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*C.R. 1746-2A*

**Report No. P-4136-ZA**

**REPORT AND RECOMMENDATION  
OF THE  
PRESIDENT OF THE  
INTERNATIONAL DEVELOPMENT ASSOCIATION  
TO THE EXECUTIVE DIRECTORS  
ON A  
PROPOSED CREDIT OF SDR 10.8 MILLION  
TO THE REPUBLIC OF ZAMBIA  
FOR AN  
AGRICULTURAL RESEARCH AND EXTENSION PROJECT**

**November 17, 1986**

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### CURRENCY EQUIVALENTS

Currency Unit	=	Kwacha
US\$1	=	K 9.00
US\$0.11	=	K 1.00

(The US Dollar/Zambian Kwacha exchange rate is determined by weekly auction. The exchange rate shown above is the rate that prevailed around October 18, 1986.)

### WEIGHTS AND MEASURES

1 meter (m)	=	3.28 feet (ft)
1 kilometer (km)	=	0.62 miles
1 sq kilometer (km <sup>2</sup> )	=	0.386 sq miles
1 metric ton (tonne)	=	1,000 kg = 2,204.6 pounds
1 liter	=	1.057 US quarts = 0.22 Imp. gallon

### ABBREVIATIONS AND ACRONYMS

AFC	-	Agricultural Finance Company
AfDB	-	African Development Bank
ARPT	-	Adaptive Research Planning Team
BS	-	Block Supervisor
CARO	-	Chief Agricultural Research Officer
CEW	-	Camp Extension Worker
CRT	-	Commodity Research Team
DAO	-	District Agricultural Officer
DOA	-	Department of Agriculture (MAWD)
DVTCS	-	Department of Veterinary & Tsetse Control Services
FTC	-	Farmer Training Center
Lintco	-	Lint Company of Zambia
MAWD	-	Ministry of Agriculture and Water Development
MOWS	-	Ministry of Works and Supplies
NAMBOARD	-	National Agricultural Marketing Board
NORAD	-	Norwegian Agency for International Development
NAREC	-	National Agricultural Research and Extension Committee
NRDC	-	Natural Resources Development College
PAO	-	Provincial Agricultural Officer
PIO	-	Project Implementation Officer
PCU	-	Provincial Cooperative Union
PE	-	Personnel Expenditure
PMEO	-	Provincial Monitoring and Evaluation Officer
PPF	-	Project Preparation Facility
RDC	-	Recurrent Departmental Charge
SMS	-	Subject Matter Specialist
SRT	-	Specialist Research Teams
UNZA	-	University of Zambia

### FISCAL YEAR

January 1 - December 31

REPUBLIC OF ZAMBIA

AGRICULTURAL RESEARCH AND EXTENSION PROJECT  
CREDIT AND PROJECT SUMMARY

Borrower: Republic of Zambia  
Executing Agency: Ministry of Agriculture and Water Development  
Amount: SDR 10.8 million (US\$13.0 million equivalent)  
Terms: Standard

Project

Description:

The purpose of this Project is to raise the productivity of Zambia's agricultural sector by improving research and extension services to farmers, particularly smallholders. The Project provides for staff training, technical assistance, civil works, equipment and other facilities to strengthen existing institutions and infrastructure in support of adaptive and applied research programs and extension services. It would support reorganization of extension services in three of Zambia's nine provinces, and improve linkages between research and extension services that are more responsive to smallholders' needs and constraints; promote more efficient utilization of agricultural resources, better coordination of external assistance; and improve institutional framework and upgrade manpower resources.

Benefits  
and Risks:

The Project would benefit a wide spectrum of farmers, but particularly the vast majority of small traditional producers, through the development and application of more appropriate technological packages. Possible risks include delays in physical implementation, unforeseen difficulties in the adoption of the T&V system, reduction of the number of research scientists currently provided by various donors, shortage of production inputs, and inefficient marketing and credit services. These risks would be respectively minimized by the facts that: the Project includes a large technical assistance component to strengthen the Project implementation capability; implementation of the T&V system is geographically phased so that efforts would be concentrated in resolving difficulties encountered in areas covered by the first phase, instead of expanding into new areas; the Project would provide a fund to

finance replacements of key research scientists if other donors are unable to continue funding these scientists; and the Government has initiated measures to liberalize agricultural marketing and input distribution, and to strengthen the agricultural credit system under a possible Bank-supported project now in an advanced stage of preparation.

Estimated Cost

	<u>Local</u>	<u>Foreign</u>	<u>Total</u>
	US\$ Million		
A. Technical Assistance	1.1	5.5	6.6
B. Overseas Training and Travel	—	1.4	1.4
C. Local Training	0.5	—	0.5
D. Civil Works	4.3	3.4	7.7
E. Vehicles	0.3	3.8	4.1
F. Equipment and Supplies	0.5	2.5	3.0
G. Incremental Recurrent Costs	<u>1.9</u>	<u>1.9</u>	<u>3.8</u>
<b>Total Baseline Cost</b>	<b>8.6</b>	<b>18.5</b>	<b>27.1</b>
Physical Contingencies	1.0	2.1	3.1
Price Contingencies	<u>2.8</u>	<u>5.8</u>	<u>8.6</u>
<b>Total Cost</b>	<b>12.4</b>	<b>26.4</b>	<b>38.8</b>
(of which taxes and duties)	(0.6)		(0.6)

Financing Plan

	<u>Local</u>	<u>Foreign</u>	<u>Total</u>	<u>%</u>
	US\$ Million			
IDA	1.5	11.5	13.0	34
AfDB	3.4	9.2	12.6	33
NORAD	1.5	5.7	7.2	18
Government	<u>6.0</u>	<u>—</u>	<u>6.0</u>	<u>15</u>
	<u>12.4</u>	<u>26.4</u>	<u>38.8</u>	<u>100</u>

Estimated Disbursements of IDA Credit

IDA FY	<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>
	US\$ Million							
Annual	0.8	2.2	2.6	2.8	2.2	1.3	0.9	0.2
Cumulative	0.8	3.0	5.6	8.4	10.6	11.9	12.8	13.0

Rate of Return: Not Applicable

Staff Appraisal Report: Report No. 5679-ZA, dated November 17, 1986

Map: IBRD 18917

INTERNATIONAL DEVELOPMENT ASSOCIATION

REPORT AND RECOMMENDATION OF THE PRESIDENT  
TO THE EXECUTIVE DIRECTORS  
ON A PROPOSED CREDIT  
TO THE REPUBLIC OF ZAMBIA FOR AN  
AGRICULTURAL RESEARCH AND EXTENSION PROJECT

1. I submit the following report and recommendation on a proposed credit to the Republic of Zambia of SDR 10.8 million (approximately US\$13.0 million equivalent) on standard terms to help finance an Agricultural Research and Extension Project.

PART I — THE ECONOMY

2. A Country Economic Memorandum on Zambia (Report No. 5000-ZA) was distributed to the Executive Directors on April 24, 1984. A new CEM and a Public Expenditure Review will be issued shortly. The analysis presented here is based on these reports' findings and on subsequent information received from the Zambian authorities. Country data sheets are attached as Annex I.

3. Zambia's economy is heavily dependent on external trade and on government activity. Imports and exports each range between 30 and 40 percent of GDP. Government expenditures amount to about 35 percent of GDP, and the Government owns a majority share of mining and most manufacturing enterprises. Mining, mainly copper, provides about 90 percent of foreign exchange earnings and 10 percent of gross value added. Much economic activity is dependent on expatriate technical, managerial, and administrative skills.

Current Economic Situation

4. For the past decade, the Zambian economy has been in a state of contraction and the country is presently in the midst of an acute economic and financial crisis. Relying on a single primary commodity for the bulk of its export earnings and with an industrial sector highly dependent on imported inputs, the economy was vulnerable to the combination of deteriorating export prices, increasing costs for imported goods and raw materials, and regional unrest which occurred over the past decade. Since 1975, when the economy's problems began with a sharp drop in the copper price, Zambia's terms of trade have deteriorated steadily and by 1985 were more than 70 percent below the average for the early 1970s. Although the Government initially managed to slow the decline in economic activity by extensive foreign borrowing, contributing to the serious debt-servicing problem that constrains the country's current options, real GDP has been on a general downward trend since 1975, falling on average by about 1.5 percent per year. With population growing by 3.1 percent per annum during

this period, real GDP per capita is now about 25 percent below the 1974 level. Following the World Bank Atlas methodology, GNP per capita was estimated at US\$470 in 1984, but it is much lower now as a result of the substantial depreciation of the Kwacha in the past two years.

5. The balance of payments has been in chronic disequilibrium since 1975, with current account deficits climbing to an average of 19 percent of GDP in 1980-82, before dropping to an average of about 10 percent of GDP in the past three years. Nevertheless, the volume of imports declined steadily and is now about 60 percent of the level in 1980 and 45 percent of the level in 1974. This has resulted in an economy-wide problem of severe underutilization of capacity and, especially in the mining sector, a large backlog of maintenance and rehabilitation expenditure that has contributed directly to a declining trend in copper production and exports. In 1985, copper exports fell to their lowest level (475,000 tonnes) since Zambia's independence. The current level of imports, supported by external aid, is now only barely adequate to sustain copper production and to provide a critical minimum of inputs for the rest of the economy. The large current account deficits have also led directly to Zambia's high level of external indebtedness. At the end of 1985, Zambia's total external liabilities stood at US\$5.4 billion, including drawings from the IMF (US\$640 million) and overdue commercial payments of about US\$600 million. By comparison, merchandise exports amounted to only about US\$715 million in 1985.

6. The decline in copper prices also severely affected Zambia's fiscal and monetary positions. Prior to 1976, mineral taxes provided a large share of government revenue, but because of the losses incurred by the mining company in that and subsequent years, they became an insignificant source of funding for the government. A new mineral export tax was introduced in 1983, however, which now contributes about 10 percent of Government's revenue. Deficit financing absorbed a large share of net domestic credit and contributed to a sharp rise in consumer prices, averaging 20 percent per annum during 1976-78 and 12 percent per annum in 1979-82. Price increases have accelerated in 1983 and 1984 to about 20 percent per annum, reflecting the decontrol of prices in December 1982 and the devaluations of the Kwacha during the past two years. Currently, inflation is running at an annual rate of about 30-40 percent due largely to the sharp depreciation of the Kwacha from 2.2 per US\$1 in October 1985, just prior to the introduction of the foreign exchange auction, to over 10 per US\$1 at present.

7. There is no doubt that external factors have been an important cause of Zambia's present economic difficulties. Apart from low copper prices, severe droughts over 1982-84 have necessitated substantial food imports. Nevertheless, inappropriate policies and shortcomings in economic management have exacerbated the economic difficulties. The main deficiencies in economic policies were that: (i) pricing and subsidy policies favored the urban consumer at the expense of the agricultural producer; also, controlled industrial prices led to low profitability in the manufacturing sector; (ii) tax incentives and low interest rates led to a pattern of capital intensive investment; (iii) exchange rate and tariff policies encouraged the use of artificially cheap imported raw materials and other inputs.

## Strategy for Economic Restructuring

8. Zambia's economically exploitable ore reserves are only sufficient to maintain present levels of copper production for another 15 years or so, after which production can be expected to decline sharply. In the absence of new sources of income, employment and foreign exchange, Zambia may expect a drastic fall in living standards and social well-being by the turn of the century. However, Zambia has the potential to develop alternative sources of income, employment, and exports. The greatest potential is in agriculture, where there are opportunities for import substitution (cotton, oilseeds, livestock, grains, forestry products, and fish) and for exports (beef, cotton, coffee, tobacco, groundnuts, and sugar). Once a good start is made with agricultural development, possibilities should be created for agro-based industries.

9. The Government's development strategy, then, is to restore copper production to the 530,000 tonne level, the economically sustainable level given the technical and other constraints on the industry in Zambia, while at the same time accelerating development of the agricultural and industrial sectors, with a heavy emphasis on production for export. This strategy is designed to maximize foreign exchange earnings from mining over the medium term, while efforts are made to diversify production and exports through growth in the other sectors of the economy. This will require a substantial restructuring of production and employment, which can only be accomplished in the long run. The Government initiated this effort in 1983 with the introduction of a far-reaching program of economic reforms that has received the full support of the international donor community. The authorities also introduced, with support from the IMF, a comprehensive stabilization program designed to restore the country's financial viability.

10. The main content of the economic restructuring package may be summarized as follows:

- Providing a system of incentives to producers and exporters of agricultural and industrial products in which production is responsive to market forces;
- Ensuring the competitiveness of exports through an active exchange rate policy;
- Using tariffs and interest rate policies to reverse past trends of import dependence and capital intensity;
- Liberalizing administrative restrictions on foreign trade and the licensing of production, in order to improve the allocation of resources and to encourage investment in productive activities;
- Reducing the Government's deficit and recourse to domestic bank borrowing by reducing expenditure on personnel costs, subsidies and other non-development related activities;

- Improving planning and budgetary procedures to shift resources to productive uses and economic investments;
- Allowing greater competition in the procurement and selling of food crops. The National Agricultural Marketing Board (NAMBOARD), the Government's agricultural marketing agency, will move towards the role of buyer and seller of last resort, using a system of floor and ceiling prices for agricultural produce and inputs, respectively;
- Strengthening the technical and managerial capacity of Zambia Industrial and Mining Corporation (ZIMCO), which is the holding company of most state-controlled enterprises;
- Restructuring the energy sector to bring about lesser dependence on imported oil.

11. In the past two years, the Government has made significant progress in translating the above policies into tangible action. Stand-by arrangements were agreed with the IMF in 1983, and again in 1984. Under these programs, the Kwacha was first linked to a basket of currencies and was depreciated in a gradual manner through October 1985 when a foreign exchange auction was introduced, resulting in a further substantial reduction in the value of the Kwacha. Because the Government has been successful in holding wage increases to considerably less than rises in the cost of living, it has maintained the benefits of devaluation in real terms, which has improved the competitiveness of exports. Debt rescheduling with members of the Paris Club, commercial banks and non-OECD governments covering obligations due in 1983 and 1984 was also obtained. In early 1986, following approval of a two year IMF standby arrangement, the Paris Club agreed to reschedule Zambia's 1985 arrears to the Club members, plus all obligations falling due in 1986.

12. In terms of improving conditions for longer-term growth, the most significant of the above financial measures was no doubt the exchange rate adjustments. But other measures with significant long-term impact have been introduced as well. Since December 1982, the Government has abolished the control of all wholesale and retail prices except for maize flour used in the production of roller meal, the basic staple consumed by the lower income segments of society. Over the last three years, producer prices for most agricultural crops have been increased considerably in real terms, and they now approximate border prices. The Government has also improved the incentives affecting foreign trade by introducing a foreign exchange retention scheme and concessional tax rates for non-traditional exports, and by imposing a minimum tariff on many non-dutiable imports which should reduce the high rates of effective protection afforded to import-intensive industries.

13. The Government's efforts over the past two years represent a major reformulation of economic policies and incentives. This progress is currently in danger of being set back, however, due to insufficient foreign exchange to maintain production (and exports) and to honor external debt obligations. On one hand, the Government wishes to improve the supply of



essential consumer goods by providing inputs to the productive sectors and thus show some benefits from the considerable sacrifices its policies have required of the population. In particular, a rapid increase in the consumer price of maize (resulting from higher producer prices, drought induced imports and lower subsidies) has heightened the political sensitivity of further reforms that may result in higher prices for other goods and services. On the other hand, the Government must allocate considerable foreign exchange to debt service that cannot be rescheduled.

14. Along with the new exchange rate system, the Government introduced last October a wide range of supporting measures, including decontrol of interest rates, conversion of the import licensing system to one of import registration, and further measures to reduce government expenditure and borrowing from the banking system. There remains, however, a major requirement for the success of the economic reform program. The Government's capacity for policy analysis and formulation, for administering development programs and for mobilizing and monitoring the flow of domestic and external resources needs to be strengthened considerably. The Government will need to focus on this crucial issue in the context of a long-term program of training and institutional development, while also giving top priority to improving immediately the policy formulation and implementation capacities of such key agencies as the Ministry of Finance and Planning and Bank of Zambia which are essential to the success of the whole reform program.

#### Growth Prospects

15. Zambia's external payments situation deteriorated further in 1986 and the worsened prospects for mineral exports in the near term have worked to delay the recovery process. On the other hand, however, more rapid growth than was anticipated has occurred in industry and agriculture in response to favorable weather conditions and the reform measures, and the response of non-traditional exports to the improved incentives and exchange rate has been quite promising. It seems reasonable to expect, therefore, modestly positive growth in 1987 and 1988, followed by somewhat more rapid growth in ensuing years. The main obstacle to more rapid growth continues to be the excessive amount of debt service falling due in the medium term, which prevents imports from reaching the levels required for faster growth. Resolution of this problem will require a high and sustained level of commitments and disbursements from the donor community, on concessional terms and in quick-disbursing form, preferably in support of the auction. It will also require continued access to IMF resources. But most significantly, it will require an extraordinary restructuring of Zambia's external debt to bring about a large reduction in the debt service ratio. The amount of restructuring provided by the annual rescheduling exercises of past years although helpful will simply not suffice, since imports will not be able to reach the necessary levels.

16. For the five year period, 1986-90, the Zambian economy should be able to achieve GDP growth (at market prices) of about 3.6 percent per annum on average, which would only maintain per capita income at current levels. Because of the difficulties facing the economy in the next couple of years, especially in the mining sector, the rate of growth is not likely

to exceed 2.5 percent per annum on average, but as productive efficiency rises and the confidence of the private sector is restored by the reform program, there should be an upturn in economic activity in the later years of this period. To achieve this level of GDP growth, gross investment would have to increase by about 10 percent per annum in real terms, reaching 16 percent of GDP by 1990 from 12 percent in 1985. At this level, the investment ratio is still low. However, it is the most that is achievable given the external constraints on the economy. On the other hand, a good part of the gains in GDP over the next few years are expected to come from increased productivity of investment due to improved resource allocation and greater selectivity in capital projects by the public sector. While a major effort is required to generate domestically the savings needed to support this level of investment, a substantial part of the investment will have to be financed from abroad.

17. There is no question but that the social cost of adjustment in Zambia will be heavy, particularly for the next five years and perhaps for the next decade. Coming on top of the large drop in living standards that has already occurred, this will be an especially difficult period for the Zambian people. However, it is equally certain that without these adjustments living standards would decline even further and there would be little or no prospects for improvement in the future. With the adjustment program per capita income will be stabilized in the medium term and rise in the longer run, which would not be the case without the program. Steps are being taken to soften the impact of these measures on the lowest income segments of society, e.g., the maize subsidy is being retained for this group, assistance is being provided for resettlement to rural areas, incentives are being given for investment in lower income areas, etc. Most importantly, the adjustment program itself will ensure increasing supplies of basic consumer goods at reasonable prices, which would not be the case otherwise.

#### Creditworthiness

18. Scheduled service on public and publicly guaranteed (PPG) external debt will remain over US\$400 million per annum for the next three years, or about 40 percent of export earnings at today's copper prices. Of this amount, about US\$65 million per annum is due to the World Bank Group, including the IFC. (The Bank currently holds US\$467 million, or 15 percent of Zambia's US\$3.2 billion PPG debt disbursed and outstanding). In addition, about US\$200 million per annum in payments is due to the IMF and another US\$50-70 million per annum on Zambia's pipeline of commercial payment arrears and short-term borrowings. In total, scheduled debt service will amount to over US\$700 million per annum for the next three years, and it will thus be necessary for the Government to continue its financial stabilization policies in cooperation with the IMF and to seek debt relief through further rescheduling. Even with maximum debt relief under rescheduling arrangement similar to those of the past, however, Zambia will continue to owe over US\$400 million per annum in debt service that cannot be rescheduled. The Government should, therefore, avoid as much as possible borrowing on commercial terms, and additional borrowing should carry sufficiently long grace periods and maturities.

19. In the longer term, the restoration of Zambia's creditworthiness depends on the vigor with which the Government continues to pursue its economic restructuring policies. The Government is well underway in adjusting its economic policies and is fully committed to take further steps towards economic reform and the restructuring of Zambia's productive industries. Assuming successful economic policies, careful financial management and adequate external assistance, Zambia will be able to achieve a sufficient measure of export growth and diversification within the next decade to allow the country to resume normal debt servicing.

## II. BANK GROUP OPERATIONS IN ZAMBIA

20. Since 1956, the Bank Group has made 28 loans and 14 credits to Zambia, totalling about US\$780 million (net of cancellations). Two additional Bank loans were made to Zambia and Zimbabwe jointly to finance shared power facilities on the Zambezi River. Fourteen loans and six credits have financed energy, transportation, communications and rural water supply projects. Four loans and one credit for education have helped expand Zambia's secondary and higher education systems, teacher training, and commercial, agricultural and technical education systems. Two program loans have helped Zambia maintain its development program in periods of severe economic dislocation. In agriculture, forestry and fisheries, six loans and six credits have been for industrial forest plantations, livestock, commercial crops, integrated family farming, coffee production, smallholder dairy development and fisheries development. Agricultural projects in the Eastern and Southern Provinces are assisting smallholder farmers, and an Agricultural Rehabilitation Project is providing inputs to the sector in support of policy reforms. Other loans have assisted Zambia's urban development program, copper mining and, through the Development Bank of Zambia, its manufacturing, agricultural and industrial sectors. A technical assistance credit is helping the Government improve its planning and project preparation. An engineering credit is supporting a project to assess the rehabilitation requirements of the TAZAMA oil pipeline.

21. The International Finance Corporation (IFC) has invested about US\$87 million in 11 projects in Zambia since 1972. Two investments each were in shoe manufacturing, in a packaging materials plant and in textiles and fiber production, and one each in the Development Bank of Zambia, tourism development, food production and processing, cobalt production, and copper production.

22. The implementation of Bank-assisted projects in Zambia has deteriorated significantly in recent years, and serious delays have been experienced in the execution of a number of these projects. There are several reasons for this, the main ones being the lack of budgetary resources with which to finance local counterpart expenditures and to prefinance local expenditures which are subsequently to be reimbursed by

the Bank loan; ineffective project management; and inadequate inter-agency coordination. The Bank-assisted agricultural projects, which require careful management and effective coordination have suffered from these problems, as has the Third Highway Project.

23. The deterioration of project implementation has, as expected, substantially reduced the rate of disbursements on Bank Group loans and credits. As of September 30, 1985 a total of US\$87 million of loans and US\$128 million of credits remained undisbursed. To alleviate the problem, provision is being made for technical assistance in projects to strengthen implementing agencies and increased use is being made of the Resident Mission in monitoring project execution. Revolving funds are being established under new and ongoing projects which should ease the Government's financial burden and accelerate disbursements. In addition, estimates of counterpart funds required and when the funds should be made available are being prepared by Bank/IDA staff well in advance of their need to allow implementing agencies as much lead time as possible to plan for these expenditures. As of December 1984, IBRD loans disbursed and outstanding were about 12 percent of Zambia's total medium and long-term debt disbursed and outstanding.

24. The Bank Group's strategy in Zambia is to support the country's efforts to diversify and increase economic efficiency. Raising the efficiency of the mining industry through the Export Rehabilitation and Diversification loan so that the industry may contribute resources to diversification programs was the first step in carrying out this strategy. Subsequent operations, such as the Agricultural Rehabilitation Project and the Industrial Reorientation Project are focusing on improving sector policies in agriculture and industry, which are the sectors with the best potential for production and export growth and for employment creation. The Group's strategy also gives priority to programs to increase the use of indigenous energy resources and to raise the efficiency of transportation services. Emphasis will be given to rehabilitation and maintenance, rather than expansion, of infrastructure and Bank Group assistance is expected to include a significant proportion of quick-disbursing resources. Support for addressing the longer term development constraints, e.g., improving economic management, education, population, health, etc., is also part of the strategy. Policy and institutional reform programs in each of the sectors, as well as on the macroeconomic level, are being agreed with the Government. Through organizing and chairing the regular meetings of the Consultative Group for Zambia, the Bank is assisting the Government in coordinating the country's economic rehabilitation program and investment needs with the international donor community. At its last meeting, which was convened on an emergency basis in December 1985, the Consultative Group endorsed the Government's recent economic measures, in particular the foreign exchange auction system, and announced substantial multi- and bilateral financial support for the Government's program.

### PART III - THE AGRICULTURAL SECTOR

#### Salient Features

25. The development of Zambia's agricultural sector remains far below its potential. Of an estimated 60 million ha available for agriculture, only some 5 million ha are regularly cultivated while the balance is under shifting cultivation. Much of the country receives adequate rainfall, 700-1,400 mm p.a., and the climate is generally suitable for the cultivation of a wide range of crops and livestock farming. Maize represents nearly 75 percent of the value of marketed agricultural output. Other major crops are cassava, sorghum, millet, groundnuts, tobacco, cotton, sunflower, sugarcane, rice, and soybeans. The country also has a large, varied livestock population and cattle are a significant source of farm incomes. Fishery and forestry resources are also abundant.

26. The sector is characterized by dualistic features. On the one extreme are about 460,000 traditional farmers, or 76 percent of the total 600,000 farm households, eking out a subsistence living from cultivating an average of 2 ha, at a very low level of productivity. On the other extreme are about 24,000 medium and large-scale farmers, cultivating an average of 60-100 ha, using mechanization and modern seasonal inputs, with high levels of productivity and incomes; these produce about 40 percent of the maize and about 55 percent of other marketed crops. Between the two extremes are an estimated 125,000 "emergent farmers," cultivating an average of 10-15 ha, who produce significantly for the market using appreciable quantities of modern inputs.

27. Government or parastatal organizations provide most of the agricultural support services. The Ministry of Agriculture and Water Development (MAWD) has the overall responsibility. The major agricultural parastatals are the National Agricultural Marketing Board (Namboard) for crop marketing and input distribution, the Cold Storage Board for meat processing and marketing, the Dairy Produce Board for milk processing and marketing, and the Lint Company of Zambia (Lintco) mainly for cotton extension services, processing and marketing. Also, the nine Provincial Cooperative Unions (PCUs) play a major role in input delivery and produce marketing. Farmers get institutional credit from the Agricultural Finance Company (AFC), the Development Bank of Zambia, the Zambia State Insurance Corporation, the Cooperative Credit Scheme, and the commercial banks.

#### Objectives and Achievements

28. The national agricultural development objectives aim at diversifying the economy away from copper, attaining self-sufficiency in basic foods, and spreading development and increasing incomes in all regions, especially in the rural areas. Despite innumerable programs and projects since Independence twenty years ago, little progress has been made towards achieving these objectives. The economy remains heavily dependent on copper and, therefore, highly sensitive and vulnerable to external shocks. During the last two decades, agriculture has been growing at an average annual rate of about 2.4 percent, less than the annual population

growth rate of over 3 percent. Consequently, overall self-sufficiency in food grains has deteriorated by about 21 percent during the last ten years and Zambia, once a net exporter of maize, has been, until this year, a chronic importer since the mid-1970s. Development remains concentrated in a few areas, as the three ecologically better endowed and historically more developed provinces have continued to account for over 90 percent of the marketed commodities, more or less as they did before Independence. While about 60 percent of the Zambians derive their livelihood directly from agriculture, the sector typically contributes less than 20 percent to GDP, reflecting the low level of rural productivity and incomes.

29. The poor performance of Zambia's agriculture is attributable to both internal and external factors, especially the acute shortage of foreign exchange stemming from weak copper prices since the mid-1970s and the severe drought that hit the country for three consecutive years at the turn of the current decade. However, the impact of the external factors has been exacerbated by several internal constraints, notably: inappropriate pricing policies; an inefficient marketing and input distribution system; a poor credit delivery and recovery system; inadequate and inefficient allocation of budgetary funds; and weak research and extension services. For many years Zambia has kept producer and retail prices low, coupled with heavy subsidies, in order to provide cheap food to the mining and industrial workers. Thus, although budgetary allocations to agriculture have been rising in nominal terms, most of the funds have been going to consumer subsidies while essential services, notably research and extension, remain seriously under-funded. The marketing and input distribution system has been characterized by a high level of inefficiency in part arising from a legal monopoly conferred on Namboard and the PCUs in maize marketing and fertilizer distribution. The agricultural credit system has been characterized by serious inefficiencies and persistent financial losses. Research and extension services have continued to be weak and have failed to reach most of the small-scale and traditional farmers who constitute the preponderant majority of the farm households.

30. During the last five years, Zambia has taken positive measures to move away from the cheap food policy, to ensure adequate producer incentives, and to improve the efficiency of the marketing and input distribution system. Producer and consumer prices and the marketing of all agricultural commodities and inputs, except maize and fertilizer, have been decontrolled; maize and fertilizer prices have been increased periodically and significantly, correspondingly reducing subsidies and improving producer incentives. Under the Bank-supported Agricultural Rehabilitation Project and Recovery Credit, the Government has undertaken to promote a broad-based liberalization of maize and fertilizer trade, with Namboard eventually serving as buyer and seller of last resort and managing food reserves; to eliminate subsidies on fertilizers and on maize used for livestock feed, beer, and maize meal consumed by high income groups while effective ways are devised to target the bulk of the remaining maize subsidies to the low income groups. An agricultural credit project, under preparation and to be financially supported by the Bank, would incorporate effective measures to improve the efficiency of the agricultural credit delivery and recovery system.

31. Notable efforts have also been underway to enhance the performance of the research and extension services. During November 1984, with the help of a firm of consultants financed by IDA, the Government formulated a comprehensive 15-year strategy for agricultural research and extension, the main thrust of which is to improve the effectiveness of these services and to re-orient them to the needs of small-scale and traditional farmers. The strategy seeks to achieve these objectives primarily by: (a) rationalizing the organizational structure and management processes; (b) upgrading the quality and efficiency of physical facilities, manpower resources, and logistic support; (c) establishing effective mechanisms to provide policy guidelines, to formulate coherent programs and priorities, and to coordinate, monitor and evaluate implementation of these programs; and (d) strengthening farmer-specific research activities and improving research-extension linkage and extension methodology, with emphasis on small-scale and traditional farmers. The proposed Project is designed to assist the Government initiate implementation of the first phase of this strategy.

#### Agricultural Research and Extension Services

32. Organizational Structure: MAWD has overall responsibility for agricultural research and extension and provides most of the crop and livestock research and extension services. The Research Branch of MAWD's Department of Agriculture (DOA) is responsible for crop production and animal husbandry research, while the Department of Veterinary and Tsetse Control Services (DVTCS) carries out animal disease research. The National Council for Scientific Research (NCSR) handles animal nutrition, disease control and food technology research. Agriculture research also takes place under the Department of Fisheries, the Forestry Department of the Ministry of Lands and Natural Resources, and the University of Zambia (UNZA) through its School of Agricultural Sciences and Rural Development Studies Bureau.

33. The Research Branch of DOA is headed by an Assistant Director, supported by the Chief Agricultural Research Officer (CARO), while the day-to-day operations of the research stations are managed by officers-in-charge. Research programs are organized on an inter-disciplinary basis, comprising Commodity Research Teams (CRTs) for on-station research; Adaptive Research Planning Teams (ARPTs) for field trials under farmer-specific conditions; and Specialist Research Teams (SRTs) for such activities as weed control, plant protection, and crop storage. There are now nine CRTs, six ARPTs and seven SRTs. The Research Branch also administers three advisory services: crop advisory, seed control and library services.

34. The Extension Branch is also headed by an Assistant Director, supported by seven Subject Matter Specialists (SMSs). The Provincial Agricultural Officer (PAO), supported by provincial SMSs and administrative personnel, is responsible for the overall extension activities in each of the nine provinces. Below him are the District Agricultural Officers (DAOs), operating through Block Supervisors (BSs) and Camp Extension Workers (CEWs) who provide the day-to-day contact with farmers. The

Extension Branch also provides advisory services in home economics to rural women through women's clubs, and agricultural advisory services to rural youth through Young Farmers' Clubs.

35. Staff and Training: The country has a total of 125 professional research staff, 65 (or 53 percent) of whom are expatriates funded by 12 different bilateral aid agencies. The total number of DOA's extension staff is 2,400, excluding administrative personnel, and only 80 of them are university graduates; about one-half of total staff are based at the block and camp levels. Nearly two-thirds of the staff at the block and camp levels are diploma or certificate holders; the balance of about 390 are commodity demonstrators who, although fairly experienced, have had no pre-service training in agriculture. The total number of extension staff at the farmer-contact level is satisfactory, with a staff-farmer ratio of about 1:600; however, there are considerable variations, ranging from 200 to 1,500 farmers per extension worker, mainly reflecting varying densities of the farms, farming systems, and agricultural potentials.

36. The University of Zambia provides undergraduate degrees in agricultural fields. The Natural Resources Development College (NRDC) offers three year certificate courses while Monze or Mpika Colleges of Agriculture offer two year diploma courses in agriculture. The Extension Branch provides general in-service training at eight provincial Farm Institutes (FIs), while a few additional centers give in-service training in specialized fields such as horticulture. Most of the districts have Farmer Training Centers (FTCs) that provide resident and day training courses to farmers; however, the results have been generally disappointing and the trend now is to train farmers in their own village surroundings.

37. Main Constraints: One of the major constraints on agricultural development in Zambia is that most of the available technological packages are inappropriate for the majority of the farmers. Past research efforts have paid little attention to the needs of smallholders in general and traditional farmers in particular. More specifically, insufficient efforts have been directed to finding practical ways of increasing productivity within the limits imposed by labor, management skills, and capital resources at the disposal of these farmers. Partly as a result, the preponderant proportion of Zambia's agriculture is characterized by low productivity, both per unit of labor and land.

38. In addition, research services are rendered more costly and less efficient by the large number of widely dispersed research stations, substations and trial sites, often involving unnecessary duplication of research efforts within similar agro-ecological zones. This has resulted in spreading scarce resources so thinly that individual facilities are poorly staffed and equipped.

39. The acute shortage of suitably qualified and experienced Zambians has been one of the other major constraints on the performance of the research and extension services. Research, in particular, has suffered from too heavy a reliance on expatriate personnel who are generally available for shorter periods than are required to ensure sufficient continuity in experimental and trial work. In extension, inadequacy of



qualified manpower resources has been reflected in poor support provided to the field staff by SMSs and insufficient technical guidance at senior staff levels. Manpower constraints are exacerbated by low staff motivation and morale at all levels, partly arising from unattractive terms and conditions of employment; lack of clearly defined objectives; and inadequate housing facilities, transport and general logistic support. The performance of the research and extension services is further hampered by: (a) an organizational structure that overloads technical personnel with administrative functions; (b) lack of an overall framework for systematic planning, coordination and monitoring of research and extension activities to the effect that these activities have been neither focussed as sharply nor farmer-oriented as they should; (c) weak linkages between research and extension; and (d) inadequate supervision of extension staff. MAWD has recently submitted proposals to the Government that would appreciably improve terms and conditions of employment for all extension and research staff. These proposals have been received favorably, at an informal level, and the matter is expected to be finalized early in 1987.

40. Among the most severe constraints on research and extension services in Zambia is inadequate funding, aggravated by uncertainties as to when and how much of the approved budgetary allocations will be released. While budgetary allocations to these services have been rising in nominal terms, they have declined sharply in real terms; more importantly, the increase has gone mainly to Personnel Expenditures (PEs), leaving insufficient funds for Recurrent Departmental Charges (RDCs) which finance transport, travel allowances and operational facilities. As a result, the RDC/PE ratios for research services declined from 1.0 in 1975 to 0.8 in 1980 and 0.3 in 1986; for extension services, the RDC/PE ratios declined from 0.9 in 1975 to 0.4 in 1980 and 0.2 in 1986. Moreover, the uncertainty as to how much and when the budgeted allocations to RDCs would be released makes it difficult to plan research and extension activities. Shortage of funds has also had adverse effects on the staff training program at all levels and on availability and maintenance of buildings, utilities, equipment, scientific instruments and research materials. The proposed Project is designed to alleviate the above technical, physical, institutional and financial constraints.

#### Agricultural Development Program and IDA/Bank Assistance

41. The Bank Group has supported 12 agricultural projects in Zambia: three for industrial forestry, two for livestock/dairy development, two for tobacco production, one for coffee production, two for area-based agricultural development, one for fisheries development, and one for policy-oriented agricultural rehabilitation. The first livestock loan was cancelled in 1973 at Government request because of pricing problems and poor management. The dairy project, which was approved in 1982 and aimed at improving milk production by smallholder producers, encountered initial implementation problems, was scaled down to a more realistic pilot design and is now progressing well. The first and second industrial forestry projects were relatively well-executed; the third has been facing major problems stemming from weak management, but promising measures have been initiated to improve management practices. Because of managerial and pricing problems, the two tobacco projects were unsuccessful in meeting

their objectives and production targets. The coffee project has been hampered by cost overruns, shortages of foreign exchange and counterpart funds, and management deficiencies. The progress of the two area-based projects, which have substantial research and extension components, has been hampered by delays in recruiting technical assistance staff, inadequate funding and lengthy procurement procedures; these problems are gradually being resolved. The fisheries project became effective in August 1985, after six months of delay, mainly because of difficulties in recruiting key staff, and has been making satisfactory progress. However, disbursement of sub-loans to the fishermen remains low due to the inability of many of the fishermen to raise enough funds for the required down-payment; steps are underway to resolve the problem. The Agricultural Rehabilitation Project has made notable achievements in promoting policy and institutional changes. On the other hand, the sharp devaluation of the Kwacha has radically altered the structure of demand for imported agricultural inputs, especially farm machinery and implements the demand of which has shifted in favor of animal draft power and reconditioning of existing machineries, thereby slowing down the use of project funds for agricultural purposes. Partly because of this, the Credit Agreement was subsequently amended to allow project funds to be used for general imports, subject to a negative list, and the project funds have been fully committed, mostly for industrial and energy-related imports.

42. Projects in other sectors have also assisted agriculture. The Fourth Education Project, for example, had a major component to strengthen the training of extension staff and farmers. Lines of credit to the Development Bank of Zambia financed medium- and long-term loans to commercial farmers. The Bank has also helped the Government carry out extensive in-depth studies aimed at strengthening the agricultural institutional and policy framework, including specific studies on MAWD's planning capabilities, research and extension, credit, policy options and strategies for agricultural growth, agricultural pricing and parastatal performance, and maize marketing and fertilizer distribution. The proposed Project has incorporated the lessons of these studies and those learned from the Bank's previous involvement in Zambia's agriculture, particularly with regard to the recurring management, financial, accounting and procurement problems.

#### PART IV - THE PROJECT

##### Background

43. The proposed Project forms the first phase of a 15-20 year national program to strengthen agricultural research and extension services in Zambia. The Project was identified by an IDA mission in August-September 1983. MAWD, with the assistance of consultants financed by IDA, subsequently prepared long-term strategies and detailed proposals on institutional changes, technical assistance and investment programs to improve agricultural research and extension. These proposals were reviewed and refined by a Bank preparation mission in September-October 1984, and an appraisal mission in January-February 1985. In May 1985, the Association

approved a Project Preparation Facility (PPF) of US\$1.0 million to be used mainly for recruitment of key staff and procurement of essential items to enable MAWD to initiate Project start-up activities. Further processing of the Project was delayed because of a large financing gap due to difficulties in securing cofinancing and because of reservations within the Government, now resolved, regarding the size and nature of the technical assistance component. A post-appraisal, therefore, was fielded in June-July 1986. Negotiations were held in Washington, D.C. in October 1986. The Zambian delegation was led by Mr. E.S.S. Nebwe, Permanent Secretary, MAWD. A Credit and Project Summary is provided at the beginning of this report and a supplementary project data sheet is presented in Annex III.

#### Project Area

44. The entire research component and some of the institutional aspects of the extension component would be nationwide. The bulk of the hardware component for extension services, comprising mainly staff houses and vehicles, would be limited to three provinces (Lusaka, Central and Northern), which cover about 35% of Zambia's total land area. The selection of the extension areas was based on agricultural potential, availability of technological packages, and the need to achieve a significant development impact. During the first two years, the extension component would cover two districts in Lusaka and Central Provinces, and one district in the Northern Province. After a mid-term review, the extension component would be expanded to cover the whole of Lusaka and Central Provinces, and about a third of the Northern Province.

#### Project Objectives

45. The main objective of the proposed Project is to accelerate agricultural development, thus broadening the economic base and promoting diversification, by alleviating the main constraints on the performance of agricultural research and extension services primarily through: (a) strengthening the technical and institutional capability; (b) rationalizing, augmenting and enhancing efficiency of physical resources and facilities; (c) upgrading the quality of manpower resources; (d) creating a mechanism and framework for providing policy guidance, formulating programs and priorities, and coordinating donors' aid; and (e) sharpening the focus of, and improving linkages between these two services.

#### Project Description

46. Research Organization. The Project would support the reorganization of the Research Branch to separate technical and administrative functions, thereby freeing technical staff from administrative tasks. It would also support the recently established National Agricultural Research and Extension Committee (NAREC) which would be responsible for formulating agricultural research policies and priorities, and coordinating donor assistance. Nine manmonths of consultancy services, and 24 manmonths of periodically visiting scientists from appropriate international research institutions, would be provided to assist NAREC to formulate and implement a detailed 5-year research action program and priorities. The appointment of consultants to formulate this

research action program would be a condition of credit effectiveness. The Government would submit the completed 5-year research action program, together with the assignment of priorities to program components, to IDA for review and comments not later than December 31, 1987, and implement the program taking IDA's views into account.

47. Strengthening Research Technical Capability. The Project would strengthen applied on-station research by the multi-disciplinary Commodity Research Teams (CRTs) and Specialist Research Teams (SRTs) through the provision of additional facilities and technical assistance designed to address specific weaknesses in the system. Thus, the Project would provide three manyears of a tillage and farm machinery research specialist, three manyears of a Research Services Coordinator, four manyears of an irrigation research specialist, and three manyears of an irrigation planning specialist, along with supporting facilities and equipment. The irrigation specialists would assist the Government to formulate and implement a consistent irrigation research program, and sound development policy and strategies. A statement of irrigation development policy would be prepared and submitted to IDA not later than September 30, 1988 for review and comment. The Project would also promote the use of ideas, information and genetic materials developed elsewhere by intensifying contacts with the international research network. Accordingly, funds would be provided for overseas visits by Zambian scientists, and participation by Zambian research staff in international workshops and seminars.

48. The Project would give highest priority to developing and testing economically feasible technical packages to increase smallholder output. To this end, farming systems research carried out by the Adaptive Research Planning Team (ARPTs) would be supported by providing consultancies in farm system research methodology and techniques and in rural sociological surveys and analysis. Furthermore, the Project would support ARPTs by providing six manmonths of consultants in livestock research and policy who, together with a Task Force recently established by the Government, would formulate a national livestock development policy and strategy, and the report of the Task Force would be submitted to IDA for comments not later than June 30, 1988.

49. Rationalization and Strengthening of the Research Station Network. The Project would support rationalization of the existing research station network by providing improved facilities and services to the central research station and two zonal stations, four regional stations, three trial sites, and the plant quarantine station. The rest of the facilities would be put to other uses or closed down. Three manyears of a general maintenance engineer and three manyears of a laboratory equipment and scientific instrument maintenance specialist would be provided. Furthermore, the Project would finance six manmonths of consultancy services in station management and administration; and training of local staff in station management, and in maintenance of laboratory equipment and instruments.

50. Research Supporting Facilities. The Project would provide staff houses, laboratories, storage sheds, cold rooms, glass and screen houses, library, documentation facilities and a conference center, in

addition to general site development, establishment of a nationwide radio communications network linking all DOA research facilities and substantial renovation of existing infrastructure. Staff mobility and ability to conduct off-station research trials would be increased through the provision of vehicles, motorcycles, bicycles, and minibuses. Tractors, other farm machinery, laboratory and scientific equipment, research materials and supplies, and workshop equipment and tools would also be provided for the research stations. Furthermore, funds would be provided for buildings maintenance, operation and maintenance of vehicles and equipment, purchase of books and scientific journals, essential overseas travel of research staff and resumed publication of annual research reports.

51. Extension Methodology and Technical Content. The Project would support reorganization of the extension service along the lines of a Training and Visit (T&V) system. Information on improved technology would be made available to a wide cross-section of the farming population and farmers with different resource bases would be assisted in tailoring this information to their particular needs. The extension system would be field-oriented and organized from the camps up. Extension advice would concentrate on simple, low-cost cultivation practices for a limited number of major crops in each area, having a high probability of yielding good financial results. To support these activities, the Project provides for four manyears of an Extension Methodology Specialist, three manyears of an Agricultural Communications Specialist, and consultancies of eight manmonths in audio-visual aid, and nine manmonths in extension planning and management.

52. Research and Extension Training. Training under the Project is designed to strengthen the technical and managerial capabilities of the DOA staff. To this end, the Project would provide three manyears of a Manpower Development and Training Specialist. He would support the activities of the Research and Extension Training Unit (RETU) which would be responsible for consolidating ongoing training programs and formulating and implementing training policies and a long-term training program for all DOA staff. For the research services, considerable funds for overseas fellowships are already being provided under various bilateral aid programs. However, these funds are often restricted in their purpose and do not generally allow research staff to benefit from training at international or regional research centers, or to return to Zambia to carry out dissertation research. The Project would, therefore, complement the ongoing training assistance by financing some candidates for post-graduate training, up to the MSc level; short-term courses to upgrade the technical knowledge of various types of technicians and to improve the management and administrative capability of the research stations; and about US\$250,000 to enable Zambian students studying abroad, either under bilateral or Bank assistance, to return to Zambia for their dissertation or thesis research.

53. For extension services, the Project would finance several candidates for post-graduate courses, up to the MSc level, and appropriate short-term courses for SMSs. In addition to orientation courses mainly for the field staff and selected farmers in connection with the T&V system, the Project would provide a considerable number of short courses, workshops and seminars for all staff in extension management and planning, and technical

and methodology topics. It would also finance short-term and day courses for farmers in agricultural practices and farm management. In addition, the Project will finance consultants (12 manmonths) to assist RETU assess long-term requirements for professional staff in the agricultural sector as a whole and to formulate a training program to meet the requirements; the report on the long-term requirements and training programs would be submitted to IDA for review and comments not later than December 31, 1988.

54. Extension Supporting Facilities. Field offices and staff houses would be constructed or renovated to widen the geographic coverage of extension and intensify contacts with farmers. Construction standards and designs, particularly for camp and block houses, would be rationalized to reflect the requirements of rural areas and make maximum use of local building materials. The Project would also help to construct and equip an Agricultural Communications Center (ACC). The purchase and repair of vehicles, motorcycles, bicycles, minibuses, and mobile repair units are included to increase extension worker mobility. Extension materials and audio-visual equipment would also be provided. The existing Farm Institutes in Central and Northern provinces would be refurbished to help MAWD carry out local in-service training and the Farmer Training Center in Lusaka Province would be upgraded to a Farm Institute.

55. Monitoring and Evaluation (M&E). The Project would establish an M&E system to collect and analyze selected physical and financial indicators in order to facilitate effective implementation of the Project activities and to enable periodic assessment of Project achievements in generating and disseminating technical packages to smallholders and traditional farmers, and in strengthening local research and extension capability. To these ends, the Project would provide four manyears of a Monitoring and Evaluation Specialist, four manyears of a Computer Systems Analyst, and six manmonths of consultancies to deal with specialized problems. Staff houses, and provision of vehicles, motorcycles, small computers, and surveying and camping equipment would be provided.

56. Project Administration. The project would address existing weaknesses in MAWD's administration by providing four manyears of an internationally-recruited Project Implementation Officer (PIO), four manyears of a Project Financial Officer (PFO) and three and a half manyears of a Project Procurement Officer (PPO). It would also provide 74 manmonths of the services of a firm of architect-engineer consultants recently appointed to design and supervise the envisaged civil works. Furthermore, it would provide the services of independent external auditors to audit the project accounts each year. The Project also includes funds for vehicles, motorcycles, office equipment and supplies, and for incremental staff costs for Project implementation and administration activities. The posts of PIO, PFO and PPO have been advertised internationally and would be filled with candidates satisfactory to IDA as a condition of Credit effectiveness.

57. Aid Coordination. The undertaking of research experiments and trials in Zambia is heavily dependent on personnel financed by several external donors. The proposed Project would not finance any technical assistance for carrying out actual research work and assumes that this would continue to be supported fully by other donors. Because the success

of the Project critically depends on continuation of the assistance now provided outside the Project by other donors, the Government would be required to seek agreement annually with the various donors that the essential assistance would be maintained at least during the Project period, and to keep IDA fully informed of any changes. After the finalization of the 5-year research action program (para. 47 above), a donor's meeting would be convened to reassess and coordinate, and, if necessary, realign the individual donors physical share of the program. Moreover, to provide for the possibility that these other donors might not continue their assistance to the extent required, the proposed Project would provide a fund of about US\$0.7 million (equivalent to about 10% of the technical assistance cost under the project) to finance replacements of critical research personnel now provided by other donors, should suitable replacements not be available from other sources.

### Cost and Financing Arrangements

58. Total Project cost, including physical contingencies and expected price increases, is estimated at about K349.3 million (US\$38.8 million), with a foreign exchange component of US\$26.4 million or 68 percent. Project costs include incremental recurrent expenses of US\$4.9 million. These cost estimates are based on October 1986 prices and includes taxes and duties of K5.6 million (US\$0.6 million). Civil works account for about 30 percent of total costs, vehicles and equipment account for about 26 percent, technical assistance 25 percent, training 6 percent, and incremental recurrent costs 14 percent. Physical contingencies have been assessed at 20 percent for civil works, and 10 percent for equipment and vehicles. Price contingency estimates assume increases for both foreign and local currency costs of 7.2 percent in 1987, 6.8 percent in 1988 and 1989, 7.0 percent in 1990, 7.5 percent in 1991, and 4.0 percent p.a. thereafter. Differences between domestic and foreign inflation costs are assumed to be corrected through exchange rate adjustments.

59. IDA would provide US\$13.0 million which would finance about 25 percent of total project cost and cover 43 percent of the total foreign exchange and 14 percent of the total local costs. The proposed IDA credit includes US\$1.0 million already approved under the Project Preparation Facility (PPF) for the appointment of key staff and procurement of essential items to enable the Government to initiate project start-up activities. Cofinanciers, comprising AfDB and NORAD would contribute US\$19.8 million, of which US\$14.9 million would cover foreign exchange and US\$4.9 million would cover local costs. Total external financing would thus be US\$32.8 million, or 85 percent of total costs, and would cover 100 percent of foreign exchange costs and 52 percent of local costs. The Government would finance the remaining project cost of US\$6.0 million, including taxes and duties. The Government's signing of agreements with AfDB and NORAD would be conditions of Credit effectiveness.

### Procurement

60. Vehicles, equipment, supplies and materials would be bulked to the extent possible and procured following international competitive

bidding (ICB) procedures in accordance with IDA's guidelines. In bid evaluation, local manufacturers would be allowed a preference of 15% or the applicable customs duty, whichever is lower. Vehicles, equipment and supplies which cannot be suitably bulked and other small items such as materials and supplies costing more than US\$50,000 and less than US\$200,000 equivalent may be procured through local competitive procedures (which are satisfactory to IDA), with solicitation of bids from at least three suppliers whenever practicable. Foreign firms are well-represented in Zambia and would be allowed to participate in local competitive bidding. Proprietary equipment (mainly spare parts) and other goods costing less than US\$50,000 equivalent may be purchased off the shelf from reliable suppliers. Civil works would be procured on the basis of local advertising and competitive bidding procedures, which are satisfactory to IDA and which do not exclude foreign firms from competing. These works would be unsuitable for ICB because of the relatively small sizes and the phasing of contracts over five years. Consultants for the various forms of technical assistance under the project would be appointed following procedures, on terms and conditions, and with qualifications and experience acceptable to IDA. Procurement arrangements are summarized in the following table:

<u>Project Element</u>	<u>Procurement Method</u>				<u>Total Cost</u>
	<u>ICB</u>	<u>LCB</u>	<u>Other</u>	<u>N.A.</u>	
	(US\$ million)				
Vehicles, Equipment,	7.0	2.3	0.8		10.1
Supplies & Materials	(0.9)	(0.2)	(0.1)		(1.2)
Civil Works		10.2	1.5		11.7
		(0.4)	(0.0)		(0.4)
Technical Assistance			9.7		9.7
			(8.8)		(8.8)
Overseas Training and Travel			1.8		1.8
			(1.8)		(1.8)
Local Training			0.6		0.6
			(0.3)		(0.3)
Incram. Recurrent Costs				4.9	4.9
				(0.5)	(0.5)
<b>Total</b>	<u>7.0</u>	<u>12.0</u>	<u>14.4</u>	<u>4.9</u>	<u>38.8</u>
	(0.9)	(0.6)	(11.0)	(0.5)	(13.0)

Note: Figures in parentheses are the respective amounts financed by the IDA Credit.

### Disbursements

61. The IDA credit would be disbursed over eight years as follows:
- (a) Technical assistance: 100% of foreign exchange, and 50% of local expenditures;
  - (b) Training: 100% of overseas and 45% of local expenditures;



- (c) Civil Works: 100% of foreign exchange and 80% of local expenditures;
- (d) Vehicles, Equipment and Supplies: 100% of foreign exchange or 90% of local expenditures; and
- (e) Recurrent costs for operation and maintenance for buildings, vehicles, equipment and office: 55% of total expenditures.

62. Disbursements for training and for local technical assistance costs valued at less than US\$20,000 per item of expenditure, and for recurrent costs, would be made against Statements of Expenditure (SOE), certified by the Director of Agriculture in MAWD and the Project Financial Officer. Accounting procedures within MAWD are adequate to support SOE applications and would be further strengthened by the employment of an internationally-recruited staff under the Project. Documentation for SOE expenditures would be retained by MAWD and made available for inspection by IDA during the course of Project supervision. Total disbursements against SOE would not exceed about US\$1.0 million, or about 8% of the IDA credit. Disbursements for other technical assistance, consultants, and overseas training and travel costs would be made after receipt of standard documentation. The closing date of the IDA credit would be December 31, 1995.

63. The Credit and Project Summary provides a schedule of estimated disbursements. Disbursement estimates are projected over a period of eight years (seven and a half years of implementation) based on past experience with similar projects as reflected by the relevant standard profile in the Region. It is possible that the Project could be implemented in the target period of four years in which case Project costs would be reduced by about 15 percent from a total of US\$38.8 million to US\$33.0 million; however, the Government contribution, at 15 percent of total Project costs, would increase to an annual average of about US\$1.2 million compared to about US\$0.8 million. On the other hand, while the costs would be incurred earlier, the flow of benefits would also begin more quickly.

#### Status of Project Preparation

64. Most of the building designs would be essentially repetitive and would be based on existing Government houses for various grades of staff while most of the research station buildings would be expansion and improvement of existing facilities. Preliminary designs have been prepared for most of the major civil works. A firm of architect-engineers has been appointed and is expected to start working on detail designs in December 1986. This would be followed by the preparation of tender documents, to be completed by August 1987, for all the major works. Terms of reference for the key technical assistance personnel and consultants have been finalized. The consultants to prepare a five-year action program and priority for research have been shortlisted and invited to submit proposals. Other important actions already taken include: implementing reorganization of the Department of Agriculture with a view to separating technical and administrative functions and placing them under separate officers; advertising internationally the posts of Project Implementation

Officer, Project Financial Officer and Project Procurement Officer, and Manpower Development and Training Specialist; and initiating identification of sites for staff houses and other buildings to be constructed during the Project first year.

### Environmental Effects

65. The Project would have beneficial effects on the physical environment through prompting Zambian farmers to improved land cultivation, water use, cropping system and animal husbandry practices. It would increase appreciation of environmental constraints and lead to a better, more informed use of physical and human resources. There would be no adverse environmental effects from the Project. Agro-chemicals known to damage the ecology would be prohibited.

### Project Execution

66. MAWD would assume primary responsibility for implementing the project. A National Agricultural Research and Extension Committee (NAREC) has recently been established under the chairmanship of the Permanent Secretary of MAWD; its members comprise the Director of DOA as the executive officer, the Director of the Planning Division, and representatives of the Ministry of Finance, NCSR, UNZA, NCDP, and of the farming community. NAREC would be responsible for setting overall policy direction, establishing priorities, reviewing and approving annual programs and budget, and coordinating donor aid for research and extension services. Overall responsibility specific to Project implementation, monitoring and reporting would rest with MAWD's Permanent Secretary, through the Director for Agriculture who would be designated as the Project Director. Day-to-day management of research and extension programs would be delegated to the Assistant Directors of these two services. A National Project Implementation Committee (NPIC) has also been established, with the Director of DOA as its chairman and including Assistant Directors of Research and Extension, the Director of the Planning Division, the Project Implementation Officer (PIO), Provincial Agricultural Officers in the three Project areas, the Project Financial Officer (PFO), a representative from MOWS, and co-opted members as may be necessary. The NPIC would be responsible for: (a) ensuring timely preparation, review and approval of the annual research and extension program and budget; (b) selection and approval of candidates for overseas training; (c) review and coordination of Project implementation progress; (d) review and approval of building designs; and (e) ensuring the preparation and submission to IDA of semi-annual reports, annual work programs and budgets, and annual and mid-term reviews. In addition, NPIC would be responsible for coordinating the preparation of a follow-up project.

67. In order to facilitate Project management, a Project Implementation Officer (PIO) would be internationally recruited and would report directly to the Director of Agriculture. The PIO would assist the Director of Agriculture in: (a) following up on the day-to-day matters relating to Project implementation, and preparation of annual work plans and budgets, and semi-annual progress reports. He would work closely with the Project Financial Officer (PFO), directly answerable to the DOA's

Director, who would be responsible for designing and implementing a sound accounting system; maintaining project accounts and records; consolidating the annual budgets prepared by various units; and training local account staff. He would also be supported by a Project Procurement Officer (PPO) on matters relating to procurement of vehicles, equipment, and technical assistance personnel and consultancies. The appointment of these officers and their local counterparts would be a condition of Credit effectiveness.

68. Research. The Assistant Director of the Research Branch would have overall responsibility for the planning and execution of research and provision of technical services within the Branch. Operational decisions would be delegated to the two Chief Agricultural Research Officers (CAROs). The CARO for Research would guide the planning and implementation of research activities, and the CARO for Technical Services would be responsible for the development and management of the research station and trial site, and for overseeing the operations of the various service units, he would be responsible, with the support of the two maintenance specialists financed by the Project, for the maintenance of the research facilities.

69. Extension. The Assistant Director of Extension would have overall responsibility for implementation of the extension component. He would be assisted by the two Chief Agricultural Extension Officers (CAEOs), the Extension Methodology Specialist financed by the Project, and the national SMSs. Implementation of the extension programs in the provinces would be the responsibility of the Provincial Agricultural Officers (PAO), while implementation of the extension program in each district would be the responsibility of the DAOs. In line with the national extension strategy, the provincial extension services would be separated into technical and administrative groups. A Provincial Project Implementation Committee (PPIC) would be set up in each province, not later than September 30, 1987, under the chairmanship of the PAO, with membership consisting of the Deputy PAOs, the DAOs and representatives from Provincial MOWS and input supplies, marketing and credit agencies. Its main purpose would be to ensure timely implementation and coordination of the Project activities at the provincial and district levels, and to review progress made in physical implementation of the Project.

70. Linkages between Research and Extension. In order to further strengthen the linkages between the research and extension branches, formal channels of communication and cooperation would be set up and existing ones upgraded. Provincial RELOs, as members of the ARPTs, would be involved in the monitoring and analysis of well-defined on-farm trials, in field survey work involving extension and research personnel, and in joint research-extension activities such as field days and farmer training. Moreover, under the Government's new strategy, annual research-extension meetings would be set up for extension SMSs and relevant ARPT and CRT staff, to discuss extension and research activities and programs. At the camp level, closer coordination and cooperation would be achieved through on-farm trials and survey work carried out jointly by research and extension staff.

71. Training. The training program would be implemented by the Research and Extension Training Unit (RETU) directly responsible to the Director of DOA. The Unit would be headed by a Principal Training Officer assisted by the project Manpower Development Training Specialist, funded under the Project. The Training Unit would be responsible for determining and planning overall training needs; evaluating the training program; identifying training instructors and organizing suitable courses. One of the major tasks of the Manpower Development and Training Specialist (MDTS) would be to prepare long-term projections of professional manpower needs for the agricultural sector as a whole, and to design a corresponding manpower development program. He would also review the curricula and enrollments of the various local agricultural training institutions to ensure that the curriculum meets all the needs and that enrollment is consistent with demand. The long-term manpower projections and training program would be submitted to IDA by December 31, 1988 for review and comments.

72. Civil Works. Design and supervision of civil works and preparation of bills of quantities and tender documents would be carried out by the consulting architect-engineers. As a condition of Credit effectiveness, MAWD would identify and select sites for all research station buildings and at least one-half of extension staff houses to be constructed during the first year of the project. The Ministry of Works and Supplies (MOWS), through its Building Branch, would have the overall responsibility for overseeing the design and construction of civil works and a direct responsibility for supervision and construction of extension staff houses in the rural areas. For these purposes, MOWS would designate from its staff a Senior Architect not later than June 30, 1987 and District Building Supervisors in the Project areas not later than June 30, 1987 for the first phase of extension components and not later than September 30, 1989 for the second phase.

### Staffing

73. Every attempt would be made to fill professional staff positions with qualified and experienced Zambians; however, for most of the key research staff, it is unlikely that suitable Zambian candidates could be found for the time being. The Project would finance some of the key positions while others would be financed by on-going donor aid outside the Project. Assurances have been obtained from the Borrower that the posts of the Director of Agriculture, the Assistant Directors of Research and Extension, CAROS, CAEOS, and the PAOs in the Project areas would continue to be filled by qualified and experienced staff.

### Accounts and Audits

74. MAWD would maintain separate records and accounts for all activities relating to goods and services financed out of the proceeds of the IDA credit. MAWD would submit to IDA an annual statement of Project accounts, covering both expenditures and sources of funds, together with the related audit report, within six months of the close of each fiscal year. The audit report, to be carried out by an independent auditor acceptable to IDA, would specifically comment on the use of funds disbursed

under Statements of Expenditures (SOEs), and for the Special Account. Furthermore, the Project Financial Officer would design and help to implement an improved budgeting and accounting system relating to research and extension services, which would be submitted to IDA for comments not later than December 31, 1988.

#### Supervision and Reporting

75. MAWD would: prepare and submit annual work programs and budgets for IDA's approval not later than September 30 each year; undertake annual Project reviews, except in the year of the mid-term review, and submit the annual review reports to IDA for comments by September 30 each year; and undertake in-depth mid-term Project evaluation and submit the evaluation report to IDA for comments. MAWD would also prepare and submit to IDA semi-annual progress reports within three months of the end of each reporting period, and prepare the Project Completion Report within one year of the Project completion date.

#### Monitoring and Evaluation (M&E)

76. Adequately staffed M&E units would be established at MAWD headquarters as well as in the PAO's offices of the three provinces covered by the Project's extension component. The M&E system would aim at generating data necessary to ensure efficient management of the Project and evaluation of the Project impact relative to its macro-objectives and institution-building goals. While DOA would assume the primary responsibility for data collection, the Planning Division of MAWD would be actively involved, particularly in the designing of the system and evaluation of progress towards sectoral objectives. The M&E Specialist and the Computer System Analyst financed by the Project would provide the necessary professional support and training of the local staff. A suitable M&E system would be established not later than December 31, 1987 and implemented in consultation with IDA.

#### Benefits and Justification

77. The Project is expected to make a significant contribution towards accelerating agricultural growth and diversification of the Zambian economy. It would achieve a more efficient utilization of limited human and financial resources by rationalizing research and extension policies, systematically establishing priorities, and coordinating donor assistance within well-integrated strategies. It would create strong national research and extension systems to produce problem-oriented research and effectively deliver technical messages focused on farmers' needs. It would also address basic institutional weaknesses and add to the scarce resource of trained manpower in the research and extension subsectors. Ultimately, it is expected to increase production of both import-substituting and export commodities, and to have a positive impact on the agricultural output and incomes of at least 22,400 farm families, some 30 percent of which are headed by women, through the extension component alone, with the full build-up of benefits occurring by year 2000. Given that about 40 percent of the rural population is estimated to fall under the poverty

level, and that nearly 30 percent of the families are female-headed, the Project would have a significant impact on the poor and women members of the population.

78. No attempt has been made to compute rates of return for the Project. Available data show that crop yields achieved by most traditional farmers can be increased by at least 50% simply through their adoption of improved practices already being applied by small-scale emergent farmers in the same areas. However, because of the difficulty of predicting the response to the revised technological packages, which will vary by crop, ecological area, and several other factors, and because the outcome of research activities is uncertain, it is difficult to quantify the likely benefits of the Project.

#### Budgetary Impact

79. The Project would not generate direct fiscal revenues as there are no taxes or cesses levied on farm production. Nonetheless, its impact on the budgetary resources would be modest. Budgetary contributions are projected to increase steadily from about US\$0.1 million equivalent in the first year to a maximum of US\$1.2 million equivalent in the eighth year, or about 7 percent of the budget allocated to research and extension activities in 1986. After the eighth year, when all investment expenditures are completed, the budgetary contributions would consist of recurrent costs of about US\$1.0 million annually, or about 4 percent of the budget allocations for research and extension activities in 1986. To ensure additionality to the budgetary allocations to the Recurrent Departmental Charges for research and extension services, and to enable research and extension staff to devote sufficient time to field work, the Government would be required to maintain these allocations at least at the 1985 level in real terms; to contribute a progressively increasing share to the Project recurrent cost; and, not later than December 31, 1988, to increase travel allowances for research and extension staff to a level sufficient to cover full cost.

#### Project Risk

80. The Project's main risks are that: implementation of civil works, procurement of vehicles and equipment and recruitment of technical assistance may be hampered by weak management, inadequate local counterpart funds, or the worsening geopolitical situation in the Southern African region; adoption of the T&V system may be hindered by unforeseen difficulties; institution-building objectives may be frustrated by some of the staff leaving for better employment elsewhere; some of the key research personnel now funded by other donors outside the Project may depart without suitable replacements; and shortage of complementary inputs such as fertilizers, seeds and credit, and poor marketing services may hinder the adoption of the available technological packages. The Project includes several measures to minimize these risks.

81. To reduce delays in civil works, the Project has provided for a private firm of architect-engineers and to be responsible for design, preparation of tenders, evaluation of bids and supervision of civil works,

while all major construction works would be undertaken by private contractors. It has also provided for a procurement officer who would be responsible for expediting procurement of vehicles, equipment and recruitment of technical assistance personnel and consultants, and follow-up on the processing of bid documents through the Tender Board. Moreover, the Project seeks to ensure timely recruitment of the technical assistance personnel by providing for engagement of a professional recruitment agency, and by requiring that all the key personnel are recruited prior to Credit effectiveness in order to ensure that a strong management capability is accordingly in place. The problem relating to local counterpart funds is considerably alleviated by the fact that most of the Project costs, including a large part of the recurrent costs, would be funded from external sources; moreover, nearly 40 percent of the Government contribution could be financed from a fund that has been created out of the Swiss grant under the Agricultural Rehabilitation Project. There is little the Project can do regarding the geopolitical situation which could delay procurement of vehicles, equipment and materials and to increase Project costs.

82. In anticipation of possible difficulties regarding implementation of the T&V system, the extension component has been designed in two geographical phases so that, in case of unforeseen problems, the second phase would not be implemented and efforts would be concentrated on resolving the problems encountered under the first phase. There are no reasons to suggest that the turnover of research and extension staff is likely to be much higher in future than the 3-4 percent experienced during the past four years. Nevertheless, the proposals recently submitted by MAWD to the Government (para. 39) would go a long way towards reducing staff turnover by improving terms and conditions of employment for all research and extension staff. Housing contributes a significant part of the package of benefits for civil servants in Zambia and the improvement of staff housing under the Project would offer an added attraction to a large number of field and research staff. To minimize the adverse effects from departure by some of the key staff now funded by other donors in research, the Project has provided a fund to be used for replacements. Measures now underway to liberalize maize marketing and fertilizer distribution, and expected improvement of agricultural credit under a possible Bank-supported project, would have a positive impact on the adoption of technological packages.

#### Justification for IDA Financing

83. Improvement of research and extension services is critical to the development of Zambia's agriculture and, in turn, the success of national efforts to diversify the economy from the heavy dependence on the declining mining sector. The proposed Project is, therefore, particularly important and bears significantly on the performance of on-going and planned IDA supported agricultural projects in the country. Partly because of severe financial conditions and acute shortage of qualified manpower, the country has not been able to achieve the necessary improvements in research and extension services. Although considerable aid is available from various external donors, it falls short of the requirements and lacks coordination to ensure consistence with national development objectives. There is,

therefore, a need to supplement the available aid with regard to both investment funds and technical assistance. The proposed IDA Credit would fill this need. Furthermore, IDA's involvement would facilitate the establishment of a mechanism to coordinate external aid relating to these services.

PART V. RECOMMENDATION

84. I am satisfied that the proposed credit would comply with the Articles of Agreement of the Association and recommend that the Executive Directors approve the proposed credit.

Barber Conable  
President

Washington, D.C.  
November 17, 1986



ZAMBIA: ECONOMIC INDICATORS

Population: 6.678 million (mid-1985)  
 GNP per Capita: US\$400 (1985)<sup>1/</sup>

NATIONAL ACCOUNTS

Indicator	1985		Annual Growth Rates (%) at Constant Prices					
	US\$ millions	Percent of GDP	1975-80	1981	1982	1983	1984	1985
GDP, Factor Cost	2055	88	-0.7	2.7	-2.1	-8.0	1.5	4.8
GDP, Market Prices	2345	100	-1.1	6.2	-2.8	-2.0	-0.4	3.4
Agriculture	339	14	0.5	8.2	-11.7	8.4	5.6	9.2
Mining	334	14	-3.0	4.7	0.0	3.0	-9.8	-5.3
Other Industry <sup>2/</sup>	592	25	-0.2	5.1	-0.9	-5.1	0.8	4.8
Services	1080	47	0.4	6.5	-1.6	-4.3	-2.8	2.5
Consumption	1911	81	0.0	9.3	-8.8	-4.4	2.5	6.9
Gross Investment	280	12	-16.9	-11.1	-23.5	-24.2	5.8	-10.7
Exports of Goods & NFS	896	38	-3.5	-12.8	15.7	-9.7	-6.8	8.8
Imports of Goods & NFS	742	32	-8.9	-16.0	-22.0	-15.6	-2.5	1.0
Gross Domestic Savings	434	19	0.0	-8.2	-26.6	83.9	16.2	-19.1

GOVERNMENT FINANCE	General Government <sup>3/</sup>		Central Government (1985)	
	(K Mln.)	% of GDP	(K Mln.)	% of GDP
Current Receipts			1536	24.3
Current Expenditures			2489	39.3
Current Surplus			-953	-15.0
Capital Expenditures			456	7.2
External Financing			361	5.7

MONEY, CREDIT and PRICES

	1975	1980	1981	1982	1983	1984	1985	1986 (June)
	(Million K, End Period)							
Money and Quasi Money	493	907	979	1309	1454	1704	2415	2704
Bank Credit to Government	318	1355	1495	1983	2099	2287	2809	2617
Bank Credit to Private Sector <sup>4/</sup>	393	505	765	1011	1197	1401	2039	2252

(Percentage and Index Numbers)

Money and Quasi Money as % of GDP	31.3	29.6	28.4	36.4	34.8	36.0	38.1	n.a.
Wholesale Price Index (1966=100) <sup>5/</sup>	188.6	424.2	475.9	542.8	663.7	829.2	n.a.	n.a.
Annual percentage change in:								
Wholesale Price Index	16.6	11.1	12.2	14.1	22.3	24.9		
Bank Credit to Government	406.9	20.8	10.3	32.7	5.8	9.0	22.8	5.8
Bank Credit to Private Sector <sup>4/</sup>	17.0	4.6	51.4	32.2	18.4	17.0	45.5	49.3

<sup>1</sup> Based on World Bank Atlas Methodology.

<sup>2</sup> Manufacturing, construction, electricity, gas and water.

<sup>3</sup> Figures do not differ significantly from "Central Government".

<sup>4</sup> Includes parastatal organizations (ZIMOIL is included as from 1982 on).

<sup>5</sup> All domestically used goods.

September 23, 1986

ZAMBIA  
TRADE PAYMENTS AND CAPITAL FLOW

BALANCE OF PAYMENTS

	1982	1983	1984	1985
	(Millions US\$)			
Exports of Goods, NFS	1,067	1,005	964	911
Imports of Goods, NFS	1,410	1,043	928	1,046
Resource Gap (deficit = -)	-343	-38	36	-135
Factor Services (net) <sup>a</sup>	-235	-188	-221	-110
Net Transfers	-72	-50	-51	-51
Balance on Current Account	-650	-276	-236	-296
Official Grants	30	42	50	51
Direct Foreign Investment	..	..	..	..
Net MLT Borrowing	258	128	129	212
Disbursements	350	176	179	268
Amortization <sup>a</sup>	92	48	50	56
Net IMF	-57	64	76	-96
Commercial Payments Arrears	240	-50	25	14
Other Items (n.e.i.)	267	67	-49	125
Change in Reserves (- = increase)	-88	25	5	-10

Memorandum Items

Gross Int'l. Reserves	140	115	110	120
(weeks of Imports)	(5.2)	(5.7)	(6.3)	(6.0)
Current A/C Bal. as % GDP	-16.7	-8.2	-8.2	12.6

RATES OF EXCHANGE

	Kwacha
1981 US\$1.00 =	0.8684
1982	0.9282
1983	1.2506
1984	1.7943
1985	2.7027
1986 (Sept. 20)	6.3700

MERCHANDISE EXPORTS 1985

	US\$ Mln.	%
Copper	646	79
Cobalt	88	11
Lead and Zinc	26	3
All other	56	7
Total	815	100

EXTERNAL DEBT, Dec. 31, 1985

	US\$ Mln.
Public Debt, incl. guaranteed	3,214
Non-Guaranteed Private Debt	..
Total Outstanding & Disbursed	3,214

DEBT SERVICE RATIO FOR 1985

	%
Public Debt, incl. guaranteed	12.9 <sup>b</sup>
Non-Guaranteed Private Debt	..
Total Outstanding & Disbursed	12.9 <sup>b</sup>

IBRD/IDA LENDING, July 31, 1986

	(Million US\$)	
	IBRD	IDA
Outstanding & Disbursed	372.48	143.35
Undisbursed	40.91	182.30
Outstanding incl. Undisbursed	413.39	325.65

<sup>a</sup> Excludes arrears on interest and amortization payments and amounts rescheduled.

<sup>b</sup> Actual debt service paid on Public and Publically Guaranteed debt, excluding arrears and IMF repayments. Scheduled debt service due on PFG debt was equivalent to 46.1 percent of exports of goods and non-factor services.

..not available

STATUS OF BANK GROUP OPERATIONS IN ZAMBIA

A. STATEMENT OF BANK LOANS AND IDA CREDITS  
(as of September 30, 1986)

Loan No.	Credit No.	Year	Borrower	Purpose	Amount in US\$ Million (Less Cancellations)			
					Bank	IDA	Undisbursed Loan Credit <sup>1/</sup>	
21 Loans and 2 credits fully disbursed					448.79	21.00		
1566	798	1978	Zambia	Third Highway	11.25	11.25	11.14	0.03
	873	1979	Zambia	Technical Assistance		5.00		0.46
1790		1980	Zambia	Third Railway	25.00		1.78	
1923		1981	Development Bank of Zambia	Second Development Finance Company	15.00		0.08	
2001		1981	Zambia	Eastern Province Agric. Development	11.00		6.13	
	1193	1982	Zambia	Southern Province Agric. Development		18.00		13.39
	1196	1982	Zambia	Smallholder Dairy Dev.		2.13		0.93
	1251	1982	Zambia	Fifth Education		25.00		16.43
2151		1982	Zambia Industrial & Mining Company	Oil Refinery Mod. Eng.	5.10		2.96	
2152		1982	Zambia	Pet. Exploration Prom.	6.60		1.87	
	1333	1983	Zambia	Maamba Coal Eng.		4.30		1.10
	1362	1983	Zambia	Rural Water Supply		10.00		5.70
	SF2	1983	Zambia	Rural Water Supply		6.00		3.56
	1437	1984	Zambia	Ind. Forestry-Phase III		22.40		16.59
2391		1984	Zambia	Export Rehab. & Diver.	75.00		9.34	
	1529	1985	Zambia	Fisheries		7.10		6.52
	1545	1985	Zambia	Agricultural Rehab.		25.00		5.03
	A005	1986	Zambia	Agricultural Rehab.		10.00		4.48
	1575	1985	Zambia	Fourth Railways		20.00		20.00
	1630	1986	Zambia	Industrial Reor.		20.00		1.58
	A004	1986	Zambia	Industrial Reor.		42.00		10.52
	1627	1986	Zambia	Tazama Pipeline Reh. Eng.		3.10		3.10
	1662	1986	Zambia	Fertilizer Ind. Rest. <sup>2/</sup>		10.00		10.00
	1679	1986	Zambia	Second Tech. Asst. <sup>2/</sup>		8.00		7.98
Total					597.74	270.28	33.30	169.04
of which has been repaid					187.60	-	-	-
Total now held by Bank and IDA					410.14	275.65		
Amounts sold					28.58			
of which has been repaid					28.58			
Total							33.30	169.04

NOTES: The status of the projects listed in Part A is described in a separate report on all Bank/IDA-financed projects in execution, which is updated twice yearly and circulated to the Executive Directors on April 30 and October 31.

<sup>1/</sup> Credits denominated in SDRs (Credit 1193-ZA and above) are shown in US Dollar equivalents, based on the exchange rate in effect at the time of negotiations.

<sup>2/</sup> Not yet effective

**B. STATEMENT OF IFC INVESTMENTS**  
(as of Sept. 31, 1986)

Investment No.	Commitment Year	Type of Business	US\$ Million Equivalent		
			Loan	Equity	Total
216-ZA	1972	Zambia Bata Shoe Company Limited Shoe Manufacturing	0.85	0.23	1.08
250-ZA	1973	Zambia Bata Shoe Company Limited Shoe Manufacturing and Tannery	1.20	-	1.20
307-ZA	1975	Century Packages Limited Packaging Materials	0.78	0.21	0.99
324-ZA	1976	Development Bank of Zambia Development Finance Company	-	0.54	0.54
394-ZA	1978	Century Packages Limited Packaging Materials	0.10	-	0.10
483-ZA	1980	Zambia Consolidated Copper Mines Copper and Cobalt Production	28.00	-	28.00
527-ZA	1980	Kafue Textiles of Zambia Limited Textiles & Fibers	7.60	-	7.60
600-ZA	1982	Zambia Consolidated Copper Mines Copper Production	25.14	-	25.14
709-ZA	1984	Zambia Hotel Properties Ltd. Tourism	19.71	-	19.71
743-ZA	1985	Mpongwe Development Co. Ltd., Food and Food Processing	1.81	0.29	2.10
721-ZA	1985	Kafue Textiles of Zambia Limited Textiles & Fibers	3.15	-	3.15
		Total gross commitments	88.34	1.27	89.61
		Less cancellations, terminations, repayment and sales	30.39	0.20	32.01
		Total now held by IFC	57.95	1.07	59.02
		Total undisbursed	5.12	-	5.12

SUPPLEMENTARY PROJECT DATA SHEET

I. Timetable of Key Events

- (a) Time taken to prepare Project : 18 months
- (b) Project prepared by : Government, with assistance of consultants
- (c) First presentation to IDA : September 1984
- (d) Departure of appraisal mission : January 1985
- (e) Departure of post-appraisal mission : June 1986
- (f) Negotiations : October 1986
- (g) Planned date of effectiveness : March 1986

II. Special IDA Implementation Action

PPF advance of US\$1 million; principally to finance the appointment of key staff and procurement of essential items to enable Government to initiate Project start-up.

III. Special Conditions

(a) Conditions of Credit Effectiveness

- (i) Appointment of Project Implementation Officer, Project Financial Officer, Manpower Development and Training Specialist, Procurement Officer, and their local counterparts;
- (ii) Employment of consultants for preparation of five-year research action program;
- (iii) Opening of Project Advance Account;
- (iv) Selection of specified land sites for research stations and extension staff houses;
- (v) Signing by the Borrower of Loan and Grant Agreements, respectively, with AfDB and NORAD.

(b) Covenants

- (i) Implementation of the Project in accordance with an agreed implementation schedule;
- (ii) Submission to IDA, by September 30, 1988, of a policy statement on irrigation, and by June 30, 1988, of the report of the Task Force on livestock development policy and strategy;
- (iii) Submission to IDA for review and approval, by September 30 of each year, of a detailed Annual Work Program and Budget;
- (iv) Submission to IDA for review and comment, by December 31, 1987, of a five-year research action program; by December 31, 1988, of a long-term agricultural manpower projections and training program; and by August 31, 1989, of a mid-term progress report;
- (v) Establishment of monitoring and evaluation units by December 31, 1987.

# ZAMBIA

## AGRICULTURAL RESEARCH & EXTENSION PROJECT

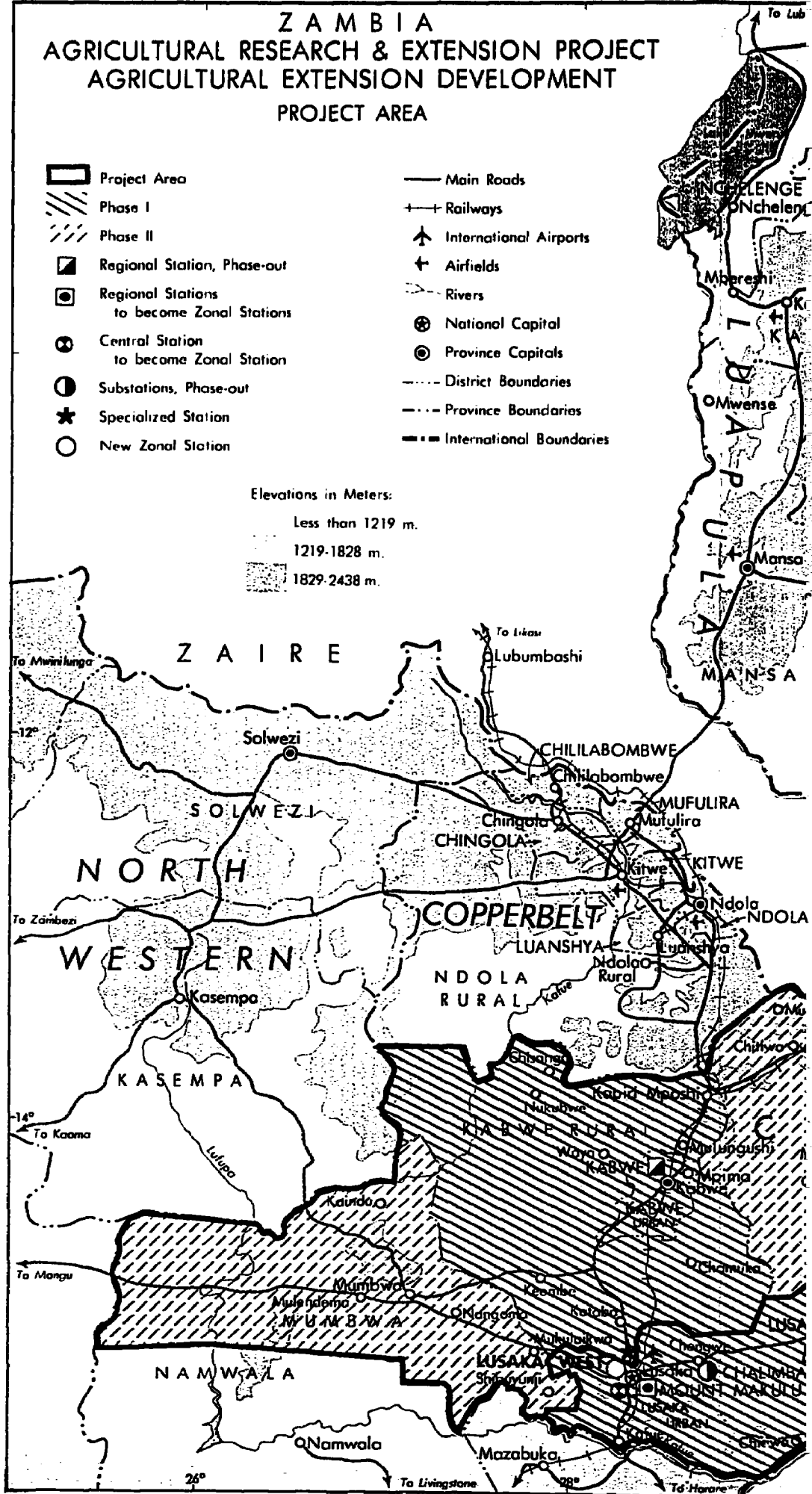
### AGRICULTURAL EXTENSION DEVELOPMENT

#### PROJECT AREA

- |  |  |
|--|--|
| <ul style="list-style-type: none"> <li> Project Area</li> <li> Phase I</li> <li> Phase II</li> <li> Regional Station, Phase-out</li> <li> Regional Stations to become Zonal Stations</li> <li> Central Station to become Zonal Station</li> <li> Substations, Phase-out</li> <li> Specialized Station</li> <li> New Zonal Station</li> </ul> | <ul style="list-style-type: none"> <li> Main Roads</li> <li> Railways</li> <li> International Airports</li> <li> Airfields</li> <li> Rivers</li> <li> National Capital</li> <li> Province Capitals</li> <li> District Boundaries</li> <li> Province Boundaries</li> <li> International Boundaries</li> </ul> |
|--|--|

Elevations in Meters:

	Less than 1219 m.
	1219-1828 m.
	1829-2438 m.



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