PN-AAZ-047 07
ISN 53993
611057

ZAMBIAN AGRICULTURAL FINANCE MARKETS: APPRAISAL of RECENT PERFORMANCE AND PROSPECTS*

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*A report prepared for the Planning Division of the Ministry of Agriculture and Water Development under the auspices of the Zambia Agricultural Training, Planning and Institutional Development Project which is funded by USAID and implemented by Iowa State University.

JUNE 1983

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ACKNOWLEDGEMENTS

We have been greatly assisted by many individuals both inside and outside of the institutions listed in Appendix B. We thank them all. We would like to explicitly mention: Mike Warren, for setting things up; Mike Ireland, Mary Griffin and Merab Kiremire for smoothing the way; Hazel Mutau and Christina MacKinnon who neither frowned nor despaired even when confronted with scrappy bits of paper; and the Rawson family, the Warren family, George Veitch, Lee Ann McGranahan, Dale Grovsnor, and Chris Mupimpila who provided good company and kind hospitality.

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SUMMARY AND RECOMMENDATIONS

OBJECTIVES:

The agricultural sector occupies an important role in the Zambian economy. Its importance has been enhanced recently by production and marketing problems in the mining sector, by acute balance of payments difficulties, and by rapid growth of the population and labor force. The Government of the Republic of Zambia is fully cognisant of the major contribution that agriculture can make to Zambian economic progress. Over the years, it has actively sought to shape and promote agricultural activity by a variety of measures and schemes, including the establishment of production and marketing parastatals for inputs and agricultural produce, administered pricing, subsidies and credit.

Manifest difficulties within the agricultural financial system and the desire for organisational reform prompted the Planning Division of the Ministry of Agriculture and Water Development in cooperation with USAID/Lusaka and Iowa State University to commission this study of agricultural finance in Zambia. The objectives of the study were to appraise the operations of the financial system as it pertains to agricultural sector activity, to recommend changes for improving the system, and to advise on additional studies designed to improve decision making within the financial system.

METHOD AND DURATION OF THE STUDY:

The fundamental conceptual approach in this study is to view the system of agricultural financing as an integrated whole. Within this system financing requirements are determined by activity levels of production, marketing and distribution enterprises, by commodity pricing policies and payment practices, and by changes in input prices. Financing requirements are capable of being satisfied by any combination of self-finance(through use of financial savings or resource reserves e.g. cattle sales),credit,and government grants or subsidies. Credit operations may themselves be financed through liabilities issued to individual savers, private institutions and governmental agencies, and through budgetary transfers from local and foreign governments. Credit institutions are only financially viable when their incomes exceed the costs of their credit operations.

The basic methodology for the study were detailed consultations with institutions and individuals representative of most, if not all, elements of the agricultural finance system (see list in Appendix B of the Report), analysis of accounting and other statistical data, and review of a number of previous studies and periodical reports on the Zambian economy in general and on the agricultural and financial sectors in particular.

The study was conducted in Zambia during the period May 16 to June 11, 1983.

MAIN FINDINGS:

1. The financing requirements for agriculture, including the input supply and commodity marketing systems, are very large. Based on output levels and existing cost information, the financing requirements for crops and livestock production alone are estimated to have been K96 million during the 1981/82 production season. The requirements of the agricultural parastatals at existing efficiency levels of operation would add another K42 million. Capital expansion in the sector would increase financing requirements even further.

2. A substantial capacity exists for partly self-financing current production. At the aggregate level, the ratio of self-financing out of financial savings and resource reserves appears to be in the vicinity of 43 per cent. Survey results for small farmers in the Eastern Province indicate self-financing ratios of 77 per cent. Field interviews also uncovered evidence that emergent commercial farmers have self-financed small capital expenditures (K1100-K3000). The existence of a capacity for self-financing implies that in many cases the current practice of both estimating credit demand and of providing credit on the assumption that there is no self-financing capacity is unjustified. Credit subsidies through the practice of negative real loan rates of interest have encouraged over-reliance on credit in preference to self-financing. The real rate of interest on agricultural loans was negative 3 per cent in 1982.

3. Rural savings are not inconsequential, contrary to common belief in Zambia. It appears that considerable savings exist in the form of currency hoards, herds of cattle, and other resource reserves. It also appears that savings are sometimes diverted into nonagricultural pursuits by the farming community. A prime requirement is to improve the mechanisms and incentives for channelling savings into the financial intermediaries in order to improve the social efficiency of rural savings. This would involve an increase in deposit facilities in rural districts as well as the payment of positive real rates of interest on saving and time deposits. At present, commercial bank branches are mainly in urban and rural towns, and deposit real rates of interest range between negative 5 per cent and negative 6 per cent.

4. Insufficient availability of foreign exchange has been a major constraint on the agricultural sector, which is accorded a low priority rating by the foreign exchange allocation authorities. Paradoxically the foreign exchange scarcity which reflects the stagnation of mining exports in the face of massive foreign debt payments obligations equal to 48 per cent of export earnings in 1982, can be substantially relieved by food import-substitution and by the revival of agricultural exports.

5. The demand for agricultural credit has been enlarged by weakness in pricing policies and payments practices. Commodity prices set by the government allow such low profit margins that many small and emergent commercial farmers seem to demand credit (later to be defaulted) as

supplemental income grants. Uneconomic operating margins for input supply and produce marketing enterprises have also forced a dependence on credit because of inadequate or non-existing financial reserves. In addition, crop payments and restitution payments to producers and the marketing enterprises are typically long delayed resulting in financing gaps which have to be met by credit.

6. The main sources of agricultural credit are the commercial banks and the Agricultural Finance Company Limited which supplied 46 per cent and 45 per cent respectively of total agricultural credit in 1981/82. Credit is also provided by the Development Bank of Zambia, the Cattle Finance Company and the Cooperative Credit Scheme. Nothing is known about the magnitude of informal credit transactions, though there is certainly some amount of informal credit extended within the small farm community and by rural merchants. There is a kind of institutional specialization among the sources of credit. The commercial banks service mainly the large commercial farmers. The AFC lends to medium and small scale commercial farmers, while the Cooperative Credit Scheme services small scale emergent farmers.

7. Fisheries and livestock production receives proportionately less credit than is warranted by the importance of this sub-sector in total agricultural production, the efficiency of poultry and fish products as a source of protein, and the potential economic benefits of greater use of animal draft power.

8. Input supply and commodity marketing parastatals as well as the cooperative unions experience considerable difficulties in obtaining credit without government guarantees. This is not due to any unique financing requirements of this sub-sector but instead is the result of its dismal financial performance. Operational inefficiencies, unremunerative price margins, irregular restitution payments, and unstable budgetary subsidies have made most enterprises in this sub-sector uncreditworthy. What is required are not special credit facilities but pricing and other operational reforms to reestablish the debt-bearing capacity of these enterprises.

9. Interest rates are set by the Bank of Zambia. Nominal quoted rates of interest on deposits and loans have tended to be rigid, and too low relative to the rate of inflation. Real quoted rates of interest have consequently been negative. Non-interest loan charges and some loan practices have caused effective loan interest rates to be higher than quoted rates by as much as 2 per cent for commercial banks, 5.7 per cent for the AFC, and 5 per cent for the CCS. Agricultural loan rates of interest are 2 per centage points lower than those on non-agricultural credit. In addition to discouraging financial savings and also discouraging self-financing of agricultural production, policies of negative real rates of interest have caused resource allocative inefficiencies by encouraging overinvestment in farm machinery and equipment, and less careful farm financial management. The regime of negative real rates of interest has imposed substantial capital losses on financial savers (in the order of K8 million in 1982 for bank depositors) and has conferred substantial

income subsidies on credit recipients. Because many low income individuals are savers while only a few and relatively wealthy individuals are borrowers, negative real rates of interest have increased income inequality in Zambia.

10. Interest rate spreads, i.e. the differences between interest costs of funds and interest returns on loans, have been insufficient to cover loan administration costs and risk costs in the credit parastatals and the CCS, even allowing for the reduction of risk costs to acceptable levels. With a 98 per cent recovery rate and existing loan administration costs, the interest spread would have to be at least 12 per cent for the AFC and at least 8 per cent for the Cooperative Credit Scheme. Inadequate interest rate spreads have resulted in serious operating losses by the credit parastatals and a corresponding dependence on budgetary subventions, and may have deterred the commercial banks from financing emergent commercial farmers.

11. There is scope for further increases in nominal rates of interest. Interest costs are a small proportion of production costs (no more than 10 per cent for large farmers, and considerably less than 10 per cent for small farmers whose ratio of credit to financing requirements is nearly half that of large farmers). Consequently, even a doubling of current nominal loan rates of interest would not significantly reduce production or raise product prices. Instead, production may rise, after a short lag, in response to improvements in the credit system.

12. The credit parastatals have very high loan administration (or loan transactions) costs. These add considerably to overall lending costs. The AFC's transactions costs during the 1982/83 accounting year were K0.105 or 10.5 per cent per Kwacha lent. This compares with 5.65 per cent for the Cooperative Credit Scheme, and even less for the commercial banks. High transactions costs raise the break-even loan rate of interest or alternatively put pressure on the financial viability of the credit program. For the AFC to breakeven with an assumed default rate of 2 per cent, interest costs of funds equal to 10.5 per cent, and a loan rate of interest set at 13 per cent, transactions costs should not exceed 1.55 per cent, that is, 4.10 per cent less than the current level of transactions costs per Kwacha lent. It is necessary that transactions costs be reduced within the credit parastatals. Since large staff overheads, a system of many uneconomic branch offices, and small individual loans are major causes for high per unit transactions costs, these are the major areas for improvement.

13. Horrendous loan delinquency problems confront the agricultural credit system. The AFC's loan delinquency rate was approximately 53 per cent in 1981 and 39 per cent in 1982. The Cattle Finance Company has experienced serious difficultues in recovering loans. The ZNCB has a 15 per cent loan delinquency rate in a good year, and between 40 per cent and 55 per cent in bad years. The Cooperative Credit Scheme which is partly financed by the government currently averages a 28 per cent loan delinquency rate.

The costs of this high incidence of loan delinquency are extremely burdensome to the credit institutions. For the AFC loan delinquency costs can be as much as 29 per cent of loan disbursements. For the Cooperative Credit Scheme, they are projected to be 8 per cent during the 1982/83 crop season. Faced with such high loan default costs, a credit institution like the AFC would have to quintuple its present loan rate of interest just to breakeven and remain an ongoing credit concern. It is clearly essential to reduce loan delinquency to manageable proportions.

14. Zambian farmers default for a number of reasons. These include inadequate producer margins which reduce capacity to repay, and delays in crop payments which cause late repayment of loans. Other reasons include high transactions costs imposed on borrowers through lengthy and costly delays in loan processing and disbursement, and poor weather conditions.

15. Weaknesses in the loan appraisal, monitoring and recovery systems among the credit parastatals are a major reason for poor loan recovery performance. Loans have been made to individuals who lack the necessary technical farming ability and whose efficiency levels are too low, and to farm units whose scale of operation is too small to generate adequate repayment capacity. In these kinds of cases, technical assistance with production and marketing, or fiscal grants or subsidies, rather than credit, are needed. It is a weakness in credit administration not to recognise this, and not to act accordingly. The credit appraisal systems are also deficient by failing to systematically assemble and evaluate information on applicants' previous debt history, present liabilities, present assets, and on their capacity for self-financing.

16. With respect to loan monitoring, the main weakness is the virtual absence of any monitoring of loan use and of changes in the loan customer's financial and production situation after the loan has been granted. The loan recovery system for production loans suffers from the critical defect of entrusting the functions of loan recovery to agencies like the cooperative marketing unions that are themselves not financially nor legally liable to the credit agencies. This separation of duties and financial responsibility violates a fundamental maxim of credit administration, namely that lending authority and recovery responsibility should go together. The agency that is responsible for extension of credit should be responsible for the collection of the loan.

17. Loan delinquency is due also to borrowers' perception that loan contracts are not enforceable. There is little collateral available for production and capital investment loans, partly because of Zambian land law and policy. As a consequence, there is little that the lender can repossess in cases of loan default. Furthermore, perhaps partly because of the virtual absence of realisablecollateral, the parastatal credit institutions do not aggressively pursue legal action against defaulters.

18. A related complication of over-riding importance is the potential for political interference with credit decisions and loan contract enforcement. Rightly or wrongly, both borrowers and credit officers in the private and the public sector perceive political forces as influencing parastatal lending decisions and loan recovery performance. Both repayment behaviour and credit administration reflect these perceptions.

19. As a result of limited enforceability of loan contracts and of credit behaviour modified by the belief that politics determines the allocation and repayment of government credit funds, a "grants syndrome", i.e. attitudes and behaviour based on the belief that funds disbursed by credit parastatals are not intended to be repaid and are therefore grants not loans, permeates the public sector component of the agricultural credit system.

20. Within reasonable bounds, agricultural credit agencies can minimise their transactions costs, minimise credit risks, reduce loan delinquency costs, and improve operating margins by loan portfolio diversification and by requiring that loan customers purchase crop insurance. Because transactions costs vary among different sizes of loans, the potential exists for achieving cross-subsidization and better operating margins by a careful balancing of the loans portfolio between small, medium and large scale farmers. By choosing a mix of various crop and livestock enterprises and by diversifying geographically, credit institutions can minimise credit risks due to crop failures or marketing problems. Crop insurance guarantees some farm income in the event of perils caused by fire and weather conditions and thereby protects the lender's capital. Block loans to cooperative unions for relending to many small borrowers can also reduce transactions costs while improving credit appraisal and loan recovery performance.

21. Unlike the commercial banks which are funded through local private savings, the credit parastatals and the Cooperative Credit Scheme rely heavily on local governmental and foreign sources of funds. The consequences are some irregularity in resource inflows, troublesome restrictions on portfolio choice and interest rate pricing policies, inability of the credit agencies to derive those informational advantages associated with the provision of savings deposit facilities to loan customers, and less scope for internal cross-subsidization. Furthermore, foreign funding has in some instances resulted in onerous foreign exchange risks for the farming community. Those lines of credit which impose foreign exchange risks on loan customers, e.g. the DBZ's IBRD funded irrigated wheat credit tranche, have consequently experienced weak loan demand and underutilization despite the societal benefits to be derived from the earmarked expenditures. A scheme whereby the lending institutions and/or the Zambian government absorb the foreign exchange risks would be a valuable improvement.

RECOMMENDATIONS:

1. The most fundamental recommendations in the Report pertain to the institutional structure of the rural credit system. It is proposed that the AFC be eliminated and that the direct agricultural credit activities of the CFC, DBZ, ZSIC and other such transient or partial agricultural lenders cease. The ZADB should become operational.

2. The preferred structure recommended would have three components:

(1) The Cooperative Credit Scheme which will be funded by savings directly obtained from rural individuals and the cooperative unions, by block loans obtained from the ZADB, and by block loans obtained from ZCF Financial Services Limited. The CCS would have prime responsibility for servicing traditional and emergent farmers.

(2) The Commercial Banks which will be funded by savings directly mobilised from the national community at large, and by loans from ZADB. The commercial banks will have prime responsibility for servicing large scale commercial farmers and the majority of small and medium scale commercial farmers. Their funding from the ZADB will be specifically targetted to the latter group.

(3) The ZADB whose functions will preclude direct lending to agricultural producers, but includes loans to input suppliers and marketing agencies. The primary function of the ZADB in relation to farmers would be to provide block loans to the Cooperative Credit Scheme and the commercial banks. It would assist traditional and emergent farmers not directly, but indirectly through this funding mechanism.

The main advantages of this structure are the significant savings in loan transactions costs for both credit institutions and loan customers that result from the demonstrated superior cost-effectiveness of the CCS

and the commercial banks and the reduction of delinquency costs as a result of better loan administration, especially in the areas of credit appraisal and contract enforcement, and also as a result of the avoidance of the "grants syndrome".

3. If this preferred institutional structure is deemed politically unacceptable by the government, then the Report recommends a second best alternative structure in which only the three components identified in the preferred structure exist, but in which in addition to its block lending to the CCS, the ZADB directly on lends to farm producers. Observance of certain organisational and operational guidelines is essential for the success of the ZADB in the role of direct lender to farmers. These may be briefly listed as: (i) entrustment of the responsibility of recovering AFC's overdue loans to an agency other than the ZADB; (ii) the ZADB's freedom to select only the most suitable and needed staff from the AFC's present personnel, (iii) the ZADB's absorption of only viable or potentially viable AFC district offices;(iv) non-provision of technical assistance services by ZADB; (v) the establishment of strong credit appraisal and loan monitoring and recovery systems; and (vi) implementation of credit policies which emphasize loan portfolio diversification, crop insurance, borrower's counterpart financing, and break-even loan pricing.

4. Much more empirical knowledge is required in a number of decision-making areas than is presently available. The Report recommends three topics for early investigation. These are (i) Efficiency in Credit

Utilization and Impact of Interest Rates on Credit Use and Output; (ii) Farm Liquidity, Internal Financing Potential, and Demand for Credit; (iii) Estimation of Borrowing Costs and Lending Costs.

The first study would help to provide answers to critical issues such as whether credit should be allocated more to small than to large farms, the relative productivity of additional funds for different types and sizes of farms, and the likely response of farmers to changes in the level of interest rates. The second study would assist in estimating the financing needs and credit demands of the agricultural production sector. The third study would establish the level and the structure of lending costs for various types of credit institutions and the level and structure of borrowing costs for different size farmers. With this information, an analytical basis would be available for improving the performance of credit institutions and for modifying the structure of the agricultural credit system.

I. INTRODUCTION:

The agricultural economy of Zambia has stagnated in recent years as a result of unfavourable weather conditions, inadequate investments in rural infrastructure, problems in the procurement and distribution of inputs and products, inadequate price incentives throughout the production and marketing system to encourage productivity and efficiency, and limited and ineffective research and extension activities. Problems of inadequate foreign exchange are basic to many of the other problems encountered in this heavily import dependent country, particularly in recent years with declining copper and cobalt export volume and world prices.

Many have expressed concern that the availability of credit is also a constraint on agricultural production and productivity in Zambia. But credit is only one source of funds to financing productive activities; additional funds and in some cases a significant proportion of the funds to finance agricultural production come from savings -- self financing. The purpose of this report is to evaluate the financing problems and opportunities in Zambian agriculture including the production, input procurement and product marketing activities. Our framework will be one of financial intermediation - the movement of funds from savers to borrowers -- not just that of credit extension.

Furthermore, the framework will explicity recognise that an important source of funds to finance individual production or marketing firms is internally generated savings. This concept of self-financing has not been explicity recognised in most previous studies of the financing problems of Zambian agriculture. In fact it appears that, particularly with respect to seasonal credit, the concept of internal financing is not a well understood component of the lending and credit policies of most financial institutions that provide funds to Zambian agriculture. The analysis will also utilize the well accepted concepts for evaluating the performance of financial intermediaries -- the concepts of efficiency and reasonable transaction costs, matching of the maturity structure or length of loans to the borrower's needs, matching of the size of loan of the borrower's requirements, the level of defaults or the recovery rate, and the availability of credit funds when they are needed by the borrower.

Section II of the report provides an overview of the contemporary structure and recent performance of the Zambian economy, with special attention to the agricultural sector. The sources of credit for agriculture are then identified in Section III. The following section discusses the central problems and issues of financing agriculture in Zambia. These include the financing requirements of the sector, the degree of internal financing possible, credit implications of commodity marketing practices and pricing policy and risk response behaviour of farmers.

Section IV also examines interest rate practices and policies, costs of lending and borrowing including transactions costs and the costs of loan delinquency, credit appraisal, portfolio diversification, and the funding of agricultural credit institutions. Section V proposes a preferred structure of the Zambian agricultural credit system, as well as suggests a second best (or less preferred) alternative. The final section of the report identifies and outlines three topics for further investigations.

II. OVERVIEW OF ZAMBIAN ECONOMY:

Several recent studies and reports provide adequate descriptions of the structure of the Zambian economy, (e.g. [Food Strategy Study] and [Callison et al]). The objective of this section is to provide a brief review of recent economic performance and to highlight the prospective role of the agricultural sector in alleviating the current economic problems.

II.1 RECENT MACRO-ECONOMIC PERFORMANCE:

By most conventional indicators of macroeconomic performance, the Zambian economy has performed poorly in recent times. Real gross domestic product declined from K1500 million in 1976 to K1314 million in 1979, and has only recovered slightly to K1406 million in 1982. Rapid population growth at an annual average rate of 3 per cent resulted in even faster declines in real per capita GDP from K296 in 1976 to K232 in 1982. Good estimates of the unemployment rate are not available, but official statistics indicate that 484 thousand persons (28 per cent of the labour force) were unemployed in 1976. Given labour force growth and the general fall in domestic output, it is almost certain that the level and the rate of unemployment in 1982 exceeded those obtaining in 1976.

Inflation rates also increased sharply from 9 per cent per annum in 1974 to 18 per cent in 1976. Though the rate of price increases was subsequently suppressed by a system of extensive price controls and government subsidies to producers, consumer price inflation according to the official statistics ranged between 10 per cent and 14 per cent between 1978 and 1982. The true rate of inflation was probably much higher. Starting in 1983, prices were

de-controlled to some extent resulting in rates of inflation ranging from between 20 to 28 per cent according to informed observers.

Statutory increases in producer prices for agricultural commodities, sharp increases in import prices, and occasionally faster growth of real domestic demand relative to supply appear to be the main factors contributing to current inflation. Guaranteed minimum producer price for food staples such as maize increased by 250 per cent between 1977 and 1982, while the prices for groundnuts and wheat rose by 192 per cent and 100 per cent respectively. The increases in agricultural producer prices, in so far as they reverse a decline in agricultural output and stimulate expanded output, should serve to dampen future inflation. It is critical however, that processing and distribution costs be minimised if supply gains are to be reflected in reasonable final prices. Import prices more than trebled between 1976 and 1982, the index moving from 217 to 695. With respect to aggregate demand - supply imbalances, real demand (measured by consumption plus gross capital formation) exceeded real supply (measured by GDP plus imports minus exports) in 1976, 1977, 1981 and 1982. However, since the excess demand was invariably a small proportion of supply, aggregate commodity imbalances were clearly less important than the behaviour of food prices and import prices.

The Zambian economy has experienced serious balance of payments problems during the period under review. Current account deficits have been large, e.g. K542 million in 1982, as has been the overall payments deficit which increased from K270 million in 1981 to K392 million in 1982. Several factors contributed to the deteriorating balance of payments situation. Steep declines

in export prices, particularly for minerals which accounted for 95 per cent of total merchandise exports, depressed export performance. Together with continuous increases in import prices, an 80 per cent decline in export prices between 1976 and 1982 resulted in the net barter terms of trade falling from 46 to 24, that is a 92 per cent fall in the purchasing power of Zambian exports. Export performance was also handicapped by organisational and input supply problems within the mining sector. Furthermore, given the acute dependence of the economy on imports as evidences by a high ratio of imports to domestic demand (.32 in 1976), there is little scope for non-deflationary import restraint unless there is substantial import-substitution in food supply. Some import curtailment has occurred. Real imports fell from K260 in 1979 to K196 million in 1982, and the import content of final demand decreased to 21 per cent. Nonetheless, this kind of adjustment strategy is deficient on two counts: the first being that it has led to serious scarcity of essential producer goods in all sectors of the economy, notably agriculture, and second, it is politically unsustainable because of the extreme economic hardships it imposes.

The final performance-indicator dealt with is the public external debt. The Government of the Republic of Zambia relied heavily on foreign loans in its efforts to maintain its existing economic strategy and expenditure programs in the face of inelastic fiscal revenues and continuing export shortfalls. The external public debt in 1974 was K354 million, but by 1979 it had risen to K766 million, escalating even further to K1436 million in 1982. The foreign debt to GDP ratio as a consequence has been extremely large - 30 per cent in 1976 and 45 per cent in 1982. Such high levels of debt and their con-commitantly large debt service obligations severely constrain the use of foreign exchange earnings.

It is estimated that Zambia's foreign debt-service ratio i.e. the ratio of amortization and interest payments to exports of goods and services, in 1982 was 48 per cent. The fulfilment of these onerous obligations means that only 52 per cent of the already low level of foreign exchange earnings is available for supporting domestic economic activity. It is not surprising in the circumstances that the Government has found it necessary to renegotiate much of its foreign debt.

II.2. KEY SECTORS OTHER THAN AGRICULTURE:

Measured by their share of gross domestic product and unemployment, a few sectors are prominent in the economy. These sectors are (1) mining, (2) "community, social and personal services," (3) manufacturing, (4) agriculture, livestock and fishing, and (5) financial institutions, real estates and business services. Together they accounted for 75 per cent of real gross domestic product and 71 per cent of formal employment in 1981. Developments within these sectors have had and will continue to have a major impact on the performance of the economy.

The mining sector is the predominant sector. Despite stagnant output since 1976, the mining sector in 1981 contributed 26 per cent of total GDP and 16 per cent of formal employment. It accounts for almost all of merchandise exports. The importance of this sector to the economy goes beyond its direct contribution to output, unemployment and foreign exchange earnings. Incomes generated in this sector are a major source of government revenues, and of derived and final demand. Zambia could well be described as being dependent on the mining sector, and, since copper is the preeminent mining activity, of being a copper-dependent

economy. This dependence has had serious consequences for the country whose economic activity has been vulnerable to international price and demand trends for copper, zinc, lead and cobalt, and to the weak production performance of the sector. Shortfalls in fiscal revenues resulting from the poor performance of the mining sector have resulted in excessive deficit financing, which in turn has reduced the flow of resources to productive activity and has pressured the balance of payments.

The manufacturing sector, which in 1981 generated directly 11 per cent of real GDP and 12 per cent of formal employment, has not exhibited the capacity to substantially relieve the country's economic difficulties. Real manufacturing GDP has been stationary since 1978 at around K150 million. Partly because of difficultues of obtaining foreign exchange allocations for imported raw materials and spare parts, but also because plant capacity is too large relative to demand, the manufacturing sector is characterised by excess capacity production. For example, all the companies in the INDECO group in 1981-82 produced substantially below their annual rated capacity. Table 1 presents the distribution of 41 product types produced by INDECO companies in 1981-82. It can be seen that there was excess production capacity greater than 40 per cent for 26 of the 41 product lines. The manufacturing sector displays little labour absorptive capacity. Furthermore, essentially because it was conceived in terms of import-substituting industrialization, the sector offers little prospect for earning foreign exchange.

The governmental sector plays a central role in the Zambian economy.

TABLE I - DISTRIBUTION OF PRODUCTS BY EXCESS PRODUCTION CAPACITY IN 1981-82: INDECO GROUP OF COMPANIES:

Percentage Excess Capacity	No. of Products	Percentage of Products
0 - 20	3	7
21 - 40	12	29
41 - 60	13	32
61 - 80	9	22
81 - 100	4	10
	41	100

Source: Based on data in Table VIII.7. Economic Report 1982, Office of the President, NCDP, Lusaka.

In addition to the large share of administrative and defence services in total expenditures and employment, and in addition to the general regulatory and overseeing role of the government, parastatals constitute a major government presence in the productive and financial services sectors. Parastatals have monopoly marketing powers for the major food staples and for agricultural inputs other than labour. Parastatals feature significantly in the commercial banking industry, where the ZNCB is the second largest bank, in insurance services, and in the agricu'tural credit system. Parastatals are also dominant in the manufacturing and mining sectors. Serious problems plague the performance of the public sector. Many of the public enterprises are unprofitable and inefficient, draining rather than adding to public revenues, as Table 2 shows.

TABLE 2 - TURNOVER AND NET OPERATING REVENUE OF ALL PARASTATALS (K Million)

Sector	April - Sept. 1981		March 81 - March 1982	
	Turnover	Net Revenue	Turnover	Net Revenue
Mining	524.0	-57.8	1005.7	-170.8
Industry	313.9	2.8	604.9	32.3
Energy	282.8	- 8.1	597.7	15.0
Transport	109.1	- 4.6	246.8	- 27.2
Finance	27.4	19.2	5.7	34.3
Hotels	8.7	-	18.1	0.6
Agriculture	16.9	12.9	30.2	- 11.9
Trading	104.6	- 2.1	212.6	9.3
Communications)	25.8	- 0.3	55.7	5.3
Real Estate)			1.6	0.1
All	1413.3	-38.0	2779.0	-112.8

Source: Economic Report 1981 and 1982, NCDP, Office of the President.

Their labour force is excessive and contributes to the large share of public consumption expenditures in total domestic expenditures. Public sector growth during the early 1970s and the maintenance of its share since the mid-1970s has been at the expense of private production activity. Until the institution of ceilings on government deficit financing, the government absorbed an increasing proportion of net domestic credit, much of it channelled as subsidies to inefficiently organised parastatals.

The financial sector by the very nature of finance has a persuasive influence on the economic system. Its impact is greater than its share of real GDP and employment suggests. The Zambian financial system is fairly simply structured. At the pinacle is the Bank of Zambia which performs the traditional central banking functions of regulating the credit and funding operations of the commercial banks and of guiding general financial policy in the economy. The Bank of Zambia sets interest rates throughout the system. Five commercial banks comprise the main sources of credit and the main deposit institutions. Four of the banks are of foreign origin, while the fifth is a parastatal. The two largest banks are the longest established foreign bank and the recently established parastatal. The commercial banks have a widespread branch network, though primarily in urban and rural towns with consequently restricted ability to mobilize rural savings. They lend mainly on a short-term basis. Several public sector credit agencies, notably the Development Bank of Zambia and the Agricultural Finance Company, serve to broaden the range of credit services by providing longer term development loans. In addition, parastatals mobilizing pensions and provident funds provide substantial resources on a loan basis to the credit parastatals. The Development Bank of Zambia also obtains considerable loan resources from international sources such as the IBRD, African Development Bank, and foreign governments. In 1982, foreign resources contributed 29 per cent of the DBZ's total funding.

A few features of the recent operations of the financial system deserve comment at this stage. First, it is evident that there has been a substantial growth of net domestic credit, from K765 million in 1976 to K2259 million in 1981. Because much of this (61 per cent in 1981) represented Bank of Zambia credit to the

government the narrow money supply i.e. currency plus demand deposits expanded from K268 million in 1977 to K688 million in 1982. Monetary expansion created obvious pressures on the balance of payments and domestic prices during this period of falling real output. Second, government reliance on debt financing increased sharply. Whereas in 1970 fiscal and other revenues comprised 105 per cent of total government financing, in subsequent years the percentage share dropped (60 percent in 1981) while the share of debt finance rose from 3.6 per cent to 26 per cent. Sustained foreign borrowing has become particularly sizeable since 1979 when foreign debt proceeds of K197 million comprised 26 per cent of total government finance.

Third, foreign exchange shortages became a particularly binding constraint on the activities of the financial sector and on other areas of the economy. Gross foreign reserves in 1977 were K55 million or 10 per cent of the country's annual import bill. In 1981, the corresponding magnitudes were K45 million and 5 per cent. Net foreign reserves decreased from minus K183 million to minus K742 over the same period. The monetary authorities instituted stringent foreign exchange rationing in 1981 which suppressed both import and domestic demand and which thereby reduced the demand for bank credit.

Fourth, as a consequence of the Government's recourse to financial assistance from the International Monetary Fund, an economic stabilization program was adopted. Its central features are 20 per cent devaluation of the Kwacha, ceilings on domestic credit to both the public and private sectors, the gradual elimination of arrears on foreign payments, upward revision of interest rates on deposits and loans, reduction of budgetary subsidies, and the decontrol

of consumer prices. The general intent of the stabilization program is to achieve a balanced budget, to reduce monetary pressures on the balance of payments and prices, and to stimulate savings, capital formation, and production.

II.3. AGRICULTURE: SELECTED ORGANISATIONAL ASPECTS AND ISSUES:

The final key sector to be examined is the agricultural sector. At present, the agriculture, forestry and fisheries sector accounts for 13 per cent of real GDP and 11 per cent of formal employment. It has been estimated (Economic Report 1982) that a further 3 per cent of the total labour force may be employed in the commercial farms sub-sector. Agriculture has the potential for quick and considerable constribution to the foreign exchange needs of the economy by import-substitution in the food industry as well as through diversification of exports. It is to be noted in the latter context, that two agricultural commodities, namely tobacco and maize, have in the past earned as much as K13 million in export revenues. The agricultural sector will also be increasingly relied upon to absorb the growing labour force and to feed an expanding rural population.

The extent to which the agricultural sector can rise to the challenge depends upon the degree of efficiency of organisation within the sector and upon the economic resources allocated to agricultural development. A comprehensive report on the organisation and major problems of the agricultural sector has been recently adopted by the Government. We therefore confine ourselves to summarizing several key aspects and issues raised about production and marketing organisation, and commenting on selected policy attitudes and measures towards the sector before proceeding to the main purpose of our report, i.e. an appraisal of the current financing situation of agriculture.

It is estimated that agricultural producers in 1980 numbered 613,800, excluding fishermen (Food Strategy Study). Approximately 75 per cent of these were classified as subsistence or traditional producers, 21 per cent as small scale commercial, 3 per cent as medium scale commercial and the remainder as large scale commercial. The farming categories are distinguishable by their production technologies, the source of their labour inputs, the proportion of their crops marketed, income level and the hectarage of their farms. Subsistence or traditional farmers cultivate, to some extent on a shifting basis, production units less than five hectares, and have cash turnovers less than K1000. Very little of their output is marketed, hand cultivation is practiced, and there is rarely any use of purchased inputs. Small scale commercial or emergent farmers operate on production units ranging from between 5 and 20 hectares. They utilize improved seeds and fertilizers, but cultivate by hand. A significant proportion (at least 25 per cent) of output is marketed. Cash turnover is between K1,000 to K20,000. Medium scale commercial farmers have farm sizes between 20 and 50 hectares. Their labour input is largely purchased. Fertilizer and improved seeds are utilised along with draught animal power. Almost all their output is marketed. Cash turnover ranges between K10,000 and K35,000. The large scale commercial farmers have farm sizes exceeding 50 hectares, purchase and utilise modern inputs including mechanical power and market all their produce. Their cash turnover exceeds K35,000.

Practically nothing is known about the relative economic efficiency of these categories of producers, although it is frequently presumed that input-output ratios are lowest in the large-scale commercial category and decline progressively as one moves towards subsistence farming. Commercial agriculture

makes a substantial contribution to total agricultural output, providing 80 per cent of marketed wheat, 50 per cent of marketed maize, and nearly 50 per cent of beef production. The soyabean output is predominately commercial farmers', while cotton and groundnuts are small scale commercial and traditional crops. Tobacco is grown by small scale commercial farmers in the Eastern Province. In terms of the money value of output, the estimated shares in agricultural GDP in 1980 reported in Table 3 provides some guidance about the contribution of commercial and traditional agriculture to the main broad product categories and to total agricultural GDP. It is seen that commercial agriculture comprises 37 per cent of crop GDP, 40 per cent of livestock, 6 per cent of fisheries, and 21 per cent of other commodities, and an overall 33 per cent of agricultural sector GDP.

The marketing system for agricultural commodities and manufactured or processed inputs is highly centralised. Parastatals i.e. NAMBoard and Zamseed, control the purchase and distribution of chemical fertilizers and improved seeds. NAMBoard, LINTCO, Cold Storage Board, Zambia Pork Products, and the Tobacco Board are either the monopoly or near monopoly buyers of maize, wheat, tobacco and livestock products, or have the major influence on their distribution. It is NAMBoard's function in particular to achieve regional balance in the production and consumption of maize and wheat. A recent change in the marketing system has been the partial transfer of NAMBoard's maize purchasing functions to the cooperative unions. The unions now buy the crop from the farmers but are in turn obliged to sell it to NAMBoard which retains its distribution monopoly powers. The Government, by setting zero or negligible wholesalers' and

distributors' margins has created a situation in which the parastatals and the unions are financially weak and dependent upon the Government for direct subsidies, restitution payments, and bank loan guarantees.

TABLE 3 - AGRICULTURAL GDP BY TYPE OF FARMING AND COMMODITIES, 1980:

	Type of Farming			
	Commercial		Traditional	
	Km	%	Km	%
Crops	55.8	37	95.8	63
Livestock	70.7	40	105.1	60
Fisheries	2.6	6	42.0	94
Others	13.3	21	49.9	79
Total	142.4	33	292.8	67

Source: Table 1.2, FSS Volume I.

The agricultural sector has not realised its full growth potential. Real GDP in agriculture, instead of increasing steadily has tended to decline. Production of several major commodities decreased or grew slowly from 1976 to 1982. Statistics on mirketed production do not accurately represent levels of commodity output because of the large stable share of on-farm consumption of the food staples. Nevertheless, they do give a fairly good portrayal of production trends. Table 4 reveals that marketed production of maize decreased from 746,000 tonnes in 1976 to 508,000 tonnes in 1982; groundnuts fell from 8,371 tonnes to 810 tonnes and pigs from 50,246 heads to 40,000 heads. The market

production of Virgina tobacco, a foreign exchange earner, decreased from 6,262 tonnes in 1976 to 1,861 tonnes in 1982. Paddy rice production tended to stagnate. Some commodity groups experienced substantial recovery by the start of the 1980's if not before. Particularly noticeable is the 40 per cent rise in sugar output between 1978 and 1979. Output in other commodity groups such as cattle, sunflower, seed cotton, soyabeans and wheat increased continuously since 1976. Overall, therefore, the production performance of the agricultural sector has not been uniformly strong nor uniformly weak.

Table 4 - MARKETED AGRICULTURAL PRODUCTION 1976 - 1982:

Commodity	Unit	1976	1977	1978	1979	1980	1981	1982
Maize	000 tonnes	746	693	657	331	383	693	508
Wheat	000 tonnes	3.4	4.7	6.4	4.3	6.7	11.5	12.5
Soyabeans	000 tonnes	.9	1.3	2.8	1.3	2.0	3.7	5.1
Groundnuts	000 tonnes	8.4	7.2	2.2	2.7	2.0	1.3	.8
Sunflower	000 tonnes	13	13	11	13	28	19	20
Seed Cotton	000 tonnes	4	9	10	15	15	17	13
Virginia Tobacco	000 tonnes	6.3	5.6	3.7	4.6	4.2	2.3	1.9
Sugar	000 tonnes	84	71	73	102	111	102	117
Milk	100 litre	10	10	9	9	10	12	15

Source: Central Statistical Office and MAWD.

There is widespread dissatisfaction with agricultural producer prices. As the data in Table 5 show, producer prices for most commodities have risen steadily in recent years. The main complaint is that these prices have not kept pace with agricultural production costs, resulting in shrinking profit margins. Some producers also believe that domestic producer prices should be indexed to border prices for the commodities. This report has not attempted to investigate the adequacy of price cost margins nor the other facets of agricultural price policy. It does appear, however, that the GRZ is actively reviewing its policies towards producer prices with a view to improving the incentives for agricultural production.

TABLE 5 - AGRICULTURAL PRODUCER PRICES: 1976 - 1982 (Kwacha):

Commodity	Unit	1976	1977	1978	1979	1980	1981	1982
Maize	90 Kg bag	6.30	6.80	9.00	9.00	11.70	13.50	16.00
Wheat	90 Kg bag	16.00	18.00	20.00	20.00	24.00	26.00	32.00
Soyabeans	90 Kg bag	17.00	21.50	25.50	33.00	33.00	36.30	42.21
Groundnuts	80 Kg bag	25.00	28.60	32.00	32.00	35.00	46.05	48.00
Virgina Tobacco	Kg	1.04	1.45	1.45	1.51	1.57	1.65	2.40
Seed Cotton	Kg	0.40	0.46	0.46	0.46	0.46	0.46	0.47
Milk	Litre	0.18	0.20	0.21	0.25	0.25	0.36	0.43
Sunflower	50 Kg bag	10.00	12.50	13.70	13.70	16.40	17.60	20.75

Source: Central Statistical Office and MAWD.

Two possible constraints on agricultural output require greater attention. The first is the availability of imported inputs for maintenance of existing levels of activity and for expansion. There is evidently a shortage of foreign exchange in the economy, but the incidence of foreign exchange rationing seems to have fallen disproportionately on the agricultural sector. The sector does not feature explicity in the Bank of Zambia's priority list for foreign exchange allocations, and the agricultural parastatals claim to be supplied with considerably less than their foreign exchange requirements. Current values of imports of manufactured fertilizers were no larger in 1979 than in 1975, and imports of animal feed decreased greatly between 1974 and 1976 and then again between 1978 and 1980. Generally, there is evidence of an acute shortage of animal feeds, veterinary supplies, chemical inputs and spare parts for agricultural machinery and equipment.

In 1981, the Government introduced a special scheme whereby producers are permitted foreign exchange equivalent to K0.50 for each bag of marketed output exceeding 5,000 bags maize, 2000 bags wheat, and 1,000 bags soyabeans. While this arrangement eases the foreign exchange problems of large commercial producers, it discriminates against small producers.

The second constraint is a more diffuse one, namely the seemingly less than full acceptance of the GRZ's commitment to agricultural development by key agencies within the public sector. The treatment of the agricultural sector in the foreign exchange allocation process is one indication that at the level of policy implementation there is need for more commitment by state agencies not directly responsible for agriculture. Another indication is provided by

the insistence by the DBZ, at present the largest recipient of local and foreign government or quasi-government loans and grants, that it is an industrial development bank, even though its charter does not exclude the financing of agriculture and despite the fact that it has received funds explicitly for agricultural lending.

III. THE SOURCES OF AGRICULTURAL CREDIT:

The credit system for farmers includes a number of private and government sponsored lending institutions. The primary private sector lenders are the commercial banks: their seasonal loan volume in 1981-1982 totalled approximately K44.8 million, about 54 percent of the total seasonal credit extended to farmers (Table 6). The Government sponsored and parastatal lenders include the Agricultural Finance Company (AFC) with K36.0 million of seasonal loan volume in 1981-82 (44 per cent of total volume); and the Cattle Finance Company (CFC) the Development Bank of Zambia (DBZ) and the Zambian State Insurance Corporation (ZSIC) which makes medium and long term loans but very few seasonal loans. The Cooperative Component of the system is the Cooperative Credit Scheme (CCS) which in 1981-82 loaned approximately K1.6 million to farmers -- approximately 2 per cent of the seasonal credit. Estimates of the total medium and long term credit extended to farmers in Zambia are not as readily available, although the AFC extended K5.7 million, the CFC 0.2 million, the ZSIC K1.0 million, and DBZ K5.9 million primarily of longer term credit to farmers. Thus in 1981/82 at least K96.8 million of seasonal and longer term institutional credit was utilized by the agricultural production sector. The organisational structure, history and current lending focus of the agricultural lending institutions are well documented elsewhere. Consequently, only a brief descriptive review will be provided here. The AFC was initiated in 1970 to succeed the defunct Credit Organisation of Zambia (COZ) as the prime parastatal lender to agriculture. Its primary lending activity is seasonal loans to farmers (about 85 per cent of total loan volume) with the remainder being intermediate and long term financing. Loans are made primarily in kind,

using local purchase orders (LPO). The AFC has been mandated to serve small farmers in particular in all areas of the country, so it has been forced to open and operate a number of unviable offices. However, the loan volume of AFC has been concentrated on medium and large scale farmers in the line-of-rail provinces (Central, Southern and Lusaka Provinces). In recent years the AFC has encountered severe recovery problems with default rates approaching 50 per cent. The CFC is also a parastatal lender with a specific emphasis on medium and long term credit for the breeding and fattening of cattle. Because of the smaller number of borrowers and loan volume, CFC lending performance and recovery rates have been much better than those in AFC. ZSIC, another parastatal, has made a limited number of medium and long term loans to farmers; its recovery rate has also been very low.

TABLE 6 - SOURCES OF CREDIT TO AGRICULTURE: 1981/82 SEASON:

Source	Amount	Percentage
Commercial Banks	44.8	46
A.F.C.	43.3	45
C.F.C.	0.2	-
Z.S.I.C.	1.0	1
C.C.S.	1.6	2
D.B.Z.	5.9	6
All	96.8	100

Sources: Data supplied by the Credit Agencies.

NOTE: The CFC loan disbursements in 1981/82 are considerably below the usual levels. Disbursements were K1.374 million between January to December, 1980, and K1.378 million during the 1982/83 crop season.

The commercial banks, primarily, Barclays, Standard and Zambia National Commercial Bank, provide loans primarily for the commercial farmers. Much of this credit is seasonal line of credit or overdraft financing. Recovery rates have been relatively good except for drought periods. Barclays and Zambia National Commercial Bank have special loan programs for small farmers; the Barclays Lima program included approximately 2,500 borrowers and Zambia National had about 600 small scale farm borrowers in 1981/82. Neither bank anticipates a major expansion of these small scale farm lending programs.

The Development Bank of Zambia (DBZ), primarily an industrial lending institution, provides a very limited amount of medium and long term funds for agricultural production. These loans have been typically for large scale production projects with a heavy emphasis on livestock production.

The CCS component of the credit system has exhibited steady but controlled growth since its initiation in the mid-1970s. In essence, the CCS program involves block loans from Zambia Cooperative Federation Finance Services, a subsidiary of the Zambian Cooperative Federation, to local cooperative unions which lent the funds to societies who in turn lent the funds to individual society members. Most of the funds are disbursed to small scale farmers (farm size averages about 2.5 hectares and loan size K365). Loans are made in kind rather than cash. Recovery rates were quite high in earlier years, dipped during the late 1970's, but have increased recently. The leadership of the CCS is hesitant to expand their lending activities very rapidly because they feel the performance of the system depends in large part on the strength of local cooperative societies, and the growth in local societies is painstakingly slow.

A recent addition to the set of financial institutions to provide credit to farmers is the Zambian Agricultural Development Bank (ZADB). This parastatal entity was created in 1979 with the charge to eventually take over the functions of AFC and CFC. However, delays in Government funding and the development of operating procedures and policy documents have resulted in inaction, and ZADB still is not operational as a lending institution. Currently, personnel in the Ministry of Agriculture and Water Development are assisting personnel in ZADB in the development of the statement of operating policy and procedures.

Credit funds for the input supply and product marketing and processing firms have been available primarily from commercial banks (based on Government guarantees), the Bank of Zambia and the Development Bank of Zambia. Much of the credit extended from these lending institutions to the input supply and marketing sector has been seasonal or inventory financing, although the Development Bank of Zambia in particular has provided capital expenditure funds for increased product processing capacity.

At present, very little is known about the informal credit market in rural Zambia. It is commonly believed within the country that informal credit activities, particularly those involving moneylenders, are insignificant. Yet even a superficial probing suggests that this view is not well-founded and may be quite erroneous. Some families do extend credit of relatively small amounts in both currency and commodities to other families, though usually at zero rate of interest. Also, commodities, e.g. cloth, are sometimes acquired on credit from merchants in nearby towns. For those transactions, an interest charge is

not usually stated explicitly but the implicit rate of interest may be quite high. Furthermore, there is evidence that substantial barter activity exists in rural communities (for example the trading of oxen services for fertilizer, seed or labour). Although credit is not involved in such activities, barter or resource trading does reduce the demand for monetary credit from formal or informal markets. Because it would have been too expensive and time-consuming to systematically gather information on the informal credit market and barter activities, the attention of the report is confined to formal credit programs and institutions.

IV. MAJOR FINANCING PROBLEMS AND ISSUES:

IV.1 INTERNAL FINANCING POTENTIAL AND CREDIT REQUIREMENTS:

A presumption of most previous studies of the problems encountered in financing Zambian agriculture is that all operating inputs must be acquired using credit. In reality, some operating inputs may be acquired by barter and others may be purchased with internally generated funds.

To determine the potential availability of internally generated funds to acquire seasonal inputs, a simple "sources and uses" of funds procedure was used. This procedure is based on the argument that total uses of funds to acquire production inputs (total seasonal financing)during a year must be equal to sources of funds to acquire seasonal inputs (internal savings plus seasonal credit). Total seasonal financing needs were calculated for 1981 as the sum of the aggregate national production of agricultural products times the per unit of production cash operating costs. In essence this calculation as summarized in Table 7 indicates the total amount of funds or seasonal financing that was required to produce annual agricultural production.

TABLE 7 - FINANCING REQUIREMENTS AND INTERNAL FINANCING: 1981:

Total Financing Needs:	
Crop Production	K92,809,306
Livestock Production	K51,563,707
Total	K144,373,013
Minus Total Credit Used	- K82,331,000
Internal Financing	K62,042,013

Internal Financing Ratio: $\frac{62,042,013}{144,347,807} = .43$

The next step in the procedure was to estimate the total seasonal credit extended by all agricultural creditors to all farmers in Zambia during the year; this data is reported in Table 7. Since total seasonal financing needs must equal seasonal credit plus internal savings, an estimate of the amount of internal savings that must have been available to finance seasonal input purchases can be calculated as seasonal financing needs minus seasonal credit extended. This calculation is shown in Table 7. The results suggest that a substantial amount of internal financing or savings has been available in the past to finance the purchase of operating inputs. The proportion of total seasonal financing that was obtained from ernal sources (the internal financing ratio) seems in the order of 43 per cent. The calculations are not fully accurate because firm data were unavailable for production costs for pork, poultry and feedlot cattle. Nonetheless, they do provide tentative estimates of financing requirements and of the scope for internal financing.

Some additional evidence is available from a sample survey of 86 small farmers in the Eastern Province. This survey which was primarily concerned with groundnut production generated the financial data on which the calculations in Table 8 are based. It can be seen that those small farmers who produced maize, groundnuts, and sunflower had total financing requirements of K26,690 which they met largely (77 per cent) out of their own resources.

TABLE 8 - SMALL SCALE FARM FINANCING REQUIREMENTS AND INTERNAL FINANCING FOR CROP PRODUCTION (E. PROVINCE: SAMPLE SURVEY GROUNDNUT STUDY, 1983):

Requirements:	
188.9 Ha maize	K16,231
33.9 Ha groundnuts	K 4,997
59.7 Ha sunflower	K 4,836
Total Requirements	K26,690
Minus Credit Used	-K 5,374
Amount Internally Financed	K20,690
Average per household	K 272

Internal Finance Ratio: $\frac{20,690}{26,690} = .775$

NOTE: The data was collected from a sample of 76 Farmers.

Assuming the internal financing ratios remain relatively stable over time, estimates of future seasonal credit needs can be determined. First future expected agricultural production is estimated along with expected cash costs of production. Multiplication of these two figures for all crops results in an estimate of total seasonal financing needs. By applying the internal financing ratio times this estimate of seasonal financing needs, an estimate of internal financing is obtained. The residual must come from credit sources, so an estimate of seasonal credit needs is obtained by subtracting internal financing from total seasonal financing needs.

This estimation procedure is crude and needs further refinement, but it focuses on the opportunity for the firm to use internal as well as external (credit) financing. The results imply growing future seasonal credit needs for Zambian agriculture, but that internal or self-financing is also very important. Furthermore, methods to improve internal financing by generating higher incomes through the adoption of more efficient production practices or higher commodity prices may substantially reduce the need for seasonal credit. The results also suggest that credit may not be as important a constraint to increasing agricultural production in Zambia as some might think. This does not imply that credit is unimportant, but that other means are available for financing agricultural production and that price policy and programs to enhance productivity may be equally as important as credit policy in releasing the financial constraint and encouraging increased agricultural output. Also, the results imply that the present practice of 100 per cent financing of seasonal production costs is not always necessary, and may contribute to credit resources being diverted to non-agricultural uses and to less socially efficient use of the country's financial resources. Finally, the estimates of the amount of internal financing used in agriculture raise questions as to the amount of informal or non-institutional credit that is available to farmers.

IV.2 SCOPE FOR FINANCING LIVESTOCK PRODUCTION:

Most past discussions of the credit and financing needs of Zambian agriculture have focused on the crop sector and the need for seasonal funds to acquire purchased inputs. Although various studies indicate that the protein

content of the Zambian diet is not deficient (Food Strategy Study), the opportunity to substitute animal protein for plant protein does exist. Beef is the preferred meat of the Zambian consumer, although fish, poultry and dairy products also exhibit strong demand. The tremendous quantity of native range and grassland suggests that cattle production could be expanded significantly with adequate financing, adoption of appropriate management practices with respect to breeding, periodic selling of animals rather than accumulation, and minimal supplemental nutrition. Concern is frequently expressed about low efficiency of conversion of potential feedstuffs into animal products. However, the high efficiency of poultry of fish in converting feedstuffs into animal protein suggests that expanded production of these products would not place significant stress on the supplies of maize and other food crops available for human consumption in normal years. Consequently, serious consideration should be given to the expansion of credit programs for cattle, poultry and fish production by all of the financial institutions serving agriculture.

A related issue is use of cattle for animal draft power. For the emergent and small scale commercial farmer, animal draft power (oxen) would appear to be the appropriate technology compared with mechanical power because of size considerations and the restrictions on foreign exchange to acquire mechanical power, spare parts and petrol. Expansion of the use of both female and male cattle as sources of animal draft power has been advocated (Food Strategy Study). The availability of intermediate term credit to finance the acquisition and training of animal draft power could have a significant impact on the

productivity and total output of the emergent and small scale commercial farmer. Furthermore, the cattle themselves could be the collateral for such a loan, and barring death due to disease or malnutrition, would provide reasonable security to the lending institution to reduce the risk of recovery if default should occur.

IV.3 FINANCING LARGE VS SMALL FARMS:

In recent years Zambia has become increasingly concerned about maintaining self-sufficiency in food production. From the perspective of obtaining the largest total agricultural output with the limited amount of capital and credit available, the capital productivity of the large commercial farms compared to the small emergent farms must be evaluated. Data were not available to complete such an evaluation but some arguments can still be made. If both the large and small scale producers have the same or very similar production response functions (the relationship between output and capital inputs), the additional productivity and output from allocating additional capital to small scale farmers would probably exceed that of large scale farmers because of the declining marginal productivity of capital and the significantly lower level of capital inputs on small scale compared to large scale farms. However, if the production response function for the larger farms is substantially above that of the small farms, which quite possibly may be the case, then the larger farms may exhibit higher marginal productivity of capital in spite of their current high capital intensity. If this is the case, a clear conflict between the national goal of food self-sufficiency (and possibly even exports) and the goal of providing credit to small farmers exists. A thorough analysis of the productivity of capital and credit for small and large farmers would be useful to assist in resolving this potential conflict.

IV.4 FINANCIAL PROBLEMS OF THE INPUT SUPPLY AND PRODUCT MARKETING SUB-SECTOR:

The agricultural input supply and product acquisition and processing sectors are dominated by cooperative unions and parastatal organisations that have their own financing problems. The parastatals obtained the majority of their funds from the Government through loans from the Bank of Zambia or direct restitution and subsidy payments in the past. In recent times funds have also been obtained from the commercial banking sector, but the banks have insisted that the Government guarantee the repayment on these loans. The Development Bank of Zambia has also been a source of loan funds for capital expenditure projects of the parastatals. The cooperative unions have obtained a large share of their borrowed funds from NAMBoard, Zambian Cooperative Federation Financial Services and the commercial banks, again with the requirement of a Government guarantee.

A fundamental issue in the financing of the input supply and marketing firms is their apparent inefficiency and relatively weak financial condition. The data in Table 9 show that agricultural parastatals have suffered substantial losses in recent years (in part because of government mandated pricing policies). Restitution and subsidy payments have been inadequate to cover such losses. Furthermore, shifting the responsibility for buying agricultural commodities from NAMBoard to the cooperative unions has resulted in confusion, duplication of services and some excess capacity. In addition there is substantial excess capacity and very high overhead costs in many of the agricultural product and input processing parastatals. These factors make it difficult for the commercial banks to treat the agricultural parastatals as acceptable credit risks without

a government guarantee. Improvements in the efficiency and performance of the parastatals is essential for them to obtain more reliable sources of debt financing. Government restitution and subsidy payments have often been delayed, partly because of shortfalls in government revenue, and have frequently been inadequate to cover expenses. The parastatal organisations should probably become less dependent on government financing and move more completely to commercial financing sources, but commercial banks will view them as acceptable risks only if they develop a more solid equity capital base and improve efficiency and operating performances.

TABLE 9 - NET OPERATING REVENUE OF AGRICULTURAL PARASTATALS: K000:

	Jan - Sept. 1981	March - Sept. 1982
Rural Development Corporation	-2,500	-1,890
Zambia Pork Products Limited	53	- 22
Poultry Development Co. Ltd.	- 351	- 13
AFE Limited	- 25	- 177
Zambia Agricultural Dev. Ltd.	- 250	393
Kawamba Tea Co. Ltd.	Not known	- 238
Cattle Finance Co. Ltd.	Not known	- 20
Agriculture Finance Co. Ltd.	Not known	- 1.73

Source: Economic Report, 1981 and 1982, NCDP, Office of the President.

With attractice prices to producers and an efficient distribution and collection network, the parastatals should have no chronic difficulty in obtaining farm produce or in selling inputs. With reasonable levels of processing costs, they should also be able to realise acceptable levels of profits or operating surpluses. With improved management reflected in strong financial performance, the agricultural marketing and distribution enterprises would be capable of attracting funds on a commercial basis from private and public sector credit institutions without recourse to government guarantees, and need not depend on government fiscal assistance. There is clearly a need to study thoroughly the organisation and functioning of this sub-sector in order to establish guidelines for reforms that can improve the financial performance and thereby the debt-bearing capacity of enterprises within the marketing and distribution system. A study of the fertilizer industry soon to be conducted by a MAWD team should make a useful contribution to these issues.

The cooperative unions should also improve their efficiency and performance so that they can expand their credit lines with ZCF Financial Services and the commercial banks and reduce their dependence on NAMBoard. Furthermore, with excess capacity in the processing and some parts of the input supply industries, new projects to borrow funds from the Development Bank of Zambia or any other lender should be carefully scrutinized.

IV.5 CREDIT IMPLICATIONS OF COMMODITY PRICING POLICY:

It must be recognised that pricing policy in Zambia and the administration of that pricing policy are integrally related to credit policy. Commodity prices are administratively set, based in part on estimates of the cost of production. Interest costs on seasonal loans as well as an opportunity cost on invested funds are included in the cost of production calculations, so interest rate policy clearly affects the level of commodity prices.

Equally important is the administration of pricing policy. The government controlled parastatal, NAMBoard, has the responsibility and monopoly power to purchase all maize and certain other crops from the local cooperative unions who have purchased the commodity from the farmers. In the past, NAMBoard has been required to resell the crop to millers below their cost, or at inadequate margins to cover distribution expenses, with the financial shortfall to be covered by restitution payments from the government. Because of cash flow problems encountered by NAMBoard, in part because of delays in receiving restitution payments from the Government, delays have frequently been encountered in paying cooperative unions for the commodity. The cooperative unions in turn have delayed payments to the farmer; these delays have been as long as six months after the crop has been delivered. This delay in payment to the farmer not only reduces the net price he receives because of the opportunity cost on delayed proceeds or the additional interest cost on borrowed funds, it also results in delays in repayment and bloated credit demands because the farmer must purchase inputs for the upcoming crop before he receives payment for last year's crop. In essence, a farmer may have seasonal loans outstanding for two crops during part of the year -- the one he has delivered but not yet been paid

for, and the one he is currently growing and had to borrow money to plant because of the delay in receiving payment for his delivered crop. Similar delays in payment can result if NAMBoard does not receive its government subsidy payments on fertilizer purchases in a timely fashion, again resulting in cash flow problems throughout the marketing chain.

Irrespective of the inefficiencies that result from administered prices and a system of subsidies and restitution to cover the cost of necessary services, the administration of that pricing policy adds further inefficiencies that result in increased costs and higher credit demands. Prompt payment of subsidies and restitution by the government could reduce private sector credit demands significantly. Changes in pricing policy to reduce intermediate level subsidies and allow margins may encourage productivity and reduce payment delays. If a subsidy is considered desirable to reduce consumer prices, it may be more efficient to directly subsidize food purchases at the consumer level.

IV.6 FINANCIAL BEHAVIOUR AND RISK RESPONSE

Farmers are very aware of risk in developing as well as developed countries. In many cases management decisions that seem inconsistent with income enhancing goals are, in reality, a logical response to risk. Recent analyses,(e.g. Hopkins et al) have documented the financial strategies that can be used to reduce the disastrous economic consequences of risk and uncertainty, particularly the holding of liquidity through currency or resource reserves. These concepts may be particularly appropriate in Zambia where irregular payment of government subsidies and restitution and delays in receiving compensation for products result in significant income risk for farmers.

To reduce the chances that funds may not be available to purchase inputs when necessary, the farmer may hold larger inventories that could be sold if necessary. Inventories of crops might be sold in the informal market where prices may be higher and payment is made in cash. In some regions cattle may be used not only as a store of wealth but also as a source of liquidity if funds are needed to purchase other inputs or assets. Excess inputs such as fertilizer may be held over to following years to guarantee supplies and protect against price increases. Liquidity is not held in a financial form (savings accounts, etc.) because of negative real rates of interest which result in declining real purchasing power of financial savings. Instead liquidity is maintained in the form of resource reserves -- real assets that do not decline in value with inflation. Furthermore, negative real rates of interest on borrowed funds encourages the substitution of credit for internally generated savings; instead the "savings" are maintained as reserves of real assets.

Higher real rates of interest on savings and loans combined with more predictable government price and payment policies would reduce the need to hold currency and resource reserves, increase the utilization of internally generated funds, and increase financial savings which can then be mobilized through the financial markets and made available in the form of credit to those farmers who have inadequate internally generated funds to finance their operation.

IV.7 CROP INSURANCE AND THE CREDIT SYSTEM:

Inadequate recovery rates have been a persistent problem of most of the government lending agencies in Zambia. As is noted later, numerous reasons for the low recovery rates can be identified. In recent years, the recovery rates of the commercial banks as well as the government lending institutions have declined, partly due to drought conditions that have resulted in poor yields. One method that might be used to enhance recovery rates in years of adverse weather or other crop perils is crop insurance. Insurance schemes are not new to Zambian agriculture. Many lenders require the borrower to purchase life insurance payable to the lender to cover the loan in case of the borrower's death. Multi-peril crop insurance is available for selected crops on a limited scale (Economic Report 1981). However, such insurance is available only for acreages in excess of a minimum size (40 hectares of maize, for example) and even for those who qualify the premium appears to be high compared to the indemnity or protection received. Farmers who cultivate not less than 16 hectares can also purchase insurance against fire and lightning. The premium for this policy is less than that for multi-perils.

In many countries, crop insurance is an integral part of the credit program for farmers; a producer is required to purchase crop insurance as a condition of obtaining credit much like he is required to purchase life insurance. Improvements in the pricing and the administration of the crop insurance program in Zambia, including elimination or reduction of the minimum size farm that would qualify for insurance, would make it more attractive to

farmers and lenders alike. Specifically, providing insurance services directly through the credit institutions (the loan officer would also be responsible for completing the forms for the insurance policy and collecting the premium) would reduce administrative expenses. The AFC already provides this agency service on behalf of ZSIC. Premium income is included in the loan and is deducted by the AFC whose District Officers complete the application forms for the farmer. In the case of perils like drought, assessment of the loss for small farmers might be done on an area-wide rather than individual farm basis, and increased geographic and crop diversity would reduce the risk and potential indemnity payment by the insurance company and thus allow the company to reduce its premium. A cost-effective and well administered crop insurance program could significantly increase repayment rates in years of insurable natural disasters. Such an insurance scheme might also reduce the incentive for farmers to hold financial or resource reserves to cover such contingencies (reduce the need for self-insurance), thus releasing funds and resources for self-financing and reducing the demand for seasonal credit.

IV.8 INTEREST RATE PRACTICES AND POLICIES:

Quoted nominal rates of interest have tended to be low relative to the rate of inflation (Table 10). As a result, real rates of interest i.e. nominal rates adjusted for the expected rate of inflation, have been negative in recent years. The rate quoted on savings deposits at commercial banks is the lowest at seven per cent. Time depositors are offered a rate of interest one-half to one and one-quarter percentage points higher than the savings deposit rate. The minimum loan rate is the commercial bank prime loan rate of

10.5 per cent. Only a few private debtors and the parastatals receive bank credit at this interest rate. A sectorally differentiated rate structure is maintained for all other commercial bank credit. The loan rate to agriculture is one percentage point above prime, and the maximum rate for lending to the remaining sectors is three percentage points above prime. Credit parastatals also maintain this loan rate structure.

TABLE 10 - COMMERCIAL BANKS QUOTED INTEREST RATES AND INFLATION:

Year	Nominal Rates of Interest				Real Rates of Interest		
	Savings Deposit	6/12 month Time Deposit	Prime Loan Rate	Higher Income Consumer Price Inflation	Savings Deposit	6/12 month Time Deposit	Prime Loan Rate
1975	4.00	5.00	7.50	8.4	- 4.40	-3.40	-0.90
1976	6.00	7.25	8.25	16.1	-10.10	-8.85	-7.85
1977	6.00	7.25	6.25	17.1	-11.10	-9.85	-10.85
1978	7.00	8.25	9.50	12.2	- 5.20	-3.95	-2.70
1979	7.00	8.25	9.50	11.3	- 4.30	-3.05	-1.80
1980	7.00	8.25	9.50	11.5	- 4.50	-3.25	-2.00
1981	7.00	8.25	9.50	10.4	- 3.40	-2.15	-0.90
1982	7.00	8.25	9.50	13.2	- 6.20	-4.95	-3.70

Source: Bank of Zambia Annual Report 1981 and Financial Report, February, 1983.

Quoted rates of interest understate loan charges. Zambian credit agencies impose a number of fees which substantially raise the effective nominal rate of interest. These include handling charges, application fees, commitment fees, penalties on overdrawn loan accounts, and fees for local purchase orders (LPO's) for credit-in-kind transactions.[1] Effective interest rates are also raised by not charging interest on a reducing balance basis in some cases and by sometimes calculating interest for a longer period than the actual duration of the loan.[2] For their average size agricultural loans, effective nominal loan rates of interest may exceed quoted nominal rates by two percentage points for commercial banks, 5.7 percentage points for the AFC, and 5 percentage points for the CCS.

The level and structure of quoted nominal rates of interest throughout the formal financial system is set by the Bank of Zambia. Interest rate policy appears to have been based on the following considerations and assumptions. The Bank of Zambia wishes to discourage credit-financed consumption and to encourage savings. It seeks to ensure the most productive utilisation of credit. The lower loan rate of interest for agriculture implies either that agriculture is a preferred activity or that the Bank of Zambia assumes that agriculture generates lower economic rates of return than other sectors of the economy. The Bank of Zambia also assumes that financial savers do not

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1. The AFC has a ledger fee of 1½%, and also charges K1 for each application form and K0.50 for each LPO. The CCS charges a handling charge of K2 per loan. Commercial banks charge commitment fees of 1½% and penalty fees of 2% on overdrawn loan accounts. It appears that some commercial banks also charge large commercial farmers a front end fee of K1000.

2. Both the AFC and the CCS charge interest for 12 months on seasonal loans even though repayment must be made in 9 months.

recognise that inflation erodes the real value of their savings -- they suffer money illusion . As part of its current understanding with the IMF, the central bank has sought to bring nominal interest rates more in line with the rate of price inflation. Interest rates were raised in January, 1983. However, additional interest rate adjustments may be warranted to further encourage efficient savings mobilization and credit allocation, and to ensure consistency with the equity objectives of the Government.

Provided the credit mechanisms function properly, savings will contribute more to Zambian economic progress the greater is the proportion of savings in financial institutions and the longer is the maturity structure of financial savings. There are indications that although savings have become more financialized and the maturity structure of financial savings has lengthened, there is scope for further deepening of savings. The ratio of currency (the most liquid financial asset) to currency plus time and savings deposits is sizeable (.26 in 1982). Also the commercial banks claim that there is a significant leakage of currency from them to the rural public. Both of these observations imply the existence of a substantial volume of highly liquid financial savings outside depositary institutions. It is evident that many rural Zambians save in non-financial forms, notably cattle. Even though tradition undoubtedly partly explains this preference for non-financial assets, it should be recognized that because the values of these assets are positively correlated with the rate of inflation, they serve as inflation hedges. It is therefore debateable that even small savers suffer from 'money illusion'. Furthermore, with low or negative real interest rates

on deposits, commercial farmers who do accumulate substantial operating surpluses are more inclined to use these funds for direct off-farms investment rather than in bank deposits where they can be rechannelled to agricultural pursuits.

An additional argument can be made for higher nominal deposit rates of interest. Savers will prefer to hold either currency or non-financial assets so long as the cost of deposit transactions exceed interest income earned on deposits. The major deposit transactions costs, especially for rural savers, are time and travel expenses, neither of which is readily reduced.[1] Therefore, if, as is likely, deposit transactions costs are greater than nominal rate of interest on savings deposits, an upward revision of interest rates may be required to raise the ratio of deposits to both financial savings and total savings.

Despite recent increases in nominal loan rates, real effective loan rates of interest are still very low and are negative in some instances. Loan rate policy may have encouraged over-mechanization of commercial agriculture. A careful study of this issue needs to be done. Nonetheless, it does appear that the stock of farm machinery and equipment may be excessive. Few resources are allocated to repairs and maintenance. Farmers prefer over-investment in capital stock to investment in spare parts. The system of fiscal incentives which permits 100 percent write-off of machinery in two years further encourages this tendency. Even when allowance is made for the possibility that the capital

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1. Mobile banks have the potential for reducing transactions costs for depositors but it is not at all clear that the same or even greater costs are not shifted to the depository institution.

heterogeneity characteristic of Zambian commercial agriculture may require larger than usual inventories of spares, over-investment in vehicles and equipment is bad for th national economy. It absorbs scarce foreign exchange, artificially enlarges credit demand, and deprives other producers of short-term loans. But as long as credit is relatively cheap, commercial farmers will tend to over-invest. Low real effective rates of interest may have also encouraged excessive dependence on bank credit, less reliance on self-financing, and less attention to farm financial management.

In addition to its allocative inefficiencies, the regime of negative real rates of interest worsens distribution of income. Negative real deposit rates of interest impose serious income losses on savers to the extent that inflation-induced depreciation of the real value of deposits is not offset by corresponding interest rate increases. For example, because during 1982 the inflation rate was 13 per cent and the savings deposit rate of interest 7 per cent (yielding a negative real rate of 6 per cent), the real value of savings deposits held in December, 1981 depreciated from K132 million to K124 million, a loss of K8 million. Savings deposits are held by numerous low-income individuals who can least afford yearly losses of this magnitude. To compound the problem, negative real loan rates of interest subsidize the few, privileged, and usually economically better off borrowers. In essence, negative interest rates result in the subsidization of the few rich by the many poor. A commitment to distributional justice requires that positive real rates of interest be established.

Credit institutions maintain a spread between their interest costs and the interest returns on their loan capital. In Zambia, this interest rate spread is determined by the monetary authority. Interest rate spreads are intended to cover administrative costs and risk costs, where the latter include not only the probabilistically calculated loss of interest income and loan capital through default, but also the costs the lender incurs in pursuing delinquent debtors. If the interest rate spread is inadequate to cover these costs, the credit institution loses its capital base and runs the risk of eventual bankruptcy. An adequate interest rate spread is thus crucial for the viability of the financial system. The warranted spread increases when inflation rises since administrative costs would also be rising. It also increases when the loan arrears or default rate rises. Actual interest spreads have been less than warranted in Zambia.

It appears that the interest rate spread has remained roughly constant despite increases in loan administration costs between 1977 and 1982. For commercial banks, the spread between the minimum deposit rate and the maximum loan rate was 3.25 per cent from 1978 to 1982, before finally increasing to 5 percent in 1983. The AFC's interest spread was one and one-half percent (borrowing rate of 10½ per cent minus onlending rate of 12 percent), until 1983 when special loans funds at 8½ per cent were obtained from the Bank of Zambia. For the AFC, this has necessitated large operating subsidies from the Government. Subsidies for administrative expenses were K300,000 in 1982. Furthermore, while there is not an acceptable loan rate of interest to cover the horrendously large risk costs of some credit parastatals nor are there feasible risk premia

for some credit customers, loan charges should compensate for reasonable levels of risk costs. Additionally, credit institutions whose administration costs are higher than other credit institutions (but still at reasonable levels) or whose loan portfolios are intrinsically riskier should have higher loan rates of interest than other institutions. Also, because administration costs and risk costs vary among customers within a given credit institution, the institutions should either price discriminate among their customers to reflect differences in costs or alternatively should charge a uniform loan rate sufficiently high to cover average costs. The latter approach implies some degree of cross-subsidization i.e., lower cost customers de facto subsidize higher cost customers.

Zambian economic authorities favour uniformity of loan rates across and within institutions. This policy should be re-examined on several counts. Loan rate uniformity across widely dissimilar institutions and programs has contributed to substantial operating losses for the more costly public sector segment of the credit system. Moreover, the uniform rate has not been high enough for full internal cross-subsidization in the credit parastatals. Also, the inability of commercial banks to charge discriminatory prices according to differences in administrative and risk costs might have deterred them from providing credit facilities to emergent commercial farmers on a greater scale than currently.

Granted the desirability of further interest rate reforms, an important practical question is what magnitude of revision is desirable and feasible.

Firm answers to this question require more systematic, complete and accurate computation of accounting and behavioural relationships than this report could provide within the time, resources and information readily available. Nonetheless, certain qualitative points can be made now. First, provided other national and institution-specific policies reduce both loan delinquency and inflation rates to manageable proportions, the required increases in nominal interest rates are unlikely to be large. Second, reasonable remunerative producer prices would generate economic rates of return large enough to comfortably absorb higher interest costs, while at the same time fostering economy in the use of credit. Third, a number of production cost estimates indicate that interest costs are a small proportion (no more than 10 per cent)of total production costs. Given this very low weight of interest costs in total costs, quite sizeable increases in loan charges do not inflate total production costs greatly. For example, even if we assumed unrealistically that loan charges doubled, production costs would increase by only 7 per cent, hardly enough to discourage production. In a full cost pricing situation, consumer prices would rise equiproportionately to the rise in production costs. This weak sensitivity of producer prices, production, and consumer prices to interest rate changes make substantial interest rate reform not only desirable but feasible. Fourth, credit agencies do charge more than quoted loan rates of interest indicate. Upward rate revision would reduce the need to obtain higher effective rates through unfair front-end loading of loan charges. It would also make explicit those borrowing costs currently implicit and sometimes unperceived, and thereby induce greater efficiency in financial management.

IV.9 LENDER TRANSACTIONS COSTS:

A key consideration in the evaluation of the financial intermediation process or the performance of a particular credit institution is the transaction costs - the administrative costs involved in making a loan and recovering the loan proceeds. This transaction cost cannot exceed the margin between the cost of funds and the interest rate charged to the borrower if the lending institution is to be economically viable.

Transaction costs include a number of items - the salaries and perquisities of personnel, building rental, travel expenses, paper and supplies, accounting services, etc. Table 11 summarizes the estimates of the transaction cost for the AFC for the years 1980/81 and 1982/83. Data for 1981/82 was not available. The calculations are based on the accounting statements provided by AFC. The computations suggest that in 1980/81 AFC incurred transaction costs of approximately 9.5 ng per Kwacha lent, or 9.5 per cent per Kwacha. In 1982/83 the transaction costs totalled 10.5 ng per Kwacha lent, or 10.5 per cent per Kwacha. Similar transaction cost estimates were developed for the CCS as summarized in Table 12 from data provided by ZCF Financial Services. The CCS transaction costs range from 3.8 ng to 7.0 ng per Kwacha lent depending upon the Cooperative Society as illustrated in Table 12. These transaction costs are substantially lower than those incurred by the AFC.

TABLE 11 - AFC TRANSACTIONS COST ESTIMATES:

1980/81

Total expenses	K3,641.098
Less Interest paid	K 113.990
Total Non Interest Expenses	K3,527.108
Disbursements - 1980/81	K37,094.000

Expenses/Kwacha loaned: $\frac{K\ 3,527.108}{K37,044.000}$ = K.095 or 9.5 ngwee

1982/83

Total expenses (15 months)	K7,414.107
Less Interest paid (15 months)	K1,711.277
Total None interest expenses (15 months)	K5,702.830

Adjusted to a 12 month basis:

K5,702,830 x 12/15 = K4,562.264

Disbursements - 1982/83	K43,348.000

Expenses/Kwacha loaned: $\frac{K4,562.264}{K43,348.000}$ = K.105 or 10.5 ngwee

Source: Audited Financial Statement, AFC, 1980/81 and 1982/83.

TABLE 12 - CCS TRANSACTION COST ESTIMATES: 1982/83:

Union	Loan Disbursements (K000)	Non-Interest Costs (K000)	Expenses Per Kwacha Loaned (ng)
SPCMU	4,600	155	3.87
CPCMU	1,600	65	4.06
ECU	3,000	115	3.83
NCU	600	31	5.17
LPCMU	400	21	5.25
LCU	100	7	7.00
CCU	100	7	7.00
NWCU	100	7	7.00
WPCMU	100	7	7.00
Union Total	10,000	415	4.15
ZCF Finance Services	-	150	-
CCS Total	10,000	565	5.65

Source: Budgetary Forecast Data provided by ZCF Finance Services Limited.

The level of transaction cost that is acceptable to have an economically viable lending institution depends upon the cost of funds, the interest rate charged the borrower and the recovery rate. Table 13 illustrates the calculation of maximum acceptable transaction costs under different sets of conditions reflective of the current financial environment in Zambia. The calculations assume that the credit institution is capitalized with 10 per cent equity capital and 90 per cent borrowed funds on which it must pay 8½ per cent (the current rate for borrowers from the Bank of Zambia). The interest rate charged to the borrower is 13 per cent, and the loan recovery rate is 98 per cent. The calculations are done assuming a K100,000 loan for ease of computation.

The computations indicate that after paying the funding cost and covering the loan losses, the residual revenue available from the K100,000 loan for transaction costs or administrative expenses is K3,350; this amounts to 3.35 ngwee per Kwacha loaned or 3.35 per cent. Using these computations as a basis for comparison, the CCS costs noted earlier suggest a slight loss unless their cost of funds are lower, interest rates charged the borrower are higher or the recovery rate is higher than those used in the calculations. The transaction costs of the AFC program are three times higher than the "breakeven" costs shown in Table 13, suggesting sizeable losses due to high administrative costs as well as low recovery rates. Note also the sensitivity of the maximum acceptable transaction costs to the recovery rate, the cost of funds and the interest rate charged, as illustrated in Table 13.

The procedure illustrated in Table 13 should be used to determine the targets as to maximum acceptable transaction costs for all agricultural credit programs in Zambia. This procedure will not only suggest what administrative costs are acceptable, but also what the size of the required subsidy must be if actual administrative costs exceed the "breakeven" acceptable amount.

Table 13 Maximum Acceptable or Break-even Loan Administration Costs

Assumptions: Loan size: K100,000

Funding: 10% Equity

90% Borrowed

Cost of Borrowed Funds: 8½%

Interest Rate on Loan: 13%

Recovery Rate: 98%

Breakeven Calculations:

Revenue:	K100,000 x 13%	=	K13,000
Funding Cost:	K90,000 x 8½%	= K 7,650	
Expected Loss:	K100,000 x 2%	= K 2,000	
	Total		K 9,650
Residual to Cover Administrative Expenses			K 3,350

Breakeven Cost of Administration/Kwacha Loaned:

$$\frac{K\ 3,350}{K100,000} = K.0335 \text{ or } 3.35 \text{ ng.}$$

- If the recovery rate is 95% and the loss rate is 5% (with all other assumptions remained unchanged) total funding costs and losses rise to K12,650, the residual return to cover administration costs declines to K350, and the breakeven cost per Kwacha loaned is K.0035 or .35ng.
- If the funding costs rise to 10½% (with all other assumptions remaining unchanged), total funding cost and losses rise to K11,450, the residual return to cover administrative costs declines to K1,550, and the breakeven cost per Kwacha loaned is K.0155 or 1.55 ng.
- If the interest rate rises to 14% (with all other assumptions remaining unchanged), total revenue rises to K14,000, the residual return to cover administration costs rises to K4,350, and the breakeven cost per Kwacha is K.0435 or 4.35ng.

IV.10 BORROWER TRANSACTIONS COSTS

In addition to the transaction costs incurred by the lender in extending credit, the borrower also may incur significant transaction costs. These costs may take many forms and frequently do not occur as direct cash costs; but they are costs nonetheless. For example, the borrower may have to expend considerable time in applying for the loan -- travelling to the loan office, completing the appropriate forms, visiting with the loan officer, returning for subsequent visits if further information or discussions must occur before a decision is made, etc. If the decision is delayed excessively, the farmer may receive the funds too late to purchase the required inputs or may have to delay planting and suffer the resulting reduction in yield. Once the loan has been approved, the borrower must pay a fee (from K1 to K15) for the LPO's (local purchase orders) used to acquire the inputs. Furthermore, a commitment fee of 1½% of the unused credit line may be charged, and a penalty fee of 2% if the line is exceeded will be incurred. Credit life insurance charges of 1½% are also frequently imposed. At the time the loan is due, delays in receiving the proceeds from the marketing agency may result in delays in repayment and additional interest charges. And if payment for crops are made by cheques, travel time and waiting time will be incurred in taking the cheque to the bank and receiving the funds to repay the loan. All of these direct costs and commitments of time and travel expenses result in increased costs for the borrower, in essence increasing the effective interest rate on the loan.

Various changes in the credit extension policies should be considered to reduce such borrower transaction costs, particularly those related to delays and inconvenience. Approval decisions should be made in an expeditious fashion requiring a minimum of travel time and number of visits.

Credit officers should be trained to assist the farmer in collecting and completing the appropriate forms. Administrative procedures that require a loan request to go through numerous steps in the approval process (such as is the case with AFC) should be streamlined to reduce the number of steps. More timely payment for products by the marketing agencies, and payments in a cash form would also reduce the transaction costs incurred by the farmer.

IV.11 EFFECTS OF CREDIT ADMINISTRATION ON LOAN RECOVERY

Recovery of the loan proceeds is essential to the economic viability of any lending institution, and more importantly to the fundamental concept of credit. For the concept of credit to be fully understood, both the borrower and the lender must understand that the loan proceeds are to be repaid and that penalties will be imposed if repayment does not occur. Distinguishing between credit and a grant is essential for the viability of any lending institution. The calculations of Table 13 illustrate the dramatic impact of different recovery or default rates on the economic viability of a credit institution.

Various methods that can be used to enhance recovery rates will be discussed in detail later. The key point to be made here is that credit administration can have a significant impact on recovery rates. In particular, a cardinal rule of credit administration is that lending authority and recovery responsibility must go together — the agency, and preferably the individual, responsible for extension of credit must be responsible for the collection of the loan. Only through the linkage of these two functions of credit extension and collection will a high quality, viable credit program be established. If the same person is responsible for extension and collection, he or she will carefully evaluate the repayment capability of the borrower prior to extension so as to obtain the highest recovery rate possible.

And if default should occur, the borrower knows that the credit officer has an incentive to recover through seizing collateral or other means since evaluation/the credit officer's performance is based upon his or her recovery /of of loan proceeds that have been disbursed.

This fundamental principle of credit is particularly relevant to the government sponsored agricultural lenders in Zambia. The current structure with respect to the extension of credit to farmers by the AFC and the collection of proceeds by the cooperative unions through the stop-order system violates this fundamental principle. In essence, with the current system, the loan officer is responsible for extending credit, but the marketing agency is responsible for collection. Since the marketing agency receives only token compensation for the time and effort involved in the collection activity, and it suffers no economic cost or penalty if it does not collect the funds for the AFC, it has little incentive to be thorough and rigorous in reinforcing the stop-orders. In fact, the incentive is exactly the opposite -- the marketing agency can reduce its work burden and the hassle with its farm customers by not enforcing the stop-oders. Any new credit scheme proposed in Zambia must combine the lending authority and recovery responsibility. For example, one procedure might be for a government credit agency to extend loans to the Cooperative Unions which would in turn lend the funds to the farmers. When the farmer subsequently sells his crop to the Union, the Union would have an incentive to recover the loan proceeds because it must repay its loan to the government. Thus, the system would be self-policing.

IV.12 OPERATING MARGINS INSTEAD OF RESTITUTIONS

Much of the Zambian economy, including the agricultural product and input markets, has operated, on a system of government subsidies and restitution to cover the expenses incurred.

Such a system encourages inefficiency - the marketing or input supply firm is not encouraged to adopt efficient or cost-effective practices because any excessive costs can be passed through to the government through supplemental restitution requests. Recently, additional costs have been encountered with the restitution system because of delays in receiving payments from the government, thus resulting in delays in paying farmers for their produce or in importing needed inputs.

Recent changes in policy to allow marketing and input supply firms to establish margins to cover the costs of their services should be applauded, and additional moves in this direction should be encouraged with respect to credit. Those firms responsible for the credit extension and recovery process should be allowed to charge a margin to cover the costs of extension and recovery. For example, if the Cooperative Unions became an integral component of the credit extension and collection program for emergent and samll-scale commercial farmers as is suggested, the Unions must be allowed a reasonable margin to cover their costs. The exact specification of this margin should be made only after a thorough study of reasonable administrative costs and losses, but a spread of 5 to 7 percentage points between the cost of money to the Union and its loan rate to farmers would not seem unreasonable. Thus, if the union obtains its funds at a cost of 9%, it should be allowed to charge farmers 14-16% for loan funds.

As suggested earlier a further and very important advantage of margins rather than government subsidies or restitution to cover credit administration costs is the fact that the credit insititution is less dependent on government allocations and the frequent delays that occur in receiving those allocations. Thus, the credit institution can operate without the costly delays and resulting uncertainty associated with the subsidy and restitution system.

IV.13 BANKING SKILLS AND EFFICIENT CREDIT APPRAISAL

The Zambian government has placed great emphasis on the responsibilities of employers to provide benefits (perquisites) in addition to salaries to their employees. Thus, a significant employee cost in both the private and public sector in Zambia is the expense of employee housing, clothing allowance, pension funds, etc. The Zambian government has also made a substantial investment in human capital in the form of free or low-cost primary and secondary education for a large proporation of the population. An extension of this concept of investment in human capital is technical and on-the-job training for employees, in our instance, employees of credit institutions. A good credit officer must acquire skills and technical competence, in most cases best taught by the employer or his representative. In particular, skills in assessing the credit-worthiness and repayment capacity of the borrower must be emphasized in on-the-job training programs for loan officers. Improvement in such skills could have a significant impact on the recovery rates on loans.

Furthermore, management of a credit institution should consider such investment in human capital, such as training and skill development programs, not unlike investment in physical capital in terms of potential benefits. Possibly a system of including such investment as part of the capital rather than the recurrent budget of the institution should be considered with the accounting system recognizing the cost of investment in human capital using an amortization system (spreading the costs over the life of the resource, in this case the expected length of employment of credit officers) much like that used for capital outlays for physical assets. Improved human skills and investment in human capital are crucial to the development of a successful agricultural credit system in Zambia.

Credit administration and loan analysis skills need strengthening throughout the government sponsored agricultural credit institutions in Zambia. One of the fundamental skills that must be developed is the willingness and ability to differentiate; to separate those borrowers who are credit-worthy and can be expected to repay from those who cannot. The extension of credit should not be based on need or want alone; many borrowers may need credit funds to farm but not have the technical skills or the capability to generate sufficient revenue to repay the loan. And, as noted earlier, with negative real interest rates, demands from the credit institutions are likely overstated. This willingness to differentiate, to separate those who qualify for credit from those who do not, is essential to a successful credit program.

The ability to differentiate requires a thorough understanding of the principles of assessing credit-worthiness. These principles first require documentation of the character and trustworthiness of the borrower - is there evidence from other business arrangements that the borrower will honour his commitment? In particular, defaulting on prior commitments should be the basis for terminating the credit relationship unless genuinely unusual and uncontrollable circumstances have intervened to prevent repayment. This concept apparently has not been part of the AFC lending program since additional loans have frequently been extended to borrowers who have defaulted on past loan obligations.

Documentation of risk-bearing ability and securing collateral that is available to recover the loan proceeds if default occurs is also important. This requires a summary of assets and collateral as well as current obligations. Assessment of the revenue that will be generated and the costs incurred must be completed to determine the amount of residual income that will be available to repay the loan.

This estimation of repayment capacity is a necessary step in determining the credit-worthiness of a borrower -- a step that appears to be missing in the evaluation procedures of most agricultural lending institutions in Zambia.

The loan administration process itself needs restructuring, particularly in the government sponsored credit institutions such as AFC, to improve the process in collecting relevant information and reduce the delays in decision making. Specifically, better trained loan officers in the field would allow more approvals to be made at the local level, resulting in fewer delays and probably more responsible lending -- particularly if the local loan officer's performance was evaluated based in part on the recovery rate of his loans.

The traditional approach of the loan officer in the commercial banks, the CCS and the government sponsored lending agencies in Zambia appears to be to estimate the cash costs which will be incurred in planting a crop and then make a seasonal loan for the full amount. This procedure explicitly ignores the potential for internal financing -- it presumes that the farmer has no savings from past years production and must borrow 100 per cent of the cash costs of production each crop season. For some farmers this may in fact be the case -- they may not have been able to accumulate any financial or liquid savings from prior years production. But for others (in fact, we suspect for a vast number of farmers, if not a majority), a financial surplus exists from prior years sales that could be used to purchase part of the inputs for this year's production.

This potential for some self-financing should be recognized in the analysis of a farmer's credit request. Loan application forms should be structured to obtain information on the expected income and expenses for the upcoming year and the residual available for repayment as well as the funds the farmer may have for self-financing.

In particular, the analysis of credit needs should not presume as is currently the case that the farmer has no savings or funds to finance seasonal production expenses. Credit officers should be instructed and the forms modified to recognize that many farmers have some funds which can be committed to cover seasonal production expenses, and that only the difference between total projected seasonal expenses and internal savings needs to be borrowed.[1] By using this procedure, farmers will be encouraged to use some of their own internally generated funds to finance the purchase of operating inputs, interest costs will be reduced, and more credit will be available for those producers who do not have internally generated funds.

IV.14 LOAN PORTFOLIO DIVERSIFICATION

The "portfolio" concept is useful and should be applied in the delineation of lending activities and the management of agricultural credit institutions in Zambia, particularly government sponsored institutions. This concept recognizes that lending risks (particularly the risk of default) undermining the viability of the credit institutions can be reduced by diversification of the loan portfolio -- by making loans to both small and large scale farmers, to farmers in different geographic regions, and to farmers that produce various crop and livestock products. For example, with a diversified portfolio, lower than expected recovery rates from farmers in one region who have been hurt by drought may be offset by higher recovery rates from farmers in another region who have excellent weather and recovery conditions. Furthermore, making loans to a mixture of farmers may allow some cross-subsidization --

1. It should be noted that for some of the lenders this information is requested for capital expenditure loans, but rarely for seasonal operating credit.

the higher costs per kwacha lent that are typically incurred, for example, to make loans to small scale farmers can be balanced off by the lower costs incurred in making loans to larger farmers.

The application of this concept may be particularly important to Zambia as the ZADB attempts to identify its role in the agricultural credit market. By estimating the different administration costs for large and small farmers, the proportion of the portfolio that should be allocated to larger, lower-cost loans to "carry" the smaller, higher cost loans can be determined. Geographic location of offices as well as the commodity mix of loans should be determined based in part on judgements as to the default risks in each region and for each commodity. Diversification along these lines will reduce the chances that low overall recovery rates which might otherwise result from geographic or commodity specialization will undermine the economic viability of the credit institution. Similar concepts may be useful in guiding the growth and expansion of the Cooperative Credit Scheme.

IV.15 LOAN COLLATERAL PROBLEMS

As noted earlier, an important consideration in evaluating the credit-worthiness of a particular loan request is the collateral that is offered. With any loan, there is a risk of default because/unforseen circumstances. /of The lender must have some basis for recovery in such circumstances, and the most effective means of recovery is that of repossessing collateral. Collateral provides the protection most lenders feel is essential to reduce default risks and thus enable them to charge reasonable rates of interest.

Policy concerning collateral is very unclear in Zambia. The Land Tenure Laws make it difficult for some farmers, particularly small scale and emerging commercial farmers on traditional land, to provide land collateral since they do not have unique title to such land.

Collateral value in permanent improvements (wells, clearing, structures, etc) can be offered by the borrower, but many lenders heavily discount the value of such improvements because of difficulties encountered in separating them from the land and acquiring title so that they can be sold to satisfy the loan obligation. Some farmers can offer cattle as collateral, but the livestock identification system is not very complete, particularly in areas where tribal grazing is practised, and the cattle somehow disappear or can not be uniquely identified. For most seasonal loans, the crop itself may be the only collateral available. Such collateral may be adequate for most seasonal loans, but is rarely sufficient for longer-term credit for capital expenditures, and adequate collateral may be necessary to restructure and reschedule payments on defaulted seasonal loans.

In a number of cases, collateral is either not taken by the lending agency, or the amount of credit extended exceeds the collateral by a significant amount. Given the high default rate, it should not be a surprise that most defaulted loans result in a total loss given the inadequate collateral for the loans. In fact, inadequate collateral to support loans has led to higher default rates; borrowers who have provided little or no collateral knew that the penalty upon default could not have been severe because the credit institution had only limited collateral it could repossess.

The system of loan collateral in Zambia needs extensive study. The land tenure arrangements and the possession of transferable ownership rights in land and improvements need further clarification to facilitate the extension of credit for capital expenditures, particularly permanent fixtures. The legal rights of debtor and creditor with respect to repossession of collateral need to be documented and clearly explained to both borrowers and agricultural credit officers.

And loan officers must be trained to accurately evaluate the market value of collateral and fully collateralize loans when possible.

IV.16 MORE EFFICIENT WAYS OF HELPING SMALL FARMS WITH NO REPAYMENT CAPACITY

A component of the lending policy of any financial institution is its target audience -- who will it lend to. For a commercial lender such as the commercial banks, this decision will be primarily determined by the margins or net income that can be generated by providing loans to various types and sizes of farmers. Because of high recovery rates and low transaction costs on loans to commercial farmers, resulting in high margins, commercial banks quite naturally would be expected to concentrate their loan activities with this group.

For government sponsored lending institutions, the criterion for determining who to lend to might be described as cost-effective service. The government institutions have been mandated to provide credit services to small farmers but they are also to remain economically viable. Because of the higher transaction costs incurred to make loans to smaller farmers, such dual requirements necessitate a unique policy -- a policy of making loans to a combination of large and small farmers to take advantage of the potential for cross-subsidization.

The requirement to make loans to small farmers merits further elaboration. Not all small farms will have the ability to repay the loan -- some because of poor management or lack of technical knowledge, and some simply because the farm is just not large enough to produce a marketable surplus which would be available to repay the loan. This does not imply that these small farmers do not desire assistance, but that assistance in the form of credit may not be appropriate since there is a very high probability that it will not be repaid.

Instead, a more appropriate form of assistance may be a direct grant or technical information and assistance with the provision of improved inputs such as seed and fertilizer. Provision of credit which will likely not be repaid is a very inefficient method of subsidizing small farmers, and furthermore, undermines the viability of the credit institution and the entire concept of credit. Thus government sponsored agricultural credit institutions, particularly ZADB, should carefully evaluate the viability and repayment capacity of small farmers to determine their credit-worthiness. If this analysis suggests that the farmer is unable to repay, then credit should not be extended and applicants should be directed to other forms of assistance instead.

IV.17 IMPORTANCE OF THE BANKING APPROACH FOR ZADB

To be a viable organisation, a lending institution must be operated as a business with adequate margins to cover reasonable administrative costs and close to 100 per cent recovery rates. It is not clear that AFC has been operated and managed with such a focus. Given the very high default rate in AFC and the allegations of political influence in the disbursement of funds and the thwarting of attempts to recover from those borrowers who do default, it is not clear whether AFC is perceived by the borrower (and possibly even by its own staff and the government) as a credit agency or simply as a source of grant funds for farmers. This confused perception reinforced by inaction against those in default will make it extremely difficult, if not impossible, for AFC to establish itself as a viable credible credit institution.

The fundamental issue at this juncture however is what will happen to the viability of the Zambian Agricultural Development Bank (ZADB). It is essential in our judgement that ZADB be established as a viable, credible credit institution.

This means that political influence must be absent in disbursement and recovery of funds. Administrative costs must be reasonable and offices should be opened only where loan volume and costs per Kwacha loaned justify such an office. Recovery rates must be high which requires careful evaluation of the credit-worthiness of borrowers, monitoring their performance and production practices, and aggressive recovery efforts, including the repossession of collateral if necessary. ZADB must have an exclusive focus on its role as a viable credit institution. Its responsibility and linkage to the Ministry of Finance rather than the Ministry of Agriculture and Water Development should be a significant advantage in maintaining this focus.

IV.18 SEVERITY OF LOAN DELINQUENCY PROBLEMS

The performance of the Zambian agricultural credit system has been seriously handicapped by a loan delinquency problem of major proportions. Good loan recovery performance is essential for the viability of any credit system and is an important factor in the system's ability to service rural borrowers efficiently and economically. Poor recovery rates debilitate credit institutions, result in very high loan charges, or require expensive budgetory subsidies.

The problem has been most acute for the AFC which services the greatest number of farmers. From a low of 10% in 1972, AFC loan delinquency rates increased almost yearly to an all time high of 61% in 1978. Delinquency rates are still very high - 53% in 1981 and 39% in 1982. Other credit parastatals and quasi governmental credit institutions have less troublesome but nonetheless unsatisfactory loan delinquency rates, for instance, the Cattle Finance Company experienced a deliquency rate somewhere between 15 and 25 per cent in 1982. The Zambian National Commercial Bank estimates that its agriculture loan delinquency rate is about 15% in a good year and between 40% to 55% in a bad year.

The Cooperative Credit Scheme which can be described as having a substantial government presence has exhibited uneven loan recovery performance in recent times. Loan delinquency averaged 15 per cent between 1975 and 1977, then rose to an average of 30 per cent between 1978 and 1980, before falling to 28% between 1981 and 1983. Only private commercial banks, servicing usually a total of about 600 large and medium scale commercial farmers have satisfactory loan recovery rates.

IV.19 COST IMPLICATIONS OF LOAN DELINQUENCY

Such a high incidence of loan delinquency in the Zambian agricultural credit system imposes substantial economic costs on the credit programs. Conceptually, four important cost components may be identified. For loans in default, the lender incurs a capital loss equal to the capital sum that is never recovered and is written off. Second, there are the costs (interest on borrowed funds plus transactions costs) incurred in making the loan. These costs are part of interest payment arrears. The third component is the opportunity cost or operating margin from an alternative use of those unrecovered loan funds. A fourth component is the costs incurred in attempting to recover delinquent loans. The magnitudes of these individual components of delinquency costs depend upon the volume of arrears, the level and structure of operating expenses, and upon the level of operating margins.

Full documentation of these costs should be high on the agenda for future studies. For the moment, it is useful nonetheless to illustrate the overall magnitude and structure of the problem with some calculations representative of the situations of the AFC and the CCS. Tables 14 and 15 present the computational details. Taking the historical value of loan transactions for the AFC during the 1980/81 crop season and the actual arrears rate for loans 18 months overdue, and assuming an overall default rate of 25% on loans

TABLE 14 LOAN DELINQUENCY COSTS ILLUSTRATIONS: AFC 1980/81 CROP SEASON

FACTS

i) Loan Disbursements 1980/81 = K39 million

ii) Capital value of arrears at Sept. 30, 1982 = K20.5 million

iii) Unit transactions costs 1980/81 = K0.095

iv) Unit Interest Costs on funds = K0.003

v) Uniform operating margin = loan rate of interest (10.5%) minus the sum of transactions costs (9.5%) and interest costs (0.3%) = 0.7%.

vi) Arrears rate at Sept. 30, 1982 = 52.5%.

Assumptions

i) 50% default rate on loans in arrears at Sept. 30, 1982.

ii) 90% unit transactions costs are on loan processing and approval, and 10% on loan recovery. This assumption reflects the AFC's minimal loan recovery system.

COST ESTIMATES

1. Capital Loss = [.526(.5)=.263] K39 million or (.5) K20.5 million
= K10.3 million

2. Loan Disbursement Costs = Transactions costs + Interest costs
= [.095 (.9) + .003] K10.3 million
= K919,000

3. Loan Recovery Costs = .095 (.1) K10.3 million
= K98,000

4. Opportunity Costs = (.105 -.098=.007) K10.3 million
= K72,000

6. Default Costs as % Loan Disbursements = (Sum of Items 1 to 4 ÷ Total Disbursements) 100

= (K11.4 million ÷ K39 million) 100

= 29%

TABLE 15 LOAN DELINQUENCY COST ILLUSTRATIONS: CCS 1982/83 CROP SEASON

CCS OPERATING PROJECTIONS

i) Loan disbursements = K10 million

ii) Unit transactions costs = K0.0565

iii) Unit interest costs of funds = K0.04

iv) Uniform loan rate of interest = 12%

v) Uniform operating margin = loan rate of interest (12%) minus the sum of transactions costs (5.65%) and interest costs (4%) = 2.35%.

Assumptions

i) 25% default rate on loans in arrears

ii) 28% loan delinquency rate. This is the average for 1981 to 1983.

iii) 70% unit transaction costs are on loan processing and approval, and 30% on loan recovery.

COST ESTIMATES

1. Capital loss = .25 (.28) K10 million

= K700,000

2. Loan Disbursement Costs = Transactions Costs + Interest Costs

= [.0565 (.7) + .04] K700,000

= K55,000

3. Loan Recovery Costs = .0565 (.3) K700,000

= K12,000

4. Opportunity Costs = (.12 -.0965 = .0235) K700,000

= K16,000

5. Default Costs as % Loan Disbursements = (Sum of Items 1 to 4 ÷ by Total Disbursements) 100

= (K0.783 million ÷ K10 million) 100

= 7.8

disbursed in 1980/81, it is estimated that default costs were K11.4 million or 29 per cent of loan disbursements. Calculations based on CCS accounting projections indicate that even for a moderately successful credit scheme default costs, can be as large as per 8 per cent of loan disbursements.

Loan delinquency costs, if they are not to result in operating losses or governmental subsidies to the credit programs, necessitate compensatory increases in loan rates of interest. For example, just to break-even the AFC's loan interest rate on the basis of the preceding estimates of default costs would have to be 39% instead of 10.5%. The 39% is the sum of default costs (29%), transactions costs (9.5%), and interest costs of funds (0.3%). If, as is likely in the future, the AFC has to obtain funds at commercial interest rates of say 11%, the break-even loan rate of interest would be as high as 50%. In the case of the CCS, the break-even loan interest rate on the basis of the illustrative default costs and projected operational costs would be 18% instead of 12%. These computations indicate that, because of the delinquency of others, those borrowers who repay promptly would in fact be paying more than warranted by their own debt performance.

IV.20 REASONS FOR LOAN DELINQUENCY

A loan delinquency problem may be the result of factors outside or within the control of borrowers. A catalogue of the reasons for loan delinquency in Zambia would include inadequate producer margins which reduce capacity to repay, delays in crop payments which in turn cause loan arrears, and uneconomic credit diversion i.e. use of loan proceeds for purposes that do not generate the means to repay. Weather conditions are perhaps the major explanation of involuntary default. High transactions costs imposed by lengthy and costly delays in loan processing and disbursement might also have contributed to voluntary delinquency as evidence of borrower alienation and protest,

and to involuntary default if disbursements were made so late as to render the project unprofitable. It should be noted in this context that disbursements by the AFC are typically late.

Another reason for delinquencies is the AFC's weak loan monitoring and recovery system. AFC field staff appear to do little follow-up work with credit customers to minimise credit diversion (either explicity or through subsequent sale of credit financed inputs) and to obtain continuous updated information on the customer's progress with the crop and therefore on incomes likely to be realised. Furthermore, the AFC's loan recovery system places the function of loan recovery in the cooperative unions which have no legal or financial answerability to the AFC with respect to loan recovery. This is tantamount to financial irresponsibility on the part of those who formulate AFC's operational policies. It is also likely that the loan delinquency experience of agricultural credit programs results from inadequate assessment of loan repayment capacity. There is little evidence that some of the public sector institutions carefully document and appraise the past debt history and current financial liabilities of borrowers, or that the crop output estimates upon which expected farm incomes are computed are based on farm-specific (or even regional) production conditions and practices.

Weakness in the loan appraisal monitoring and collection system have fostered a "grants syndrome" among credit customers. This "grants syndrome", i.e. the belief that the statements, policies, conditions and procedural formalities associated with credit transactions are in these instances a mere charade, and that it is not intended that the money received should be repaid. The legal and practical difficulties of enforcing loan contracts contribute to the view that funds received on a credit basis are in fact a grant.

But perhaps the more pervasive and serious obstacle to effective loan decision-making and loan recovery performance is political. There is a widespread and strongly held perception within the financial community that political interference at various levels of the decision-making hierarchy has resulted in uncreditworthy loans and in loan defaults.

IV.21 POLICIES FOR GOOD LOAN RECOVERY PERFORMANCE

The diagnosis of the causes of high loan delinquency rates provides some guidance about the general nature of the required policy changes. In those instances where loan disbursement and loan recovery functions are split between two or more institutions, it is necessary to integrate these functions in the institution that has financial responsibility for credit. In the case of the AFC - Cooperative Unions complex, integration of disbursement and recovery functions implies that either the AFC does its own loan collections or that the AFC lends to the unions for lending to farmers. In the latter situation, the unions would have a financial liability to the AFC and thereby have a direct stake in loan recovery.

Loan recovery rates might also be improved by extending credit on a line-of-credit basis to a greater degree than presently. Under line-of-credit arrangements, the borrower's access to the credit resources is phased. Proceeds are drawn upon when needed. The advantage of this type of lending is that it allows for early detection of credit diversion. It also facilitates early preventive action to recover sums already utilised and to withhold the remaining portion of the loan. At least, the lender is able to protect a portion of his loan capital.

Other policies include better produce prices, improvements in farm productivity, and mandatory crop insurance.

Since only the last mentioned policy would be novel in Zambia, a brief explanation is warranted. Essentially, crop insurance protects both farmer and lenders against unusual income losses caused by pestilence or weather conditions, as discussed more fully in an earlier section of this report.

IV.22 FUNDING AGRICULTURAL CREDIT PROGRAMS

The patterns of funding for agricultural credit in Zambia differs sharply between commercial banks and the specialized credit agencies or programs. Commercial banks fund their credit operations by mobilising deposits country-wide. The specialized credit institutions such as the DBZ, AFC, CFC and ZADB do not mobilize private savings. They rely heavily on Zambian government funding in the form of capital subscriptions, grants, and loans. Several of these institutions also receive a major portion of their loanable funds from foreign governments and multilateral institutions. The Cooperative Credit Scheme is funded partly by the cooperative unions, and partly by the GRZ and the Swedish government. Details on recent financing proportions for the specialized credit institutions and programs are provided in Table 16.

The basic funding objective of any credit institution should be to obtain the volume and composition of financial resources consistent with efficient credit operations. The sources and conditions of funding can have a strong influence on credit policies and operational efficiency. The funding patterns of the parastatals have been particularly problematic.

The flows of financial resources from public budgetary constribution, are irregular, as the data on the AFC in Table 17 show. The irregularity of the resource flows may reflect changes in the government's fiscal situation as well as shifts in overall economic policy.

Whatever the reason, it makes it difficult to synchronise financial resource availability and credit commitments, including the balance between short term and long-term loans. Moreover, the government tended to impose portfolio restrictions and set credit guidelines which limit the scope for risk-minimisation and cross-subsidization through portfolio diversification, and which not only raise average lending costs but also lower loan recovery by preventing economic loan pricing and by forcing credit institutions to devise adminstratively expensive hidden or disguised loan charges.

Funds obtained from foreign institutions are also accompanied by performance and loan pricing stipulations consistent with the funding agencies' understanding of Zambian economic problems and their preferred strategies for economic development. In addition to implications similar to those discussed for government funding, there is another important problem with funds obtained from foreign institutions, namely the foreign exchange risk associated with credit obligations contracted in foreign currencies. For example, DBZ has received a foreign currency line of credit from the World Bank for irrigated wheat. The DBZ on-lends to commercial farmers in Zambia and is required to transfer the foreign exchange risk to those clients as is the case with World Bank lines of credit for established commercial farmers in other countries [Bourne and Graham]. In these instances the local farmer incurs foreign exchange risk irregardless of whether he uses the loan proceeds for locally produced inputs or for imported inputs. It is possible that foreign exchange risks are incurred even though the DBZ's customer is denied foreign exchange allocations by the foreign exchange authorities.

The risk costs borne by the recipient of loans from a foreign currency line of credit to a Zambian credit agency can be considerable.

TABLE 16 - FUNDING PATTERNS OF SELECTED CREDIT INSTITUTIONS:

A. DEVELOPMENT BANK OF ZAMBIA, 1982:

Source of Funds	K Million	Percentage
Profits and Depreciation Reserves	2.2	6
Foreign loans and grants	10.4	29
GRZ and Agencies	10.4	29
Local private commercial banks	6.2	17
Unaccounted long term debt	1.6	4
Loan repayments	5.3	15
Sale of fixed assets	0.1	0
TOTAL	36.2	100

B. ZAMBIA AGRICULTURE DEVELOPMENT BANK: PLANNED FUNDING 1982:

Sources:		
Share capital from GRZ	25.0	95
World Bank Loan	1.3	5
TOTAL	26.3	100

C. AGRICULTURAL FINANCE CORPORATION - JAN. 1980 - MARCH 1982:

Sources:		
Share capital from GRZ	3.0	11
Loan from ZSIC	1.0	4
Commercial Bank loans	17.0	65
Loans from Coops and Fisheries Agencies	.7)	5
Loans from Group Companies	.5)	
Sale of fixed assets	.3)	15
Bank balances	3.7)	
TOTAL	26.2	100

D. COOPERATIVE CREDIT SCHEME: 1981/82 LOAN FUNDS:

Sources:	K 000	
Capital grant from SIDA	500	31
Recovery of DMC and AFC loans	278	17
Cooperative Unions	854	52
	1,632	100

TABLE 17: IRREGULARITY OF AFC FUNDING AS REFLECTED BY ANNUAL DISBURSEMENTS 1971/72 - 1980/81

SEASON	K Million
1971/72	8.8
1972/73	8.8
1973/74	8.6
1974/75	10.2
1975/76	14.8
1976/77	16.3
1977/78	24.0
1978/79	11.5
1979/80	20.7
1980/81	16.5

SOURCE: Table Two R.P.Popopo et al "Study Report on The Financing of Large Scale and Small Scale Farmers BY A.F.C. Limited", May, 1983.

For example, the 20% devaluation of the Kwacha in January, 1983 would have increased repayment obligations by ZK 40,000 on principal and by ZK 4,000 on the current's year's interest (assuming 10% loan rate of interest) on a ZK 200,000 loan contracted for on the eve of the devaluation. It is not surprising in these circumstances that farmers have made little demand on this credit facility despite the critical importance of irrigation to Zambian agriculture. The ZADB, which plans to obtain a foreign currency line of credit from the IBRD on a similar basis, would no doubt experience similar problems in on-lending those funds. A further point is the danger that the foreign exchange risk costs can assume such major proportions that the borrower has no option but to default. Those risk costs may in fact occur late enough in the project cycle to make default an attractive proposition.

The credit institutions and the GRZ should seriously consider alternative ways of removing the foreign exchange risks from the farming community. It is regrettable that even the DBZ seems quite oblivious to the grave implications of the current practice. One possibility is that the credit institution itself absorb the foreign exchange risk. By virtue of the larger scale of their operations and the greater scope for operating an exchange rate equalisation account, credit institutions are more able to withstand foreign exchange risk costs than are their individual loan customers. A second possibility is that the Zambian government accept the foreign exchange risk by providing to the credit institutions grants equivalent to foreign exchange rate induced depreciation of loan capital. A third possibility is that the risks be shared between the government and the credit institutions. It is worth pointing out that some variant of the second and third approaches are incorporated in IBRD lines of credit intended for emergent commercial farmers in other countries.

Commercial funding of public sector agricultural credit programs by loans from the other financial institutions, e.g. commercial banks, ZSIC, and by rural savings directly mobilised by agricultural credit agencies, is likely to generate several benefits. The need to repay their debts to commercial banks and other institutions as well as to improve their prospects for commercial funding may induce greater financial discipline and operational efficiency on the part of the agricultural credit parastatals. For this reason, it is important that governmental guarantee of credit parastatal debt, while now necessary given the parlous financial state of the parastatals, should be seen as a temporary policy expedient. On-lending of funds on a commercial basis to agricultural credit programs may also improve the social efficiency of national savings by lowering the transacrions costs of credit and by facilitating the flow of those resources to their most productive uses.

Credit institutions can derive several advantages from rural savings mobilisation. One, the commitment of rural savers' own financial resources (both directly and through the cooperative movement) to the loanable resources of the credit program would make the unions and their members more committed to the viability of the credit program and more willing to take various actions, e.g. enforcing the stoporder system, exerting moral pressure on delinquent borrowers, to improve loan recovery performance. Two, since information on an individuals savings transactions is at least partial information on his financial flows, the credit agency would derive informational advantages in terms of additional, more timely, and less expensively obtained data on changes in the loan customer's economic circumstances.

Third, the credit institution becomes a more complete financial intermediary with the associated possibilities of cross-subsidization between deposit and credit activities and with an enhanced awareness of the need for financial discipline.

A further likely benefit from savings mobilisation activity by rural credit institutions is an improvement in the social efficiency of those savings. There is prima facie evidence that a considerable proportion of rural savings does not find its way into financial institutions, but instead takes the form of hoards of commodities and currency. Because of distance and accessibility factors, commercial banks have been unable to economically tap these pools of rural savings. Rural credit agencies, especially if they operate through the cooperative movement, have the potential for overcoming these operational barriers to savings mobilisation and for thereby improving the social efficiency of savings.

V. A PREFERRED CREDIT SYSTEM FOR ZAMBIAN FARMERS AND A "SECOND BEST" ALTERNATIVE

V.1 THE PREFERRED SYSTEM

Based on the detailed analyses in the previous section we propose the following overall structure of the credit system for farmers in Zambia. This proposal recognises that there are three groups of farmers who must be served by the credit systems: (1) the traditional and emergent farmer, (2) the small scale commercial farmer, (3) and the large scale commercial farmer.

The proposed credit system would include three components: (1) the Cooperative Credit Scheme, (2) the Zambian Agricultural Development Bank and (3) the Commercial banks. The AFC would be eliminated entirely as a credit institution; because of previous loan losses and high administrative costs resulting in an extremely weak capital structure, continual serious problems in credit extension and loan recoveries, and undue political influence on its lending activities, the AFC is no longer a viable credit institution. Its continued operation will most likely only lead to additional losses and will further destroy the concept of credit and the essential corollary of extending credit which is recovery of loan proceeds.

We do not support the replacement of the AFC and its activities with the ZADB as it is currently conceived, namely as a public sector credit agency directly on-lending to farmers. There is little reason to believe that ZADB will be any less subject to the 'grants syndrome', the political influence, and the low recovery rates that have sealed the fate of the AFC as well as that of its predecessor, the Credit Organisation of Zambia. It is our judgement that, given the history of public sector credit activity in Zambia, a government parastatal organisation that directly makes loans to farmers has little chance for ecoromic viability.

This does not mean however, that ZADB will not have an important role in the agricultural credit market as we will discuss shortly.

The proposed credit system includes only two sets of institutions that will make direct loans to farmers, the CCS and the commercial banks. The CCS will have prime responsibility for the traditional and emergent farmer and possibly a few of the small scale commercial farmers. The CCS program of block lending to cooperative unions which then on-lend to farmers has exhibited reasonable administrative costs and recovery rates in recent years. The funds for these loans would come in part from local sources mobilized by the cooperative unions (which in our judgement will help maintain high recovery and low default rates), block loans from ZCF Financial Services, and block loans from ZADB. Thus ZADB would be an important source for this significant group of traditional and small scale farmers, but would not be involved in direct lending activities because it appears (based on the ACF experience) that the CCS system can provide loan funds to this group with lower loan administration costs and default rates than a government credit agency.

The second set of institutions that will make direct loans to farmers are the commercial banks. The commercial banks would continue to make loans to the large scale commercial farmers as they have in the past. The funds for the large commercial farmers would continue to come from commercial banks deposits. In addition the commercial banks would be given the responsibility of providing credit to the majority of the small scale commercial farmers. The funds for this lending activity would come from ZADB. Thus, ZADB would not be involved in direct lending to commercial farmers either. The primary reason for eliminating ZADB from direct lending to commercial farmers is to reduce the political influence in farm lending.

The commercial banks have a system of branches in place in many rural areas and would be less subject to political pressure in their credit extension and recovery practices. They have exhibited excellent past performance in credit extension and recovery and would be expected to continue that performance as long as there is a reasonable profit margin.

This last point, a reasonable profit margin for the banks to serve the small scale commercial farmer, needs further elaboration. The smaller size and higher risk of loans to smaller farmers will undoubtedly increase the cost of making loans to this group on the part of commercial banks. Central to this proposal is whether the commercial bank can make a reasonable margin on these loans if the lending costs are higher and under what circumstances would they be willing to make loans to small farmers.

The key consideration in making a reasonable profit margin on loans are the transaction and recovery costs, the cost of funds and the interest rate on the loan. A necessary and important component of this proposal for a credit system for Zambian Agriculture is a change in interest rate policy to allow commercial banks to pay higher rates to depositors and charge higher rates on loans. In addition to the increased savings and improved efficiency in credit allocation that would result from such a policy, a higher rate structure would also provide margins needed by the banks to make loans to small farmers.

To illustrate assume that a commercial bank can obtain funds from ZADB at $8\frac{1}{2}$ per cent to lend to small scale farmers exclusively. Also assume that the commercial bank increased its rate on savings accounts by 3 percentage points from $8\frac{1}{2}$ percent to $11\frac{1}{2}$ percent and also increased its loan rate from 11 to 14 percent. The margin on loans to large scale commercial farmers funded by deposits would remain unchanged at $2\frac{1}{2}$ percent.

But the margin on loans to small scale farmers using funds borrowed from ZADB would now be 5½ percent which should enable the bank to incur the additional costs of servicing small scale farmers and still maintain reasonable profit margins.

Regulations would clearly be needed to specify that the bank must make the same volume of loans to qualified small scale farmers as the amount of funds borrowed from ZADB. Agreement would be necessary as to what size farmer is small scale, and other regulations would undoubtedly be necessary. The key attribute of this proposal is that the benefits of the public sector and the private sector are combined -- the public sector and government agencies have economic advantage over the private sector in terms of obtaining funds at a low cost, but the private sector has an advantage over the government agencies in terms of the cost of extending credit. By combining the lower cost funding activities of the government with the lower cost credit system for farmers will result.

A final feature of this proposed structure which should be noted is that parastatals such as ZSIC and the National Provident Fund whose essential business is not credit will refrain from direct lending to producers and will instead provide loan capital to the ZADB.

V.2 THE SECOND BEST ALTERNATIVE

It is possible that the Zambia government is already too far committed to a credit system in which the ZADB lends directly to farmers to adopt the scheme we regard as best in the historical circumstances. If that is the case, it is possible to make some partial reforms and to set certain guidelines for the operations of the ZADB which will give the new institution a chance to reestablish a properly functioning system of agricultural credit.

How good the chance turns out to be will depend heavily on how effectively the government conveys to the farming community that debt must be repaid and that, while it is firmly committed to developing the farm community, it is equally firmly against the destruction of the credit system by gross abuse of government credit facilities.

The 'second best' system envisages the ZADB lending directly to farmers and the cessation of loan activities by the AFC. Although the AFC should no longer make loans, some administrative unit should be entrusted with the task of recovering loans from delinquent customers of the AFC. Such a unit may be better located in the Ministry of Finance or in a legal Ministry to convey the government's determination to recover overdue loans. The ZADB should not be saddled with this burdensome function because either it would devote insufficient resources to the recovery of loans made by its predecessor or too much of its resources would be absorbed by its unfortunate legacy.

It is important that the ZADB be staffed only with highly motivated and enthusiastic personnel, and that its labour express be kept within manageable proportions. It is likely that many of the current AFC employees have understandably developed such negative views about the potential of credit parastatals that they are unsuited for work in the ZADB. Furthermore, the AFC's staff is very large, partly as a consequence of its widespread district structure and partly as a result of its inability to achieve economies in labour use. For the above reasons, the ZADB should be left free to select its employees according to its needs, and should not be mandatorily required to absorb the AFC's labour force. The latter can be redeployed within other parts of the public sector.

An earlier section of this report stressed the crucial role of loan administration costs. Even with the best loan recovery rates and with reasonably high interest rates on loans, a credit institution will be unviable if its loan administration costs are large relative to loan disbursements. The branching system would improve the accessibility of the ZADB to potential debtors; it also raises loan administration costs. A careful balance has to be established between these two considerations in determining the branching structure of the ZADB. It would make little economic sense for the ZADB to inherit the complete branch structure of the AFC. To do so would be to saddle itself with a large number of unviable district offices. At the outset, the ZADB should operate only those district offices that are viable or potentially viable in the shortrun. It can provide credit services to small farmers in the other districts indirectly through block loans to the cooperative movement. Large and medium size farmers will have to utilise the office nearest to their district. Their transactions costs will consequently rise, but the increase to them is likely to be less problematic for the credit system as a whole, than would be the burden of uneconomic district offices.

Many detailed operational guidelines can be derived from the discussions in Section IV of the Report. Only the major broad ones will be stated here.

(1) PROVIDE CREDIT NOT TECHNICAL ASSISTANCE

The ZADB should strive to provide an efficient credit service and devote relatively little resources to technical assistance. Practically universal experience demonstrates that technical assistance divisions of credit programs are rarely cost-effective, and that agricultural advisory services are better provided by Ministry of Agriculture personnel. Furthermore, the costs of technical assistance would raise overall lending costs so much as to endanger the Bank's net income position or would result in high interest charges. The main function of technical personnel in the ZADB should be to provide-in-house guidance to the credit appraisal and loan recovery divisions.

(2) MAINTAIN STRONG CREDIT APPRAISAL PRACTICES

The ZADB should maintain a strong credit appraisal division. Good credit appraisal is a prerequisite for good loan recovery performance. The major stress should be on carefully documenting the applicant's production record, his net worth, his previous credit history, his capacity for self-financing and his willingness to commit his own financial resources to the venture, and the potential income yield from production.

The loan decision should be based on the appraisal of the applicant's credit worthiness i.e. the likelihood that he will have the means and the willingness to repay the loan. "Need for funds" criteria have no place in credit decisions. In cases where needy applicants are not creditworthy, the ZADB should not extend loans but instead should refer the applicant to other state agencies which provide grants, subsidies, and technical assistance.

(3) LENDING PRACTICES AND POLICIES

(i) Certain lending practices help to reduce risk costs by ensuring the borrower's financial commitment to the project, by providing inbuilt early warning systems for credit diversion and loan default, by spreading risks over different types of loans in such a way that total risks are reduced, and by providing protection against adverse forces of nature e.g. drought, etc.

In this regard, the ZADB should endeavour to:

a) Refrain from 100% financing of production loans or capital investment loans as much as possible.

b) Extend credit on a line of credit basis when large sums are involved.

c) Carefully diversify the loan portfolio in terms of farm sizes, loan sizes, geographical regions, and types of enterprises. Arbitrary loan limits set by government would reduce portfolio flexibility and weaken the Bank.

d) Implement a policy of mandatory crop insurance for all individual borrowers. The full implementation of this policy would necessitate that ZSIC removed farm size limits on insurable risks.

(ii) The ZADB should also seek to minimise its loan administration costs by making block loans to cooperative unions and to groups of individual farmers.

(4) LOAN MONITORING AND RECOVERY

(i) Efficient and effective loan monitoring and recovery systems are crucial to the survival of credit institutions as viable entities. Its importance should be reflected in the Bank's budgetary allocations to these divisions. The Bank should not stint in its allocation of staff and support resources (vehicles, etc) to these functions, for by so doing it may imperil its entire operations and the viability of the Bank.

(ii) Another cardinal requirement is that the ZADB itself administer the recovery system for the loans it makes. This may mean requiring loan customers to pay in person at the ZADB district offices or at the cooperative unions. If farmers conduct these transactions at the time of crop sales there should not be any burdensome increase in borrower transactions costs incurred by the farmer.

(iii) Enforcement of loan contracts by repossessing and sale of collateral as well as by legal judgement and associated legal remedies (e.g. bankruptcy declarations, etc.) against defaulters should be vigorously pursued in order to strongly convey to loan customers that the ZADB is in fact different from the AFC and is determined to recover its loans.

Observance of these structural and operational guidelines should in a normal credit environment ensure that ZADB remains a financially viable and socially efficient credit parastatal. But a normal credit environment currently does not exist in Zambian agriculture. The operations of the Credit Organisation of Zambia and the AFC have undermined the concept of credit to such a degree that organisational and operational reforms are unlikely to succeed, unless the political authorities place the full force of government behind the judgement, decisions, and actions of the ZADB. This means not only avoidance of political interference with credit decisions and contract enforcement but, equally important, political action to impress upon debtors that the business of the ZADB is credit not grants.

VI PROPOSED STUDIES TO GUIDE POLICY DECISIONS

Several important problems and issues discussed in this report require further study so that policymakers can be properly informed and advised. We suggest the following three topics for immediate attention.

VI.1 Efficiency in Credit Utilization and Impact of Interest Rates on Credit Use and Output:

Problem Statement and Objectives:

To make informed decisions as to whether credit should be allocated to large or small farms, the productivity of additional funds for different size farm firms should be evaluated. Furthermore empirical knowledge about the efficient use of additional credit by farmers (allocation to various production activities) and the response of farmers to changes in the level of interest rates is essential to determine interest rate and credit policy. The objectives of this study would be to:

1) Determine the relationship between capital or credit use and output on different size farms using various types of technology.

2) Evaluate the optimal use of credit for farmers with different size and enterprise mix farms.

3) Determine the impact of lower and higher interest rates on optimal enterprise organisation, resource use and output.

Procedure:

To accomplish objective 1, data must be collected for selected crops on the output generated with different levels of capital inputs for a given technology. In essence, this objective requires the estimation of basic input - output or production response functions and the comparison of marginal productivities for various size farms.

To accomplish objectives 2 and 3, the input-output relationships obtained to accomplish objective 1 could be included along with various and resource constraints in a set of linear programming models for various illustrative farms.

The models would include borrowing activities and credit restrictions. By varying the rate of interest on the borrowing activities and the constraint levels for the credit restrictions, the sensitivity of enterprise mix, resource use and output to these factors could be evaluated.

Data needs:

Data needed to complete the analysis would include input use and output for various crops and levels of technology, input andproduct prices, input-output coefficients for various enterprises, and resource availabilities or endowments for various types and sizes of illustrative farms.

VI.2 FARM LIQUIDITY, INTERNAL FINANCING POTENTIAL AND DEMAND FOR CREDIT:

Problem Statement and Objectives:

The financing needs of the agricultural sector can be satisfied by credit or by internal sources of funds. Most previous studies of agricultural credit needs in Zambia assume that self-financing does not exist, that all funds for example to acquire seasonal inputs must be financed with credit. Yet, there are indications that substantial liquidity and savings exist in the agricultural production sector. This study would attempt to document the amount of savings available and the demand for credit. Specific objectives include:

1. Estimate the savings rate for Zambian farmers with different size and enterprise mix characteristics.

2. Determine the credit needs of Zambian farmers with different size and enterprise mix characteristics.

3. Project total aggregate credit demand and the proportion of that demand that is attributable to different size farms and different enterprises.

Procedure:

A micro or macro-aggregate approach could be taken. With the micro approach, data would be collected on individual illustrative farms on their gross income, cash expenses, net cash income and consumption expenditures. This data would indicate the amount of residual income or savings available. Using enterprise budgets, expenses for the upcoming season could be estimated, and credit needs calculated as expenses minus savings. Results from various illustrative farms could then be weighted by the number of farms in each category to obtain an estimate aggregate credit requirements.

The macro-aggregate approach would involve estimating total sector operating expenses (total financing needs) using aggregate production estimates and estimates of cash operating costs per unit of production. Past internal financing is calculated as total financing needs minus total actual credit extended. An internal financing ratio is then calculated as internal financing divided* by total financing needs. Future credit needs are then estimated by multiplying this ratio times projected total annual cash operating costs (expected production times projected cash costs per unit).

Data Needs:

To use the micro approach, data should be collected for a sample of illustrative farms on gross farm income, cash costs of production, and consumption expenditure. Data on the number of farms with various size and enterprise characteristics would also be necessary to complete the aggregation.

To use the macro approach aggregate estimates of annual production and cash operating expenses for each commodity and total credit extended are needed. Estimates of future total production and budgeted cash costs for each commodity are also necessary to make the projections of future credit needs.

VI.3 ESTIMATION OF BORROWING AND LENDING COSTS

Problem Statement and Objective

Costs incurred by farmers in obtaining credit are extremely important in determining their use of loan funds versus their own savings and have an influence on their willingness to fulfil debt repayment commitments. Borrowing costs are comprised of three components:
(1) the explicit interest charges on loans; (2) other fees, charges, and compensating deposit requirements which raise the effective loan rate of interest above the quoted rate; and (3) the transactions costs incurred by the farmer in obtaining credit (travel time and cost, legal expenses, insurance fees, etc).

From the lender's perspective, the costs of lending consists of (1) the cost of obtaining financial resources for lending (the interest rate on borrowed money plus the administration costs incurred in negotiating and servicing those debts); (2) the administration costs incurred in making, monitoring and recovering loans, and (3) the risk or default costs associated with delinquent loans. Lending costs determine the margin the credit institution or program requires to remain economically viable. If lending costs are different for different types and sizes of forms, accurate and detailed information about these costs will also be important in determining the potential for cross-subsidization of costs and the development of a lending policy.

Thus the specific objectives of the study will be:

(1) To estimate the borrowing costs incurred by various types and sizes of farmers in different locations in obtaining credit.

(2) To estimate the lending costs incurred by lenders in extending credit to various types and sizes of farms in different geographical locations.

Procedure:

To obtain borrowing costs for farmers, data on explicit interest charges, travel time and travel expenses, production losses induced by delays in loan approval and disbursement, and on other fees, charges, and unavoidable expenses would be obtained using a survey procedure. The survey should be conducted on a statistically selected sample of large and small farmers who borrow seasonal credit for maize. The sample should include borrowers from different lending institutions (the AFC, the commercial banks, and the CCS) and from different geographical regions. Data would be statistically analysed to determine the major components of farm level borrowing costs and differences by size of loan, location, and credit institution.

Lending costs could be documented based on the accounting records of the AFC, CCS, and the commercial banks. The costs incurred by Barclays Bank in its Lima Program compared to estimates of costs incurred in servicing commercial farmers would be particularly useful in a comparison of the transactions costs for large farms compared to small farms. A survey of lenders and/or a joint project with Barclays Bank may be the best method to obtain this data.

Data Requirements:

Data requirements to document costs of borrowing by an individual farmer would include:

(1) loan size, (2) travel time and distance, (3) travel expenses, (4) interest payments, (5) fees representing revenue to the lender, (6) documentary and collateral expenses e.g. mortgage fees and insurance premiums not accruing to the lender. (7) length of loan, (8) repayment schedule, (9) delays in loan disbursement.

Data requirements for lending costs would include (1) loan size, (2) interest costs on borrowed funds, (3) administrative expenses associated with obtaining borrowed funds, (4) administration costs in credit appraisal division of the lending institution, (5) administrative overheads, (6) loan default and other delinquency rates and (7) loan monitoring and contract enforcement costs.

APPENDIX A: CALCULATIONS TO DETERMINE FINANCING REQUIREMENTS AND INTERNAL FINANCING FOR THE 1981/82 SEASON

1. CROP FINANCING REQUIREMENTS:

Requirements are calculated by taking the estimates of total area planted times the variable cost per hectare for each of the crops for which there are gazetted prices. The sources of these estimates are the hectarage forecasts of the statistics section of the Planning Division, MAWD and the cost of production budgets from the Production and Marketing Section for commercial farmers and our estimates for other i.e. peasant farmers.

2. LIVESTOCK AND POULTRY REQUIREMENTS

For the livestock and poultry financing requirements the Annual Agricultural Statistical Bulletin - 1981 was used to provide units of production for the respective livestock sub-sectors. These were multiplied by the estimates of variable costs per unit from budgets provided by the Production and Marketing Section, Planning Division, MAWD, where available. In the case of dairy the production component represented by the State Farms was subtracted because the sources of financing are dependent on the government's budgetary situation and are likely to be volatile. This would represent a "float" of an additional K 895,071 of financial requirements if included.

3. ESTIMATED FINANCING REQUIREMENTS: CROPS

a.	MAIZE 454,000 Ha.			
	Comm. Farmers 80,000 Ha.	@	K404/Ha.	K 32,320,000
	Other 374,000 Ha.	@	94/Ha.	35,156,000
				K 67,476,000
b.	SOYBEANS 5,300 Ha.	@	K442.38/Ha.	K 2,344,614
c.	SUNFLOWER 41,400/Ha.			
	Comm. Farmers 4,140/Ha.	@	K270.86	K 1,121,360
	Other 37,260/Ha.	@	81.00	3,018,060
				K 4,139,420
d.	GROUNDNUTS 22,400/Ha.	@	K147.40	K 3,301,760
e.	RICE 5,900/Ha.	@	K277.00	K 1,495,800
f.	WHEAT 3,700/Ha.	@	K713.14	K 2,638,618
g.	SEED COTTON 23,900			
	19,120/Ha.	@	K249.50	K 4,770,440
	4,780/Ha.	@	391.91	K 1,873,330
				K 6,643,770
h.	TOBACCO			
	Virginia			
	Comm. Farmers 1500/Ha.	@	K1,918	K 3,678,724
	Other 700/Ha.	@	958	670,600
				K 4,349,324
i.	BURLEY 700/Ha.	@	K600	K 420,000
				K 4,769,324
	SUB-TOTAL: All Crops =			K 92,809,306

LIVESTOCK

a. Dairy

Commercial	7,712,850 litres
Rural Dairies	1,076,789 litres
State Farms	3,196,681 litres
Total litres	11,896,320 litres @ .28 = K3,356,170

State Farm component adjustment

	K3,356,170
	- 895,071
Sub-Total	K2,461,099

b. Cattle

1,785,000 head listed in traditional sector
* .04 slaughter factor per annum

71,400 head slaughtered traditional cattle

Assume that half of traditional cattle move into commercial channels for slaughter as ungraded i.e. 35,700 head and that variable costs are zero per head.

62,560	ungraded cattle
- 35,700	
K 26,860	ungraded from commercial farms.

These ungraded represent the grassfed cattle which are not fed in feedlot.

Grass fed	26,860	@	K250	K 6,715,000
Feedlot	37,492	@	K324	K 12,147,408
				K 18,862,408
	Sub-Total			K 18,862,408

c. Pigs

37,748 head slaughtered at var. cost K100 per head.

Sub-total K 3,774,800

d. Poultry

Eggs - 112,700,000 eggs @ 6N/egg	K 6,762,000
Day - old chicks 10,784,000 @ 10N/chick	1,078,400
Meat - 12,375,000 Kgs. @ K1.50/Kg	18,625,000
Sub-total	K 26,465,400

e. Total livestock requirements K 51,563,707

SHORT-TERM LENDING TO AGRICULTURE 1981/82

a.	Commercial Banks	K 44,750,000
b.	Agricultural Finance Co.	35,988,000
c.	Cooperative Credit Scheme	1,593,000
d.	Total	K 82,331,000

1981/82 INTERNAL FINANCING

Total Requirements	K144,373,013
- Short-term Lending	- 82,331,000
	K 62,042,013

APPENDIX B: LIST OF INSTITUTIONS AND AGENCIES CONSULTED

A. PRIVATE SECTOR

1. Barclays Bank of Zambia Limited
2. Standard Bank of Zambia Limited
3. Commercial Farmers Bureau
4. Central Province Cooperative Marketing Union
5. Family Farms Limited

B. PUBLIC SECTOR

1. Bank of Zambia (Research Department)
2. Development Bank of Zambia
3. Zambia Agricultural Development Bank
4. Zambia National Commercial Bank
5. Agricultural Finance Company Limited (Head Office, Provincial Office, and District Office)
6. Zambia Cooperative Federation Financial Services Limited
7. National Agricultural Marketing Board
8. Ministry of Agriculture and Water Development
   - Permanent Secretary
   - Budget Division
   - Planning Division
   - Dept. of Marketing and Cooperatives
   - Central Province Agricultural Office
9. Rural Development Corporation

C. INTERNATIONAL AND FOREIGN AGENCIES

1. World Bank
2. USAID

D. OTHER

The team also interviewed a few commercial and small farmers near Lusaka and in Magoye.

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