940 million in 1983 to US$976 million in 1984, US$1,071 million in 1985, and US$1,244 million in 1986.

8.4 At the end of 1983, Zambia's total medium- and long-term debt stock outstanding was US$2,641 million. To this must be added SDR 635 million net use of IMF credit, making US$3,295 million in all, or about 98 percent of GDP in 1983. The Bank of Zambia and ZCCM together had about US$400 million of short-term debts at the end of 1983. The ratio of debt to GDP after inclusion of these items was, therefore, about 110 percent.

8.5 This situation arose because large current account deficits coincided with falling real GDP for much of the decade since 1974. During and after the copper price increases of 1979-80, Zambia found it relatively easy to raise the necessary foreign loans, but international credit conditions tightened considerably in 1982 and 1983. Debt service obligations gradually began to exceed Zambia's capacity to attract new loans. By the end of 1982, substantial arrears had accumulated. In 1983, Zambia was forced to negotiate a rescheduling of the debt service payable to major lenders.

8.6 It is unrealistic to expect Zambia to avoid a similar situation in 1984 and probably 1985, even if imports are constrained to fall dramatically from the levels of 1983. Zambia's immediate aims are to avoid the need for short-term foreign borrowing and to continue to reduce the pipeline of commercial payments arrears. The existence of the pipeline is compounding her problems, as it causes foreign suppliers to raise the price of imports and damages commercial confidence in the country. At the end of 1983, the pipeline totalled US$683 million, a reduction of US$32 million from the level at the end of 1982. GRZ would like to set aside annually US$100 million for the reduction in pipeline during 1984-1986; in the meantime, imports could be paid for on a current basis. Given the reluctance of creditors to extend additional medium-term and long-term loans, Zambia could find it difficult to achieve these aims, even assuming future debt reschedulings.

8.7 In 1983, a major round of negotiations was concluded with major creditors in which much of the debt service obligations was rescheduled (about US$380 million of principal and interest, including arrears from 1982 of US$180 million). It is unlikely that the position will improve sufficiently in 1984 and 1985 to avoid rescheduling in both years. In other words, there is very little additional loan finance available, and imports would have to be cut to intolerably low levels. Debt relief will, therefore, be required along the lines of the agreements reached in 1983. The exact details will have to be discussed with creditors in each of the years concerned, but as of now, it is simply impossible to present a feasible balance of payments scenario in the absence of such arrangements.

8.8 Zambia will also have to retain access to IMF resources in 1984, and is, therefore, presently negotiating a stand-by program with the IMF. Zambia's quota has increased from SDR 211 million to SDR 270 million since

the last program was agreed. Given the strain on IMF resources, it seems unlikely that 100 percent of quota would be obtained in 1984.

The Outlook for 1984-1986

8.9 In the past decade, Zambia has run large current account deficits which caused foreign indebtedness to expand very sharply. GRZ is determined not to let the debt burden snowball and would like to see the current account deficit fall from US$150 million in 1984 to US$125 million in 1985 to US$100 million in 1986. The balance of payment outlook for the three-year period under such a scenario is shown in Table 8.1. The invisible account is presented on a cash flow basis, rather than on an accruals basis, i.e., after the effects of reschedulings in 1984 and 1985. The need to reduce the current account deficit and the steady increase in payments in the invisible account mean that imports are constrained to rise only very little over the three-year period, from US$692 million in 1983 to US$721 million in 1986. In 1984 and 1985, the poor performance expected of copper prices means that imports actually fall below 1983 levels, to US$609 million and US$644 million, respectively.

Table 8.1A: Current Account
Balance of Payments Forecasts 1984-86
(US dollars, million)

	1984	1985	1986
EXPORTS			
Copper	880	969	1134
Cobalt	36	38	40
Lead/Zinc	30	32	35
Other	30	32	35
TOTAL	976	1071	1244
IMPORTS			
TOTAL	-609	-644	-721
INVISIBLES			
Non-factor Services (net)	-269	-283	-314
Unrequited Transfers (net)	-14	-17	-17
Net Investment Income (incl. interest on foreign debt)	-234	-252	-292
TOTAL	-517	-552	-623
CURRENT ACCOUNT			
Surplus/Deficit (+/-)	-150	-125	-100

Memorandum: To convert the total invisibles account from cash flow to accruals basis, the following amounts (corresponding to rescheduled interest payments) must be added:

1984 - US$58 million
1985 - US$46 million
1986 - Zero

8.10 GRZ estimates that even after debt rescheduling and making allowances for disbursements from commitments prior to January 1984 and new commitments during the first four months of 1984, an unfinanced gap of about US$100 million in both 1984 and 1985 would exist. This gap would increase to more than US$300 million in 1986. High cost commercial funding would be needed to close this gap.

8.11 The implications of the above balance of payments scenario, particularly the permitted level of imports, on the level of output, per capita income, and the government budget are examined below.

The Use of Resources and the Budget

8.12 This section analyzes what is expected to happen to the economy and to the budget under the new policy initiatives but in the absence of additional injections of external capital flows. It will be shown that the balance of payments and budgetary targets set out in the preceding section, desirable as they are from the point of view of short-term economic stabilization, are not feasible.

8.13 Table 8.2 provides estimates of the levels of GDP that are likely to prevail in the period 1984 to 1986. The estimates are based on the analysis of the foreign exchange constraint and projections of the balance of payments as set out in the previous section, in which the level of imports permitted is constrained by forecast changes in foreign exchange resources and the target current account deficit. On this basis, the level of permitted imports is projected to fall (in current prices) from US$692 million in 1983 to US$609 in 1984 and then to rise to US$721 million in 1986. With a given path of permitted imports, real GDP is projected on the assumption that its elasticity with respect to changes in real imported inputs is constant at 0.75. Imputs (including petroleum) are assumed to constitute a constant proportion (55 percent) of imports, i.e., the level achieved in 1980.

Table 8.2: GROSS DOMESTIC PRODUCT 1983-86
(Kwacha, millions at constant 1983 prices

	1983	1984	1985	1986
Real GDP	4222	3809	3845	3806
Percentage change over previous year	+ 2	-10	+ 1	- 1
Government Consumption	1085	972	940	984
Private Consumption	2525	2109	2128	2041
Investment Including Stocks	644	537	542	520
Resource Balance	- 32	191	235	261

Note: The breakdown of GDP in 1984-86 by form of expenditure projects government consumption to rise in line with real recurrent expenditure. The resource balance is taken from the balance of payments projections. The remainder is divided between private consumption and total investment in the same proportion as in 1983. Figures for 1983 are preliminary actuals. Source: CSO.

8.14 The prospects indicated by these projections are for a sharp fall in GDP in 1984 of 10 percent compared to the previous year, due to a sharp reduction of foreign exchange availability. Thereafter, GDP recovers 1 percent in 1985 but drops back 1 percent in 1986, indicating a period of

stagnation at the lower level. These small changes in the latter years are within the margin of error of the forecasts. In particular, it is noteworthy that all domestic categories of expenditure contract sharply in 1984, within a ceiling of total GDP falling by 10 percent, so that more resources can be devoted to improving the trade balance.

8.15 Projections for major items in the government budget for the period 1984 to 1986 are set out in Table 8.3. The methodology adopted aims for consistency with projections of the balance of payments and use of resources summarized above. For example, the projections of recurrent revenues are based, inter-alia, on the forecast path of GDP. The budget projections were generated using the Ministry of Finance financial planning model and incorporate the following key assumptions and targets.

Table 8.3: Government Budget Projections
(In Kwacha Millions)

	1984	1985	1986
Current Account			
Revenue	1224	1437	1643
Expenditure	1342	1557	1955
Deficit	-118	-120	-312
Capital Account			
Grants	65	75	90
Expenditure	222	247	257
Direct Capital Outlays	187	197	207
Loans and Investments	35	50	50
Deficits	-157	-172	-167
Overall Deficit	-275	-292	-479
Financing			
External Borrowings	68	74	179
Non-Bank Domestic Borrowings	73	75	80
Borrowing from Banking System	134	143	220
Total Expenditure			
Current Prices	1564	1804	2212
1983 Prices	1251	1203	1229
% Change in Real Expenditure	-9	-4	+2

8.16 Current Revenue is projected on the assumption that there are not major discretionary increases in tax rates. This recognises the relatively high ratio of government revenue to GDP that already prevails. The increases forecast are thus based on the natural buoyancy of tax revenues

with respect to changes in GDP and domestic inflation. Some improvement is expected in mineral taxes reflecting forecast movements of the copper prices and exchange rate changes. This, however, is not expected to fully offset the effects of lower national income and thus the outlook is for current revenues to continue to decline in real terms.

8.17 Expenditures on current account are to be tightly controlled. In particular, wages and salaries are projected to rise only in line with established wage salary scales apart from a general increase of 5 percent in wage and salary rates in 1985 and 1986. This implies a substantial fall in real earnings of government employees over the period. Recurrent departmental charges (which exclude wages) are set to rise in line with inflation and increases of K8 million and K10 million in 1984 and 1985 respectively have been budgeted for in light of the critical shortage of operating funds currently experienced by a number of key ministries. Provision has also been made for some increased RDCs arising as recurrent implications of the capital expenditure programme. Debt service, which is a major component of Constitutional and Statutory Expenditure, has been budgeted on a payments basis assuming some rescheduling of government external debt in 1984 and 1985. Debt service in 1986 is budgeted on an accruals basis, and this accounts for the relatively rapid rise in nominal current expenditures in that year.

8.18 On the capital account total expenditures are expected to be constrained by the limited availability of Kwacha cover consistent with the forecast current account deficit and the government's intention to reduce the residual recourse to the banking system in real terms. As a result of this constraint, direct capital outlays by the government are expected to decline by 10 percent per annum in real terms, implying an increase in current prices to K187 million in 1984 and K207 million in 1986. External grants are expected to remain constant at their 1983 level (valued in US dollars), and no debt rescheduling is assumed for 1986. It is assumed that the countrys' creditworthiness rises sufficiently to allow Zambia to roll over most of its debt. The result is a substantial extra inflow of foreign capital (K100 million), permitting a larger overall budget deficit to be associated with the required target for borrowing from the banking system.

8.19 GRZ has already reduced the residual borrowing from the banking system both in real terms and as a proportion of GDP. The intention is to maintain this at about the same level in real terms and, as explained above, this acts as the principal constraint on both recurrent and capital expenditure.

8.20 As is clear from Table 8.3, the outlook is for an extremely tight government budget throughout the projection period in spite of substantial retrenchment in the capital programme and rapidly falling real earnings of government employees. In a large measure, this gloomy outlook stems from the impact of falling GDP and national income on government revenues.

8.21 While the projections conform to these guidelines on government borrowing from the banking system, the reductions in real salaries and wages required to achieve this objective appear unrealistically

restrictive: real wages and salaries of government employees would need to be cut by up to 50 percent by 1986. In these circumstances, it is doubtful whether it will be possible to keep within the guidelines.

8.22 It will be recalled from Chapter 2 that GRZ is committed to shifting the pattern of its expenditures, both recurrent and capital, in line with restructuring of the economy from the dependence on copper and to make recurrent expenditures more supportive of investments in the productive sectors of the economy. More specifically, it is the intention that the recurrent budget be restructured to:

i. eliminate the budget deficit on the recurrent account;

ii. increase the share of the budget allocated to economic services;

iii. increase substantially the allocation to the Ministry of Agriculture and Water Development (MAWD); and

iv. increase the funds available for non-wage recurrent developmental charges or operating costs especially within those Ministries falling under economic services.

The scope for restructuring the pattern of expenditures, and especially recurrent expenditures in the context of the restrictive budgets outlined above, will, however, be extremely limited. Rising interest and amortization charges on both internal and external debt, which comprises a large proportion of Constitutional and Statutory expenditure on the recurrent budget, will further exacerbate the difficulties inherent in restructuring.

An Expenditure Programme for 1984-1985

8.23 The conclusion of the analysis of the preceding section is that short-term economic stabilization can only be achieved at the cost of further reductions in real per capita incomes. The extraordinary drop in per capita incomes suffered since 1974 makes this unacceptable. Moreover, the stabilization program by itself will not bring about economic recovery nor lead to restructuring in the longer run. The situation, nonetheless, demonstrates the vicious circle that Zambia has been caught in. As the price of copper has fallen, lower foreign revenue has meant a build up of foreign debt and lower imports. However, lower imports have reduced domestic production (including copper production) and this plus the fall in profits in the mines has increased the budget deficits. Subsequent attempts at restraint, both external and internal, just reduce efficiency still further. The shortage of imported inputs and materials is worsened by falling domestic inputs as the Government cuts back on staff, capital and operating expenditures. The result is that the production capacity of the economy is gradually grinding to a halt.

8.24 The way out of this vicious circle is to accompany economic stabilization with an Expenditure Programme (EP) designed primarily to increase capacity utilization in the productive sectors and to rehabilitate

and maintain the infrastructure necessary for the efficient operation of the productive sectors. Once economic recovery gets underway, it would generate the resources needed for economic restructuring in the longer-run context. In other words, laying the foundation for economic recovery in the next three years requires a series of programmes of input support, plus a number of more specialized projects to rehabilitate and replace capital. Because of the severe foreign exchange constraint on the economy, this will not be possible without additional foreign assistance.

8.25 On the basis of of the analyses of sectoral objectives and constraints of the preceding Chapters, Volume II of this report describes projects and programmes that GRZ wishes to implement with the assistance of the international community in the period 1984-1986 to achieve medium-term economic recovery. The total programme covers both operating and capital expenditures. It amounts to US$1,699 million. Table 8.4 gives a breakdown of the EP into categories consistent with the present needs of the economy.

Table 8.4

EXPENDITURE PROGRAMME 1984-1986
(In US$, Thousands)

	Mining		Industry		Agriculture		Energy		Transport		Communication		Tourism		Social		Total	
	$000	%	$000	%	$000	%	$000	%	$000	%	$000	%	$000	%	$000	%	$000	%
Replacement/Rehabilitation	15631	7.3	23301	4.6	40700	9.3	115500	68.0	22194	13.0	-	-	-	-	-	-	217326	12.8
Completion of on-going projects	111511	52.4	10702	2.1	-	-	-	-	-	-	-	-	-	-	-	-	122213	7.2
New Projects	1425	0.7	154818	31.0	281174	64.5	650	0.4	95000	55.6	19778	85.8					552845	32.5
Capital	(165)	(0.1)	(126318)	(25.3)	(129223)	(29.6)	(650)	(0.4)	(95000)	(55.6)	(19778)	(85.8)	-	-	-	-	(371154)	(21.8
Others	(1260)	(0.6)	(28500)	(5.7)	(151951)	(34.9)	-	-	-	-	-	-	-	-	-	-	(181711)	(10.7
Support for Increase Capacity Utilisation	84257	39.6	16845	3.4	-	-	53621	31.6	53738	31.4	3278	14.2	-	-	-	-	211739	12.4
Input Support	-	-	295000	58.9	111230	25.5	-	-	-	-	-	-	-	-	-	-	406230	23.9
Social Services	-	-	-	-	-	-	-	-	-	-	-	-	-	-	178488	100.0	178488	10.6
Miscellaneous	-	-	-	-	2800	0.7	-	-	-	-	-	-	7500	100.0	-	-	10300	0.6
TOTAL	212824	100.0	500666	100.0	435904	100.0	169771	100.0	170932	100.0	23056	100.0	7500	100.0	178488	100.0	1699141	100.0
Percentage	12.5%		29.6%		25.6%		10.0%		10.0%		1.4%		0.4%		10.5%		100%	

8.26 A number of comments on the EP should be made at this point. First, the projects presented are additional to those that GRZ is currently implementing, largely with donor assistance. In other words, the aid commitments required for the EP are over and above the undisbursed balances associated with existing aid commitments. Total commitments now sought from the international community is of the order of US$1,432 million.

8.27 GRZ realizes that the relatively large size of undisbursed balances from existing aid commitments is a reflection of the slow rate of project implementation. The reasons for the poor performance on project implementation include a shortage of government counterpart funds, administrative, manpower and procedural bottlenecks. GRZ is taking steps to remedy these weaknesses, particularly through improvements in budgetary procedures and the priority allocation of counterpart funds to externally funded projects. It also intends to strengthen the project monitoring and evaluation capabilities of NCDP and the sector Ministries (see Chapter 1, Volume II). Nonetheless, GRZ realizes that it would be beneficial to wind up some of the existing projects and to shift undisbursed aid funds to projects included in the EP. Projects that could be wound up are those that, for example, were started long ago and have made little progress because of a shortage of local funding, technical problems and, making due allowances for sunk costs, are no longer worthwhile. GRZ would like to review with donors the existing projects that fall into this category.

8.28 Secondly, because of the severe debt problem Zambia faces, its ability to borrow on non-concessionary terms is very limited. A large proportion of the new commitments being sought must be in the form of concessioanry loans or grants, i.e., official development assistance (ODA). ODA commitments to Zambia during the period 1978-1982 averaged about US$280 million per annum. Thus, the required foreign exchange component of US$480 million per year would represent a sizeable increase in ODA commitments over the next three years.

Effects of the Expenditure Program

8.29 The effect of the EP depends on the rate of disbursements. These are assumed to be US$55 million, US$259 million and US$409 million in each of the three years of the programme. Expected commitments and disbursements on the expenditure programme are shown in Table 8.5. This will affect the Balance of Payments in a number of ways as is shown in Table 8.6 below.

Table 8.5: Projections of Commitments and Disbursements 1984-86 with the Expenditure Programme

(In US$ Millions)

	New Commitments			Disbursements			
	1984	1985	1986	1984	1985	1986	After 1986
1. Existing Loans	-	-	-	196	170	50	301
2 Existing Grants	-	-	-	40	10	5	-
3. New Loans prior to CG Meeting	164	-	-	26	71	43	24
4. Expenditure Programme	579	582	126	55	259	409	564
of which:							
(i) Input Support	75	100	120	30	85	108	72
(ii) Projects	504	482	6	25	174	301	492
Comprising (i) Loans	504	527	126	45	209	343	560
(ii) Grants	75	55	-	10	50	66	4
5. New Programmes (to be developed) (1)	-	-	400	-	-	-	400
Total	743	582	526	317	510	507	1289

(1) This amount constitutes commitments for projects to be designed between now and 1986. Its purpose is to show what will be required to maintain the level of commitments after EP has been taken up.

Table 8.6: Balance of Payments (Current Account) Forecasts, 1984-86
After the Impact of Expenditure Programme
(in US$ Millions)

	1984	1985	1986
EXPORTS			
Copper	880	969	1134
Cobalt	36	38	40
Lead/Zinc	30	32	35
Other	30	32	35
Total	976	1071	1244
IMPORTS (FOB)			
Total	-655	-794	-965
INVISIBLES			
Non-Factor Services (net)	-276	-310	-358
Unrequited Transfers (net 1/)	-4	+1	+8
Net Investment Income (including interest on foreign debt)	-236	-262	-319
Total	-516	-571	-669
CURRENT ACCOUNT			
Surplus/Deficit (+/-)	-195	-294	-390

Memorandum: To convert the total invisibles account from a cash flow to an accruals basis, the following amounts (corresponding to rescheduled interest payments) must be added:

1984 -- US$58 million
1985 -- US$46 million
1986 -- Zero

1/ Includes official grants.

Table 8.6 (cont'd)

Balance of Payments (Capital Account) Forecasts 1984-86
After the Impact of the Expenditure Programme
(in US$ Millions)

	1984	1985	1986
CURRENT ACCOUNT DEFICIT (B/F)	-195	-294	-390
COMMITTED DEVELOPMENT FLOWS			
Projects	177	170	50
Import Support	19		
AID NEGOTIATED IN 1984			
Mining Rehabilitation	26	46	18
Agric. and Ind. Rehabilitation		25	25
EP LOAN DISBURSEMENTS			
Projects	15	114	230
Import Support	30	85	108
SUB-TOTAL DEVELOPMENT FLOWS	267	440	431
IMF NET INFLOW	61	0	0
DEBT AMORTIZATION (After Debt Relief)	-132	-140	-260
REDUCTION IN PIPELINE (Assumed)	-100	-100	-100
SUB-TOTAL: ALL KNOWN ITEMS	-99	-94	-319
BALANCE FOR COMMERCIAL FUNDING	+99	+94	+319

Memorandum: To convert the figure for debt amortization from a cash flow to an accruals basis, the following amounts (corresponding to rescheduled principal repayments) must be added:

1984 -- US$153 million
1985 -- US$115 million
1986 -- Zero

8.30 Exports are not expected to improve as a result of the programme. Whilst the extra resources will provide the capacity for a restructuring of the Zambian economy, it would be rash to count upon a rapid increase in non-mineral exports during the period in question. The effects of the programme therefore show up primarily in an increase in permitted imports and in the corresponding freight and interest charges. The programme provides the economy with extra imports (c.i.f.) amounting to US$53 million in the first year, US$177 million in the second year and US$287 million in the final year. Given the target current account deficit, some of the imports that would be purchased outside the programme

are foregone, because of the interest payable on the proportion of the programme funded by loans. For this reason, total c.i.f. imports rise by slightly less than total disbursements under the programme.

8.31 Moreover, some of the disbursed money is needed for the freight and insurance payable on the additional imports. The Bank of Zambia currently estimates that c.i.f. prices are 18-19 percent higher than f.o.b. prices for imports in the aggregate. Imports (f.o.b.) under the EP are therefore US$655 million in 1984, US$794 million in 1985 and US$965 million 1986, compared with US$609 million, US$644 million and US$721 million without the EP. As a result, the programme finances extra imports of US$46 million, US$150 million and US$244 million.

8.32 The sharp rise in the balance of commercial funding required in 1986 is due to the fact that no rescheduling is assumed. GRZ believes that the implementation of the policies and programmes elucidated in this report will improve Zambia's creditworthiness. Over the three year period of the EP, the balance for commercial financing is the same as in the baseline projection, but GRZ is confident that finance will be much more readily found.

8.33 The inflow of programme funds makes itself felt in two ways: the amount of unrequited transfers increases by the amount of grant aid provided and net investment income deteriorates by the amount of interest on loans arising out of the new commitments. For the purposes of mapping the flows, it was assumed that the proportion of grants in total funds disbursed would be the same for external finance flowing into Government accounts in 1983 (36 percent). The more grant finance available, the more imports will be permitted for a given current account deficit and the lower will be the interest burden in future years, which would otherwise compound Zambia's debt problems.

The Use of Resources and the Budget

8.34 Table 8.7 shows the estimates of GDP and the major components of expenditure which are expected to prevail with the EP. The effect of the EP is to reduce the decline in GDP expected in 1984 from 10 percent to 7 percent and to generate growth in real terms of 8 percent in 1985 and a further 3 percent in 1986. With the EP, real GDP is 16 percent higher in 1986 than in the no EP case. This allows substantially more stable paths for all components of expenditure and permits both Government and private consumption to regain their 1983 levels by 1986. The major impact, however, is on investment which grows by 70 percent between 1983 and 1986, compared to a fall of 20 percent in the absence of the EP.

Table 8.7: Gross Domestic Product, 1983-86, with the EP
(Kwacha, millions at constant 1983 prices)

	1983	1984	1985	1986
Real GDP	4222	3937	4270	4419
Percentage change over previous year	+2	-7	+8	+3
Government Consumption	1085	1001	976	1031
Private Consumption	2525	2256	2391	2525
Investment (Inc. Stocks) 1093	644	575	967	
Resources Balance	-32	+105	-64	-230

Note: The breakdown of GDP in 1984-86 by form of expenditure projects Government consumption to rise and fall in line with real recurrent expenditure. The resource balance is taken from the Balance of Payments forecasts. For 1984, the remainder is divided between private consumption and total investment in the same proportion as in 1983. Thereafter, private consumption is projected to return to 1983 levels by 1986; the residual is available for investment. Figures for 1983 are preliminary actuals (Source: CSO).

8.35 The proposed expenditure programme will have a profound effect on the government budget. With current expenditure continuing to be tightly controlled, the reduced current account deficit will permit simultaneously an increased provision of Kwacha cover for the enlarged capital program and an improved performance with respect to the government's targets for domestic borrowing, and in particular, borrowing from the Bank of Zambia.

8.36 Table 8.8 shows an alternative set of budget projections for the situation which will prevail with the EP. The outlook for current revenues is transformed from one of steady decline in all years in the no EP case to one of modest growth in real terms. As with GDP, the effect of the EP is most marked in 1985 and 1986, with forecast revenue in 1986, K192 million higher (in current prices) than in the no EP case. The increase in recurrent revenues is generated by higher income taxes and indirect tax receipts.

Table 8.8: GOVERNMENT BUDGET PROJECTIONS
(kwacha, million)

	NO EP			EP		
	1984	1985	1986	1984	1985	1986
CURRENT ACCOUNT						
Revenue	1223	1437	1643	1241	1548	1835
Expenditure	1342	1557	1955	1382	1617	2050
Deficit	-118	-120	-312	-141	-69	-215
CAPITAL ACCOUNT						
Grants	65	75	90	75	93	115
Expenditure	222	247	257	247	377	466
(Direct Capital Outlay	187	197	207	206	294	364
(Loans and Investment	35	50	50	41	83	102
Deficit	-157	-172	-167	-172	-284	-351
OVERALL DEFICIT	-275	-292	-479	-313	-353	-566
FINANCING						
External Borrowing	68	74	179	126	329	560
Non-Bank Domestic Borrowing	73	75	80	73	75	80
BORROWING from Banking system	134	143	220	114	-51	-74
Total Expenditure						
Current Prices	1564	1804	2212	1629	1995	2516
1983 Prices	1251	1203	1229	1303	1330	1398
% change in real expenditure	-9	-4	+2	-6	+2	+5

(1) External debt service is treated on a cash basis, which accounts for the sharp rise in current expenditure in 1986. On an accruals basis, both current expenditure and external borrowing are greater by about K 60 million in 1984 and K80 million in 1985.

8.37 Current government expenditures will continue to be tightly controlled under the EP and only a slight increase is envisaged over the no EP situation arising from increases in debt service and increased non-wage Recurrent Departmental Charges implied by the enlarged capital programme. The combined effect of increased revenues and tightly controlled expenditures on the current account will be a substantial improvement in the current account deficit, which will be reduced in real terms.

8.38 Expenditure on the capital account will increase dramatically under the EP but this will be consistent with both the provision of Kwacha counterpart cover on direct capital outlays and a reduction in residual borrowing from the banking system. Total capital expenditures are expected

to increase markedly as a result of the EP and to rise from K247 million in 1984 to K377 million in 1985 and K466 million in 1986 (in current prices). The projections assume that the government provides 20 percent Kwacha counterpart on grant- and loan-aided direct capital expenditures, and that input support programmes for the parastatal and private sectors do not pass through the government budget, except where these are project related.

8.39 The EP has the effect of increasing slightly the overall budget deficit. This is because the loan-funded component of the increase in foreign assistance appears as a financing item rather than as capital account revenue and the increased deficit is offset by increased external borrowing. The overall improvement in the budgetary situation resulting from the EP allows a reduction of borrowing from the banking system and indeed, retirement of some domestic debt in 1985 and 1986.

Concluding Remarks

8.40 To conclude, Zambia continues to face an economic and financial crisis, initiated by the sharp drop in copper prices in 1975. Zambia's terms of trade have deteriorated steadily since then, and by 1982, were 60 percent below the average for the early 1970's. In 1982 copper prices reached their lowest in real terms in the post-World War II period. Real GDP has been on a general downward trend since 1975, declining on average by one percent per year. The volume of imports declined by over 50 percent between 1975 and 1982 in spite of external borrowing, an accummulation of arrears on import payments, and a draw-down on reserves. The decline in imports has resulted in an economy-wide problem of underutilization of capacity, and especially in the mining sector, a large backlog of maintenance and rehabilitation requirements which has contributed directly to a declining trend in copper production and exports.

8.41 The mining sector which has long been the mainstay of the Zambian economy is in a state of decline. It has become clear that economically exploitable copper ore reserves will only be sufficient to maintain present levels of copper production for another seventeen years or so. After that production can be expected to decline sharply. The challenge facing Zambia therefore is to develop alternative sources of income, employment and exports. In the present circumstance of severe external and internal financial imbalances, this is indeed a very difficult task. GRZ believes that it is only through a sustained effort at policy and institutional reform designed to achieve financial stability in the short-run and efficient resources use in the longer run, in combination with a judicious choice of investments and public expenditures to make better use of existing capacity intially and exploit the country's potential, especially in agriculture and agro-industry, that this challenge can be met. The policy measures that GRZ has taken in the last two years are important towards establishing an environment conducive to the structural changes urgently required by the Zambian economy. The thrust of future sectoral and macro-economic policies that have been outlined in this Volume are consistent with meeting the inter-related objectives of economic stabilization, recovery and restructuring. GRZ's commitment to implementing these policies is firm.

8.42 Despite the progress that has been made towards financial stability in the last several months, the standard of living of the average Zambian has fallen further. The immediate prospect is for more of the same. GRZ believes that it is time for a major effort to increase capacity utilization in the productive sectors and to rehabilitate and maintain the infrastructure necessary for the efficient operation of the productive sectors. This should put the economy on the path of recovery, arrest the decline in real per capita incomes and generate the resources required for long-term economic restructuring. The expenditure program proposed in this report would begin this process. GRZ believes that the case that it has made for the support of the Consultative Group is based on a realistic assessment of the world economy and of Zambia's own capabilities.

REPUBLIC OF ZAMBIA

RESTRUCTURING IN THE MIDST OF CRISIS

VOLUME II

THE EXPENDITURE PROGRAMME

Consultative Group for Zambia
May 22-24, 1984

VOLUME II

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CHAPTER I

INTRODUCTION

1.1 In Volume I of this submission specific policy and institutional reforms undertaken by GRZ to achieve financial stability in the short run and efficient resource use in the longer run were detailed. These reforms will help to promote economic growth by making better use of existing capacity initially, and by diversifying the sources of income, employment and exports in the longer run.

1.2 But, the analysis provided in Volume I, Chapter 8 shows that short-term economic stabilization can only be achieved at the cost of further reductions in real per capita incomes. It concludes that economic recovery in the next three years requires additional external capital inflows to support a series of programmes aimed at utilizing existing capacity more fully plus a number of more specialized projects to rehabilitate and replace capital.

1.3 Therefore, in line with the objectives of GRZ's restructuring and developmental efforts an Expenditure Programme is presented in this Volume. It covers both operating and capital expenditure and represents the most essential and crucial elements of public expenditures to ensure economic recovery in the medium term.

1.4. In the light of the present state of the Zambian economy and the policy objectives of GRZ, the criteria for public investments and expenditure that the Government will follow for the next three years are:

(i) to complete economically viable ongoing projects;
(ii) to rehabilitate and properly maintain the mining industry to increase its efficiency and competitiveness;
(iii) to rehabilitate and increase capacity utilization in productive sectors of the economy, particularly industry and agriculture;
(iv) to promote non-traditional exports;
(v) to rehabilitate existing infrastructure and to expand others as necessary for the successful and efficient operation of the production sectors;
(vi) to expand social services, particularly in education and health.

1.5 Using the above criteria an Expenditure Programme for the period 1984-86 has been drawn up and the following Tables show:

(1) the total programme (Expenditure Programme) on a sectoral basis and by the nature of expenditure (Table I);
(2) the total fund sought from the international community on a sectoral basis and by the nature of expenditure (Table II);

(3) The total expenditure programme and fund sought broken down into the foreign exchange and the local cost components (Table III).

In summary the total Expenditure Programme and the funds sought from the international community are as follows:

	US$ millions		
	Foreign Costs	Local Costs	Total
Expenditure programme (EP)	1415.4	283.7	1699.1
Funds sought	1388.1	43.8	1431.9

Components of the Expenditure Programme

1.6 With regard to the classification by nature of expenditure, the category "support for increase in capacity utilization" includes items of expenditure required to improve the efficiency of existing industries and operations through the provision for example of essential equipment for debottle-necking constraints in certain processes. As is shown in Table I, this category of expenditure absorbs 12.4 percent of the total programme. Over 90 percent of this expenditure relates to the needs of the mining energy and transport sector. The specific projects for which funds are being sought for these sectors are given in Chapters 2, 5 and 6.

1.7 The rehabilitation and replacement needs of the economy have been emphasized in the discussion in Volume I. About 13 percent of the total Expenditure Programme is for this purpose. The energy sector alone accounts for 53 percent of this category of expenditures. This is because of the large investments required to modify the Indeni Refinery (Project Chapter 5). The rest of the rehabilitation and replacement expenditures are more or less equally distributed among the remaining sectors with agriculture, industry and transport absorbing 38 percent.

1.8 Table I shows that only 7.2 percent of the EP is for the completion of ongoing projects. One of the criteria mentioned earlier for Public Investments and Expenditures is the need to complete economically viable ongoing projects. With regard to donor-supported ongoing projects it was mentioned in Chapter 8 of Volume I that it would be beneficial to wind up some of the existing projects and to shift funds to high priority projects. It is for that reason that GRZ wishes to review with donors the portfolio of ongoing projects. Such a review would assist in identifying those projects that need to be completed as soon as possible. GRZ also recognizes the critical need to improve its project implementation capacity. Measures to achieve this goal are discussed below.

1.9 About a third of the EP has been classified as new projects. Most of the investments are for the agricultural and agro-industrial sectors. Within the agricultural sector the projects are of two types: first, there are those denoted under "capital" and are of a directly productive nature (e.g., Fisheries Development - AG2) export-oriented (coffee production, Phase II - AG 7) or infrastructure support for small-scale agricultural production (storage project). Secondly, as noted earlier GRZ is putting considerable emphasis on programmes and policies to increase the productivity of the small-scale farmer. Many of the new projects referred to as "Others" aim to assist in removing the constraints facing the farmer. Among these are a Research and Extension Programme (Cap 3, AG4), Livestock Development Program (Cap 3, AG11) and Agricultural Credit (Cap 3, AG13 and 14). In all 84 percent of the new projects under this category are within the agricultural sector.

1.10 It can be noticed from Table I, a total of US$129.2 million is required for new projects in the industrial sector. As has been stressed, GRZ's objective in the industrial sector is to increase capacity utilization and increase the efficiency of existing industries rather than creation of additional capacity. Thus, although 9 projects are presented in Chapter 4 as "New-Capital" projects all of them with the exception of the Pulp and Paper Project (IN 12) require relatively little capital investment. Indeed the foreign exchange requirements of the Pulp and Paper project alone is US$103 million or 80 percent of the total funds sought for new industrial projects.

1.11 Finally, there is the "Input Support" category. As repeatedly mentioned in Volume I, many sectors of the economy are in short of basic supplies and inputs. This has led to a higher unit cost of production and the severe under-utilization of plant and equipment. It is imperative to release the constraint on economic activity with the provision of necessary funds for the importation of raw materials and spare parts. Consequently, about one-fourth of the EP is for this purpose -- input support. In the agricultural sector it is estimated that US$111 million is required over the next 3 years for the importation of fertilizer, farm implements and spare parts. This represents 27 percent of the total input support requirements.

1.12 The problem of under-utilization of capacity is probably severest in the industrial sector. A number of reasons are given in Chapter4 below as to why boosting industrial production through increased efficiency and better utilization of capacity would, in the short run, have a greater impact on economic growth and government revenues than for most other sectors. In order to achieve a reasonable level of capacity utilization in general in the manufacturing -- about 75 percent -- GRZ estimates that in addition to the level of foreign exchange that is normally expected to be allocated to the manufacturing sector an amount of US$295 million would be required. This amount has therefore been included in the EP as "input support" for the industrial sector to meet the needs of both the public and private sectors. GRZ recognizes that the efficiency manufacturing farms

vary widely and that criteria will have to be developed for allocating foreign exchange to priority sub-sectors and within those to firms that operate economically and efficiently. As noted in Chapter 4 below GRZ has requested the World Bank to finance an industrial re-orientation project. This project would provide foreign exchange for imported raw materials and spare parts for those industries considered as effient producers for the local market or exports. To the extent that donors will provide cofinancing for this World Bank sponsored project which also seeks to address many of the policy defficiencies in the industrial sector, it would form the principal vehicle for the implementation of the Input Support Programme.

Project Implementation

1.13 GRZ recognizes that the degree of success with which the Expenditure Programme can be impleneted depends critically on its project implementation capacity. In this regard, steps are being taken to deal with many of the factors such as the lack of domestic counterpart funds, manpower, administrative and procedural bottlenecks that have slowed the implementation of development projects. In summary, the reform efforts involve:

(i) improved budgetary procedures;
(ii) strengthening the project evaluation and monitoring capacity of the national commission for development planning and sector ministries;
(iii) improving the technical capacity of ZIMCO in the field of investment analysis and project management and control.

These efforts have been described in Volume I of this report but it would be useful to highlight them here:

1.14 In respect of budgeting, in the 1984 Budget, GRZ has sought to provide adequate counterpart funds for externally aided projects. This pattern will be continued in future to ensure the rapid completion of externally aided projects. Many aspects of budgetary reforms that GRZ is introducing (Volume I, Chapter 2) should also contribute towards the speedy implementation of development projects and to increase the productivity of investments.

1.15 Firstly, the recurrent and capital accounts have been consolidated to eliminate the problems caused by paralled but uncoordinated preparation, review and implementation of two different budgets. Under a uniform budget structure, budget preparation and review is to be focussed on the best use of total resources available to each Ministry. The linkage between recurrent and capital expenditure will become more apparent by examining whether greater productivity and provision of resources could be achieved through higher funding of recurrent charges or through additional capital investment. Examination of recurrent implications of capital

investment is to be promoted, and provision for these costs are to be anticipated in the budgets for future years.

1.16 Secondly, GRZ in 1984 introduced the practice of Medium-Term Financial Planning (MFTP) which, inter alia, attempts to match expenditure requirements against the likely availability of resources. Based on the results of the MFTP, GRZ would have an estimate of the funds likely to be available for each type of expenditure over the next three years. The estimate of wages, RDC's capital structure and grants would, in turn, form the basis for issuing specific budget guidelines to the operating ministries, informing them in advance of the likely available resources over the next three years and encouraging them to submit realistic and constrained requests for the upcoming year.

1.17 Thirdly, the Annual Plan is to become forward-looking. The Annual Plan for 1985 will, unlike in the past be prepared before the submission of the Budget so that the plan determines the priorities for allocating resources among ministries and will be used as a basis for drawing up budget guidelines. In this way the contents of the Annual Plan will focus on how the activities of each Ministry should support Zambia's development objective.

1.18 GRZ also seeks to strengthen the project evaluation and monitoring capacity of the NCDP. A monitoring system is to be designed to include preparation of quarterly reports indicating the progress of projects and comparing the rate at which projects are being incurred. These reports would make it possible to identify problem projects and to propose appropriate action. The first step is to establish a computerized monitoring system of project monitoring in all sectors of the economy. The inputs for the system would include some project coding, information of investment expenditures in current and constant terms, their distribution over a period of years, the sector and province concerned and sources of financing. Discussions are currently underway with a donor agency for assistance in this area.

1.19 A large proportion of Public Investment takes under ZIMCO. The Group follows comprehensive Corporate Planning and Annual Budgeting process in respect of production and operations, revenue and recurrent expenditure, Investment and Capital Expenditure. Project implementation and Project Expenditure are closely monitored and as a result the rate of implementation of projects in the Group has been very satisfactory. This will be further reinforced by the measures recently taken as described in Volume I (Chapters 2 and 5) which will enable ZIMCO companies to operate efficiently under a commercial environment and help strengthen the technical capacity of the management of ZIMCO in the fields of investment analysis. The formulation of sound economic criteria for incorporation into ZIMCO's procedures for project and performance evaluation, which is an objective of these efforts, would help avoid future uneconomic investments, identifying existing plants that are operating economically, lead to a more rational allocation of resources.

TABLE I

EXPENDITURE PROGRAMME 1984-1986
(In US$, Thousands)

	Mining		Industry		Agriculture		Energy		Transport		Communication		Tourism		Social		Total	
	$000	%	$000	%	$000	%	$000	%	$000	%	$000	%	$000	%	$000	%	$000	%
Replacement/Rehabilitation	15631	7.3	23301	4.6	40700	9.3	115500	68.0	22194	13.0	-	-	-	-	-	-	217326	12.8
Completion of on-going projects	111511	52.4	10702	2.1	-	-	-	-	-	-	-	-	-	-	-	-	122213	7.2
New Projects	1425	0.7	154818	31.0	281174	64.5	650	0.4	95000	55.6	19778	85.8					552845	32.5
Capital	(165)	(0.1)	(126318)	(25.3)	(129223)	(29.6)	(650)	(0.4)	(95000)	(55.6)	(19778)	(85.8)	-	-	-	-	(371154)	(21.8)
Others	(1260)	(0.6)	(28500)	(5.7)	(151951)	(34.9)	-	-	-	-	-	-	-	-	-	-	(181711)	(10.7)
Support for Increased Capacity Utilisation	84257	39.6	16845	3.4	-	-	53621	31.6	53738	31.4	3278	14.2	-	-	-	-	211739	12.4
Input Support	-	-	295000	58.9	111230	25.5	-	-	-	-	-	-	-	-	-	-	406230	23.9
Social Services	-	-	-	-	-	-	-	-	-	-	-	-	-	-	178488	100.0	178488	10.6
Miscellaneous	-	-	-	-	2800	0.7	-	-	-	-	-	-	7500	100.0	-	-	10300	0.6
TOTAL	212824	100.0	50[illegible]66	100.0	435904	100.0	169771	100.0	170932	100.0	23056	100.0	7500	100.0	178488	100.0	1699141	100.0
Percentage	12.5%		29.6%		25.6%		10.0%		10.0%		1.4%		0.4%		10.5%		100%	

TABLE II

EXPENDITURE PROGRAMME 1984-1986

FUNDS SOUGHT
(In US$, Thousands)

	Mining		Industry		Agriculture		Energy		Transport		Communication		Tourism		Social		Total	
	$000	%	$000	%	$000	%	$000	%	$000	%	$000	%	$000	%	$000	%	$000	%
Replacement/Rehabilitation	13078	13.4	17503	3.6	38000	10.4	99000	69.4	17754	12.4	-	-	-	-	-	-	185335	12.9
Completion of on-going projects	31292	32.2	7336	1.5	-	-	-	-	-	-	-	-	-	-	-	-	38628	2.6
New Projects	1263	1.3	146004	30.3	231101	68.3	600	0.4	90000	62.6	11814	70.7					480782	33.5
Capital	(113)	(0.1)	(117504)	(24.4)	(100179)	(27.4)	(600)	(0.4)	(90000)	(62.6)	(11814)	(70.7)	-	-	-	-	(320210)	(22.0)
Others	(1150)	(1.2)	(28500)	(5.9)	(130922)	(35.9)	-	-	-	-	-	-	-	-	-	-	(160572)	(11.1)
Support for Increase Capacity Utilisation	51700	53.1	16494	3.4	-	-	43137	30.2	35980	25.0	4898	29.3	-	-	-	-	152209	10.6
Input Support	-	-	295000	61.2	93050	25.5	-	-	-	-	-	-	-	-	-	-	388050	27.1
Social Services	-	-	-	-	-	-	-	-	-	-	-	-	-	-	176600	100.0	176600	100.0
Miscellaneous	-	-	-	-	2800	0.8	-	-	-	-	-	-	7500	100.0	-	-	10300	1.0
TOTAL	97333	100.0	482337	100.0	364951	100.0	142737	100.0	143734	100.0	16712	100.0	7500	100.0	176600	100.0	1431904	100.0
Percentage	6.7%		33.7%		25.5%		9.9%		10.0%		1.1%		0.5%		12.6%		100%	

TABLE III

EXPENDITURE PROGRAMME 1984-1986
(In US$, Thousands)

Sector Summary	Foreign Costs	Local Costs	Expenditure Programme	Funds Sought		Total
				Foreign	Local	
Mining	12190	90904	212824	97333	-	97333
Industry	482193.12	18473	500666	482337	-	482337
Agriculture	348742	87162	435904	348151	16800	364951
Energy	142737	27034	169771	142737	-	142737
Transport	143734	27198	170932	143734	-	143734
Communications	13190	9866	23056	16712	-	16712
Toruism	7500.31	0.06	7500	7500	-	7500
Social	155438	2350	17488	149589	27011	176600
	141454.43	283687	1699141	1388093	43811	1431904

Chapter 2

MINING

Introduction

2.1 For any long-term growth strategy to succeed the mining industry which is the major provider of foreign exchange must play a pominent role. It is therefore essential that previous levels of efficiency are restored to make the mining industry profitable again and competitive in world markets. To achieve this goal as was shown in Chapter 3 means, among other things (1) improving the efficiency of ZCCM, its productivity at the mines, at the plant and its central services to reduce costs; (2) undertaking major replacement and rehabilitation investments for high priority equipment and spares to rehabilitate existing mine and plant facilities. Measures under way or planned to achieve the first objective were described in Volume I, Chapter 3. Wtih regard to the rehabilitation and replacement investments, the Mining Rehabilitation Project agreed with the World Bank, EEC and the ADB, which cost US$260 million and covers the period 1984-1986 constitutes GRZ's major effort in this area. But because financing is more or less secured, this project is not included in the EP as well as other projects to be funded by ZCCM own resources. Similarly, the Tailings Leach Plant Stage III project under which a new plant will be constructed to increase copper production by treating reclaimed tailings is excluded. The cost of production of copper from tailings is estimated at about a quarter that of copper from ores. The plant will produce a total of 554,000 tonnes of copper over its total useful life. In the short to medium run, increases in copper output likely to come solely from this project.

2.2 In all, there are sixteen projects in the Mining sector for which funds are sought. In respect of the Copper Sector, as stated in Chapter 3 of Volume I (para. 3.23) the bulk of ZCCM's rehabilitation and replacement requirements will be financed by the World Bank, the EEC, the African Development Bank as well as from ZCCM's internally generated funds. Thus the project list below refers to these projects for which outside financing has not yet been identified. Projects MI 01 and MI 02 relate to replacement and rehabilitation of equipment amounting to US$13.1 million. Projects MI 03 to MI 11 relate to completion of on-going projects--totalling US$31.2 million--which will essentially help replace productive capacity lost because of exhaustion and decline in ore grades or will allow full exploitation of by-products such as cobalt (MI 03) or Tailings (MI 09). Project MI 13, MI 14 and MI 16 aim at diversifying into specialist minerals, particularly those that are inputs into the fertilizer industries (phosphate and sulphur).

2.3 The main consumers of coal in Zambia are the copper industry, lead and zinc industries and the fertilizer and cement industries. Together they account for over 87% of the total consumption which was estimated at about 540,000 tonnes in 1981/82. It is estimated that if coal

had been readily available, consumption would have been 10-15% higher, at existing price levels. The shortfall was covered mainly by additional use of imported heavy fuel oil. At present, Maamba Collieries is producing at 57% of its rated capacity. A reason for this poor performance has been the lack of foreign exchange and the consequent shortage of input and spare parts as well as the neglect of maintenance work. To the extent that Maamba Coilliery can be rehabilitated to increase its efficiency and output, the impact on the other important sectors of the economy would be positive and immediate. Negotiations with the African Development Bank are well advanced for a loan of US$19 million to cover the immediate needs of spares, equipment replacement and renovation and maintenance work. The loan is expected to be fully disbursed in 1984. In addition, a study financed by the World Bank is currently underway to determine the medium-term rehabilitation needs of the Colliery. Project MI 13 is included in the EP to cover the foreign exchange requirements in 1985-1986 as part of the medium-term rehabilitation requirements.

MINING

PROJECT LIST

Projects		Funds sought 1984-1986 US$ Million
Replacement/Rehabilitation:		
MI 01	Underground Equipment Replacement	2.7
MI 02	Nchanga Open Pit Equipment	10.4
		13.1
Completion of on-going Projects:		
MI 03	Concentrator Modification for Cobalt	2.7
MI 04	Block A Mining	1.0
MI 05	Mufulira West Extension	0.9
MI 06	Mining at Depth	11.8
MI 07	Tailings Dam No. 11	2.1
MI 08	Central Shaft Equipping Declines	0.6
MI 09	Acid Plant	6.7
MI 10	Bulba Stage II Expansion	4.7
MI 11	Konkola I Shaft Pump Chambers	0.8
		31.3
New Projects:		
Capital		
MI 12	Nkana Smelter	0.1
Others		
MI 13	Carbonite Deposit Study	0.5
MI 14	Sulphur Deposit Study	0.6
		1.2
Support for Increased Capacity Utilisation		
MI 15	Colliery Rehabilitation Project	44.2
MI 16	Small Mine Development	7.5
		51.7
	TOTAL	97.3

MI 01. UNDERGROUND EQUIPMENT REPLACEMENT

1. Executing Agency

Zambia Consolidated Copper Mines Limited (ZCCM)

2. Description and Justification of the Project

The Nchanga underground mine produces some 3.3 million tonnes of ore per year yielding some 60,000 tonnes of copper. It is the most profitable operation in the Copperbelt. The project caters for the replacement of equipment in the mine, including drillig equipment to maintain existing production.

3. Status of the Project

The equipment to be replaced has been identified and costed.

4. Starting Date

April 1984

5. Completion Date

March 1988

6. Estimated Costs

	to end 1983	1984	1985	1986	balance to complete
Capital Costs					
Foreign ($'000)	-	1195	469	1014	533
(K'000)	-	1992	782	1690	888
Local (K'000)	-	1155	453	980	515
Total (K'000)	-	3147	1235	2670	1403
Recurrent Costs (K'000)		na	na	na	423

7. Sources of Financing

No financing yet secured.

8. Commitment Required 1984-1986 - $2,678,000

M1 02. NCHANGA OPEN PIT EQUIPMENT

1. Executing Agency

Zambia Consolidated Copper Mines Limited (ZCCM)

2. Description and Justification of the Project

The Nchanga open pit copper mine is one of the largest in the world, measuring 3.5 km in length, 1 km in width and nearly 300 m in depth. The Division also employs one of the largest open pit vehicle and shovel fleets, including 17 electric shovels ranging in capacity from 2 to 17.5 m^3 and 123 rear dump trucks from 35 to 200 tonne capacity. As foreign exchange shortages have prevented adequate maintenance and replacement, the fleet is now in need of urgent rehabilitation and renovation in order to maintain the current rate of extraction of 6.5 million tonnes of ore per annum. While the bulk of the needs are covered in the Zambia Mining Rehabilitation Project, additional funds are now sought for open pit trucks and support equipment.

3. Status of the Project

New project, rehabilitation and replacement.

4. Starting Date

July 1984

5. Completion Date

March 1986

6. Estimated Costs

	to end 1983	1984	1985	1986	balance to complete
Capital Costs					
Foreign ($'00)	-	5200	5200	-	-
(K'000)	-	8667	8667	-	-
Local (K'000)	-	833	833	-	-
Total (K'000)	-	9500	9500	-	-

7. Sources of Financing

No financing secured.

8. Commitment Required 1984-1986 - $10,400,000

M1 03. CONCENTRATOR MODIFICATIONS FOR COBALT

1. Executing Agency

Zambia Consolidated Copper Mines Limited (ZCCM)

2. Description and Justification of the Project

In 1979-80 it was determined that a section of the upper ore-body of the Nchanga Open Pit copper mine contained cobalt. However, the existing concentrator is not suitable for the treatment of the highly dolomitic ore. In 1981 design work started for the conversion of a section of the concentrator for treatment of the ore, and work on the coversion started in 1982. Some 200 thousand tonnes of ore have already been mined and they are in storage awaiting completion of the conversion to be treated without loss of the cobalt. In all, the conversion will allow treatment of 74,000 tonnes of copper and 22,000 tonnes of cobalt. The project evaluation shows a net present value of US$119 million (1983 dollars) at a 10 percent discount rate.

3. Status of the Project

Under way. Over half of the initial total project cost has been spent.

4. Starting Date

Ongoing

5. Completion Date

March 1985

6. Estimated Costs

	to end 1983	1984	1985	1986	balance to complete
Capital Costs					
Foreign ($'000)		2699			
(K'000)		4498			
Local (K'000)		2012			
Total (K'000)	7347	6520	-	-	-
Recurrent Costs (K'000)			520	693	693

7. Sources of Financing

No financing secured.

8. Commitment Required 1984-1986 - $2,699,000

M1 04. BLOCK A MINING

1. Executing Agency

Zambia Consolidated Copper Mines Limited (ZCCM)

2. Description and Justification of the Project

To mine Block A of the Nchanga underground copper mine, in order to maintain production at 3 million tonnes of ore per annum. Block A will produce 39,700 tonnes of copper in ore per year beginning in 1987. The project has been evaluated and shown to have a net present value of US$64.3 million (1983 dollars) when discounted at 10 percent.

3. Status of the Project

Underway; some 10 percent of the initial total cost has been spent.

4. Starting Date

Ongoing

5. Completion Date

March 1987

6. Estimated Costs

	to end 1983	1984	1985	1986	balance to complete
Capital Costs					
Foreign ($'000)	142	326	326	326	-
(K'000)	237	543	543	543	-
Local (K'000)	417	962	962	962	-
Total (K'000)	654	1505	1505	1505	-
Recurrent Costs (K'000)		-	-	-	258

7. Sources of Financing

No financing secured.

8. Commitment Required 1984-1986 - $978,000

MI 05. MUFULIRA WEST EXTENSION

1. Executing Agency

Zambia Consolidation Copper Mines Limited (ZCC)

2. Description and Justification of the Project

The project extends the mining operations at the Mufulira underground copper mine to allow production down to 960 metres. It consists of mining service and conveyor lamps and the installation of a crusher station on the 990 metre level. The project will provide 84,300 tonnes of copper over a period of six years. It has been evaluated and shown to have a net present value of US$43 million (1983 dollars) when discounted at 10 percent.

3. Status of the Project

Underway. About one-fourth of the total cost has been spent.

4. Starting Date

October 1983

5. Completion Date

June 1987

6. Estimated Costs

	to end 1983	1984	1985	1986	balance to complete
Capital Costs					
Foreign ($'000)	420	723	45	157	51
(K'000)	700	1205	175	262	85
Local (K'000)	1297	2823	497	520	1190
Total (K'000)	1997	4028	572	782	1275
Recurrent Costs (K'000)	-	-	-	-	433

7. Sources of Financing

No financing secured.

8. Commitment Required 1984-1986 - $925,000

M1 06. MINING AT DEPTH

1. Executing Agency

Zambia Consolidated Copper Mines Limited (ZCCM)

2. Description and Justification of the Project

Sinking and commissioning two subvertical shafts to allow production down to the 1340 metre level, and associated development expenditure from the 880 metre level downwards at Mufulira Mine. The project will contribute 795,000 tonnes of copper over a period of 12 years beginning in 1990. The project evaluation shows a net present value of US$167 million (1983 dollars) at a discount of 10 percent.

3. Status of the Project

Underway; some 30 percent of total cost has already been spent.

4. Starting Date

Ongoing

5. Completion Date

April 1990

6. Estimated Costs

	to end 1983	1984	1985	1986	balance to complete
Capital Costs					
Foreign ($'000)		4531	4331	7462	
(K'000)		7552	7218	12437	
Local (K'000)		4017	3838	6648	
Total (K'000)	55328	11568	11057	19085	95514
Recurrent Costs (K'000)		-	-	-	9667

7. Sources of Financing

Not secured.

8. Commitment Required 1984-1986 - $11,793,000

MI 07. TAILINGS DAM NO. 11

1. Executing Agency

Zambia Consolidated Copper Mines Limited (ZCCM)

2. Description and Justification of the Project

The proposal is for the use of the Mufulira Valley for the disposal of tailings (i.e., the waste product of the copper concentration process) from 1987. The areas of storage lies between the Butondo Road Bridge and the Southeren face of closed tailings dam No. 9 which is approximately 4 km downstream. The storage capacity provided will be 55 million tonnes, thus providing tailings disposal facilities to the end of the century at currently scheduled productionrates. The scheme is to comply with environmental requirements.

3. Status of the Project

Underway; some 6 percent of the cost has been spent.

4. Starting Date

October 1983

5. Completion Date

March 1988

6. Estimated Costs

	to end 1983	1984	1985	1986	balance to complete
Capital Costs					
Foreign ($'000)	234	1136	1412	681	221
(K'000)	390	1893	2353	1135	368
Local (K'000)	1350	6585	8183	3943	1291
Total (K'000)	1740	8478	10536	5078	1659
Recurrent Costs (K'000)	-	-	-	-	-

7. Sources of Financing

No financing secured.

8. Commitment Required 1984-1986 - $2,093,000

M1 08. CENTRAL SHAFT EQUIPPING DECLINES

1. Executing Agency

Zambia Consolidated Copper Mines Limited (ZCCM)

2. Description and Justification of the Project

To provide ore and waste handling facilities through equipping of extended declines at Central Mindola Shaft in the Nkana Copper Mine. It is estimated that about 2 million tonnes of ore containing 29,000 tonnes of copper and 2,300 tonnes of cobalt will be mined up to the year 1979/98. The total finished metal production is estimated at 25,000 tonnes of copper and 644 tonnes of cobalt.

3. Status of the Project

Underway; over half of the total cost has already been spent.

4. Starting Date

Ongoing

5. Completion Date

March 1985

6. Estimated Costs

	to end 1983	1984	1985	1986	balance to complete
Capital Costs					
Foreign ($'000)	857	610	-	-	-
(K'000)	1428	1016	-	-	-
Local (K'000)	232	418	-	-	-
Total (K'000)	1660	1434	-	-	-
Recurrent Costs (K'000)	-	-	67	67	67

7. Sources of Financing

No financing secured.

8. Commitment Required 1984-1986 - $610,000

M1 09. ACID PLANT

1. Executing Agency

Zambia Consolidated Copper Mines Limited (ZCCM)

2. Description and Jusitification of the Project

Sulphuric acid is used in some processes in the production of copper, notably in the leaching of low grade ores and of concentrator tailings. Copper ores, on the other hand, contain sulphur, which can be recovered and made into sulphuric acid. At present there is an acid plant in Nkana that supplies acid to the rest of the operations. Demand for acid will, however, increase, as Stage III of the Tailings Leach Plant becomes operational in 1986. This project is for the installation of a sulphuric acid plant in Kaulushi to supplement the production from Nkana. The plant will produce approximately 70,000 tonnes per annum of concentrated sulphuric acid; additionally it will eliminate serious atmosphere pollution in the area. The project evaluation shows a net present value of US$52 million (1983 dollars) at a 10 percent discount rate.

3. Status of the Project

Underway; nearly 70 percent of total cost has already been spent.

4. Starting Date

Ongoing

5. Completion Date

March 1987

6. Estimated Costs

	to end 1983	1984	1985	1986	balance to complete
Capital Costs					
Foreign ($'000)		2000	3700	1000	-
(K'000)		3332	6167	1667	-
Local (K'000)		8333	8167	1833	-
Total (K'000)	36812	11666	14334	3500	-
Recurrent Costs (K'000)		-	-	-	2702

7. Sources of Financing

No financing yet secured for the remainder of project. A COFACE loan covered US$879 million of the previous expenditure.

8. Commitment Required 1984-1986 - $6,700,000

MI 10. BALUBA STAGE II EXPANSION

1. Executing Agency

Zambia Consolidated Copper Mines Limited (ZCCM)

2. Description and Justification of the Project

The Luanshya Division of ZCCM comprises the Luanshya underground mine and the Baluba underground mine. While production from the former is contracting due to exhaustion of the ores, output from Baluba is expanding. The objective of this project is to extend mining operations at Baluba to yield ore arisings of 3.3 million tonnes per annum and thus make up for the decline in production from Luanshya.

The project involves:

(a) extending the mine in debth
(b) expanding concentrator capacity at Luanshya
(c) installing a cable belt system for surface ore transport
(d) related engineering services.

The project has been evaluated and has an internal rate of return of 40.7 percent and a net present value of US$167.17 million (1983 dollars) at a 10 percent discount rate. It would yield an additional 563,000 tonnes of copper and 15,370 tonnes of cobalt between 1984/85 and 1997/98.

3. Status of the Project

Underway. Some two-thirds of the total cost have already been spent.

4. Starting Date

Ongoing

5. Completion Date

March 1987

6. Estimated Costs

	to end 1983	1984	1985	1986	balance to complete
Capital Costs					
Foreign ($'000)		2997	1305	370	-
(K'000)		4995	2175	617	-
Local (K'000)		31038	20922	6300	-
Total (K'000)	130622	32033	23097	6917	-
Recurrent Costs (K'000)	-	-	-	-	9833

7. Sources of Financing

No financing secured.

8. Commitment Required 1984-1986 - $4,672,000

M1 11. KONKOLA 1 SHAFT PUMP CHAMBERS

1. Executing Agency

Zambia Consolidated Copper Mines Limited (ZCCM)

2. Description and Justification of the Project

The Konkola underground copper mine is the richest in the Copperbelt, with reserves amounting to 7.7 million tonnes of containd copper. It is also one of the wettest mines in the world, with over 400,000 cubic metres of water being pumped from it every day. This project is for the completion of pump chambers at No. 1 shaft to enable the current mining rate to be maintained. The project will enable mining of about 8.3 million tonnes of ore between 1986 and 1988, resulting in a finished copper production of about 2 million tonnes.

3. Status of Project

Underway. Stage 1 of the project is at an advanced stage of completion, with three-fourths of the total cost having already been spent.

4. Starting Date

Ongoing

5. Completion Date

March 1986

6. Estimated Costs

	to end 1983	1984	1985	1986	balance to complete
Capital Costs					
Foreign ($'000)		822	-	-	-
(K'000)		1370	-	-	-
Local (K'000)		4428	860	-	-
Total (K'000)	20912	5798	860	-	-
Recurrent Costs (K'000)		-	-	1333	1333

7. Sources of Financing

No financing secured.

8. Commitment Required 1984-1986 - $822,000

MI 12. NKANA SMELTER STUDY

1. Executing Agency

Zambia Consolidated Copper Mines Limited (ZCCM)

2. Description and Justification of the Project

The Nkana Divison of ZCCM has one of the world's biggest copper smelters, capable of treating 80,000 tonnes of concentrates per month by means of reverberatory furnaces fired by coal and fuel oil. The furnaces, however, are both old and not highly fuel-efficient, and the possibility of replacing them with more fuel-efficient units has been discussed in the past. This study would explore the various options open to improve the efficiency and productivity of the smelter, including:

(a) the introduction of electric furnaces
(b) the building of an oxygen flash furnace
(c) modifications and rehabilitation of the existing reverberatory furnace.

3. Status of the Project

New project; feasibility study.

4. Starting Date

July 1984

5. Completion Date

November 1984

6. Estimated Costs

	to end 1983	1984	1985	1986
Capital Costs				
Foreign ($'000)	-	112.5	-	-
(K'000)	-	187.5	-	-
Local (K'000)	-	87.5	-	-
Total (K'000)	-	275	-	-

7. Sources of Financing

No financing secured.

8. Commitment Required 1984-1986 - $112,500

M1 13. NKOMBWA HILL CARBONATITE DEPOSIT

1. Executing Agency

Mineral Exploration Department (Minex)

2. Description and Justification of the Project

The existence of a large carbonatite containing a phosphate bearing mineral (isokite) in Nkomba Hill, Norther Province has been known since the 1950s. In 1982-83 Minex investigated the deposit and estimated reserves of about 150 million tonnes of about 10 percent P_2O_5 in favourable mining conditions. The mineral, however, has a complex composition, and research needs to be conducted to establish the most adequate beneficiation and utilisation method. Also the depth and internal composition of the orebody need to be determined, and a drilling programme must be carried out for these purposes. The deposit is a potentially very attractive source of phosphate for the growing Zambian fertilizer industry.

3. Status of the Project

New project; research and drilling. The research component has been discussed by Minex with the Colorado School of Mines and Purdue University, who have expressed willingness to undertake it.

4. Starting Date

Mid-1984

5. Completion Date

Mid-1985

6. Estimated Costs

	to end 1983	1984	1985	1986	balance to complete
Capital Costs					
Foreign ($'000)	-	275	275	-	-
(K'000)	-	417	417	-	-
Local (K'000)	-	42	42	-	-
Total (K'000)	-	459	459	-	-

7. Sources of Financing

Financing not yet secured.

8. Commitment Required 1984-1986 - $550,000

M1 14. SULPHUR DEPOSITS IN LUSAKA PROVINCE

1. Executing Agency

Mineral Exploration Department (MINEX)

2. Description and Justification of the Project

The only pyrite mine currently in operation in Zambia is the small Nampundwe mine near Lusaka, which provides the rarw material for the production of sulphuric acid for fertilizers as well as for the copper industry. While the latter has its own sources of sulphur resulting from the treatment of copper ores, the future needs of the fertilizer industry require the indentification of additional pyrite deposits. Some locations have already been identified, but additional drilling is necessary to establish a mine able deposit. The best prospect seems to be located near the existing Nampundwe mine. This project is for a 2500 m diamond drilling programme to provide basic data for subsequent feasibility studies.

3. Status of the Project

New project; drilling.

4. Starting Date

Mid-1984

5. Completion Date

Mid-1985

6. Estimated Costs

	to end 1983	1984	1985	1986	balance to complete
Capital Costs					
Foreign ($'000)	-	300	300	-	
(K'000)	-	500	500	-	
Local (K'000)	-	50	50	-	
Total (K'000)	-	550	550	-	

7. Sources of Financing

Finance not secured.

8. Commitment Required 1984-1986 - $600,000

MI 15. COLLIERY REHABILITATION PROJECT

1. Executing Agency

Maamba Collieries Limited

2. Description and Justification of the Project

Maamba Collieries, with proven reserves of 58 million tonnes of coal and an installed capacity of 1.2 million tonnes of washed coal per annum, is currently producing less than 600,000 tonnes. Its cost of production is consequently very high and at the moment it is barely satisfying current internal demand, even though there is potential for expansion of demand, through substitution of imported liquid fuels, and for some expansion of exports. A major cause of this poor performance is inadequate maintenance and replacement of equipment, in turn due to shortage of foreign exchange. A comprehensive rehabilitation and renovation programme could expand production, reduce cost and contribute to foreign exchange savings. A study leading to a proposal for a rehabilitation programme is currently being carried out by British Mining Consultants with World Bank finance. Negotiations for the financing of the most pressing elements of the rehabilitation programme are advanced with the African Development Bank. Under the present project funds are sought to cover the medium and longer term rehabilitation needs subject to the findings of the British Mining Consultants study.

3. Status of the Project

New rehabilitation project. Feasibility study is underway, conducted by British Mining Consultants.

4. Starting Date

March 1985 (tentative)

5. Completion Date

March 1987 (tentative)

6. Estimated Costs

	to end 1983	1984	1985	1986	balance to complete
Capital Costs					
Foreign ($'000)	-	18920	22100	22100	-
(K'000)	-	31533	36833	36833	-
Local (K'000)	-	4730	7000	7000	-
Total (K'000)	-	36263	43833	43833	-

Note: These costs are purely indicative pending the results of the BMCL study.

7. Sources of Financing

Negotiations are advanced for a loan from the African Development Bank covering all foreign costs in 1984.

8. Commitment Required 1984-1986 -- $44,200,000

M1 16. SMALL MINES DEVELOPMENT

1. Executing Agency

Ministry of Mines

2. Description and Justification of the Project

In addition to the large scale occurence of copper, cobalt, lead, zinc and coal, Zambia is endowed with smaller quantities of many other minerals, among them emeralds (Copperbelt), gemstones (Eastern and Southern Provinces) and tin (Southern Province). They tend to be exploited by small private miners in labour intensive operations which are small net earners of foreign exchange. The Ministry of Mines has been supporting these activities by providing machinery and inputs on favourable terms. This projects seeks funds for the continuation of this support.

3. Status of the Project

Continuing activity of the Ministry of Mines.

4. Starting Date

Ongoing

5. Completion Date

Continuing

6. Estimated Costs

	to end 1983	1984	1985	1986	balance to complete
Capital Costs					
Foreign ($'000)	na	2500	2500	2500	
(K'000)	na	4167	4167	4167	
Local (K'000)	na	1333	1333	1333	
Total (K'000)	na	5500	5500	5500	

7. Sources of Financing

No financing secured.

8. Commitment Required 1984-1986 - $7,500,000

Chapter 3

AGRICULTURE

Introduction

3.1 As stated in Chapter 4 of Volume I, it is GRZ's objective to make agriculture the priority sector in the economic restructuring effort. To achieve this aim requires a concentration of resources on smallholder farmers, reform of incentive structures to ensure better prices; a more open and competitive marketing system; rationalization of agricultural processing, a major effort in research and extension; and a focus in the short term on getting the most out of existing capacity in the commercial farming sub-sector through the provision of critically needed inputs.

3.2 The agricultural projects and programmes in the EP conform to the above objectives. As far as smallholder agriculture is concerned, institution building and strengthening of infrastructure in research and extension is considered by GRZ to be a pre-requisite for any signficant long-term development. There is a vital need to promote the development and effective dissemination of appropriate technical packages for the vast majority (over 600,000) of small farmers so as to increase their output and help their transition to a more commercially oriented farming. GRZ is currently preparing an overall strategic framework and five-year investment programme for research and extension. Project components will cover a wide range of related activities over a five-year implementation period and include 1) strengthening of the research and extension directorates of MAWD; 2) support for specific research and extension programmes in the form of capital and recurrent cost financing for staff, civil works and other facilities; 3) infrastructural support for research stations and sub-stations, including both civil works and equipment; and 4) major assistance for staff training programmes (both overseas and local) and institutions. At this time, total project costs are tentatively expected to fall in the US$440-450 million range. The foreign exchange element could be around 85 percent. An amount of US$42 million has been included in the EP as the requirement for 1984-86 (project AG 09).

3.3 While the above project will address the problems of the extension sub-sector in a well-defined strategic framework, there is an urgent need to tackle many of the constraints that have combined to more or less cripple the extension services. They revolve mainly around inadequate allocation of recurrent funds with attendant implications for staff mobility, low staff morale, poor housing facilities, ineffective farmer training programmes, etc. Project AG 15 is intended to assist the extension service to more effectively respond to the needs of the small-scale farmers in the short run. There are many other projects in the CEP forcusing on increasing the productivity and incomes of the small farmer. The principal ones being:

Storage (Project AG - 6): The objective is to provide storage facilities in district and rural centres with combined capacities of 494,000 tonnes of maize and 83,000 tonnes of fertilizer. In all, 78 rural centres and 27 district centres will be covered under the program, which should result in reduced transport costs and the minimization of losses incurred by farmers due to delays in transporting produce to collection centres. Annually, grain losses as a result of inadequate storage are estimated at 30 percent. On the basis of the Project AG-6 should result in an annual saving of grain alone of K40 million. This saving will accrue, in the main, to peasant farmers. The foreign exchange cost of the project is estimated at US$18.0 million.

Agricultural Processing, (Project AG - 4): To expand LINTCO's ginning capacity to cope with the dramatic increase in seed cotton production resulting from smallholders' favorable response to price and other production incentives provided by LINTCO in recent years. As a result of increased seed cotton production, LINTCO has been experiencing acute "second generation" problems (e.g., inadequate storage and ginning capacity) which could eventually threaten not only its financial viability, but also the incentives to provide to farmers to produce the crop.

Livestock Development Program (Project AG - 11): This project is intended to facilitate effective interactions between commercial livestock production and traditional or subsistence livestock production by encouraging the former to supply genetically improved materials (e.g., heifers and steers) to the latter and, at the same time, providing incentives and capacity to smallholder farmers to profitability adopt such improved packages. The program will therefore provide for: improvements in (i) marketing systems, (ii) input delivery, (iii) extension services, (iv) veterinary services, (v) credit and (vi) adoption and production incentives. These are expected to contribute significantly in expanding production by small livestock producers.

Oxen and Ox-drawn Implements (Project AG - 3): This project could continue and rationalize the work programme started in 1970s to encourage the greater use of oxen for cultivation purposes in tesetse-fested areas by way of demonstrations and field days on early or early ploughing and use of well trained oxen and proper implements. The external assistance requirements over three years is US$0.8 million.

3.4 While in the long run the development of Zambia's agriculture depends on increasing the producitivity of the smallholder farmers, the market-oriented framers offer the best prosepcts of increasing production in the short run because they enjoy a large measure of advantage, especially with regard to modern farming skills and availability of fairly

suitable technological packages for a wide range of crops. About 40 percent of the maize and 50 percent of other marketed farm produce comes from the commercial farming subsector which is heavily dependent on mechanization and application of modern production inputs, and plays a crucial role in ensuring adequate supplies. As pointed out in Chapter 4 of Volume I, the acute shortage of foreign exchange facing the country in the last nine years has meant that these formers have had to defer replenishing and maintaining the stock of farm machines thereby seriously impairing their productive capacity. In the short run, GRZ believes that the country's agricultural production would be given a major boost by making available to the commercial and emergent farmers funds for the importation of farm machinery and implements, fertilizers and agro-chemicals. This is the purpose of the Agricultural Rehabilitation Project (AG - 1) whose cost over the three-year period 1984-1986 is US$77 million, of which about 90 percent is in foreign exchange. IDA has agreed to allocated US$30 million to this project. The balance of US$38 million has been included in the CEP. Under the component being discussed with IDA, the counterpart funds generated from the sale of foreign exchange to the medium- and large-scale farmers will be used to created a fund to support on-going and futher programmes which are aimed at improving productivity of the smallholders farmers, such as in research and extension. The Agricultural Rehabilitation Project excludes the foreign exchange required for fertilizer and agro-processing raw materials. In the former ase, a Fertilizer Import Programme (AG - 16) is proposed.

3.5 Two other projects in the EP deserve mention. A Coffee Production Project (AG - 7) would produce about 4,000 tonnes annually of high quality arabica coffee designed primarily for export. This quantity, added to production from the on-going IDA-supported projects indicate that Zambia has the potential for growing the higher quality coffee for which would market conditions continue to remain favorable. Coffee could therefore become an important foreign exchange earner for Zambia in the short to medium term. Finally, Project AG - 2 (Fisheries Development) is designed to improve the exploitation of Zambia's existing fisheries resources with the aim of improving the nutritional standards of the substantial number of people in less favoured rural areas with limited agricultural potential. The proposed investment would lead to an annual total fish supplies (increased production plus reduction in losses) of about 10,000 tonnes.

AGRICULTURE

PROJECT LIST

		Funds Sought 1984 - 1986 US$ Millions
Projects		
Replacement/Rehabilitation		
AG 1	Agricultural Rehabilitation	38.0
New Projects:		
AG 2	Fisheries Development	12.3
AG 3	Oxen and Ox-Drawn Equipment Program	0.8
AG 4	New Ginneries for Lintco	23.1
AG 5	Lusaka Fuelwood project	14.6
AG 6	Storage Project	29.3
AG 7	Coffee Production Phase II	14.0
AG 8	Small-Scale Irrigation Projects	6.0
		100.1
Others		
AG 9	Agricultural Research and Extension Program	42.0
AG 10	Wildlife Anti-Poaching	4.1
AG 11	Livestock Development Program	47.1
AG 12	National Parks and Game Management Area Development	4.0
AG 13	Zambia Agricultural Development Bank	16.2
AG 14	Credit-Zambia Cooperative Federation	13.8
AG 15	Extension Inputs	3.7
		130.9
Input Support:		
AG 16	Fertilizer Assistance	93.1
Miscellaneous		
AG 17	Irrigation Feasibility Study	0.7
AG 18	Water Resources Development Study	1.5
AG 19	Marketing Organization Efficiency	0.6
		2.8
TOTAL		364.9

AG 1 AGRICULTURAL REHABILITATION

1. Executing Agency

Bank of Zambia

2. Description and Justification

The acute shortage of foreign exchange over the past eight years has meant that the replacement of tractors and farm machinery has been delayed. Shortage of spare parts has added to the problem and the World Bank now estimates that only 40 percent of tractors are in good operating conditions. The project will make foreign exchange available to farmers, particularly commercial farmers, for the importation of critically needed farm implements and spare parts.

3. Implementation

The Bank of Zambia will be responsible for handling the foreign exchange account through a Credit Implementation Committee, which will allocate the funds according to priorities. There will be a full time Credit Implementation Unit, which will allocate funds and monitor their use.

Trading houses taking advantage of the fund would have to keep to conditions laid down, like keeping a stock of spare parts in country areas, advertising the retail price of the spares and conducting training courses.

Trading houses will pay Kwacha and be allocated the equivalent amount in foreign exchange. The Kwacha amounts will be used to support agricultural projects and programs, particularly those that directly benefit traditional farmers including the Government contribution to projects supported by organizations like the World Bank, IDA or IFAD. It would also be used to finance marketing activities. The Kwacha amount would be K 108 million in the three-year period. Cuyrrently, GRZ is paying out K 24 million in counterpart funds for a K 64 million investment program. The project would, therefore, largely eliminate the Kwacha constraint from 1985, and would permit Government to help solve the marketing board's overdraft problem.

4. Project Benefits

It is estimated that the project would help increase maize production by about 74,000 tonnes or about 10-15 percent of the maize marketed by 1986, a foreign exchange saving of US$15.5 million per year. The remaining 39 percent would have a large payoff mainly in terms of other crops produced, such as cotton, tobacco and sunflower.

AG 1 (continued)

5. Estimated Cost

The Agricultural Rehabilitation Project will provide foreign exchange for the import of the following:

Estimated Cost in Million US$

	Local	Foreign	Total	% of Total
Farm Machinery & Implements				
Replacement				
Tractors	3.7	28.0	31.7	40.9
Tractor Implements	1.2	9.2	10.4	13.4
Training Equipment	-	0.4	0.4	0.5
Ox-drawn Implements	0.4	1.4	1.6	2.1
	5.1	39.0	44.1	56.9
Spare Parts				
Tires	0.2	1.8	2.0	2.6
General	1.2	8.4	9.6	12.4
	1.4	10.2	11.6	15.0
Chemicals				
Herbicides & Pesticides	2.5	17.4	19.9	26.0
Miscellaneous	0.2	1.2	1.4	1.8
Fertilizer Consumption Study	-	0.2	0.2	0.3
TOTAL	9.2	68.0	77.6	10.0

6. Starting Date

1984

7. Completion Date

December 1986

8. Sources of Funding

IDA would be willing to provide US$30 million and the remaining US$38 million is unfinanced. The World Bank has prepared a detailed project document.

9. Total Funds Sought

US$38,000,000

AG 2 FISHERIES DEVELOPMENT

1. Executing Agency

Zambia Agricultural Deveopment Bank (ZADB) and Fisheries Department (MAWD)

2. Description and Justification

Under the proposed porject the Government of Zambia would be financed to improve and expand the fish production and distribution systems in the country. The project would cover Lakes Tanganyika, Mweru Wa-Ntipa and Mweru Luapula in the north and Lake Kariba and Kafue river and flats in the South.

Supplies of fresh and frozen fish, which is a source of cheap meat protein, were found to be inadequate to satisfy the demand in main consumption areas of Lusaka and the Copperbelt. The proposed investment in fish production and marketing facilities would to some extent eliminate the existing shortfall.

3. Project Benefits

Principal benefits of the proposed investment would be annual incremental fish suplies (increased production plus reduction in losses) of about 10,000 tonnes and institution building (ZADB and Department of Fisheries). More than 1,000 artisanal fishermen and their families in the remote fishing areas and low income consumers in urban areas would be the main beneficiaries under the project. The project estimated rate of return is expected to be high.

4. Project Design and Implementation

The Project would be designed to improve the exploitation of Zambia's existing fisheries resources with the aim of improving the nutritional standards of the population and raising the living standards of substantial numbers of people in less favoured rural areas with limited agricultural potential. These objects would be achieved by addressing the sectoral constraints ie. lack of credit and foreign exchange. The Project would comprise:

(i) credit to small and medium-scale fishermen for purchasing boats, engines and fishing gear;

(ii) credit to private entities for establishing fish collection and marketing infrastructure; and

(iii) technical assistance and facilities to ZADB and the Department of Fisheries/Fisheries Development Authority.

AG 2 (continued)

5. Estimated Costs

Tentatively, the project is estimated to cost about US$17.5 million (including price contingencies). An estimated 30 percent Kwacha component is to be provided by GRZ.

6. Status of the project

The World Bank has prepared a detailed study of the project.

7. Sources of Funding

US$7.0 million (IDA) has been allocated to the project in the lending programme in FY85. Several bilateral donors eg. FINIDA' DANIDA and the Japanese have indicated interest in providing support to the Fisheries Sub-sector in Zambia.

8. Starting Date

1985

9. Completion Date

1990

10. Funds Sought

US$12.25 million including IDA's US$7 million.

AG 3 OXEN AND OX-DRAWN EQUIPMENT PROGRAMME

1. Executing Agency

Ministry of Agriculture (MAWD)

2. Description and Justification

The use of oxen for land preparation has been practised in some provinces for a long time. Since independence, however, there has been an increasing tendency towards motorised mechanisation. With the increasing cost of fuel and lubricants, scarce spare parts, and the general unavailability and unsuitability of tractors in certain areas of the country, the use of oxen for cultivation and draught purposes has attained crucial importance especially among the traditional small-scale farmers as a means of increasing their household incomes by expanding.

For these areas and farmers the use of oxen and ox-drawn implements is a more appropriate form of technology. MAWD initiated a work oxen supply scheme in the 1970s initially as an extension service to encourage their adoption for cultivation especially in tsetse-free areas. The constraints have proven overwhelming. Lack of disease control and low management practices in Cattle Husbandry in most areas of the rural sector have made it difficult to acquire the require type of oxen. There is a lack also of suitable ox-ploughs and equipment.

3. Project design and implementation

The project is designed to support the current efforts of MAWD to remove the constraints and facilitate a faster rate of adoption of this technology. MAWD's work oxen supply programme has two components: (a) training of farmer's own oxen by a mobile team of ox-trainers and (b) the training of oxen purchased or reared at specific permanent centres by government. Trained oxen are also exchanged for untrained ones and some trained oxen are sold to the farmers.

The project operates in Eastern, Central, Luapula, Western, Northern and North Western Provinces. In 1981, 76 oxen were trained in various centres but in 1984, no funds are made available for the project.

4. Project Benefits

The project is a form of an extension service to rural smallholder farmers to adopt an appropriate technology and discourage the heavy dependence on tactor mechanisation. It would also help Magoye Research Station to find a suitable type of ox-plough strong enough to withstand some of the conditions of soils in different parts of Zambia. The local manufacturing of the ploughs will help rural small-scale artisans. Farmers would be able to increase their acreage and produce more food for sale.

AG 3 (continued)

5. Estimated Costs

The project is estimated to cost around $1.8 million of which about 65 percent will be in foreign exchange.

6. Sources of Funding

None identified but a number of donor agencies have expressed interest in the project.

7. Status of Project

MAWD has prepared a detailed study.

8. Starting Date

1984

9. Completion Date

1986

10. Funds sought

US$0.8 million

AG 4 NEW GINNERIES FOR LINTCO

1. Executing Agency

Lintco

2. Description and Justification

Zambia's production of cotton has increased twelvefold since 1975 because of improved market, extension and credit services. The two existing ginneries are now working three shifts to finish this year's crop before the next season. The standard practice in the cotton industry is to gin over a 3-4 months' period and spend the rest of the year overhauling the machinery. Because the ginneries will not be overhauled this season, it is virtually certain there will be a major breakdown of the 18 year old equipment.

The position is worsened by the fact that the crop about to be harvested is likely to be 30-50 percent higher than the one that could not be ginned last year.

The delays in processing result in decline in quality, storage costs, rain and fire damage and disease transmission. The loss in oil value alone is likely to be K6-9 million in 1984. Lintco's foreign earnings are projected at K30-40 million a year over the period, though lint prices are low, partly because of inadequate ginning capacity.

3. Project design and Implementation

Lintco is now installing ginning equipment with a capacity of 8 million Kg at its Lusaka ginnery but this will not resolve the immediate problem. It is intended to install another ginnery (16 million Kg) in the Southeren Province as soon as possible and to install two more (again 16 million Kg in 1985 and 19860. The total installed capacity so obtained is still insufficient for the expected crop. 15 trucks are to be purchased for marketing. It is hoped that if the ginneries are installed rapidly it may be possible to keep the cost down to the figure quoted by making a large investment in storage unnecessary.

Plans already exist for the new ginneries and operation would being within four months of receipt of funds.

4. Status of Project

An economic assessment of the proposed ginnery is being made. Lintco has been closely monitored by a consultancy firm for several years under the EEC cotton development project, so the necessary information on the state of the industry, export potential, etc. is readily available.

AG 4 (continued)

This exercise will be repeated before each additional ginnery is installed taking into account changes in production exports price, etc.

5. Starting Date

February 1984

6. Completion Date

December 1986

7. Estimated Costs

The project cost is estimated at around US$27 million of which US$23 is foreign exchange.

8. Sources of financing

No funds yet secured.

9. Funds Sought

US$23,121,000

AG 5 LUSAKA FUELWOOD

1. Executing Agency

Forest Department

2. Description and Justification

Charcoal is the main fuel for 86 percent of the urban population (electricity is not available to most people as it is impractical to wire u the shunty townships). Charcoal gives as much energy as coal but it is easier to light and is not as smelly as the sulpurous Maamba cool. Consumption averages 125 Kg per family (6.9 people) per year or approximately 77,500 tonnes per year for Lusaka. There are no indications of a change in fuel use unless the price ratios change enormously, in which case the import content will be much higher.

Lusaka charcoal prices are rising because all the local forests are exhausted and forests 150 Km away are now being exploited, so high transport costs are being incurred.

It is proposed that a fuelwood forest be planted near Lusaka growing eucalyptus, which can be harvested for fuel after only four years. This will be converted to charcoal using kilns which give 24 pewrcent charcoal compared to the 11 percent obtained by traditional producers' mud clamps. The project should give an average output of 5600 tonnes.

3. Project design and Implementation

The project is conceived to assist in:

(i) establishing a 7,500 ha palantation to supply fuelwood to Lusaka;

4. Sources of financing

The World Bank has expressed interest in possible partial funding.

5. Funds Sought - Total US$14,600,000

US$9,258,000
K9,000,000

AG 6 STORAGE PROJECT

1. Executing Agency

NAMBOARD

2. Description and Justification

Maize is the staple diet for about 90 percent of the population of Zambia and is by far the most important agricultural commodity in the country. The current national requirements are about 800,000 tonnes per year (this excludes an estimated 200,000 tonnes retained by the producers for their own consumption).

Over the past years maize production in the country has fluctuated between 400,000 and 750,000 tonnes per year. However, with the Operation Food Production Programme launched by the Government and various incentives given to the producers, the country hopes to maintain self-sifficiency and to export any surplus maize.

Since food production has a tremendous impact on the national economy, the need to minimize the cost of production of the grain and to prevent wastage of both inputs (fertilizer) and the produce need not be over emphasized. An essential requisite in this respect is the availability of adequate and suitable storage facilities throughout the country.

Lack of storage increases marketing costs and waste. If all weather storage facilities were available, maize losses from the farm to consumer would be reduced from an estimated 10-25 percent to less than 2-5 percent. A recent MAWD economic study estimates that if there were sufficient storage availability, the marketing utilisation of vehicles, securing of backloads and the avoidance of double handling. There would also be no longer the need to clear the crop within three months.

High costs also arise from storage problems in the urban areas and at distribution. A recent storage and distribution study has identified Zambia's storage needs in relation to production, consumption and transport.

3. Project design and Implementation

The project ios designed to provide suitable storage facilities throughout the country. The policy with regards to storage facilites shall be:

(i) To provide permanent covered facilities for about 50 percent of the expected crop in the foreseeable future (this is assumed to be 500,000 tonnes) and to hold about 250,000 tonnes as National Reserve. Thus, it is necessary to have storage facilities for about 750,000 tonnes of maize;

AG 6 (continued)

(ii) To provide permanent covered storage facilities to hold at least one year's fertilizer requirement and an extra 30 percent as reserve. This is estimated at 280,000 tonnes; and

(iii) To utilise the available hardstandings as temporary/transit storage facilities.

The only permanent existing covered storage presently available for grain is in the form of six concrete silos locaed in Lusaka, Monze, Kitwe, Bwana Mkuwa, Chisamba Natuseko. Their combined capacity is 112,000 tonnes.

There are two storage programmes under implementation

1. Construction of maize nd fertilizer sheeds-financed by the Canadian Internativel Development Agency (CIDA); and

2. Southern Province Agricultural Deveopment Project financed by the World Bank.

After the completion of these two projects, the available covered facilities will be 387,000 tonnes for maize and 233,500 for fertilizer.

	Maize	Fertilizer
Existing	112,400	120,000
CIDA	275,000	101,500
World Bank	-	12,500
Total	387,400	233,500

From the above data it is evident that there is an urgent need for additional storage facilities throughout the country. It is also true that the available storage facilities are mostly situated in the urban and district centres with practically no facilities in the rural areas which provide a bulk of total food production.

The project therefore, would concentrate on the rural areas since collection for the produce and purchase centres for inputs would certainly be a big incentive and an encouragement to the small-scale farmers in transport and produciton costs reduction.

It is proposed to have storage facilities for:

AG 6 (continued)

(a) Maize - 10,000 tonnes at each District Centre and 3,000 tonnes each at 3 rural centres within a District;

(b) Fertilizer - 2,000 tonnes at each District Centre and 400 tonnes each at 3 rural centres within a District.

The project will provide storage for 494,000 tonnes of maize and 83,200 tonnes of fertilizer.

4. Benefits

The project once accomplished will be of great benefit to the nation by minimising the production costs as transport costs are substantially reduced. It will also minimize the losses incurred presently by farmers due to the delays in transporting the produce to the collection centres. An annual saving of K40 million is expected.

5. Estimated Costs

Storage facilites will be build in 104 district and rural centres in Central, Northern, Eastern and Sutheren Provinces at an estimated cost of US$36 million of wich about 50 percent is in foreign exchange.

GRZ will also seek financial assistance fo the kwacha component of nearly 30 million.

6. Starting Date

1984

7. Completion Date

1986

8. Funds Sought - Total US$29,300,000

1) US$18,550,000
2) 60% of Kwacha component ie. K18 million

AG 7 COFFEE PRODUCTION PHASE II

1. Executing Agency

GRZ/Indeco Limited

2. Description and Justification

Parts of the Northern and North-Western provinces of Zambia have inherent soil and climatic conditions for the production of high grade Arabic Coffee. In 1978, on a pilot basis, Indeco Limited with the assistance of International Development Association (IDA) undertook the development of a 450 hectare, irrigated coffee plantation at Kasama. Construction at the plantation of a Coffee Processing Plant to produce 1100 to 1200 tonnes of finished pure Arabica Coffee beans of export quality, to be initiated this year (1984) and is expected to be operational late this year or early next year. The quality of the coffee produced at the kasama plantation has proved to be of high quality. Establishment of the processing factory is likely to provide additional impetus to the further development of coffee in the region by smallholders and/or out growers.

Accordingly, under Phase II of the project an additional 2000 hectares would be developed with smallholders and out growers around the plantation in Kasama, which would lead to a total coffee production of 6000 tonnes. The dry-processing facilities the plant would have to be pxapnded to cater for this increase. Under the Phase II, therefore, finance will be required to assist smallholders to develop the necessary hectarage, increase extension and vital input services, extend the dry factory, provide technical assistance and set up the necessary institutional framework to handle the production, marketing and export of coffee.

3. Benefits

The proposed project would fit well into the agricultural strategy outlined by GRZ and would contribute to:

(i) divesifying the country's agricultural base;
(ii) providing an additional source of foreign exchange to offset some of the lost income from mining;
(iii) providing smallholder with an additional source of income; and
(iv) increasing the country's expertise in the production and marketing of agricultural commodities.

4. Status of Project

Some preliminary studies have been done by the World Bank. Detailed feasibility study of the project will commence by June 1984 and implementation of agreed recommendations will follow.

AG 7 (continued)

4. Estimated Costs

The total project costs is estimated at US$20 million of which 70 percent will be in foreign exchange.

5. Starting Date

1984

6. Completion Date

1987

7. Sources of Finance

Some donor agencies including the World Bank, have expressed their initial interest. Firm commitments have to follow.

8. Funds Sought

US$14,000,000

AG 8 SMALL-SCALE IRRIGATION PROJECTS IN NORTHERN AND SOUTHERN PROVINCES

1. Executing Agency

Ministry of Agriculture and Water Development

2. Description and Justification

This proposed project represents the first pahse of a programme of irrigation development in Northern Province and the Gwembe Valley (Southern Province). Its aim is to set up irrigation institutions and to develop irrigation on an initial area of about 2 150 ha, which would include the following components.

(i) Southern Province (1,600 ha)

(a) Three medium-scale irrigation schemes of 400 ha each diverting water from perennial streams for surface irrigation.

(b) A pilot irrigation scheme of about 160 ha for rice production in Chambeshi flats using a low cost water management system.

(c) Provision of long-term credit to finance smallholders' investment for improved irrigation from small steams. Irrigated areas would be from 2-10 ha each, operated by individuals or groups of farmers. Forty such schemes are envisaged under the project averaging 6 ha each.

(ii) Southern Province (550 ha)

(a) About 20 small-scale irrigation schemes of an average of 10 ha each, using individual mobile pumps on Lake Kariba or from shallow wells close to the Lake.

(b) One medium-scale irrigation scheme of 350 ha pumping water from Lake Kariba.

(iii) Three to four feasibility studies for potential irrigation schemes in priority areas.

(iv) Training and technical assistance.

(v) Overhead investment and incremental operating costs.

AG 8 (continued)

3. Estimated Costs

The total project cost is tentatively calculated to be K16 million (US$10 million) of which about 60 percent would be in foreign exchange.

4. Starting Date

1984/85

5. Completion Date

1988/89

6. Funds Sought

US$6,000,000

AG 9 AGRICULTURAL RESEARCH AND EXTENSION PROGRAM

1. Executing Agency

Ministry of Agriculture and Water Development

2. Description and Justification

Until recently, research and extension support for agricultural production has been weak and directed mainly towards the large capital-intensive commercial farms that occupy the most fertile land and are well served by transport and other infrastructure. Research and extension, therefore, have been largely commodity-oriented, with a heavy emphasis on a few "political crops" (such as hybrid maize). Zambia's more than 600,000 smallholders have been bypassed by extension and research programs. This project is to redress this gross imbalance between the smallholder sector and the commercial farm sector.

3. Status of the Project

The World Bank is currently financing a comprehensive study on Zambia's research and extension under the ongoing Technical Assistance Credit. The final consultants' report is to be submitted by end of July 31, 1984. The study, which would form the basis for the project, will focus primarily on institution-building and ways of strengthening infrastructure in the research and extension subsectors, and complement ongoing efforts in the area in order to improve the quality and effectiveness of research and extension services on a broad national scale. Strengthening of these two subsectors is considered a prerequisite for any significant long-term development of the agricultural sector, particularly by promoting the development and effective dissemination of appropriate technical packages for the vast majority of smallholder farmers.

4. Project Design

The project is expected to cover the whole of Zambia. Project Components are likely to cover a wide range of related activities in the research and extension sub-sectors, including some or all of the following:

(a) Support for the strengthening of the research and extension directorates in MAWD, and for the establishment and operation of a permanent Coordination and Review Committee for research and extension;

(b) Support for specific research and extension programs in the form of capital and recurrent cost financing for staff, civil works and other facilities;

(c) Infrastructural Support for research stations and substations, including both civil works and equipment;

AG 9 (continued)

(d) Construction and equipping of documentation and library facilities;

(e) Major assistance for staff training programs (both overseas and local) and institutions;

(f) Technical assistance for specific research activities and extension programs, as well as for general policy planning, project implementation, and monitoring review of work programs; and

(g) Procurement of vehicles and equipment related to the above component.

5. Estimated Cost

The total project costs are tentatively estimated at about US$60 million (including contingencies). The foreign exchange element could be around 70 percent.

6. Sources of Funding

The World Bank's lending program currently includes an IDA allocation of US$15 million for this project.

7. Starting Date: 1985/86

8. Completion Date: 1990/91

9. Funds Sought

US$42 million including IDA's allocation.

10 WILDLIFE ANTI-POACHING

1. Executing Agency

National Parks and Wildlife Service of the Ministry of Lands and Natural Resources

2. Description and Justification of Project

Highly professional poaching halved the number of elephants in the Luangwa Valley and reduced the rhinoceros population by three quarters over six years, and the practice is still increasing.

The Wildlife Service has 531 scouts to cover parks and game management areas covering a third of the country (one to 378 sq km). They are outgunned by poachers (40 have been killed by poachers on animals in the last decade). They have no transport and no funds. Staff have to live in thatched huts in the bush often without sewerage, water or electricity.

The project involves constructing twelve anti-poaching buses and providing them with the necessary equipment.

This is an important project considering that tourism is worth K 55 million in foreign exchange and employs 29,000 people.

3. Estimated Costs

Funds are to be used for establishing and equipping twelve regional anti-poaching units. Each unit requires K 580,000.

Components

6 vehicles (4 x 4)	-	K 120,000
2 lorries (4 x 4)	-	K 100,000
armoury, firearms and ammunitions	-	K 50,000
3 stationary radios	-	K 30,000
10 mobile radios (vehicles)	-	K 37,500
15 (backpack) radios	-	K 20,000
fuel	-	K 80,000
spares (vehicles)	-	K 70,000
housing	-	K 72,500
Total per unit		K 580,000
For twelve units		K 6,960,000

The foreign exchange component of this project is high, about 94 percent or over US$4 million.

AG 10 (continued)

4. Status of Project

Detailed plans have been prepared.

5. Starting Date

1984

6. Completion Date

1986

7. Sources of Financing

None identified.

8. Funds Sought

US$4,083,000

AG 11 LIVESTOCK DEVELOPMENT

1. Executing Agency

Ministry of Agriculture and Water Development through the Departments of Agriculture and Veterinary Services

2. Description and Justification of Project

The livestock resources of Zambia are considerable, but their contribution to the total agricultural production has been disappointing. It is now generally recognized that a piece-meal approach to livestock development does not achieve worthwhile results and it is proposed to adopt an integrated approach where sectoral constraints can be analyzed and addressed through coordinated project interventions. The inherent dualistic nature of agricultural production in the country is strongly manifested in the livestock sector. Large-scale commercial farmers, although holding only 15 percent of the national herd, account for between 50-60 percent of livestock production. This has been primarily achieved through improved management techniques, better genetic material and use of credit. The Government is taking steps to review the overall land tenure system, and it is hoped this will allow all farmers to view their land as an investable production resource. Simultaneously, this action will open up possibilities for interaction between commercial and traditional farmers and possibly lead to a spread of improved technology in the commercial subsector to the smallholder subsector. To this end, the Government intends to provide basic production services and resources, including credit and incentives to commercial farmers to produce improved heifers and steers for sale to emergent farmers. While the Government realizes that the change in traditional attitudes to livestock keeping is not encouraged by provision of free services and inputs, it does have a responsibility to supplement commercial services especially in more remote areas where at present the private sector is not established. The project would, through an integrated intervention approach, supply the necessary commercial stimulus for traditional and emergent farmers to participate more fully in the livestock production markets with the aim of both increasing the volume of domestic animal products and reducing the substantial imports of these goods.

3. Project Design and Implementation

The project interventions would be centered on improvements in:

(i) Marketing systems. Where livestock owners farm in areas that are deficient of established market outlets, the project would, on demand, provide basic marketing infrastructure in the form of sales yards, milk collection depots and storage facilities. Wherever possible, management of these facilities would be handled by existing marketing boards, cooperatives or farmer groups or local authorities with full responsibility for maintenance and operating costs.

AG 11 (continued)

(ii) Input Distribution and Sale. To supplement the commercial supply of pasture seeds, fencing and building material and animal health requisites, the project would procure these necessary inputs for distribution and sale to farmers through commercial enterprises, cooperatives and farmer groups. Full cost recovery would be effected to allow project fund to revolve and provide a continuous source of supply beyond the life of the project.

(iii) Extension Service. Using existing livestock research work and the improved technology of established commercial farmers, livestock development officers would assist traditional and emergent farmers improve their management systems through a concentrated group extension approach. (Similar to that being undertaken in the GRZ/IDA Smallholder Dairy Project Redesign). The project would provide operational funds for this purpose.

(iv) Veterinary Services. The Veterinary Services would be assisted through the project to focus on national disease challenges such as Foot and Mouth Disease and Trypanosomiasis. Funds would be provided for pilot schemes to: (a) develop lost cost trypanosomiasis control through the use of tsetse fly traps; (b) investigate other ways to reduce Government's recurrent budget commitment to animal disease control; and (c) control of disease indermic in Zambia such as tickborne disease, foot and mouth disease, etc.

(v) Production Incentives. The Government would provide the following production incentives to commercial farmers to adopt the production of approved improved breeds as one of their production enterprises: (a) credit for farm development, (b) marketing infrastructure for improved breeds. At the same time, the Government will provide the following incentives to smallholders wishing to adopt new livestock technologies: (a) credit for farm development, (b) artificial insemination services services, (c) improved marketing infrastructure for commercial livestock.

(vi) Credit. Through existing credit institutions, the project would provide funds to farmers for livestock development activities and to businesses for the provision of services to cattle owners.

AG 11 (continued)

4. Status of Project

Detailed project preparation work is still required.

5. Starting Date

The project will commence in 1985. It is likely that the project will require phasing over a ten-year period.

6. Estimated Costs (tentative)

Total	US$50 million
Foreign	US$47 million

7. Sources of Finance

Not identified.

8. Commitment Required 1984-1986

US$47,100,000

AG 12 NATIONAL PARKS AND GAME MANAGEMENT AREA DEVELOPMENT

1. Executing Agency

National Parks and Wildlife Services

2. Description and Justification

The project is to develop the infrastructure needed for wildlife conservation and to develop tourism, which is worth K 56 million forign exchange.

Presently, most road maintenance equipment are unserviceable and the earth roads are deteriorating rapidly, making the roads unsuitable for tourism and inaccesible to wardens.

The project will improve the 1400 km of tourism roads in the parks to Class III, construct service roads to administrative camps and provide housing for wildlife guards.

In addition, the project will involve the construction of camps and service roads in the Game Management Areas and the provision of equipment for promoting wildlife population and hunting activities.

3. Status of Project

Ongoing. Much of the equipment is there but immobile.

4. Estimated Cost

The total cost of the project is estimated at US$6 million of which US$4 million is required in foreign exchange.

The following new machines are needed:

6 graders	-	K 1,200,000
3 D8 machines	-	K 1,000,000
3 scrapers	-	K 1,000,000
3 front-end loaders	-	K 1,000,000
spare parts	-	K 1,000,000
6 trucks	-	K 800,000
materials	-	K 2,000,000
fuel and sundries	-	K 2,000,000
Total		K 10,000,000

5. Starting Date: January 1984

6. Completion Date: 1989

7. Funds Sought: US$4,038,000

AG 13 ZAMBIA AGRICULTURAL DEVELOPMENT BANK (ZADB)

1. Executing Agency

ZADB

2. Description and Justification

The Zambia Agricultural Development Bank Ltd. is one of the institutions that has been established by GRZ to strengthen agricultural lending to all categories of farmers at commercial rates of interest. The objective is to extend credit facilities to any person and/or organization by the Board for any agricultural fishing or agro-industrial project. This is a vital instrument for restructuring the economy in the medium and long term.

The ZADB has a total share capital of K 75,000,000. The subscription of this share capital is as follows:

Subscriber	Amount	% Share
GRZ	K 38,250,000	51
Local institutions	K 10,950,000	15
International institutions	K 25,800,000	34

So far, only K 15,000,000 has been paid up by GRZ. To enable the Bank start operations ZADB requires a further K 25,800,000 from international (bilateral) sources to get at least 80 percent of the total share capital paid up, to enable the Bank provide borrowers with foreign exchange loan component order essential imported inputs.

3. Project Design

The program also requires technical assistance to undertake a study for the phasing out of the Agricultural Finance Company (AFC) and the eventual incorporation of its functions into ZADB. The study would include the organization of ZADB into an efficient and profitable bank.

4. Starting Date

1984

5. Completion Date

1986-1987

6. Funds Sought

US$16,217,000

AG 14 CREDIT - ZAMBIA COOPERATIVE FEDERATION

1. Executing Agency

ZCF Financial Services Ltd.

2. Description and Justification

ZCF Financial Services Ltd provides seasonal credit through marketing unions and cooperative societies to 10,000 of an estimated 75,000 small-scale farmers who require loans. These farmers, who cultivate up to 4 hectares each, need credit if they are to produce enough surplus for sale.

ZCF Finance Services has operated a successful group credit scheme for some years. Its recovery rates have been rising for some years and are now over 90 percent. The strong emphasis that ZCF puts on training, supervision and group responsibility has meant that is has been the only successful scheme for small farmers in Zambia.

ZCF Financial Services now wishes to increase the provision of loans for more farmers and for some other categories of farmers (e.g., emergent) who cultivate up to 20 hectares. This group can easily be supervised by the present organization. The emergent farmers have difficulty in getting loans from other sources for lack of formal security.

3. Status of Project

Detailed costings have been prepared and the scheme is already operating successfully in most areas. More funds are now needed.

The following are the estimated loans over the next three years:

	Small Farmers		Emergent Famers	
	Number	K'000	Number	K'000
1983-84	10,000	3,900	300	1,500
1984-85	12,000	7,000	600	3,100
1985-86	14,000	10,000	700	4,500

4. Starting Date: 1984

5. Completion Date: Ongoing

6. Availability of Funds

None yet.

7. Funds Sought

US$13,786,000

AG 15 EXTENSION INPUTS

1. Executing Agency

Ministry of Agriculture and Water Development

2. Description and Justification

This project is targeted at the traditional and small-scale farmers who use very little or no commercial or other improved inputs for lack of effective extension services. There are a lot of constraints such as inadequate credit, labor shortages, inadequate marketing arrangements, etc., which affect the productivity of the smallholder and traditional farmer but these are being tackled by GRZ under several ongoing and planned projects. At this stage and before a comprehensive strategy is drawn up under project AG.2, there is an immediate and urgent need for some inputs into the extension to increase their effectiveness.

3. Project Design and Implementation

The agricultural extension service in Zambia is not performing optimally due to a number of factors, mainly revolving around inadequate allocation of recurrent funds, with the attendant implications for staff mobility, morale, ineffective farmer training programs, etc. In the immediate term, mobility is of paramount important, especially when dealing with small-scale farmers who rarely go to seek information from extension officers. It is being recommended that the camp staff use bicycles while station-based staff, i.e., those in charge of supervising Blocks, could be made mobile by motorcycles. District and provincial staff would require use of 4-wheel drive vehicles, or indeed any suitable Vanettes, to make their extension visits.

4. Estimated Cost

The total extension inputs, mostly transportation vehicles, etc., is estimated to cost US$5 million all in foreign exchange.

For the present needs, transport requirements can be summarized as follows:

2,000	bicycles at K 250	- K 500,000
200	motorcycles at K 2000	- K 400,000
100	4 x 4 vehicles (field work) at K 20,000	- K 2,000,000
100	4 x 4 vehicles for District and provincial centers at K 20,000	- K 2,000,000
10	4 x 2 vehicles (training colleges)	- K 150,000
	spare parts	- K 500,000
	fuel and oil	- K 250,000
	TOTAL	K 5,800,000

AG 15 (continued)

5. Starting Date

June 1984

6. Completion Date

1985

7. Funds Sought

US$3,742,000

AG 16 FERTILIZER ASSISTANCE

1. Executing Agency

NAMBOARD

2. Description and Justification

The adequate supply of agricultural inputs to farmers is of crucial importance to an all-round expansion of the agricultural sector. Fertilizer is one such input.

Fertilizer consumption has increased 58 percent in the last seven years. From 133,695 metric tonnes sold by NAMBOARD in 1975, consumption increased to 211,864 metric tonnes in 1982. Most of this consumption is imported. Zambia ranks high in terms of fertilizer use per cultivated hectare.

The increased use has raised the total price tag of fertilizer delivered to the farmer from approximately K 44 million to 98 million, an increase of 125 percent. This represented a foreign exchange cost to Zambia of K 74 million in 1982, which in turn has serious implications for the economy from losses sustained as a result of an inefficient marketing and supply system. A study by MAWD has recommended ways and means of improving the marketing and supply systems.

Projections place the 1990 fertilizer requirements at approximately 400,000 metric tonnes. With the present foreign exchange constraint, GRZ will need fertilizer assistance in order to increase productivity in the agricultural sector.

3. Estimated Costs

The total financial assistance required for 3 years imports of fertilizer by NAMBOARD is estimated at US$112.6 million of which US$93 million is in foreign exchange.

4. Status of Project

NAMBOARD has a detailed analysis of its fertilizer needs for 1984-1986 and negotiations are underway for purchases to be made from the cheapest available source.

5. Starting Date: 1984

6. Completion Date: 1986

7. Funds Sought

US$93,050,000 or in the form of fertilizer supply.

AG 17 IRRIGATION FEASIBILITY STUDIES

1. Executing Agency

Ministry of Agriculture and Water Development (MAWD)

2. Description and Justification

The project's major objective is to have experienced consultants carry out detailed feasibility studies on three irrigation projects. These potential irrigation projects are:

(i) The Nansenga Irrigation Scheme (6,475 ha)
(ii) The Nangoma Irrigation Scheme (8,100 ha) and
(iii) The Kembe/Mwembeshi Irrigation Scheme (10,000 ha).

The FAO conducted pre-feasibility studies on these schemes about 20 years ago and recommended a number of crops which can be grown in these areas economically; these crops included wheat, rice, maize, vegetables, etc. At the time, the projects showed good potential for small, medium and large-scale farmers.

There is need for a detailed re-appraisal of these projects at the full feasibility level, for their possible implementation in accordance with GRZ's present policy of developing the water resources potential for food self-sufficiency.

3. Terms of Reference

The consultants are to undertake a study of these three schemes and to make a detailed proposal for the supply of water sufficient to irrigate substantial areas of irrigable land. The study should cover the engineering agronomic and socio-economic aspects.

For the purpose of the studies, it is envisaged that the consultants would have to undertake the following specific operations:

(i) obtain all relevant hydrological data available in and adjacent to the various catchment areas;

(ii) make a detailed assessment of the water resources development potential of the selected areas;

(iii) identify possible dam sites and carry out detailed site surveys;

(iv) prepare designs, drawings and estimates of costs for the major civil works components;

(v) identify and describe irrigation and cropping systems that are compatible with and adapted to local conditions (type of farmers, availability of spare parts, inputs and markets);

AG 17 (continued)

(vi) make proposals concerning project organization, beneficiary charges and operation and maintenance of civil works;

(vii) present findings in the form of a report.

4. Estimated Cost

The studies are estimated to cost around $700,000, all of it in foreign exchange.

5. Starting Date

1984

6. Completion Date

1985

7. Funds Sought

US$700,000

AG 18 WATER RESOURCES DEVELOPMENT STUDY

1. Executing Agency

Ministry of Agriculture and Water Development (MAWD)
National Commission for Development Planning (NCDP)

2. Description and Justification

In Zambia, it is estimated that about 80 percent of the country's ground water supplies are adequate only for domestic purposes, and a single borehole can support only 200 to 300 persons. In such regions the use of surface water must be developed for irrigation with the construction of dams and irrigation canals of various dimensions.

Where shallow lying limestones and dolomite aquifers are found, the problem is different, as well as for areas with sandy aquifers. In these cases, complete studies must be made. Practically, no serious study has been made in Zambia to date.

3. Terms of Reference

The study aims at an examination of the general inventory of surface and ground water resources in computer model form. In certain regions such as the Kafue Basin, adequate mathematical models should be constructed.

The water-bearing characteristics of the most common geological formations should be studied with existing wells and boreholes, while a complete observation network is being developed. These studies should be carried out for typical aquifers of both large and small yields.

The study should recommend a modern approach to the problem of water use including such subjects as environmental hydrology, chemical and bacteriological quality of drinking water, chemical studies as a tool to determining velocity of infiltration and underground water flows, radioisotopes for determination of the age of water, and other nuclear techniques for water studies. All the above-mentioned subjects are practically untouched in Zambia, although some efforts have been made by the National Council for Scientific Research (NCSR).

The study should be elaborated to include the development of surface water for agricultural needs, especially in the Kafue Basin, a high priority area in Zambia's agricultural development plans. The study will be expected to cover the water balance assessment in the basin and its surrounding lakes and swamps as well as a detailed investigation of the influence upon the water balance of the two existing hydro-electric dams.

Specifically, the study shall:

(i) provide information for the elaboration of a natural water resources plan;

AG 18 (continued)

(ii) be executed in close liaison with immediate agricultural development scheme, especially irrigation) and schemes for improving drinking water supplies to rural as well as urban communities;

(iii) shall assess the water resources of the Kafue in relation to current water resources distribution and management problems;

(iv) plan and establish an appropriate network for the study of groundwater resources of the Zambezi Basin - Kalahari Sands Basin;

(v) monitor and assess the water resources of the Zambezi;

(vi) establish an appropriate network for ground water resources of the Chambeshi Basin and assessment of ground water resources of the Basin in relation to the surface water resources of the region;

(vii) pay special attention to the Kafue Basin as a central basin with its proximity to the railway line, which has been the focal region of development, and has made the basin a major target for development-hydroelectricity generation, major irrigation schemes, wildlife conservation areas, fisheries, etc., and its flat plan has been the traditional cattle grazing area of the local people.

4. Estimated Costs

The study is estimated to cost around US$1.5 million.

5. Starting Date

1984

6. Completion Date

1985

7. Funds Sought

US$1,500,000

AG 19 MARKETING ORGANIZATION EFFICIENCY

1. Executing Agency

Ministry of Agriculture and Water Development

2. Description and Justification

An economic management study will be carried out on the major agricultural parastatals such as CSG, DPB, NAMBOARD, Lintco, etc.

Zambia's agricultural parastatals are inefficient because of internal management problems, the problems of operating in a developing country with poor infrastructure and foreign exchange constraints, shortage of capital, inadequate pricing incentives and other conflicting objectives.

One of the best agricultural parastatals is earning only two thirds of what it might from exports because of marketing problems. It should be possible to increase the farmers' price by 50 percent in most cases.

3. Design of Study

The study should involve among other experts, an agricultural economist, a dairy specialist and a management consultant. The study will identify the objectives, the technical and economic constraints, operational and price policies of GRZ and how they can be made to harmonize with parastatals own policies for increased profitability.

It should also assess the technical assistance need on management and marketing of these parastatals and suggest ways of implementing reforms as well as monitoring costs and effectiveness.

4. Benefits

The project will be expected to increase farm prices substantially while reducing subsidies.

5. Critical Assumptions

It is accepted that the exercise is pointless if the reforms are not carried through. Accordingly, GRZ commits itself to use its full authority to ensure that the report is implemented immediately upon receipt.

6. Starting Date: July 1984

7. Completion Date: 9-12 months later

8. Funds Sought

US$600,000

Chapter 4

INDUSTRY

Introduction

4.1 In the immediate term, the manufacturing sector is critically constrained by shortages of foreign exchange for inputs, and capacity utilization across the whole sector is around 60 percent, although some sectors are worse hit. As was discussed in Chapter 5, low capacity utilizations have a direct impact on unit costs; data from some companies suggest that production costs per unit of output would fall by between 20-30 percent with an increase in capacity utilization from 55 percent to 80 percent.

4.2 For several reasons, GRZ believes that, perhaps more than any other sector, expenditures directed at increasing capacity utilization and rehabilitation of existing plants in the manufacturing sector will have the greatest short-term impact on economic activity. First, the sector contributes 15 percent to GDP, about the same as agriculture. Second, industrial and manufacturing activities are divided almost equally between the private and parastatal sectors. Third, the industrial sector makes the largest contribution to government revenues in income, sales and excise taxes and customs duties. With the disappearance of mineral revenues after 1975, GRZ managed to raise additional taxes to more than make up for lost revenues from copper. Manufacturing activity was an easy target for maintain tax buoyance. Fourth, other sectors including mining and agriculture depend on inputs from the industrial sector. Moreover, many essential consumer and wage goods are domestically produced; increasing their supply at reasonable prices by reducing unit costs, would be an effective anti-inflationary policy in the short run.

4.3 The EP in industry includes an Input Support Programme with the objective of increasing capacity utilization in the sector from 60 percent in 1983 to 75 percent in 1987. As shown in Table 5.2 of Volume I, required imports to achieve the target capacity utilization amounts to US$978 million for 1984-1986. Forecast industrial imports for the three-year period are only US$683 million, implying a shortfall of US$295 million or about US$100 million a year. The Industrial Input Support Programme, would cover the shortfall.

4.4 GRZ has been discussing with the World Bank for some months now for a loan to support the re-orientation of the industrial sector towards the development of non-traditional exports and import-competing manufacturers. The loan will be made available for raw materials, industrial inputs or essential spare parts. Criteria are yet to be agreed with the World Bank for the selection of enterprises to qualify for funds from the loan. However, GRZ proposes to combine the allocation scheme with screening of firms designed to identify and exclude those enterprises--

private as well as parastatal exhibiting gross inefficiency in the use of foreign exchange to the point where they use more than they save. Secondly, in line with the industrial strategy described in Chapter 5, priority would be given to low import-content subsectors producing, i) intermediate goods for industry and agriculture; ii) durable or semi-durable consumer goods; iii) selected non-durable "wage goods" for agriculture and urban areas. The project would also include an action programme to address the policy deficiencies and other problems of the industrial sector. GRZ hopes that other donors would provide co-financing for this project for it to become the principal vehicle for the Industrial Inputs Support Programme.

4.5 Many of the industrial projects presented in the EP are concerned with rehabilitation of existing plant. Several projects are closely related to other areas of the economy; for example, rehabilitation of the timber industry (IN 06) and proposals for down-stream manufacture (e.g., industrial veneers, pulp for paper from pine and eucaplyptus) are closely tied to the third phase of the Industrial Forestry Project being executed through Zambia Forestry and Forest Industries Corporation (ZAFFICO). Similarly, the rehabilitation programme proposed for Nitrogen Chemicals of Zambia (IN 09) incorporates a study into the potential for producing phosphate fertilizers from domestically available phosphates, currently being assessed in a MINEX project.

4.6 Other projects are proposed because of their favourable foreign exchange impact; the small-scale steel re-rolling mill (IN 11) will substantially reduce the foreign exchange cost of mild steel to the medium and light enginerring sectors, and at the same time release one particular bottleneck which frustrates the sector at present. The high foreign exchange component in the health sector is partly attributable to the high import cost of drugs; a project for the domestic manufacture of generic drugs has therefore been proposed (IN 08).

4.7 Two credit lines are proposed for the industrial sector, both quite distinct from the Input Support Programme, which is exclusively for inputs. The first of these would be for general Industrial Development Loans (Project IN 12); as higher capacity utilisation in existing plant is realised, funds for new investment will be required. The fund should be oriented towards projects which are consistent with the overall industrial strategy and above all have a high rate of return and rapid payback in foreign exchange terms. Several such projects have been identified in the private sector; more will doubtless emerge over the programme period. The funds would primarily be available for private sector investments, although joint parastatal-private ventures would also be considered. Support from the international community is sought for this line of credit; the funds required would build up over time as the emphasis shifts from existing plant to new investment.

4.8 Secondly, specific support is sought for the Small Industries Sector (IN 13). The criteria for lending would be less closely defined than the loans for industry in general, mainly because the foreign exchange pressure is less critical. Small-scale industries are usually more tied to domestic materials, and by definition are less capital intensive. This fund would be disbursed through the Development Bank of Zambia (DBZ).

INDUSTRY

PROJECT LIST

		Funds sought 1984-1986 US$ Million
Projects		
Replacement/Rehabilitation:		
IN 01	Maize Mills - Rehabilitation	4.3
IN 02 (a)	Textile Factory - Replacement of Machinery	2.5
IN 02 (c)	Textile Factory - Mealie Meal Bag Manufacture	5.0
IN 03	Modernisation of Oxygen Plant	3.8
IN 04 (a)	Kapiri Glass - Rehabilitation	1.9
		17.5
Completion of on-going projects:		
IN 05	Industrial Bag Manufacture - Rehabilitation	1.3
IN 06 (a)	Zambezi Saw Mills - Rehabilitation	4.5
IN 06 (d)	Veneer Manufacture	1.5
		7.3
New Projects		
Capital:		
IN 02 (b)	Textile Factory - Conversion of Boiler to Electricity	0.8
IN 04 (b)	Sheet Glass Plant	0.1
IN 06 (c)	Timber Curing Facilities	1.5
IN 07	Distillery from Molasses	1.9
IN 08	Barley Malting Plant	2.1
IN 09	Pharmaceuticals Manufacture	3.1
IN 10 (b)	Phosphate Fertilizer Production	1.0
IN 11	Steep Re-rolling Mill	3.7
IN 12	Pulp and Paper Plant	103.3
		117.5

INDUSTRY (CONT'D)

		Funds sought 1984-1986 US$ Million
Others:		
IN 13	Industry Development Support	21.5
IN 14 (a)	Small Industries Development Loans	7.0
		28.5
Support for Increased Capacity Utilisation		
IN 06 (b)	Timber Development - Workshop	1.0
IN 10 (a)	NCZ - Critical Equipment	15.0
IN 14 (b)	Small Industries Development Programme	0.4
		16.4
Input Support		295.0
Miscellaneous		
IN 15	Tariff Reform and Industrial Support Policies	0.1
	TOTAL	482.3

IN 01. MAIZE MILLING REHABILITATION

1. Executing Agency

INDECO Milling Company (IMC)
National Milling Company (NMC)

2. Description and Justification for the Project

The project comprises the rehabilitation of three maize mills within IMC, located at Ndola, Kabompo and Mansa and three within NMC) at Malambo Road, Choma and Kabwe. In addition, improved or new stockfeed processing plants are proposed in Ndola and Choma.

The project follows from a comprehensive study of the Maize Milling Sector carried out by German consultants in 1981. The project was concernd to ensure the balanced supply of maize with milling and storage capacity. Many mills have been operating with old and inefficient machinery; some need replacing, other plants need reconditioning. The project will increase the operating efficiency of the mills and enhance profitability. The stockfeed projects ensure that maize offal can be efficiently utilized and provide an input to the livestock sector. Increased capacity is not required, but the planned investment will ensure increased efficiency within this central, staple industry.

3. Status of the Project

Detailed technical feasibility studies have been carried out on the mills at Ndola, Malambo Road, Lusaka and Kabwe; discussions have been held with KfW of West Germany for the foreign exchange funding. The rehabilitation of Kabompo maize mill is to be financed by British Aid, and the African Development Bank (AfDB) is financing rehabilitation of Mansa Maize Mill. Funds are therefore sought for the Choma Maize Mill and stockfeed plant, and the Ndola stockfeed plant, together with Ndola, Lusaka and Kabwe rehabilitation.

4. Starting Date

Choma Stockfeed)
Ndola Stockfeed)-----1985
Malambo Road)

Kabwe Mill)
Kabompo Mill)-----1984
Ndola Mill)

5. Completion Date

Within twelve months in each case

6. Estimated Costs

		to end 1983	1984	1985	1986
Capital Costs					
(a) Ndola, Lusaka, Kabwe Mill Rehabilitation					
Foreign	($ '000)	-	1275	1821	
	(K '000)	-	2125	3055	-
Local	(K '000)	-	503	445	-
Total	(K '000)	-	2678	3480	-
(b) Ndola Stockfeed					
Foreign	($ '000)	-	-	645	-
	(K '000)	-	-	1075	-
Local	(K '000)	-	-	440	-
Total	(K '000)	-	-	1515	-
(c) Choma Stockfeed					
Foreign	($ '000)	-	-	222	-
	(K '000)	-	-	370	-
Local	(K '000)	-	-	1480	-
Total	(K '000)	-	-	1850	-
(d) Choma Mill - Rehabilitation					
Foreign	($ '000)	-	-	370	-
	(K '000)	-	-	615	-
Local	(K '000)	-	-	435	-
Total	(K '000)	-	-	1050	-

Recurrent Costs

Local recurrent costs will be internally generated; foreign exchange costs will be funded through standard foreign exchange allocations for industrial inputs.

7. Sources of Financing

Discussions have been held with KfW for the financing of Ndola, Lusaka and Kabwe. In all cases, local costs will be internally generated.

8. Commitment Required, 1984-86: $4,333,000

IN 02. TEXTILES REHABILITATION AND DEVELOPMENT

1. Executing Agency

Kafue Textiles of Zambia Limited (KTZ)

2. Description and Justification for the Project

KTZ has over recent years implemented a major rehabilitation and expansion program. The final phase of this program remains and involves:

-- **replacement of stentor**
KTZ has two stentors, but one is 14 years old, and high downtime from breakdown is seriously affecting operating efficiency. Furthermore, the company is developing a line in cotton-polyester mix fabrics, which its existing stentors cannot handle. KTZ' output now exceeds the company's present capacity, and the new machine will relieve an important bottleneck.

-- **replacement of merceriser**
This too is a bottleneck in the company's operations. Also, KTZ' present merceriser depends on imports of caustic soda at an annual cost of some US$225,000 per annum. A new process has been developed using liquid ammonia; this is available from Nitrogen Chemicals Limited (situated next door) and hence the project will have a significant import replacement impact, in addition to improving efficiency.

KTZ also plans to convert its present fuel oil-fired boilers with electric steam generators. The installation of three electrical boilers and a transformer station is envisaged. Electricity is a cheaper power source; power is readily available from ZESCO but at 33,000 V. As the electric boilers use 11,000 V supply, a transformer forms an integral part of the project. Annual fuel costs of $750,000 will be saved following conversion.

Finally, the rehabilitation and expansion program has left KTZ with 300 narrow weaving machines which will rapidly become redundant as market tastes change. It is proposed that these be brought into service in the production of mealie meal bags using low grade cotton and cotton waste. The total market for bags is estimated at 35.4 million units per annum; KTZ anticipates production levels of 5 million units. (Even with full rehabilitation, KIF will only reach 25 million bags -- see project number IND 02.05.) The company is profitable and most efficiently managed. Chitenge, the local cotton print has export potential.

3. Status of The Project

The mealie meal bag project has recently been appraised by an IFC team (with Commonwealth Development Corporation, CDC) and the Development Bank of Zambia (DBZ). Final results are thought to be favorable although the details are not available at the time of writing. The stentor and merceriser are now being studied internally.

4. Starting Date

Merceriser and Stentor) Conversion of Oil Boiler)-----1984
Mealie Meal Bags ----------1985

5. Completion Date

Merceriser and Stentor) Conversion of Oil Boiler)-----1985
Mealie Meal Bags ----------1986

6. Estimated Costs

		1984	1985	1986
Capital Costs				
(a) Replacement of Machinery (mercerisor and stentor)				
Foreign	($ '000)	2500	-	-
	(K '000)	4165	-	-
Local	(K '000)	-	835	-
Total	(K '000)	4165	835	-
(b) Conversion of Oil Boiler to Electricity				
Foreign	($ '000)	-	800	-
	(K '000)	-	1335	-
Local	(K '000)	-	335	-
Total	(K '000)	-	1670	-
(c) Mealie Meal Bags Manufacture				
Foreign	($ '000)	-	5000	-
	(K '000)	-	8335	-
Local	(K '000)	-	335	500
Total	(K '000)	-	8670	500

Recurrent Costs

Local recurrent costs will be covered internally. Foreign exchange costs will be funded through standard foreign exchange allocation procedures.

7. Sources of Finance

It is possible that funds will be available from IFC and CDC for the mealie meal bag project. Similarly IBRD funds may be available to finalize the modernization program. Kwacha funds will be generated internally from the company's own resources.

8. Commitment Required, 1984-86: $8,300,000

IN 03. PRODUCTION OF OXYGEN

1. Executing Agency

Zambia Oxygen Limited (ZAMOX)

2. Description and Justification for the Project

The proposed project will replace existing oxygen plants at Lusaka and Ndola; the plant is over 30 years old and high maintenance costs and frequency of breakdowns have constrained output and shortages of industrial gases have led to bottlenecks in other sectors. The proposed new plant will produce 520 cu m of oxygen per hour, and market size is estimated at 2,056,000 cu m per annum. Nitrogen and oxygen will also be produced. The plant will be located at the existing compression plant site at Kitwe. The project yields an internal rate of return of over 25 percent.

3. Status of The Project

Feasibility studies have been carried out and discussions have been held with Commonwealth Development Corporation (CDC) for funding; no commitments have yet been made.

4. Starting Date: 1984

5. Completion Date: 1986

6. Estimated Costs

		1984	1985	1986	Balance to Complete
Capital Costs					
Foreign	($ '000)	380	3040	366	-
	(K '000)	635	5065	610	-
Local	(K '000)	-	3245	360	-
Total	(K '000)	635	8310	970	-

Recurrent Costs

Recurrent costs arising from the project are estimated at US$408,000; the local element will be internally generated, the foreign exchange obtained through normal allocation channels.

7. Sources of Finance

The Kwacha funds have been managed through the Bank of Credit and Commerce. Discussions have been held with CDC for the foreign exchange element, but these are not yet commited.

8. Commitment Required, 1984-86: $3,786,000

IN 04. REHABILITATION AND EXPANSION OF GLASS MANUFACTURING

1. Executing Agency

Kapiri Glass Products Limited

2. Description and Justification for the Project

Kapiri Glass is the country's sole manufacturer of glass containers and bottles. The plant's second furnace urgently needs rehabilitation in order to maintain capacity utilization. A further project for the domestic manufacture of sheet glass for domestic use and for export has been identified. Apart from soda ash, all major raw materials are available locally. A 10,000 MT plant is envisaged, supplying domestic market (currently around 400-500 tonnes annually, but expanding at 6-8 percent per annum) and, more importantly, the 4,000 MT export market in neighboring SADCC countries. The project would have a high local content, and high value added, while contributing positively to Zambia's attempts to generate exports.

3. Status of The Project

No detailed technical feasibility study has been carried out for the rehabilitation program, although it forms part of a program of ongoing work. A feasibility study for a sheet glass manufacturing plant was initially carried out in 1980. The initial concept and scale had a very poor foreign exchange rate of revenue. The scale has now been reduced to 10,000 MT per annum and an assessment of appropriate technology is at present being undertaken by INDECO, the parent company. Further careful appraisal of this project is essential, and funds are sought for a thorough feasibility study.

4. Starting Date

Rehabilitation - 1984
Sheet Glass Plant - not before 1986

5. Completion Date

The rehabilitation program will take three years

6. Estimated Costs

	1984	1985	1986	Balance to Complete
Capital Costs				
(a) Rehabilitation				
Foreign ($ '000)	1665	157	62	-
(K '000)	2775	265	125	-
Local (K '000)	880	100	105	-
Total (K '000)	3155	365	230	-
(b) Sheet Glass Plant				
Foreign ($ '000)	-	-	100	16500
(K '000)	-	-	167	27505
Local (K '000)	-	-	85	13500
Total (K '000)	-	-	252	41005

7. Sources of Finance

No funds have been identified for either project; the local content of rehabilitation can be generated internally. Funds were initially sought for a feasibility study for the sheet glass plant.

8. Commitment Required, 1984-86: $1,984,000

IN 05. REHABILITATION OF INDUSTRIAL BAG MANUFACTURERS

1. Executing Agency

Kabwe Industrial Fabrics Limited (KIF)

2. Description and Justification for the Project

KIF is the major producer of bags and sacks for packaging of mealie meal and fertilizer. The nine-year old plant is in acute need of refurbishment; there has been no major repair and maintenance work carried out by the company because of liquidity problems. But KIF supplies an essential commodity and rehabilitation is urgently needed to increase the company's output to some 24 million bags per year. This is seen as an ongoing project over five years. The rehabilitation program envisages replacement and refurbishment in the following sections of the plant:

- extrusion
- weaving
- finishing
- liner making
- other services, including instrumentation.

In addition to polypropylene bags, KIF produces jute bags from imported jute products. The local production of kenaf to substitute for imported jute is being considered and its adoption may form part of the rehabilitation program in a later year if viability is established. The project falls into the category of support of industry in order to realize fuller capacity utilization.

3. Status of The Project

Requirements for refurbishing and replacement have been identified; and some works have been commenced.

4. Starting Date: 1983

5. Completion Date: 1986

6. Estimated Costs

Capital Costs		1983	1984	1985	1986	Balance to Complete
Foreign	($ '000)	250	500	400	400	-
	(K '000)	415	835	665	665	-
Local	(K '000)	165	335	335	335	-
Total	(K '000)	580	1170	1000	1000	-

Recurrent Costs

Local recurrent costs will be covered internally. Recurrent foreign exchange costs will be funded through standard foreign exchange allocation procedures.

7. Sources of Finance

Kwacha funds are generated internally from the INDECO group. Foreign exchange support is sought for the rehabilitation program and no funds are commited.

8. Commitment Required, 1984-86: $1,300,000

IN 06. TIMBER REHABILITATION AND DEVELOPMENT

1. Executing Agency

Zambia Steel and Building Supplies Limited (ZSBS) with Zambezi Saw Mills (ZSM)

2. Description and Justification for the Project

Over the past decade, Zambezi Saw Mills in Southern Province, the main hardwood producer has been consistently loss making, and machinery and equipment has become rundown and dilapidated. However, ZSBS has recently taken over the running of the company through a management agreement and has developed a series of related rehabilitation and timber producing projects designed to revitalize the hardwood industry and exploit its export potential as well as supplying domestic hardwood needs, especially for railway sleepers. The project comprises three main elements:

-- **Rehabilitation of Zambezi Saw Mills**
worn out and outdated equipment will be replaced with new machinery. To date K 1.7 million has been injected into Zambezi Saw Mills and now loaders and tractors have been acquired. ZSBS now seeks technical and financial assistance to complete the rehabilitation program at both Mulobezi and Sesheke. Works planned will include the rehabilitation of main frame saws, conveyor systems, and cross out and sizing saws. The felling areas are 25 km from the saw mills and now mobile equipment -- skidders and loaders -- is required to enhance capacity utilization at the saw mills. Hardwood can be exploited at a rate of 20,000-25,000 cu m per annum; with the rehabilitation program, ZSBS anticipates the production of 10,000-15,000 cu m of pre-sawn timber of which half could be exported. There is also a substantial backlog of demand for hardwood railway sleepers. Zambia Railways alone requires 100,000 sleepers annually. ZSBS estimates that they require some US$6.0 million for:

- technical/feasibility study
- repairs and rehabilitation
- replacement and supply of new equipment, plus mobile fleet
- training of Zambian technical personnel
- technical and management support for three years
- export market research for timber and timber products

-- **Timber Curing Facilities**
ZSBS already has two manufacturing units within its timber division in addition to ZSM, which produces parquet flooring -- a block-board factory at Kitwe, and a door factory using both hard and softwood in Lusaka. ZSBS plans to commence manufacture of softwood veneers (presently imported) for their blockboard factory which will mean additional requirements for cured timber (which is kiln-dried by Industrial Plantations Development, IPD). It is thought that the expansion will justify the installation of new curing facilities. In addition, the curing facilities at ZSM are old and obsolescent; and need replacing. ZSBS seeks technical advice on the possibility of replacing their diesel-fired steam generating units by a system using timber waste as fuel as well as financial support for the new curing facilities. These will result in curing facilities for about 13,000 cu m of softwood timber and 9850 cu m for hardwood, which ZSBS estimates will match their in-house requirements.

-- **Workshops**
Finally, ZSBS proposes to build a major workshop in Southern Province with metal casting and machining facilities to service the saw mills.

Still within the timber sector, but outside the rehabilitation and balancing project outlined above, ZSBS plans to commence manufacture of softwood industrial veneers for their blockboard and plywood factory in Kitwe. At present, the company imports between K 2-3 million worth of veneer per annum; the project shows a financial rate of return of 35 percent, and will pay back in foreign exchange terms within 18 months.

3. Status of The Project

The whole rehabilitation and curing project has been identified, and rehabilitation has commenced. There is a need for a detailed technical and feasibility study, which may be funded through KfW. No firm funds for rehabilitation have yet been identified. The veneer project will probably be financed through an Indian Government loan although this is not yet confirmed.

4. Starting Date

Rehabilitation and Workshop	— 1983
Timber Curing	— 1985
Veneer Manufacturing	— 1983

5. Completion Date

Rehabilitation and Workshop -- 1985
Timber Curing — 1986
Veneer Manufacturing -- 1984

Estimated Costs

	1983	1984	1985	1986	Balance to Complete
Capital Costs					
(a) ZSM Rehabilitation					
Foreign ($ '000)	-	3500	1000	-	-
(K '000)	-	5835	1665	-	-
Local (K '000)	835	1165	500	-	-
Total (K '000)	835	1165	500	-	-
(b) Workshops					
Foreign ($ '000)	-	600	450	-	-
(K '000)	-	1000	750	-	-
Local (K '000)	-	250	335	-	-
Total (K '000)	-	1250	1085	-	-
(c) Timber Curing Facilities					
Foreign ($ '000)	-	-	500	1000	-
(K '000)	-	-	835	1665	-
Local (K '000)	-	-	165	670	-
Total (K '000)	-	-	1000	2335	-
(d) Veneer Manufacturing					
Foreign ($ '000)	-	1536	-	-	-
(K '000)	-	2560	-	-	-
Local (K '000)	435	2940	-	-	-
Total (K '000)	435	5500	-	-	-

Recurrent Costs

In all cases, local recurrent costs will be covered internally, and foreign exchange requirements obtained through standard allocation procedures.

7. Sources of Finance

Local funds will be internally generated. Discussions have been held with KfW (West Germany) for a feasibility study for rehabilitation project, but no funds are confirmed. Similarly, approaches for technical assistance and funding are being made to SIDA (Sweden) and FINIDA (Finland). It is probable that Indian finance will be available for the veneer manufacturing project, but in the absence of confirmation, the project is included in this submission.

8. Commitment Required, 1984-86: $8,586,000

IN 07. DISTILLERY DIVERSIFICATION PROJECT

1. Executing Agency

Duncan Gilbey and Matheson, Limited

2. Description and Justification for the Project

Duncan Gilbey and Matheson is the only blender and bottler of spirits in the country, but depends entirely on imported fine spirits. Following the expansion in the sugar industry, molasses will be available in excess of the country's requirements for animal feed, and will provide the basic feedstock for the distillery. In addition to fine spirits, Zambia also imports substantial quantities of industrial alcohol, which will be supplied from this project. The total value of imported alcohol is $1.5 million. Market demand for alcohol is estimated at between 600,000-925,000 liters per year. A feasibility study conducted for the project in August 1983 shows, using updated exchange rates, that the project yields an internal rate of return of 13 percent, and a foreign exchange rate of return of 45 percent. With the present more competitive exchange rates, alcohol can be sold at no more than the present cif price from RSA, the world's cheapest source. The foreign exchange element pays back in just over two years; the project is therefore scheduled for 1985 implementation.

3. Status of The Project

An internal feasibility study has been carried out; external funds are now sought.

4. Starting Date: 1985

5. Completion Date: within twelve months.

6. Estimated Costs

		1984	1985	1986
Capital Costs				
Foreign	($ '000)	-	1896	-
	(K '000)	-	3160	-
Local	(K '000)	-	2035	-
Total	(K '000)	-	5195	-

Recurrent Costs

Funds for recurrent costs will be internally generated and the foreign exchange elemement will be sought through the usual import allocation channels.

7. Sources of Finance

The local element of the initial investment cost will be internally generated. Loan finance is sought for the $1.9 million foreign exchange requirements.

IN 08. BARLEY MALTING PROJECT

1. Executing Agency

Zambia Breweries

2. Description and Justification for the Project

The project envisages the domestic growing of malting barley for processing at Zambia Breweries, the only domestic producer of lager-type "mosi" beer. Malt is at present imported from Zimbabwe, Malawi and Tanzania, to the value of some US$6 million per annum.

Some malting barley has been grown in Zambia, but not a commercially suitable scale which will ensure security of supply. Tests and trials are presently underway in cooperation with the Ministry of Agriculture; if a suitable product can be developed, then production under irrigation will be feasible within the next three years. The project is import substituting and will support Zambia's drive for food self sufficiency.

3. Status of The Project

The project has been identified but not yet appraised in detail.

4. Starting Date

Feasibility study to be carried out in 1985.

5. Completion Date

Subject to feasibility study.

6. Estimated Costs

		1984	1985	1986	Balance to Complete
Capital Costs					
Foreign	($ '000)	-	110	2000	3000
	(K '000)	-	183	3350	5000
Local	(K '000)	-	70	-	5000
Total	(K '000)	-	253	3350	10000

Recurrent Costs

Local recurrent costs will be covered internally. Foreign exchange costs will be funded through standard foreign exchange allocation procedures.

7. Sources of Finance

Some equity participation is proposed for the local element; no sources for foreign loan finance have yet been identified.

8. Commitment Required, 1984-86: $2,110,000

IN 09. PHARMACEUTICALS -- GENERIC DRUG MANUFACTURE

1. Executing Agency

General Pharmaceuticals

2. Description and Justification for the Project

The vast majority of pharmaceutical drugs used in Zambia are imported branded drugs; the project envisages the domestic manufacture of a wide range of generic drugs (based on WHO guidelines on essential drugs) in a plant capable of the following capacity:

Tablets	-	1000 million per annum
Capsules	-	100 million per annum
Solutions	-	400000 liters per annum
Suppositories	-	1 million per annum
Ointments	-	50 tonnes per annum

The project appears highly feasible; it is anticipated that it will pay back the capital investment in five years and operations should yield a net return on turnover of some 25 percent. This project will significantly reduce the foreign exchange costs of providing health care in Zambia (see Chapter 10). Several raw materials -- starch, glucose, etc., are available locally.

In addition to this major project, General Pharmaceuticals wishes to produce oral rehydration salts in sachets as a cure for diarrhoea which is the main cause of the high rate of infant mortality in Zambia.

3. Status of The Project

A feasibility study which shows highly favorable results was carried out by an East European agency in 1980. Negotiations for implementation fell through, and the study now needs updating. Discussions have been held with Japan for technical assistance and funding but nothing is yet definite.

4. Starting Date: 1985
Oral Rehydration salts - 1984

5. Completion Date: 1985

6. Estimated Costs

		1984	1985	1986
Capital Costs				
(a) Oral Rehydration Salts				
Foreign	($ '000)	87	-	-
	(K '000)	145	-	-
Local	(K '000)	155	-	-
Total	(K '000)	300	-	-
(b) Manufacture of Generic Drugs				
Foreign	($ '000)	-	1000	2000
	(K '000)	-	1670	3335
Local	(K '000)	-	2000	3000
Total	(K '000)	-	3670	6335

Recurrent Costs

Total recurrent costs have been estimated at US$500,000; but in general recurrent costs will be covered by the company, with the foreign exchange element met through normal allocations.

7. Sources of Finance

No sources of finance have yet been formally identified; equity participation up to 40 percent would be welcomed.

8. Commitment Required, 1984-86: $3,087,000

IN 10. FERTILIZER INDUSTRY TECHNICAL ASSISTANCE

1. Executing Agency

Nitrogen Chemicals of Zambia Limited (NCZ)

2. Description and Justification for the Project

NCZ is the only producer of fertilizers in Zambia; the company has recently commissioned a sulphuric acid plant and now proposes to carry out a comprehensive rehabilitation of the original Ammonium Nitrate plant. The fertilizer factory is critical for the successful development of agriculture in Zambia. The principle objective is to bring plant operations closer to designed capacity levels. The project comprises two elements: first to improve the operational efficiency of NCZ staff through technical assistance and training, and second, to supply the plant with critical equipment and materials to maintain the operating integrity of the plant and to release bottlenecks where necessary.

Investigations into the potential of local phosphate rock for fertilizers have been carried out through MINEX; so far, the results are promising and preliminary investigations are to be set in train to assess the viability of local production of phosphate fertilizers.

3. Status of The Project

Both elements have been identified and a World Bank mission has considered them for financing. Neither is yet commited.

4. Starting Date: 1984

5. Completion Date: 1985

6. Estimated Costs

		1984	1985	1986
Capital Costs				
(a) Rehabilitation of NCZ [a]				
Foreign	($ '000)	7500	7500	-
	(K '000)	12500	12500	-
Local	(K '000)	n/a	n/a	-
Total	(K '000)	12500	12500	-
(b) Study of Phosphate Fertilizer Production				
Foreign	($ '000)	500	500	-
	(K '000)	835	835	-
Local	(K '000)	n/a	n/a	-
Total	(K '000)	835	835	-

[a] This includes technical assistance and training together with supply of critical equipment and materials.

7. Sources of Finance

The World Bank is considering providing funds for this project; no funds are yet commited. A possibility is for another aid donor to join with the World Bank for this project.

8. Commitment Required, 1984-86: $16,000,000

IN 11. STEEL RE-ROLLING MILL

1. Executing Agency

Zambia Steel and Building Supplies (ZSBS)

2. Description and Justification for the Project

ZSBS plans to invest in a medium-scale steel re-rolling mill for domestic production of mildsteel rod, angles, and flats from imported billets. All steel products are imported and the need to import small consignments of steel to precise specifications reduces Zambia's ability to take advantage of bulk purchasing and price discounts. The project would alleviate this particular bottleneck; steel billets can be imported from Zimbabwe and the re-rolling mill would initially be able to supply up to 40,000 tonnes of high sections, some 60-75 percent of market demand. The envisaged plant will have some flexibility and can be expanded to meet increasing demand. The anticipated product range covers:

-- round and square sections for construction, mining and transportation sectors.

-- flats -- for agricultural implements, automobile bodies, etc.

-- sections (angles) for construction, metal fabrication, etc.

A feasibility study carried out in 1981 showed a net present value in foreign exchange terms of K 17 million at a discount rate of 10 percent for an initial foreign exchange investment of about K 8 million. These estimates need to be updated but the overall viability of the project is unlikely to be much diminished.

The project will have an important impact on the availability of steel, while generating employment and increasing domestic value added. The scale of plant is suited to Zambia's needs and this type of operation is already satisfactorily installed in many African countries. GRZ has long been considering the development of an integrated iron and steel works. Should this prove a viable proposition in the longer term, the re-rolling mill is a logical downstream unit. In terms of this submission, assistance is sought for a rigorous and objective economic and technical feasibility study for the integrated iron ore and steel project, which will determine under what condition such a project could be viable.

An intensive exploration program for iron ore in Central Province was initiated in 1982 by MINEX which suggests that 100 million tonnes of high quality ore are probably available. The drilling program

will be completed in a few months time. A consultancy study of some 27 person-months input is required comprising:

12 months on mining feasibility
15 months comprising economist, financial analyst, civil engineer, process engineer, and possibly marketing economist and/or transport economist

3. Status of the Project

Feasibility studies have been carried out for the steel re-rolling mill, but delays in implementation mean that these should be updated. Discussions have also been held with Indian aid donors although no agreement has yet been finalized. The need for a feasibility study for the integrated works has been identified.

4. Starting Date

Steel re-rolling mill 1984, subject to study
Feasibility study for integrated iron and steel project, 1985

5. Completion Date

The steel re-rolling mill could be operation within twelve months of commencing.

6. Estimated Costs

		1984	1985	1986	Balance to Complete
Capital Costs					
(a) Steel Re-Rolling Mill					
Foreign	($ '000)	1000	2500	-	-
	(K '000)	1670	4170	-	-
Local	(K '000)	2500	3575	-	-
Total	(K '000)	4170	7745	-	-
(b) Iron & Steel Project — Feasibility Study					
Foreign	($ '000)	-	250	-	-
	(K '000)	-	416	-	-
Local	(K '000)	-	100	-	-
Total	(K '000)	-	516	-	-

Recurrent Costs

Recurrent costs will be covered through normal company operations, and foreign exchange will be obtained through normal allocation procedures.

7. Sources of Finance

Discussions have been held with both the Indian Government and the AfDB although no commitment has yet been made for steel re-rolling mill. Kwacha costs will be met through ZSBS internally-generated funds. Equity participation by an overseas supplier of equipment would be welcomed.

No sources of funds have yet been identified for the feasibility study of the iron and steel works; it is prefered that funding be totally independent of any suppliers of plant and equipment.

8. Commitment Required, 1984-86: $3,750,000 1/

1/ Subject to confirmation of updated costings.

IN 12. PULP AND PAPER PROJECT

1. Executing Agency

Zambia Industrial and Mining Corporation Limited

2. Description and Justification for the Project

In 1965, GRZ embarked on an ambitious forest plantation program with a view to setting up a Pulp and Paper Industry. A feasibility study to establish the viability of the project was carried out by Birlas of India. Based on the study, it has been decided to install one 65 TPD Paper Mill and Chemical Complex which will manufacture caustic soda and chlorine. The prime raw material is Pinus Kesiya (75 percent) and Eucalyptus Grandis (25 percent) and would be available in the required quantities in the future.

This project on completion would supply the country most of its paper requirements.

3. Status of The Project

New project. The feasibility study has been completed.

4. Starting Date: 1984

5. Completion Date: 1986

6. Estimated Costs

		To end of 1983	1984	1985	1986	Balance to Complete
Capital Costs						
Foreign	($ '000)	-	17900	54146	31215	-
	(K '000)	-	29833	90243	52025	-
Local	(K '000)	-	n/a	n/a	n/a	-
Total	(K '000)	-	29833	90243	52025	-

7. Sources of Finance

No financing secured.

8. Commitment Required, 1984-86: $103,261,000

IN 13. INDUSTRY DEVELOPMENT SUPPORT PROGRAM

1. Executing Agency

Development Bank of Zambia

2. Description and Justification for the Project

The project envisages the injection of investment funds into the manufacturing sector. It must be emphasized that this is distinct from the proposed Import Support Program. Folling the overall economic strategy, investments are relatively low in 1984, increasing over the EP period as fuller utilization of existing capacity is realized through the Import Support Program. A fund for disbursement through DBZ is sought which can be used to finance new investment, rehabilitation or feasibility studies for projects not included in projects IN 01-11. Some such projects have been identified and prefeasibility studies carried out; others may have been identified at company level but not formally submitted for CG consideration. The projects will each be evaluated by the DBZ to establish eligibility for investment loans (as well as economic and financial feasibility). The DBZ already has a well-established mechanism for project appraisal; particular points must be emphasized:

-- the broad economic import (linkages with other sectors, etc);

— foreign exchange: a rapid foreign exchange payback period;

-- the appropriateness of engineering and technical design -- low cost per job created will be important;

— current financial situation of the company involved, its ability to generate sufficient funds for the local content of the project and its financial soundness on completion of the project.

The medium-scale private enterprise is the target group for this fund although parastatal/private joint ventures would be considered; special emphasis will be given however to companies of any size whose project will contribute to domestic manufacture of industrial inputs.

A list of projects which have been identified as suitable for this type of approach is shown in the following table; others will be identified in the course of the three-year period. Priority sectors for the investment funds would be:

-- downstream timber or paper products

-- metal working and fabrication, engineering development

-- supplies of agricultural input

-- producers of intermediate inputs not presently manufactured in Zambia.

Table ___: Possible Projects for Industry Development Support

Project	Promoting Company	Capital Costs		Comments/Justification
		Foreign $ '000	Local K '000	
Irrigation Equipment	INDECO/Private Co.	5000	8335	Import competing, building on existing domestic capacity
Rubber Reclamation	INDECO/Dunlop	500	835	Good forex payback; utilizing domestic waste to replace imports of rubber crumb.
Rockmining Tyres	Dunlop	395	660	Diversification; industrial input
Cotton for Bicycle Tyres	Dunlop	n/a		Utilization of local cotton for bicycle tyres; special loom required
Forged Hoes	Northland Engineering	750	1250	Import substituting. Supply of better quality agricultural inputs. Export potential.
Tractor Drawn Implements	Northland Engineering	400	665	Agricultural inputs.
Lime Production [a]	INDECO	450	750	Needs feasibility study.
Cosmetic Talc [a]	INDECO	1500	2500	Needs feasibility study.
Preparation of Tallow	Unified Chemicals	750	1250	Import substituting, rapid payback.
Mechanical Timber Pulping	Zambezi Saw Mills	4575	5400	Import substituting using local timber
Non-ferrous Metal Casting	NonFerrons Metals	750	1250	Use of Local inputs; brass bronze casting; import substituting.
Moulds for Plastics	CopperBelt AfroPlast	350-835	585-1396	Domestic manufacture of moulds for injection moulding, blow moulding of plastic etc., ray rapid payback — labor intensive.
Battery Manufacture	INDECO			Possibly coupled with local smallscale manganese mining.
Total Cost		15420	23480	

[a] These projects require pre-feasibility studies.

3. Status of The Project

Some projects are supported by up-to-date feasibility studies; apart from projects marked (a), all these projects which are suggested for financing through the Industrial Development Support Program have already been studies, at least to pre-feasibility stage.

4. Starting Date

It is envisaged that funds should be available through the Industrial Development Support Program from June 1, 1984.

5. Completion Date

Disbursements would continue throughout the three-year period.

6. Estimated Costs

	1984	1985	1986
Investment Funds			
Foreign ($ '000)	3500	6000	12000
(K '000)	5835	10000	20000

7. Sources of Finance

All the projects presented would be able to generate Kwacha funds as necessary from internal sources. No estimates of the possible total domestic element of investments are available.

IN 14. SMALLSCALE INDUSTRIES DEVELOPMENT PROGRAM

1. Executing Agency

Small Industries Development Organization (SIDO) with Development Bank of Zambia (DBZ).

2. Description and Justification for the Project

In 1983, the Ministry of Commerce and Industry established SIDO, whose brief is specifically to give support to small industries. Essentially SIDO provides an advice and consultancy service to smallscale industries on such areas as project identification and formulation, preparation of feasibility studies, procurement of equipment and sourcing of raw materials and inputs, and the identification of investment funds through finance houses and commercial banks. At an operational level, SIDO will provide "on-the-job" management training through, for example, seminars on marketing and accountancy. In the course of 1984, Bank of Zambia will introduce a Credit Guarantee Scheme to give backing to loans made to small entrepreneurs.

Investment funds are sought through the DBZ and commercial banks; the foreign exchange content is normally limited to plant and equipment. The key features of smallscale industries in general (and those supported by SIDO in particular) are their relatively high use of domestically available inputs, and their labor intensity. SIDO itself does not generally supply finance, but gives administrative support to the finance house involved. SIDO aims to reach the more structured segment of the informal sector, identifying smallscale entrepreneurs who already have proven business experience, but whose potential for expansion and development is limited by lack of capital and know-how. "Smallscale" has not been formally defined, but the ceiling on investment considered by the organization is K 250,000 for plant and equipment.

Two forms of support are sought through the EP. Firstly, SIDO still needs to strengthen its institutional framework and the level of specialized skills and advice that the service can offer.

A technical assistance program for twelve months in the first instance is therefore proposed comprising:

-- one management consultant with experience in smallscale industries to advise on management and organization, accountancy and marketing.

-- one mechanical engineer plus one general process/industrial engineer.

Training of Zambians within SIDO would be an important element of technical assistance.

Secondly, direct foreign exchange resources are required for the acquisition of plant and equipment. These would be administered through the DBZ with administrative and evaluation support from SIDO. With the ability to prepare and process up to five projects per month, the required foreign exchange funding is of the order of K 6 million per annum (US$3.6 million). Some funds are already available through, for example, an Indian Government line of credit for K 2 million for 1984.

3. Status of The Project

The need for both technical assistance and foreign exchange resources has been identified; funds are still being sought.

4. Starting Date

May to June 1984

5. Completion Date

The program would run throughout the EP period.

6. Estimated Costs

		1984	1985	1986
Capital Costs				
(a) Investment Finance Support				
Foreign	($ '000)	1500	2500	3000
	(K '000)	2500	4165	5000
Local	(K '000)	N O T	A V A I L A B L E	
Total	(K '000)	2500	4165	5000
(b) Technical Assistance				
Foreign	($ '000)	150	150	-
	(K '000)	250	250	-
Local	(K '000)	120	120	-
Total	(K '000)	370	370	-

Recurrent Costs

Not applicable

7. Sources of Finance

Additional funds are available from the Indian Government, and discussions have been held with KfW (West Germany) although no commitments have yet been made. The Kwacha elements in (a) would be available through internally generated funds. The local content of (b), the technical assistance program would be made available from MCI.

8. Commitment Required, 1984-86: $11,965,000

IN 15. TARIFF REFORM AND INDUSTRIAL SUPPORT POLICIES--TECHNICAL ASSISTANCE

1. Executing Agency

Ministry of Commerce and Industry/Ministry of Finance

2. Description and Justification for the Project

The reform of Zambia's tariff policies is seen as a central policy tool in the restructuring of the industrial base of the country. Moves have already been made to introduce tariffs, but the Government recognizes that this is a complex area and changes must be realistically tied to policy objectives. The Technical Assistance Program envisages that an expert in the field of tariff policy would spend one year in Zambia in order to assist the Government in preparing a policy-oriented tariff structure taking into account the effective protection levels required to stimulated Zambian industry, and marrying the twin aspects of tariff structure -- as revenue raising mechanism and policy tool.

3. Status of The Project

The project has been identified but no detailed terms of reference yet prepared.

4. Starting Date: May 1984

5. Completion Date

The technical assistance would run for one year.

6. Estimated Costs

		1984	1985	1986
Foreign	($ '000)	0.06	0.06	
	(K '000)	0.10	0.10	
Local	(K '000)	0.05	0.05	
Total	(K '000)	0.15	0.15	

7. Sources of Finance

No sources have yet been identified.

8. Commitment Required, 1984-86: $12,000

Chapter 5

ENERGY

Introduction

The objectives of GRZ in the area of energy as stated in Volume I, Chapter 5, include the need to i) maximize the use of locally produced sources of energy, thereby minimizing imports and foreign exchange expenditure; ii) extend electricity to the rural areas; iii) to improve the efficiency in the production of household fuels (charcoal and firewood); iv) maximize the efficiency in the use of energy generally. The projects that have been included in the Expenditure Programme would assist in achieving this objective.

In order to reduce the petroleum import bill, it is necessary to improve efficiency in the operation of the petroleum refinery by modifying the refinery to reduce fuel oil production. The Indeni Refinery Modification Project (EN01) would achieve this goal. The first stage of a World Bank financed study by consultants has recommended the installation of residual upgrading facilities (Hydrocracker) which would allow a more flexible yield as between heavy and light products without the need for spiking at a cost of US$100 million. The alternative of Thermal Cracking which is a lower cost less economic option is also being considered although feedstock spiking, albeit to a lesser degree, will be still required. As no final decision has been made in this regard the cost estimates in EN01 refer to the installation of a Hydrocracker.

A major issue in the power sector is ZESCO's inability to continue to maintain the transmission and distribution systems efficiently. Currently, system losses are high. In the inter-connected system, losses are estimated at 3.5 percent in transmission and 18.2 percent in distributions. This is largely due to the lack of funds, especially foreign exchange for proper maintenance. Vehicles are old and equipment and spare part purchases are insufficient. Project EN 02, which is in the CEP, aims at rehabilitating and reinforcing nine points in the network. The foreign exchange requirements over the three years is US$22.5 million.

Rural electrivication is an important social and economic programme for GRZ, but has been poorly planned and implemented and has been causing operating losses to ZESCO of US$5-8 million annually since 1978. Project EN 03 would continue implementation of the rural electrification programme but in conditions compatible with available resources and with economic efficiency. GRZ also intends to commission a series of studies to establish priorities based on the economic costs of specific investments and to make the programme more effective and efficient. Funds are being sought to finance these studies. (Project EM 05.)

ENERGY

PROJECT LIST

		Funds sought 1984-1986 US$ Million
Projects		
Replacement/Rehabilitation:		
EN 01	Indeni Refinery Modification	99.0
New Projects		
Others:		
EN 02	Electricity Tariff Study	0.1
EN 03	Rural Electrification Study	0.5
		0.6
Support for Increased Capacity Utilisation		
EN 04	Rural Electrification	20.7
EN 05	Power Rehabilitation/Reinforcement	22.4
		43.1
	TOTAL	142.7

EN 01. INDENI REFINERY MODIFICATION

1. Executing Agency

INDENI/ZIMCO

2. Description and Justification of the Project

The petroleum product requirements of the country are met by processing imported crude at the INDENI Refierny. With the esclation of the price of crude oil, consumers were encouraged to maximize the use of indigenous energy sources, coal and hydro-electricty. The design of the refinery is such, that as atlernate energy sources are substituted, which replace mainly residual fuel oil, the changing demand patterns could not be met by changing processing conditions. The only option available was to import less crude oil and more refined products mixed with crude oil (a process known as spiking crude). While operationally this provided a means of matching production and demand patterns, this has resulted in substantial additional costs than would have been the case if no refined products had to be mixed with the crude oil. Currently, about 48 percent of the curde oil feed are refined products.

A detailed analysis of supply options including crude oil availablility and quality, product demand, price trends, regional availability of products and the optimum level to which alternate energy substitution should proceed, which would result in maximum net economic benefits to the country was carried out. The study was carried out with a World Bank loan by a firm of consultants.

A range of options was studied, including moth-balling or shutting down the refinery and importing all products, converting the existing 1100 km pipe-line to a product line, operating the refinery as existing with some minimum investments for energy conservation and for increased spiking of crude oil which will be needed in the future and modifying the refinery using different combinations of downstream processing units.

Zambia's demand for residual fuel oil is currently about 25 percent of total demand and with further substitution of coal will decline to about 19 percent. The balance of the products consist of LPG, gasoline, kerosene, automotive diesel oil and low sulfur gas oil. The dominant product is gas oil, which accounts for about 42 percent of the demand. The combined middle distillate range of products - a kerosone, automotive diesel oil and low sulfur gas oil - account for about 63 percent of the demand. The yield of middle distillate products from crude oil is only about 40 percent when processing a crude oil like Arabian Light, while the yield of net residual fuel oil

is about 44 percent. In oder to match production with demand, refiners convert the surplus fuel oil to middle distillates by a process referred to as hydrocracking. Marginal improvements in middle distillates yield can be achieved by other processes such as thermal cracking. All processes likely to be beneficial were studied. Given their relatively low proportion of residual fuel oil in the demand profile, in order to obtain greater conversion of fuel oil to middle distillates, removal of asphaltenes and metals which deactivate and poison catalysts was also considered to be necessary of the options studies, the shutting down of the refinery was determined to be the least desirable. Besides the direct losses, based on a comparison of imports with refinery being operated, there are other financial charges that result such as the need to carry larger inventories in order to accommodate the full capacity of the smaller 28,000 DWR tanker.

The two options likely to yield maximum economic benefits to the country are:

(i) the installation of a Hydrocracking Unit, a Vaccum Unit Hydrogen plant, a Demex Unit, and a Sulphuric Acid plant (Estimated cost, US$100 million; Economic rate of return, 20 percent);and

(ii) a combination of Recylce Thermal Cracking Unit and Mild Hydrocracking (estimated cost, US$60 million; Economic rate of return, 12 percent).

In view of the more attractive economic benefits which are associated with it, the project being presented to the donor community is that related to option (i) above.

3. Status of the Project

Feasibility study already completed with second stage involving engineering and design work now planned, leading to implementation.

4. Starting Date

1984

5. Completion Date

1987

6. Estimated Costs

	To End 1983	1984	1985	1986	Balance to Complete
Capital Costs					
Foreign ($'000)	-	33000	33000	33000	-
(K'000)	-	55000	55000	55000	-
Local (K'000)	-	5500	5500	5500	-
Total (K'000)	-	60500	60500	60500	-
Recurrent Costs (K'000)	-				24200

7. Sources of Financing

No financing yet secured.

8. Commitment required 1984-1986 - $99,000,000

EN 02. ELECTRICITY TARIFF STUDY

1. Executing Agency

ZESCO - Electricite de France

2. Description and Justification of Project

A comprehensive study of electricity tariffs in Zambia.

3. Status of the Project

The project has been commissioned and the contract signed; it has not gone ahead because of shortage of foreign exchange.

4. Starting Date

Mid-1984

5. Completion Date

1985

6. Estimated Costs

	To End 1983	1984	1985	1986	Balance to Complete
Capital Costs					
Foreign ($'000)		50	50	-	
(K'000)		83	83	-	
Local (K'000)		-	-	-	
Total (K'000)		83	83	-	

7. Sources of Financing

No financing secured.

8. Commitment Required 1984-1986 - $100,000

EN 03. RURAL ELECTRIFICATION STUDIES

1. Executing Agency

Zambia Electricity Supply Corporation (ZESCO)

2. Description and Justification of Project

A series of studies on the most efficient way of extending electricity to the rural areas, by regions.

3. Status of the Project

New project.

4. Starting Date

Mid-1984

5. Completion Date

1985

6. Estimated Costs

	to end 1983	1984	1985	1986	balance to complete
Capital Costs					
Foreign ($'000)		250	250	-	
(K'000)		417	417	-	
Local (K'000)		42	42	-	
Total (K'000)		459	459	-	

7. Sources of Financing

No financing yet secured.

8. Commitment Required 1984-1986 - $500,000

EN 04. RURAL ELECTRIFICATION

1. Executing Agency

Zambia Electricity Supply Corporation (ZESCO)

2. Description and Justification of the Project

The project is for the electrification of 5 farming areas as follows:

(i) Kafubu West: establishing 33/11 KV substation, construction of 50 km of 11 KV lines and erection of distribution transformers;

(ii) Kafulafuta and other farms in Ndola rural: installation of 33/11 KV substation with 2 x 5 MVA TX, and 33 KV and 11 KF O/H lines, plus connections;

(iii) Munkulungwe Farming Area: construction of a 33/11 KV substation and extension of 11 KV,)/H network;

(iv) Mkushi Farming Block: cnstruction of a 66 KV line bay at Serenje Boma, 66/33/11 KV substation on the Farm Block, 33/11 KV new substation and reinforcement of the existing 33/11 KV substation; and

(v) Mpongwe/Munkumpu Wheat Scheme: construction of an 88 KV transmission line from Kapiri-Mposhi to an 88/33 KV substation at Mpongwe Mission and two 33 KV lines to a central point within the wheat scheme.

3. Status of the Project

All new projects

4. Starting Date

1984

5. Completion Date

1986 (except (v), 1984)

6. Capital Costs

		End 1983	1984	1985	1986	Balance to Complete
Foreign	($000)	-	4812	9159	6774	
	(K000)	-	8020	15265	11290	
Local	(K000)	-	2003	3270	2848	
Total	(K000)	-	10023	18535	14138	

7. Sources of Financing

No Financing Secured.

8. Commitment Required 1984-86 - $20,745,000.

EN 05. POWER REHABILITATION AND REINFORCEMENT

1. Executing Agency

Zambia Electricity Supply Corporation Limited (ZESCO)

2. Description and Justifiction of the Project

One of the most serious problems faced by ZESCO currently is the inability to maintain and expand the power transmission and distribution system to respond to an increased demand. This is a result of a shortage of funds, in turn due to low tariffs, non-payment of bills, and high costs, as well as a shortage of foreign exchange in the economy. Partly as a result of this, system losses are high, costs are further increased, and the system is unreliable.

This project aims at rehabilitation and reinforcing 9 points of the network specified as follows:

(a) Ndola main 11 KV network: laying 7 km, 11 KV cable networks and 11 KV siwtchgear at different substations;

(b) Sereje 330/66 KV substation: setting up the substation to couple the 66 KV network of Northern and Luapula Provinces with national grid.

(c) Kitwe distribution network: construction of a single line 66 KV subtransmission line from the nearest bulk supply point into the industrial area and setting up of a substation in the area with 2 x 15 mVA 66/11 KV transformers;

(d) Replacement of Machines No. 1 and 5 at Musonda Falls Power Station;

(e) Lusaka: installation of a control computer in the regional control centre; reinforcement of power supply from the national grid and rehabilitation of the network;

(f) Southern Province: erection of 2 to 15 MVA, 33/11 KV tranformer at Livingstone; 2 No. 10 MVA, 88/33 KV at Muzuma, 1 No. 10 MVA, 88/11 KV at Chirundu and construction of second 88 KV/OHL from Kafue to Mazabuke;

(g) Central Province: install transformers: 2 No. 20 MVA, 88/33 KV at Mumbweg 1 No. 10 MVA, 88/33 KV at Kabwe, 1 No. 15 MVA, 88/33 KV at Kapiri Mposhi and construction of 40 km of 88 KV line;

(h) Western Province: upgrade existing 1MVA transformers at Senanga and Seshcke to 2MVA, 66/11 KV; and

(i) Eastern Province: erection of 5 No. 33 KV OCBs and 3 No. 66 KV OCBs.

3. Status of the Project

All new projects except for (ii) and control computer in (v).

4. Starting Date

1984

5. Completion Date

Varying

6. Estimated Costs

	To End 1983	1984	1985	1986	Balance to Complete
Capital Costs					
Foreign ($000)	2400	8461	8335	5596	
(K000)	4000	14102	13892	9327	
Local (K000)	983	3527	3492	2333	

7. Sources of Financing

Negotiations have taken place for finance for (b) from the governments of France and the UK and for (c) from the World Bank, but no firm commitments have been reached.

8. Funds Sought

US$22,400,000

Chapter 6

TRANSPORT, COMMUNICATIONS AND TOURISM

Introduction

Although Zambia's transport infrastructure appears ample, particularly in the highways subsector, the efficient expansion of freight services is at present constrained by the deteriorated condition of transport equipment and facilities. The economic crisis has restricted the amount of resources available for maintenance and repair, resulting in the erosion of the capital base. Given the depressed state of the economy and the poor prospects for early recovery, the demand for freight services is likely to increase only gradually over the next few years. As stated earlier, mineral production is not expected to increase significantly and even if agricultural activity expands more uniformly, and consistently, than in recent years, the general level of economic activity will expand slowly at best. Thus, the focus of transport sector strategy and policy described in Volume I, Chapter 6 is on making transport less costly by improving the efficiency of existing facilities and personnel.

The transportation projects included in the EP are in line with this objective. Thus, projects TR 05 and 06 have been designed to help the rehabilitation of road transport operations through the reconditioning of workshop facilities, the procurement of equipment and spares, and the improvement in technical skills. Procurement of new busses and trucks, on a replacement basis, have been included under projects TR 01, TR 05 and TR 06. Again, the emphasis on the Fourth Railway Project (TR 01) is on improving operational efficiency through modernization and rehabilitation. The proposed project, a continuation of the Third Railways Project, consists of two portions: an investment portion and a maintenance portion. The investment portion is part of Zambia Railways' investment programme for 1986 through 1988 and would continue to re-establish operational efficiency of the railway by providing for replacement of life-expired material and equipment to meet the traffic demands on short- and long-term basis. The maintenance portion would permit improved efficiency through the provision of materials, spare parts, maintenance and operational facilities.

The project also contains studies leading to long-term improvements in the efficiency of the railway services and training and technical assistance in specific areas critical to the railway's operation. In 1984 prices, the total cost of the Fourth Railway Project (1986-1988) is US$84 million, of which the foreign component is US$69 million. In 1986, an amount of US$28.1 million will be required and has been included in the EP. It must be stressed that the Fourth Railway Project would cover only 60 percent of Zambia Railway's anticipated investment and maintenance needs (US$143 million) during the three year period 1986-1988.

In order to provide more resources for road mainteannce, GRZ reduced capital expneditures by 50 percent in 1983 over the previous year's level. By constrast, recurrent expenditures for the highways sector were increased significantly in both years. GRZ is putting emphasis on the completion of on-going and outstanding projects as reflected in the Highway Investment Programme (TR 02). With regard to road maintenance, the implementation of the Third Highway Project is making good progress after substantial delays. The project aims at improving the maintenance of the road network by strengthening the Roads Development (RD) and the Mechanical Services Department (MSD) through the provision of equipment and technical assistance. An IBRD/IDA loan and credit of US$22 million is providing for the purchase of new road maintenance equipments, the rehabilitation of existing equipments and spare parts for new and existing equipments. Over the next three years, bearing in mind the capacities of the RD and MSD, the Third Highway Project would adequately fulfill the requirements for road maintenance. Additional funds for this purpose are therefore not being sought for the EP.

A number of investments have been made in the past to strengthen the Communications and Tourism sectors. The projects in the Communications sector which are presented below will help to further improve the service provided by the Posts and Telecommunications Corporation. Likewise, the Projects under Tourism will help considerably to enhance and improve the tourism product both in the Public and Private sectors through the provision of foreign exchange for essential imports and upgrading facilities.

TRANSPORT

PROJECT LIST

		Funds sought 1984-1986 US$ Million
Projects		
Replacement/Rehabilitation:		
TR 01	Acquisition of New Buses	17.7
New Projects		
Capital:		
TR 02	Highway Investment Programme	70.0
TR 03	Aircraft Hangar Facility Expansion	20.0
		90.0
Support to Increased Capacity Utilisation		
TR 04	Fourth Railway Project	23.0
TR 05	Workshop Facility for Heavy Vehicles	3.0
TR 06	Construction of Central Workshop	3.0
TR 07	Rehabilitation of Trucks and Trailers	7.0
		36.0
	TOTAL	143.7

TR 01. ACQUISITION OF NEW BUSES

1. Executing Agency

United Bus Company of Zambia Limited (UBZ)

2. Description and Justification of the Project

UBZ provides road passenger transport services throughout the nation. The company has been beset by a number of problems in recent years, including inadequate maintenance facilities and an erratic supply of spare parts. It is proposed to remedy these problems in the medium-term by establishing workshops equipped to carry out major repairs of buses and so extend their active life (see Project TR 03).

In the short-term, UBZ must continue to invest in new buses if it is to maintain its present level of operations. Consultants have estimated that losses could rise to K 13.5 million (1983 prices) within five years if no fleet replacement programme is undertaken. It is proposed that 181 buses should be obtained during the financial year 1984 and a further 135 in 1985. Requirements are expected to be reduced sustantially in subsequent years.

It should be noted that UBZ has had to rely heavily on commodity loans in recent years and that its consequent multiplicity of vehicles, some not suitable to Zambian conditions, has reduced efficiency. UBZ hopes to standardize its operaional fleet to the extent possible in the future.

3. Status of the Project

External financing is now being sought for this project.

4. Starting Date

1984

5. Completion Date

1985

6. Estimated Costs

		1983	1984	1985	1986	Balance to Complete
Capital Costs						
Foreign	($'000)	-	10170	7584	-	-
	(K'000)	-	16950	12640	-	-
Local	(K'000)	-	4240	3160	-	-
Total	(K'000)	-	21189	15800	-	-

Recurrent Costs

Foreign ($'000)
(K'000)
Local (K'000)
Total (K,000)

7. Sources of Financing

No financing yet secured.

8. Commitment Required 1984-1986 - $17,754,000

TR 02. HIGHWAY INVESTMENT PROGRAMME

1. Executing Agency

Ministry of Works and Supply

2. Description and Justification of the Project

A number of highway development/rehabilitation projects were planned for the Third National Development Plan Period (1979-83). Many of these projects have not been completed and others could not start. The work programme of the Roads Development for 1984 includes the completion of some of these projects which could extend into 1985 and 1986. In particular two priority road projects having traffic in excess of 100 vehicles per day which were included in the Third National Development Plant but could not be implemented are the Chomo-Namwala and the most heavily trafficked 50 Km section of the Karongo-Mpulungn. GRZ gives priority to the completion of these roads and the others mentioned below. The Highway Investment Programme presented here also includes the systematic rehabilitation of provincial roads as well as bridges and pontoons.

3. Project Status

Identification of work required in respect of all projects has been completed.

4. Starting Date

1984

5. Completion Date

6. Estimated Costs: Total Funds Sought: US$70,000,000

Road	Funds Sought US$ Million	Notes
Limulunga-Senanaga	5.3	89% complete
Livingstone-Zimba	3.0	50% complete
Mansa-Nchelenge	28.0	
Choma-Namwala	(15.5)	
Karongo-Mpulungu	5.0	
Provincial Roads/Bridges	8.5	
	70.0	

Sources of Financing

Not identified.

TR 03. AIRCRAFT HANGAR FACILITY

1. Executing Agency

Zambia Airways Corporation Limited (QZ)

2. Description and Justification for the Project

The project involves the setting up of an aircraft maintenance facility at Lusaka International Airport, capable of maintaining, repairing, overhauling and testing airframes, engines, and components of QZ's fleet as well as serving as a possible regional maintenance centre for SADCC airline operators.

The Project requires:

(a) the construction of a hanger suitable for accommodating one wide-body aircraft and two Boeing 737s at anytime;

(b) the construction of workshops, offices and warehouse storage accommodation;

(c) the construction of an Engine and Auxiliary Power Unit (APU) overhaul building and offices;

(d) the construction of an Engine and APU test CEll and building; and

(e) the provision of comprehensive equipment and tools.

The project would enable QZ to acquire the level of in-house maintenance capability necessary to become self-sufficient for all its foreseeable maintenance, repair, overhaul and testing needs.

3. Status of the Project

A pre-feasibility study has been carried out by QZ and by two firms of consulting engineers. A detailed feasibility study will be carried out and schematic designs and specifications will be prepared. It is estimated that the hangar facility will cost in the region of US$25 million.

4. Starting Date

1984

5. Completion Dat

1985.

6. Estimated Costs

Capital Costs		1983	1984	1985	1986	Balance to Complete
Foreign	($'000)	-	15000	500	-	-
	(K'000)	-	25000	8333	-	-
Local	(K'000)	-	6250	2083	-	-
Total	(K'000)	-	31250	10416	-	-

Recurrent Costs		To End 1983	1984	1985	1986	Balance to Complete
Foreign	($'000)	-	-	-	-	-
	(K'000)	-	-	-	-	-
Local	(K'000)	-	-	-	-	-
Total	(K'000)	-	-	-	*232	-

* After completion of the hanagar construction.

7. Sources of Financing

No financing yet secured.

8. Commitment Required 1984-1986 - $20,000,000.

TR 04 FOURTH RAILWAY PROJECT

1. Executing Agency

Zambia Railways Corporation (ZR)

2. Description and Justification of the Project

Under the Third Railway Project, 1979-1983, ZR, with the financial assistance of the World Bank and other associated agencies, embarked on a modernization and rehabilitation program of the railway system. The proposed project, scheduled to cover the period 1986-1988, is designed to consolidate the programs so far implemented by maintaining, rehabilitating and replacing facilities. The emphasis will be on improving ZR's operating efficiency rather than capacity expansion. Individual sub-projects which have been identified include:

(i) tract
(ii) signalling and telecommunications
(iii) locomotives and rolling stock
(iv) workshops and equipment
(v) operating facilities
(vi) service vehicles
(vii) training and technical assistance.

3. Status of the Project

The project has recently been identified by the World Bank and is scheduled for appraisal in February 1984.

ZR intends to apply for credit from the International Development Agency (IDA) to finance part of the project. However, as extensive financing will be required, co-donors and supplier credits are also sought.

4. Starting Date

April 1986

5. Completion Date

March 1989

6. Estimated Costs

	To End 1983	1984	1985	1986	Balance to Complete
Capital Costs					
Foreign ($000)	-	-	-	23,000	76,300
(K000)	-	-	-	36,800	127,200
Local (K000)	-	-	-	24,450	48,900
Total (K000)	-	-	-	61,250	176,100

TR 04 (continued)

	To End 1983	1984	1985	1986	Balance to Complete
Recurrent Costs					
Foreign ($000)	-	-	-	-	-
(K00C)	-	-	-	-	-
Local (K000)	-	-	-	-	-
Total (K000)	-	-	-	-	-

*Disbursing could start in 1985 depending on progress with loan agreements.

7. Sources of Financing

No financing yet secured.

8. Commitment required 1984-1986

US$23,000,000

TR 05 WORKSHOP FACILITY FOR REBUILDING/RECONDITIONING HEAVY VEHICLES

1. Executing Agency

Zambia Tanzania Road Services Limited (ZTRS)

2. Description and Justification of the Project

ZTRS has a vehicle repair workshop at its Kitwe depot for the maintenance and overhaul of the company's 400 vehicles, but most of the facilities there are old and outdated.

Under present conditions, the company's vehicles have to be scrapped after only 4-5 years use and about 300 will have to be abandoned during the next three years if conditions are not improved. At least 100 of these vehicles could be reconditioned by cannibalizing other vehicles and by importing new spares.

A project is, therefore, proposed to:

(i) install modern equipment to enable the workshop to rebuild and recondition vehicles;

(ii) import components and spares for reconditioning old vehicles;

(iii) obtain four qualified technicians to assist in rehabilitation of the fleet and train local staff.

It is estimated that the systematic reconditioning of the company's vehicles would yield a net saving in foreign exchange of about US$4 million as compared with importing new trucks.

3. Status of the Project

ZTRS is preparing a report on the project and is seeking external sources of financing.

4. Starting Date

1984

5. Completion Date

1986

TR 05 (continued)

6. Estimated Costs	To End 1983	1984	1985	1986	Balance to Complete
Capital Costs					
Foreign ($000)	-	750	1,500	750	-
(K000)	-	1,250	2,500	1,250	-
Local (K000)	-	833	1,667	833	-
Total (K000)	-	2,083	4,167	2,083	-

7. Sources of Financing

No financing yet secured

8. Commitment Required 1984-1986

$3,000,000

TR 06 CONSTRUCTION OF CENTRAL WORKSHOPS

1. Executing Agency

United Bus Company of Zambia Limited (UBZ)

2. Description and Justification of the Project

UBZ provides bus services throughout Zambia. The company's buses are only achieving an average three-year life at present, while the present workshops cannot cope with rehabilitation as well as their normal maintenance and repair activities.

A new purpose built central engineering workshop is proposed which would provide the following facilities:

(i) rehabilitation of buses requiring major repairs;
(ii) reconditioning of major components and spare parts;
(iii) production of certain spare parts.

It is expected that with the construction of the new workshop, UBZ will be able to extend the life of its vehicles by another three years, thus reducing the need to import new vehicles. A decrease in the importation of fast wearing parts will also be achieved by the reclamation of worn components.

An improvement in basic skills is also anticipated by in-house training of mechanics and tradesmen through exposure to controlled overhaul and repair techniques and adherence to manufacturers' standards.

3. Status of the Project

UBZ have acquired four plots at the proposed site and have paid the service fees to Lusaka City Council. A feasibility report has been prepared by local consultants and financial support is now being sought for provision of the workshop and equipment.

4. Starting Date

1985

5. Completion Date

1986

TR 06 (continued)

6. Estimated Costs	To End 1983	1984	1985	1986	Balance to Complete
Capital Costs					
Foreign ($000)	-	-	1,250	1,750	-
(K000)	-	-	2,083	2,917	-
Local (K000)	-	-	417	416	-
Total (K000)	-	-	2,500	3,333	-

7. Sources of Financing

No financing yet secured

8. Commitment required 1984-1986

$3,000,000

TR 07 REHABILITATION OF TRUCKS AND TRAILERS AND PURCHASE OF TRUCKS

1. Executing Agency

Contract Haulage Limited (CHL)

2. Description and Justification of the Project

The project involves identification of vehicles which are currently non-operational but which could be repaired at a reasonable cost. It is initially proposed to rebuild 60 truck/trailers; thereafter, CHL would continue to rebuild vehicles as required. CHL also intends to purchase 50 trucks at a cost of US$5 million.

The successful implementation of the project depends on:

(i) the provision of a qualified and experienced engineer to manage and control the program;

(ii) the provision of three qualified and experienced technicians to handle the overhauling of components. They would be assisted by Zambian counterparts, who, through job training, should be in a position to take over from the expatriate technicians in due course;

(iii) the provision of new plant, equipment and tools; and

(iv) the provision of spare parts and materials.

The project would enable CHL to improve vehicle output in the short term. The increase in the operational holding would also enable CHL to make optimum use of available staff and facilities and place it in a better position to provide transport services to the rest of the economy.

3. Status of the Project

The various elements of the project have been identified and funds are being sought from external sources.

4. Starting Date

July 1984

5. Completion Date

December 1986

TR 07 (continued)

6. Estimated Costs		To End 1983	1984	1985	1986	Balance to Complete
Capital Costs						
Foreign	($000)	-	5,516	1 732	1 732	-
	(K000)	-	9,193	1,220	1,220	-
Local	(K000)	-	836	72	72	-
Total	(K000)	-	10,029	1,292	1,292	-
Recurrent Costs						
Foreign	($000)	-				-
	(K000)	-				-
Local	(K000)	-				-
Total	(K000)	-			550*	-

*after project completion

7. Sources of Financing

No financing yet secured

8. Commitment required 1984-1986

$6,980,000

COMMUNICATIONS

PROJECT LIST

		Funds Sought 1984 - 1986 US$ Millions
New Projects		
CO 01	Installation of Hybrid Solar Power Systems	1.6
CO 02	Expansion of Earth Station	10.2
		11.8
Support for Increased Capacity Utilization		
CO 03	New Telex Exchange	1.3
CO 04	Procurement of Teleprinters	2.3
CO 05	Time Division Multiplex Systems	0.1
CO 06	Procurement of Telephone Instruments	1.2
		4.9
TOTAL		16.7

CO.01 INSTALLATION OF HYBRID SOLAR POWER SYSTEMS

1. Executing Agency

Posts and Telecommunications Corporation (PTC)

2. Description and Justification of the Project

Energy for microwage repeater stations is at present provided by pairs of diesel engine generators where there is no commercial electrical power available locally.

It is proposed that these generators should be replaced by a hybrid solar power photovoltaic (VC) system on three routes (Lusaka to Chipata, Nakonde and Livingstone) in order to reduce maintenance and fuel costs and to obtain higher reliability. The superceded generators would be used at other locations in the system.

3. Status of the Project

Field trials of the new system have been successfully carried out near Lusaka during the past two years. Plans for the proposed installations are complete and financing is now being sought for the foreign currency part of the project.

4. Starting Date

1985

5. Completion Date

1988

6. Estimated Costs

		to end 1983	1984	1985	1986	balance to complete
Capital Costs						
Foreign	($000)	-	-	174	510	936
	(K000)	-	-	290	850	1560
Local	(K000)	-	-	19	59	249
Total	(K000)	-	-	300	900	1800
Recurrent Costs						
Foreign	($000)	-	-			
	(K000)	-	-			
Local	(K000)	-	-			
Total	(K000)	-	-			75*

*after project completion

CO.01 (continued)

7. Sources of Financing

No financing yet secured.

8. Commitment Required 1984-1986 - $1,620,000

CO.02 EXPANSION OF THE EARTH STATION AT MWEMBESHI (LUSAKA)

1. Executing Agency

Posts and Telecommunications Corporation (PTC)

2. Description and Justification of the Project

The International Transit Switching Center (ITSC) in Lusaka will be capable of functioning as a transit switching point for automatic telephone traffic in the SADCC area when it is commissioned in 1984. To be successful in this capacity it should be provided with sufficient low congestion circuit groups to other ITSC's in and outside the area over satellite and terrestrial bearers.

The existing standard A earth station antenna at Mwembeshi, working to the Indian Ocean, provides direct circuits to India, Italy, Kenya, South Africa and the UK. The provision of a second antenna working to the Atlantic Ocean satellite would enable Zambia to set up direct links to USA, Canada and other American countries.

The project is in two phases:

(i) Provision of three new receiver chairs, high power amplifier and SCPC equipment for 12 channels;

(ii) Provision of a second antenna with associated ground communication equipment, power supply, civil works, spares and training.

3. Status of the Project

Delivery of the equipment for the first phase expansion is waiting for the funds to be made available. For the second phase, a feasibility study has been prepared by PTC. Financing a new being sought for the foreign currency part of the project.

4. Starting Date

1985

5. Completion Date

1987

6. Estimated Costs

Capital Costs		to end 1983	1984	1985	1986	balance to complete
Foreign	($000)	-	-	7121	2167	906
	(K000)	-	-	11868	3612	1510
Local	(K000)	-	-	12592	3691	1520
Total	(K000)	-	-	12592	3691	1520
Recurrent Costs						
Foreign	($000)	-	-			
	(K000)	-	-			
Local	(K000)	-	-			
Total	(K000)	-	-			890*

*after project completion

7. Sources of Financing

No financing yet secured.

8. Commitment Required 1984-1986 - $10,194,000

CO.03 NEW TELEX EXCHANGE AT KITWE

1. Executing Agency

Posts and Telecommunications Corporation (PTC)

2. Description and Justification of the Project

The existing domestic and international telex system in Zambia is centered on an exchange located in Lusaka. The exchange, which was commissioned in 1976, is equipped for 2,048 lines and has a work capacity of 1,687 lines.

In order to economize on transmission channels, time division multiplexing equipment is employed on routes to the Copperbelt, where subscriber concentration is high (nearly 55 percent of total subscribers). Other areas in the country are connected to the Lusaka exchange by means of voice frequency telegraph (VFT).

It is expected that the capacity of the Lusaka exchange will be fully taken up by the middle of 1984, and there is an urgent need to provide new facilities to meet the growing demand for telex service.

A new 2000 line telex exchange is, therefore, proposed to be installed in Kitwe to serve the Copperbet area and the nothern half of Zambia.

3. Status of the Project

Technical specifications and financial studies have been prepared by PTC and tenders have been submitted for the works. Discussions have been held with potential donors but programs have not been agreed because of their piorities in other sectors.

4. Starting Date

1984

5. Completion Date

1985

6. Estimated Costs

Capital Costs		to end 1983	1984	1985	1986	balance to complete
Foreign	($000)	-	660	660	-	-
	(K000)	-	1100	1100	-	-
Local	(K000)	-	50	50	-	-
Total	(K000)	-	1150	110	-	-

CO.03 (continued)

Recurrent Costs

Foreign	($000)	-	-	-	-	-
	(K000)	-	-			
Local	(K000)	-	-			
Total	(K000)	-	-		115	

*after project completion

7. Sources of Financing

No financing yet secured.

8. Commitment Required 1984-1986 - $1,320,000

CO.04 PROCUREMENT OF TELEPRINTERS

1. Executing Agency

Posts and Telecommunications Corporation (PTC)

2. Description and Justification of the Project

Installation of the proposed new telex exchange in Kitwe (see Project) will require the provision of modern electric teleprinters.

It is proposed the 1200 teleprinters should be procured over a period of six years.

3. Status of the Project

See Project CO.01

4. Starting Date

1984

5. Completion Date

1989

6. Estimated Costs

		to end 1983	1984	1985	1986	balance to complete
Capital Costs						
Foreign	($000)	-	210	420	420	1260
	(K000)	-	350	700	700	2100
Local	(K000)	-	-	-	-	-
Total	(K000)	-	350	700	700	2100
Recurrent Costs						
Foreign	($000)					
	(K000)					
Local	(K000)					
Total	(K000)					81*

*after project completion

7. Sources of Financing

No financing yet secured.

8. Commitment Required 1984-1986 - $2,310,000

CO.05 INSTALLATION OF TIME DIVISION MULTIPLEX SYSTEMS

1. Executing Agency

Posts and Telecommunications Corporation (PTC)

2. Description and Justification of the Project

In association with the installation of the proposed new telex exchange (see Project CO.01), 15 new Time Division Multiplex (TDM) systems are required. By enabling 30 circuits to be made available on one bearer circuit, the TDMs will efficiently cater for increased international and domestic telex traffic.

The VFT systems released by the new TDMs will be used to augment the rest of the national network.

3. Status of the Project

See Project CO.01.

4. Starting Date

1985

5. Completion Date

1985

6. Estimated Costs

		to end 1983	1984	1985	1986	balance to complete
Capital Costs						
Foreign	($000)	-	-	128	-	-
	(K000)	-	-	214	-	-
Local	($000)	-	-	-	-	-
Total	(K000)	-	-	214	-	-
Recurrent Costs						
Foreign	($000)	-	-	-		
	(K000)	-	-	-		
Local	(K000)	-	-	-		
Total	(K000)	-	-	-	10	

7. Sources of Financing

No financing yet secured.

8. Commitment Required 1984-1986 - $128,000

CO.06 PROCUREMENT OF SUBSCRIBER TELEPHONE INSTRUMENTS AND PUBLIC CALL OFFICES

1. Executing Agency

Posts and Telecommunications Corporation (PTC)

2. Description and Justification of the Project

The number of direct exchange lines (DELs) in use currently stands at 36,500, with about 61,000 subscriber stations. The increased telephone exchange equipment and external cable network already planned or under construction will provide an additional 25,000 DELs by the end of 1986, with a net increase of about 40,000 subscriber stations. About 5,000 existing telephones also need replacement.

Taking account of telephones procured under a previous IBRD loan, a further procurement of about 35,000 subscriber telephone instruments of various types (push button, rotary dial, extensions, etc.) is necessary to meet the target.

Two hundred (200) public call offices (PCOs) purchased during 1977 are in use and the present stock is almost nil and a further procurement of about 200 PCOs is necessary to meet present and future requirements.

3. Status of the Project

Discussions held with potential donors have been inconclusive and funds are now being sought.

4. Starting Date

1984

5. Completion Date

1988

6. Estimated Costs

		to end 1983	1984	1985	1986	balance to complete
Capital Costs						
Foreign	($000)	-	240	240	240	420
	(K000)	-	400	400	400	700
Local	(K000)	-	-	-	-	-
Total	(K000)	-	400	400	400	700

CO.06 (continued)

	to end 1983	1984	1985	1986	balance to complete
Recurrent Costs					
Foreign ($000)					
(K000)					
Local (K000)					
Total (K000)					80*

*after project completion

7. Sources of Financing

No financing yet secured

8. Commit: Required 1984-1986 - $1,140,000

TOURISM

PROJECT LIST

		Funds Sought 1984 - 1986 US$ Millions
Projects		
Miscellanous:		
TR 01	Tourism Planning - Technical Assistance	0.3
TR 02	Tourism Development Loans	7.2
TOTAL		7.5

TR.01 TOURISM PLANNING - TECHNICAL ASSISTANCE

1. Executing Agency

Ministry of Tourism

2. Description and Justification of the Project

In order to strengthen the planning and institutional aspects of the tourism sector, a long-term (two-year) technical assistance program is planned. There would be a core team of two experts -- a tourism planner and a tourism economist, to be supplemented on 'as and when required' basis by specialists in such fields as Tourism Marketing, and Hotel Classifications. The identification of specialist needs would form part of the terms of reference for the core team.

3. Status of the Project

The need for technical assistance has been identified, but no terms of reference have yet been prepared.

4. Starting Date

June 1984

5. Completion Date

The technical assistance program would run for two years.

6. Estimaed Costs

		1984	1985	1986
Foreign	($000)	0.08	0.15	0.08
	(K000)	0.13	0.25	0.13
Local	(K000)	0.03	0.05	0.03
Total	(K000)	0.16	0.05	0.16

7. Sources of Financing

No sources have yet been identified.

8. Commitment required 1984-1986 - $310,000

TO.02 TOURISM DEVELOPMENT LOANS

1. Executing Agency

Ministry of Tourism/Development Bank of Zambia

2. Description and Justification of the Project

Outside major hotel and resort developments, many of the investments required to enhance a tourism product are small in terms of foreign exchange requirements, and may be implemented by either the private sector or the state sector through parastatals and Government departments. It is proposed that a small foreign exchange loan fund be established specifically for such tourism related projects. The identification of projects and the establishment of evaluation criteria would form part of the Technical Assistance Program (TO.01). Some individual projects have been identified -- such as the Railway Museum in Livingstone, or the upgrading of access paths to the Victoria Falls. In both cases, the foreign exchange element is small but critical.

3. Status of the Project

The need for such funds has been identified, but no detailed project formulation has been prepared.

4. Starting Date

June 1984

5. Completion Date

The loan funds would be available throughout the EP period.

6. Estimated Costs

		1984	1985	1986
Foreign	($000)	2000	2200	3000
	(K000)	3200	3320	4800
Local	(K000)	not available		
Total	(K000)	3200	3520	4800

7. Sources of Financing

No sources of funds have yet been identified.

8. Commitment Required 1984-1986 - $7.2 million

CHAPTER 7

SOCIAL SECTORS

Introduction

7.1 In Chapter 7 of Volume I, data were given to show the substantial progress that Zambia has made in the social sector since independence. But the budgetary difficulties of the last eight years have had a severely negative impact on GRZ's ability to meet its objectives in the social sectors, particularly in education and health. For example, since 1975, expenditure on education has fallen by 50 percent while enrollment has risen by just over 25 percent, after allowing for general inflation. Real expenditure per pupil has therefore fallen substantially. Pupil teacher ratios have not increased by nearly as much due to cut-backs in equipment and in the pay of teachers relative to other costs in the economy.

7.2 Rapid population growth is putting a major strain on social provisions. GRZ has set up a committee of representatives from various Ministries, the Central Statistics Office and the University of Zambia under the NCDP to study the socio-economic implications of rapid population growth and recommend appropriate actions. Meanwhile, the Ministry of General Education and Culture estimates that to maintain a constant rate of enrollment for pupils aged 7-14 over the period 1983-86 would require an extra K 14 million, whereas to absorb the supply of available teachers could require an extra K 30 million.

7.3 As pointed out in Chapter 7 of Volume I, the most immediate and obvious problem of both education and health services is the lack of necessary supplies: books and teaching materials are in desperate short supply -- sometimes altogether lacking -- in schools, colleges and universities, and drugs and equipment are not available in parts of the health service. Declining real levels of spending has fallen most severely on supplies. Shortages are most severe in rural areas but all areas are affected. It is hard to quantify the effect of these shortages on the standard of education and health services but it is obvious that overall standards have fallen substantively.

Health

7.4 Over the past decade the health status of Zambia does not appear to have improved significantly. In general, the levels and trends of morbidity are similar to other low income Sub-Saharan countries with infectious diseases as a primary cause of morbidity and mortality. The leading causes of outpatient morbidity in children under 14 years are upper respiratory illnesses, diarrheas, malaria, fevers, injuries, skin diseases, eye diseases, ear diseases and malnutrition/anemia. Over 50 percent of childhood morbidity is due to preventable causes. Upper respiratory illness, injuries, fevers, diarrhea, malaria, abdominal conditions, malaria, skin conditions, venereal diseases and dental diseases are leading

causes of adult outpatient morbidity at both hospitals and health centers. The reported incidence of malaria rose from 145.8 per 1,000 in 1978 to approximately 191 per 1,000 in 1981; the reported incidence of sexually transmitted diseases rose from 31.8 per 1,000 in 1978 to 35.3 per 1,000 in 1981. Females tend to have fewer injuries and lower incidence of venereal diseases, the latter possibly because of under-diagnosis. The crude death rate is approximately 18 per 1,000, and the infant mortality rate 115. The leading causes of mortality at health centers in 1981 were measles (26 percent), pneumonia (14 percent), malnutrition/anemia (14 percent), malaria (10 percent) and diarrhea (10 percent). Time trend analysis shows fes changes since 1978, but there are some geographic differences. Measles accounts for 25 to 30 percent of total mortality except in Southern province (15.3 percent) and in Copperbelt province to over 31 percent of total mortality in Copperbelt provinces. Given the high rate of mortality from measles, malnutrition is almost certainly an important underlying cause of mortality.

7.5 Since independence, GRZ's emphasis has been to develop health services particularly in rural areas. Policies have stressed the following objectives:

(a) Continue development of an effective and integrated national health care system;

(b) Develop basic health services in rural areas and give priority to those areas where no such facilities exist;

(c) Examine the distribution of health workers and expand training programs to attain higher levels of Zambianization;

(d) Move toward integration and expansion of preventive and curative services;

(e) Provide health protection to an increasing number of mothers, infants, school children and certain vulnerable categories of workers;

(f) Decentralize basic health services; and

(g) Contribute to nutritional well-being of the population with particular attention to vulnerable groups.

7.6 In 1981 the Ministry of Health adopted a strategy for the implementation of primary health care (PHC) in Zambia to make essential health care accessible to the entire population. With some variation among the provinces the main activities are expected to be: health education; promotion of adequate nutrition and food supply; promotion and maintenance

of a safe water supply and basic sanitation; maternal and child services, including child spacing; immunization; prevention and control of locally endemic diseases, e.g., malaria; promotion of mental health; and, treatment of common diseases and injuries. There is consensus and widespread support in the country for implementation of the PHC strategy.

7.7 GRZ's strategy for investments in the health sector is based on four important considerations:

(a) Rapid population growth has resulted in ever increasing pressure on the social sector;

(b) improvement of the cost effectiveness of existing health programs and support services;

(c) promoting cost recovery; and

(d) not undertaking any major new capital projects without provision of additional recurrent funds.

7.8 Based on these considerations, the overall objective is to improve the effectiveness and efficiency of the health care delivery system. GRZ is preparing a Health Services Program in collaboration with the World Bank, which will require coordination with other interested donors. The total cost of the Program is estimated at US$75 million for implementation beginning in 1986. Cofinancing for Project S1 will be needed. In the short term the severe shortage of drugs and other equipment, especially in rural areas, is alarming. Over the next three years the cost of rural health center based supplies is estimated at US$12.24 million of which US$10.2 million is the foreign exchange (Project S4) component which amount is sought from donors in the form of grants.

Education

7.9 At independence in 1964, Zambia's supply of trained manpower was meager. Expansion and diversification of the education system were therefore given priority in Zambia's development plans. Within a decade of independence, enrollments doubled for primary schools, and more than quadrupled at the secondary and higher levels. On the whole, the present education system is basically adequate to meet Zambia's needs for trained manpower. However, it has a major weakness which has led to shortages of suitably trained technical and managerial personnel and the need for large numbers of expatriates in specialized technical and professional occupations. This deficiency stems from the inability of the secondary schools to produce the numbers of adequately prepared students able to pursue higher-level training (particularly in science and technical subjects). In addition, there is a pressing need for further junior secondary education facilities in deprived rural areas which the proposed project would address. As a long-term strategy of improving the education system's ability to produce the skills necessary for self-reliance and

national development, the Government, in 1978, drew up the "Educational Reform Proposals and Recommendations".

7.10 Among a series of wide-ranging measures for improving the quality, equity and effectiveness of education in Zambia, the Reform Program proposes to extend full-time universal basic education from a total of seven to nine years; introduce a three-year second stage, comprising the final year (Form III) of the present junior secondary school cycle and two years of senior secondary school (Forms IV and V); and provide, through part-time study, continuing education for adults and youths who have left or never entered full-time education. Although the Reform Program is a sound long-term policy, Zambia does not have the financial and manpower resources at present to implement it. In order to determine the most economic and efficient method of implementing the Reform Program, the Government is carrying out a comprehensive study with World Bank assistance with a view to formulating a detailed plan which will form the basis of all future investments in the education sector.

7.11 The study will draw up a detailed plan of transition from the present to the new education structure, taking into account the resources likely to become available to Zambia for financing capital items as well as recurrent operating costs. The plan, on which future investments in the sector will be based, will include a program for improving educational quality -- particularly the capability of the secondary schools to prepare students adequately for higher-level science and technical courses -- and a program for phasing out boarding facilities in secondary schools. Specifically, the study will include a review of the Government's ongoing programs for curriculum development, teacher training, budgetary allocations for the production of teaching materials and students' requisities.

7.12 The expenditure program presented below consists of six projects which GRZ believes address the immediate needs of the sector, particularly through its emphasis on increasing the availability of essential supplies and equipment (Projects S1, S2, S3) and rehabilitating existing secondary schools (S12). In addition, in keeping with GRZ's objective that agricultural education and production should take a more prominent part in primary and secondary schooling, Project S2 (Development of Production Units in Schools) has been included.

SOCIAL SECTORS

PROJECT LIST

Project		Funds Sought 1984 - 1986 US$ Millions
Social Services:		
S1	Supplies for Primary Schools	15.0
S2	Science Equipment and Books for Secondary Schools	3.0
S3	Books and Supplies for Higher Education	0.8
S4	Rural Health Centers Basic Supplies	12.2
S5	Development of Production Units in Schools	3.1
S6	Post School Agricultural Training	1.6
S7	Development of Medical Training	6.3
S8	Development of Rural Water Supplies	1.5
S9	Improvement of Rural Nutrition	1.8
S10	Provision of Advisors on Women's Issues	0.6
S11	Development of Social Statistics Capability	0.5
S12	Rehabilitation Programme for Secondary Schools	22.2
S13	Water Supply in Rural Areas	33.0
S14	Health Services Improvement Programme	75.0

S1 SUPPLIES FOR PRIMARY SCHOOLS

1. Executing Agency

Ministry of General Education and Culture

2. Description of Project

Supplies in schools are in desperately short supply. Without books, equipment and materials the quality of education is suffering. In rural areas particularly parents cannot afford or cannot get access to supplies. Children are dependent on the Government, but the budget is not adequate to provide the necessary supplies.

The cost of the supplies needed is estimated at K 35 per pupil in primary schools. This request is for K 10, or $6, per pupil as emergency relief. This sum is to provide for exercise books, for pencils, for rulers, and for basic textbooks. Most of the requirements are manufactured in Zambia, but over one-third of the cost is foreign exchange for imported paper.

3. Status of Project

A project of this nature has been successfully funded; but, this is a new project.

4. Starting Date

May 1984 (in view of its urgency)

5. Completion Date

December 1986

6. Estimated Cost

Capital and Recurrent Cost		1984	1985	1986
	$000	900	1800	1800
Foreign	K000	1500	3000	3000
Local	K000	3500	7000	7000
Total	K000	5000	10000	10000

7. Sources of Financing

The total cost of this project ($15.0 million) is requested as aid.

S2 SCIENCE EQUIPMENT AND BOOKS FOR SECONDARY SCHOOLS

1. Executing Agency

Ministry of General Education and Culture

2. Description of Project

Secondary schools have suffered from a severe shortage of supplies for several years. This has particularly damaged science teaching since laboratories are devoid of equipment and materials. The worst effects are in rural areas where parents are unable to provide any contribution. The future skills of the Zambian economy are in grave danger.

The cost of the supplies is estimated at K 70 per pupil in secondary schools. This request is for K 20, or $12, per pupil as an emergency program.

3. Status of Project

Equipment and supplies have been successfully funded under an earlier project, but this is a new project.

4. Starting Date

July 1984

5. Completion Date

December 1986

6. Estimated Cost

Capital and Recurrent Cost		1984	1985	1986
Foreign	$000	300	600	600
	K000	500	1000	1000
Local	K000	500	1000	1000
Total	K000	1000	2000	2000

7. Sources of Financing

The total cost of this project ($3.0 million) is requested as aid.

S3 BOOKS AND SUPPLIES FOR HIGHER EDUCATION

1. Executing Agency

Ministry of Higher Education

2. Description of Project

Scientific, technical and vocational training is fundamental to economic development. Extensive course exists but at present their value is substantially reduced due to shortage of books and other supplies. Much of these inputs has to come from abroad and lack of foreign exchange creates very great difficulties.

There are about 4,000 students in the University of Zambia, 4,000 in Teacher Training Colleges and 5,000 on Technical and Vocational Training Courses. This request is for K 50, K40, and K 30 per year for each of these groups -- a total of K 510,000 per year. As examples, there is a need for basic reference books in the medical school library, for science equipment in laboratories, and tools for training agricultural mechanics. Three-quarters of this sum would be needed in foreign exchange, but the whole cost is requested as aid in order to alleviate the short-term crisis facing higher education.

3. Status of Project

While books and supplies have been generously supplied in the past, this is a new project.

4. Starting Date

July 1984

5. Completion Date

December 1986

6. Estimated Cost

Capital and Recurrent Cost		1984	1985	1986
Foreign	$000	117	228	228
	K000	195	380	380
Local	K000	65	130	130
Total	K000	260	510	510

7. Sources of Financing

The total cost ($0.77 million) is requested as aid.

S4 RURAL HEALTH CENTERS BASIC SUPPLIES

1. Executing Agency

Ministry of Health

2. Description of Project

Rural Health Centers, of which there are 680 in operation, represent the front line of Primary Health Care. Not only are they responsible for the treatment of common diseases and injuries, they also undertake a wide range of preventive activities -- health and nutrition education, promotion of safe water supplies and sanitation and immunization. At present the service they provide is substantially diminished by the lack of basic drugs and other supplies. This is largely due to lack of resources but it is also due to problems of administration -- ordering and delivering drugs have not been carried out regularly giving rise to periods of total shortage of particular drugs in many health centers.

A system of direct supply of boxes of basic drugs would overcome many of these supply problems providing the resources were available. Such a system is working in Kenya and staff of the Ministry of Health have studied that system; in Kenya at present the drugs are supplied on aid programs.

It is proposed to set up a direct supply to rural health centers from the Central Medical Stores. The cost of the supplies for three years is requested as aid.

The estimated cost for each rural health center serving a population of about 5,000 is estimated at K 10,000 per year. About three quarters of this cost is at present foreign exchange.

The project is basic to the development of rural areas and by means of direct supply would ensure the resources reached their destination.

3. Status of Project

Reconstruction of rural health centers has benefited from aid, but, this is a new project that has not received any outside support.

4. Starting Date

July 1984

5. Completion Date

June 1987

S4 (continued)

6. Estimated Costs

Recurrent Costs		1984	1985	1986	1987
Foreign	$000	1530	3060	3060	1530
	K000	2550	5100	5100	2550
Local	K000	850	1700	1700	850
Total	K000	3400	6800	6800	3400

7. Sources of Financing

The total amount ($12.240 million) is requested as a grant or grants.

S5 DEVELOPMENT OF PRODUCTION UNITS IN SCHOOLS

1. Executing Agency

Ministry of General Education and Culture jointly with Ministry of Agriculture.

2. Description of Project

Production Units were initiated on the directive of the President in 1975 in all educational institutions. Their purpose is to form the basis for practical activities and training in production work and cultivate positive attitudes towards economic development. They are largely but not exclusively agricultural. In some schools Production Units are making a valuable contribution both to agricultural education and to the costs of the school. There has, however, been a lack of advice to schools, lack of teaching materials to accompany work in the Production Unit, and lack of basic equipment and seeds with which to develop production.

It is proposed first that advice to schools and teaching materials should be developed with the help of Technical Assistance and, second, that this should be distributed to schools. It is envisaged that Primary Schools will concentrate on basic production, largely maize production, whereas Secondary Schools will undertake more varied and specialized production with the emphasis on systematic experimentation and evaluation. In all schools the intention will be to encourage local involvement so as to draw on the agricultural skills of the community which may be lacking in some schools. The experiences of those schools which have developed successful Production Units will be drawn on and used as examples to others.

The principal costs in the early stages are for expert assistance and local staff to develop materials for teachers and pupils and to cover printing and distribution and the provision of special short training courses for teachers that will allow the pooling of experience. In the later stages a program of supplying teaching materials, seeds and equipment will take place.

The costs of these stages is estimated at:

Developing of materials for Trachers and pupils		K 250,000
Training courses for teachers (2,500 teachers (1 per school) x K200)		K 500,000
Provision of seeds and equipment (2,500 schools x K 1000)	(per year)	K 2,500,000

3. Status of Project

This is a new project.

S5 (continued)

4. Starting Date

July 1984

5. Completion Date

December 1986

6. Estimated Cost

Capital and Recurrent		1984	1985	1986
Foreign	$000	90	300	300
	K000	150	500	500
Local	K000	100	2000	2000
Total	K000	250	2500	2500

7. Sources of Financing

The total cost of this project ($3.15 million) is requested as aid.

S6 POST-SCHOOL AGRICULTURAL TRAINING

1. Executing Agency

Ministry of Youth and Sports (with advice of Ministry of Agriculture)

2. Description of Project

Faced with the problems of youths lacking training and skills, the Ministry of Youth and Sports finances a number of youth development schemes. Two are of particular relevance to rural and agricultural skills. First, there is a program to establish skills centers in rural districts as part of the skills training cum production program; this program has been severely restricted by lack of funds. Second, there is a community-based skills training program. Projects under this scheme are initiated by local communities, voluntary organizations and district councils. The Ministry of Youth and Sports supports these projects through modest capital grants to assist in the construction of simple structures and purchase of tools, equipment and materials. The number of such projects has now increased to 101 scattered all over the country. This program could expand if funds were available. Making use of the skills of the community, it is especially cost-effective.

It is proposed that both these programs be enabled to expand through as injection of aid.

3. Status of Project

This is a new project.

4. Starting Date

July 1984

5. Completion Date

December 1986

6. Estimated Cost

Capital and Recurrent		1984	1985	1986
Foreign	$000	60	60	60
	K000	100	100	100
Local	K000	400	900	900
Total	K000	500	1000	1000

7. Sources of Financing

The total cost of this project ($1.5 million) is requested as aid.

S7 DEVELOPMENT OF MEDICAL TRAINING

1. Executing Agency

Ministry of Health and Ministry of Higher Education jointly

2. Description of Project

Medical training takes a long time. It is necessary to look beyond the economic crisis to the needs of the future and develop appropriate training. One economic imperative to do so is that the health sector at present relies on 700 expatriate doctors out of a total of 900 doctors; this imposes a foreign exchange cost of about K 5 million in transfers abroad.

Health services in Zambia will in future rely increasingly on Medical Assistants. There is, therefore, a need both to train more Medical Assistants and upgrade the skills of those who have been in service ten or twenty years.

It is not envisaged that the total number of doctors will rise between 1983 and 1988 due to the economic constraints. But after 1988 with a growing population more doctors will be called for, even if the number of doctors grows less fast than total population and medical assistants provide a growing share of health care. If the number of doctors trained in Zambia is not increased, there will be a growing reliance on expatriate doctors in the future -- with the consequent foreign exchange cost. To train more doctors is expensive, but the marginal cost of increasing training is much less than the current average cost; lectures can serve larger numbers at no extra cost; clinical tutorial groups be enlarged at little cost; some teaching for medical students can be combined with upgrading teaching for medical assistants -- to the mutual benefit of both groups. Nevertheless, there is a cost arising for a long period before any of the benefits and foreign exchange savings of additional doctors are available. This cost arises at a period when the capacity to meet them is highly constrained; for this reason, not only are the capital costs of expanding training requested as aid but also the extra recurrent costs for a further seven years until the benefits start to accrue.

Expanding training facilities by means of a new basic health sciences building complex would relieve congestion in medical assistance training, provide for upgrading courses for medical assistants, and allow the number of doctors in training to be expanded. It should then be possible to train a total of 160 medical assistants each year, upgrade about 60 medical assistants each year, and increase the intake of medical students from 50 to 80.

S7 (continued)

A development of this nature is designed to meet the needs of the health service -- it is only partially and incidentally an exercise in academic learning. Thus, while the University of Zambia would be closely involved, decisions on what levels of staff are required and what training is appropriate must be made by the Ministry of Health.

It is recognized that in the past, medical training has not been sufficiently focussed on rural circumstances; it is, therefore, intended to increase rural involvement and attachments of those undergoing all levels of medical training.

The estimated cost of the new basic health sciences building complex is estimated at K 4.5 million, which would be spread over two years. The average additional recurrent costs would be about K 1 million per year and these are requested for seven years until the first additional trained doctors would be produced (although upgraded medical assistants would be produced sooner). About half of the costs would be foreign exchange costs.

3. Status of Project

Part of the costs of expanding training of medical assistants has been met from aid projects. This phase of the expansion of training facilities is a new project.

4. Starting Date

July 1984

5. Completion Date

June 1993

6. Estimated Cost

Capital Cost		1985	1986	1987
Foreign	$000	340	675	340
	K000	565	1125	565
Local	K000	560	1125	560
Total	K000	1125	2250	1125

Recurrent Cost		1987	1988 to 1992	1993
Foreign	$000	150	300	150
	K000	250	500	250
Local	K000	250	500	250
Total	K000	500	1000	500

S7 (continued)

7. Sources of Financing

Both the capital cost and the recurrent costs to 1993 are requested in full as aid; without provision for recurrent costs for the start-up period the project is not possible. The total amount is US$6.30 million.

S8 DEVELOPMENT OF RURAL WATER SUPPLIES

1. Executing Agency

Department of Water Affairs, Ministry of Agriculture (with advice of Ministry of Health)

2. Description of Project

Fundamental to health in rural areas is the availability of a safe water supply. It was estimated in 1974 that two-fifths of rural households depended on rivers and streams for their water supply, often at a considerable distance from their houses, the situation has improved slightly since then. The work of drawing water is almost exclusively carried out by women and represents a heavy burden in many villages.

The rural water supply program provides water supplies to villages and upgrades existing wells and boreholes. In the Third National Development Plan a program costing K 11 million was set out but only a small fraction of this has been carried out. For example, in 1982 actual expenditure was K 400,000. This request is, therefore, for additional funds to expedite the program.

3. Status of Project

Some support has been received for this program. This request is to enable it to be greatly extended.

4. Starting Date

July 1984

5. Completion Date

December 1986

6. Estimated Costs

		1984	1985	1986
Capital Costs				
Foreign	$000	60	120	120
	K000	100	200	200
Local	K000	400	800	800
Total	K000	500	1000	1000

7. Sources of Financing

The full amount ($1.5 million) is requested as aid to supplement the Budget allocation.

S9 IMPROVEMENT OF RURAL NUTRITION

1. Executing Agency

Ministry of Agriculture (with advice of National Commission on Food and Nutrition)

2. Description of Project

Maize meal is traditionally prepared in rural areas by soaking, pounding and winnowing the maize. In this process most of the maize germ is lost and with it a large part of the nutritional value of the maize. Grinding maize preserves the maize germ and thereby increases the nutritional value of the maize meal. The task of pounding maize is hard physically and represents a major burden on rural women. Hand grinding is a much easier physical task.

At present hand grinders are not widely available but, where they are available, they serve a number of households and work well.

This project has two stages. First, the development and testing of a grinder most of which can be locally manufactured; only the grinding plates will need to be imported. This first stage will involve the Technology Development and Advisory Unit at the University of Zambia. In the second stage, the grinders will be mass produced and distributed at a subsidized price through cooperatives and NAMBOARD.

The development cost is estimated at K 20,000 and the unit production cost at K 300 - K 100 in foreign exchange for imported parts and K 200 for local manufacture and assembly. Production of 10,000 grinders should serve about half the rural population.

3. Status of Project

This is a new project.

4. Starting Date

July 1984

5. Completion Date

December 1986

S9 (Continued)

6. Estimated Cost

Capital and Recurrent		1984	1985	1986
Foreign	$000	6	300	300
	K000	10	500	500
Local	K000	6	1000	1000
Total	K000	16	1500	1500

7. Sources of Financing

The total cost of this project ($1.81 million) is requested as aid.

S10 PROVISION OF ADVISERS ON WOMEN'S ISSUES

1. Executing Agencies

NCDP, Ministry of General Education and Culture, Ministry of Higher Education, Ministry of Health

2. Description of Project

The role of women in Zambia's development is not subsidiary but central. Women probably provide the greater part of agricultural labor and nearly all domestic economic activity. Social and economic changes and the policies of Government affect women in a variety of ways -- ways that deserve special attention. One means of increasing this attention, already adopted by the Ministry of Agriculture, is to appoint a special adviser on women's issues who is an expatriate supported by Technical Assistance.

It is proposed that further advisers be appointed in key ministries in the social sector and in the National Commission on Development Planning. To initiate this women's perspective into decision-making, Technical Assistance is required for advisers who have experience in working in particular policy areas with a focus on the impact of policy on women. It is important that such advisers should not be confined to policies directly focussed on women -- for example, home economics courses for girls -- but rather the impact of general policies on women is the primary concern. In order to increase Zambian knowledge and capacity in this aspect of the social sector, counterpart Zambian advisers can be appointed who, after two years of expatriate help and training can continue to perform this task.

3. Status of Project

This is a new project which has not received any outside support.

4. Starting Date

July 1984

5. Completion Date

June 1986

6. Estimated Costs

		1984	1985	1986
Capital and Recurrent Costs				
Foreign	$000	100	240	240
	K000	170	400	400
Local	K000	30	50	50
Total	K000	200	450	450

S10 (continued)

7. Sources of Finance

The Government of Zambia would provide 20 percent, 40 percent and 60 percent of the local costs in 1984, 1985 and 1986, respectively.

The amounts requested as aid is $0.630 million.

S11 DEVELOPMENT OF SOCIAL STATISTICS CAPABILITY

1. Executing Agency

Central Statistical Office

2. Description of Project

Demographic changes have profound implications for the demand for education and health services, for their cost and for their standard. It is, therefore, important to analyze the changes that take place and the social economic factors that influence these changes. Existing social statistics are scattered. Published data based on the census provides aggregate information but it provides little detail on a micro basis -- for example, the sex and age composition of migrants to town, completed family sizes in urban and rural areas and the extent of female-headed households. There is much data for the 1980 census that awaits analysis.

Existing economic data provides information on earnings in urban areas, but it provides no comparative data on urban and rural incomes. An annual household survey has been instituted but capability to analyze it has been limited.

There is, therefore, lack of the relevant statistical information on social changes, and the key economic and social factors underlying these changes due in large part to a lack of skills at the analysis stage. Such information is necessary not only to monitor these changes and their significance for education and health services but also as a basis for formulating policies concerning urban and rural incomes and other policies that affect demographic change.

Further analysis of Census data, other economic data and the household survey data can provide much more information. In addition, small-scale sample surveys using available field staff can provide systematic answers to relevant questions.

To achieve such progress in understanding social changes and their casual factors, it is proposed to set up a small Social Statistics Unit within the Central Statistical Office which would comprise:

1. Zambian Statisticians
2. Social Statisticians supported by Technical Assistance to assist the Unit's start-up
3. Support Staff Consultants from UNZA' Occasional Interviewers,
4. Secretary

S11 (continued)

3. Status of Project

This is a new project that has not received any outside support.

4. Starting Date

July 1984

5. Completion Date

December 1986

6. Estimated Costs

Capital Costs		1984	1985	1986
Foreign	$000	10	5	5
Local	K000	10	5	5
Total	K000	27	14	14
Recurrent Costs				
Foreign	$000	80	160	160
Local	K000	40	80	80
Total	K000	173	347	347

7. Sources of Financing

It is proposed that for the years 1984, 1985 and 1986, the Zambian Government would provide 20 percent, 40 percent and 60 percent of local costs, respectively. The remainder is requested as a grant (US$0.550 million).

S12 REHABILITATION PROGRAM FOR SECONDARY SCHOOLS NOT INCLUDED IN THE EXISTING MAINTENANCE PROGRAM

1. Executing Agency

Ministry of General Education and Culture

2. Description of Project

In 1980 a Maintenance Project was started to rehabilitate Secondary Schools built under the First Education Project financed by World Bank. This Project is financed by savings on World Bank Loans along with Technical Assistance from NORAD. Total Budget: US$10.6 million.

It is the aim of the Ministry of General Education and Culture to extend and continue this Rehabilitation Program to include all the 143 Secondary Schools in the country including schools built on "selg-help" basis.

3. Status of Project

A project of this nature is successfully founded. This will be a new project to follow.

4. Starting Date

The implementation of the Second Maintenance Project will start in the third quarter of 1985.

5. Completion Date

It is estimated to complete the project in 1990.

6. Estimated Cost

Total estimated cost will be US$14.2 million.

(US$'000)	1985	1986	1987	1988	1989	1990
Foreign	0.30	2.12	2.12	2.12	2.12	2.12
Local	0.30	0.60	0.60	0.60	0.60	0.60
Total	0.60	2.72	2.72	2.72	2.72	2.72

7. Sources of Finance

Total cost US$14.2 million. US$13.2 million is being sought as aid.

S13 WATER SUPPLY IN RURAL AREAS

1. Executing Agency

Ministry of Agriculture and Water Development

2. Description and Justification

The rural water supplies are made up of point supplies serving less than 500 people and small pipe water supplies serving over 500 people. The points supplies include hand-dug wells equipped with windlass/bucket, and or hamdpumps, and boreholes equipped with windmill or handpumps. Rivers are normally regarded as unsafe for direct consumption, but are widely used as the traditional source. For the small piped water supplies boreholes are chosen as source in favor of surface water. At present, surface water is widely used without chlorination. The reticulation system includes public standposts and connections for single and multiple taps within plots.

Based on a rural population of 3.2 million (1980) people only about 32 percent has reasonable access to clean water. Poor maintenance has contributed towards collapsing wells, clogging of boreholes and pumps that do not function.

In the period 1965-1981 about 3900 shallow wells, 1800 boreholes and 230 small piped water supplies are completed. On the basis that these supplies are still in use and the supplies constructed before the year 1965 are not functioning, the Table below gives an indication of the level of service in 1980.

Types of Rural Water Supply System in Use in 1980

Type of Supply	No. of Supplies	Population Supplied	Percent
Shallow Well	3,900	390,000	36
Borehole	1,800	450,000	42
Small piped water supply	230	230,000	22
Total		1,070,000	100

The project is in two parts: firstly, the rehabilitation of existing supplies and secondly, the expansion of the rural water supply scheme to ensure that the demand for water in the year 1990 could be satisfied. The second part is expected to extend beyond 1986.

3. Status of Project

Plans have been prepared.

4. Starting Date

Mid 1984

5. Completion Date

Phase I would be completed by mid-1987

6. Estimated Cost

Capital Cost		1984	1985	1986
Foreign	($000)	11,000	11,000	11,000
	(K000)	17,600	17,600	17,600
Local	(K000)	-	-	-
Total	(K000)	17,600	17,600	17,600

In 1984, US$10.38 million is expected to be spent on rehabilitation of the existing facilities.

7. Sources of Financing

Not yet funded.

8. Commitment Required

US$33,000,000

S14 HEALTH SERVICES IMPROVEMENT PROGRAM

1. Executing Agency

Ministry of Health

2. Description of Project

The overall objectives of this program and its components are as follows:

(i) Development and expansion of primary health care. In line with the MOH's objective to emphasize preventive services and to improve rural health services, the primary health care strategy will enable cost effective provision of health services. Community participation is an important feature of primary health care. However, the health system needs to be strengthened to support PHC activities. Emphasis will, therefore, be placed on upgrading existing health centers -- facilities, staff training, equipment and supplies, and staff housing, supervision of village health workers, development of district health services -- including improving effectiveness of existing district hospitals. Cost effective alternatives to hospital care in urban areas, particularly Lusaka, will be developed.

(ii) Strengthen maternal and child health and family planning. Recognizing that rapid population growth is an increasingly serious problem, emphasis will be placed on family Planning. Family planning will be provided as an integrate part of maternal and child health services. Training staff in family planning, reorienting health education programs, strengthening PPAZ, developing capacity of MOH to plan and implement MCH/FP programs, are the areas in which emphasis shall be put. At the same time, adequate supplies and equipment for MCH/FP at health facilities shall be ensured.

(iii) Development of adequate health manpower. The MOH has undertaken a preliminary review of health manpower needs. Emphasis will be placed on (a) development of continuing education programs for existing health staff, (b) reorientation of health staff towards Primary Health care, (c) review of medical education with a view to produce appropriately trained doctors. Medical education is of critical importance. Currently of nearly 800 doctors, 600 are expatriates. Zambianization of the medical profession is an important objective. A review of medical education will be undertaken to determine (a) appropriateness of training, (b) duration of training, (c) number of physicians required for the country. Following the review a plan for development of medical education will be undertaken.

(iv) Strengthen planning and administration. Strengthening of the planning unit of the MOH is necessary to improve planning and to undertake evaluation. District level planning, introduced as part of the PHC strategy, will also be strengthened. Training in administration at all levels of the health care delivery system is also necessary to improve the overall effectiveness.

(v) Strengthen support services. Substantial sums of money are spent on pharmaceutical procurement and supply. The pharmaceutical procurement, supply and distribution system will be renewed in order to improve efficiency. Improvements in procurement, distribution and possibly formulating certain drugs locally, could save a considerable amount in foreign exchange. Similarly, the transportation system needs upgrading of nearly 600 vehicles; only 500 are functional. Steps have already been taken to improve preventive maintenance. These will be continued and fleet maintenance improved.

3. Status of Project

Project identification and preparation by the World Bank is underway.

4. Starting Date

1985

5. Completion Date

6. Estimated Cost

Total (tentative): US$75,000,000

7. Sources of Financing

Total cost of this project is requested as aid.