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9. ABSTRACT

Sponsored by the Office of Eastern and Southern African Affairs, under contract with A.I.D., this paper includes social, geographic, economic, and political information to provide background on the issues and opportunities for economic assistance to the countries of Southern Africa through and following the periods of transition in Zimbabwe and Namibia. This report is a profile of Zambia and includes a general background discussion of the physical features, politics, demography, population, tribes, education, and role of the expatriate. The economic overview discusses setting, developmental problems, and macroeconomic performance. A section on foreign donor assistance includes a history, balance of payments assistance, recent donors and programs, and assistance from the World Bank. Sectoral analyses are on agriculture, mining, transportation, power, water, health, education, manufacturing, and the urban sector. The growth of the Zambian economy has been poor; the development of the rural and agricultural sector away from mining has been limited. Sixty-five percent of the rapidly growing population is rural. The potential for employing the growing labor force in the labor intensive segments of the agricultural sector is far greater than the potential for employment within the basically capital intensive industrial sector. Normalization of trade relations with Zimbabwe is likely to have an adverse effect upon Zambia's industrial sector. These considerations, together with the favorable physical environment for agriculture and the high level of agricultural imports, suggest the appropriateness of a strategy that involves a major role for the agricultural sector.

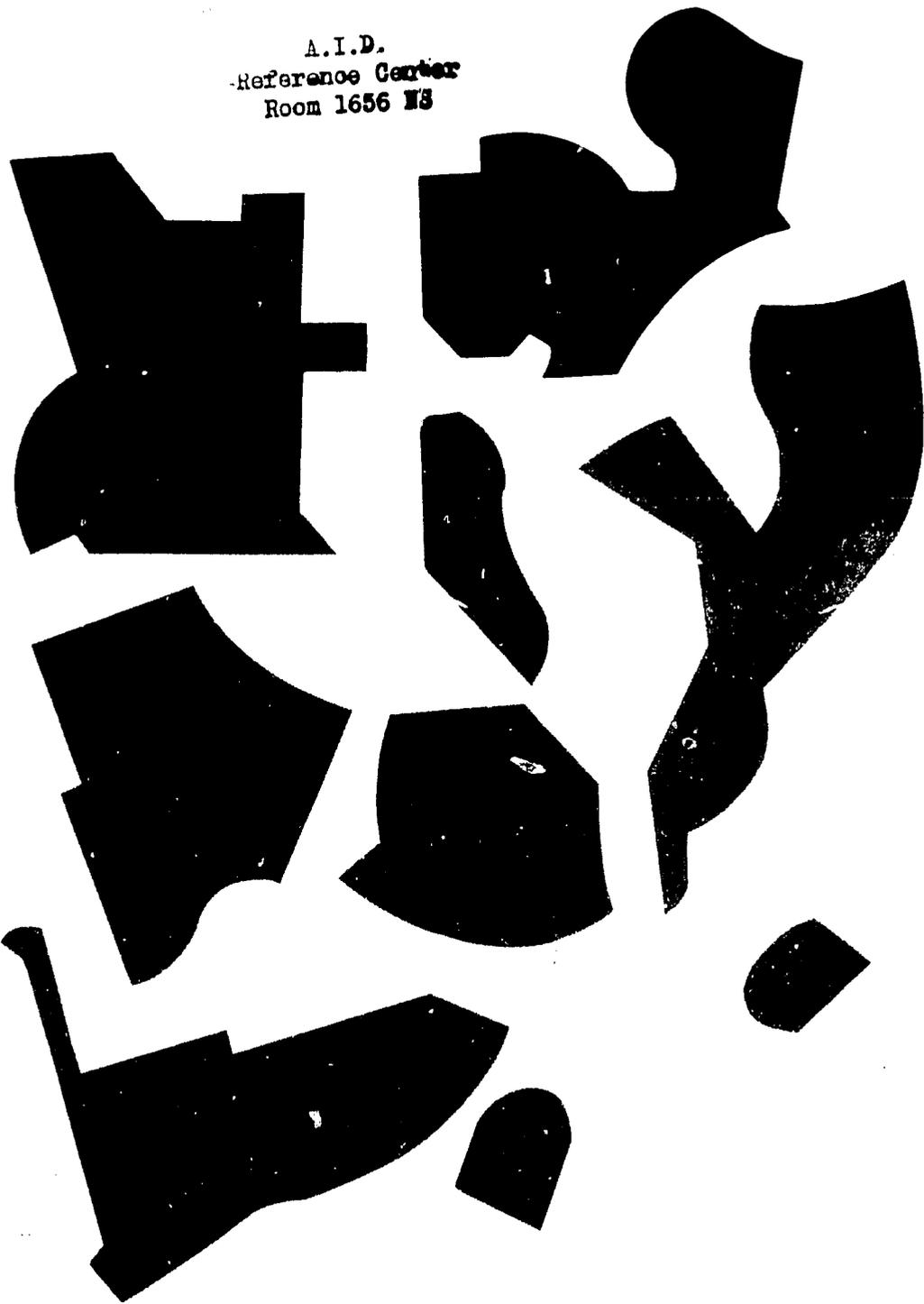
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*This paper was prepared to provide background information on the issues and opportunities for economic assistance to the countries of Southern Africa thru and following the periods of transition in Zimbabwe and Namibia. It includes Social, Geographic, Economic, and Political information.*

February 1977

Prepared by:

Southern Africa Task Force

Office of Southern and  
East African Affairs  
Africa Bureau, USAID

## **Transition in Southern Africa-----**

# **ZAMBIA**

**A.I.D.  
Reference Center  
Room 1656 NS**

**A FRAMEWORK FOR U.S. ASSISTANCE  
IN SOUTHERN AFRICA**

**COUNTRY RESOURCE PAPER**

**Z A M B I A**

**Submitted by**

**THE OFFICE OF EASTERN AND SOUTHERN AFRICA AFFAIRS**

**BUREAU FOR AFRICA  
AGENCY FOR INTERNATIONAL DEVELOPMENT**

**February 1977**

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**by**

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Washington, D.C.**

## RATE OF EXCHANGE

Zambia joined the International Monetary Fund (IMF) in 1965 and the initial par value of its Kwacha was set at K1 = US\$1.40 (table III-1 ). After the currency crisis of 1971 Zambia maintained the preexisting value of the Kwacha to the U.S. dollar and therefore effectively devalued with the dollar. In February 1973 the par value of the Kwacha remained unchanged in SDR while the dollar declined. Thus the effective relationship between the Kwacha and the dollar became K1 = US\$1.5556. In July 1976 in response to a balance-of-payments crisis precipitated by low copper prices, Zambia devalued the Kwacha to K1 = US\$1.250.

### ZAMBIAN EXCHANGE RATE EXPERIENCE

<u>Year</u>	<u>Exchange Rate</u>
September 1965 (Zambia joined IMF)	K1 = US\$1.40
February 1973	K1 = US\$1.55
July 1976	K1 = US\$1.25

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# **I**

## **GENERAL BACKGROUND**

- **Physical Features**
- **Demography**
- **Culture**
- **Education**
- **Politics**

## I. GENERAL BACKGROUND

### A. Physical Features

Zambia's surface area amounts to 744,000 square kilometers, with only one third of the land suited to agriculture. Two thirds of Zambia is made of tsetse fly-infested country<sup>1</sup> (49 percent); forests, game preserves (15 percent); and areas permanently under water, rocky, or otherwise agriculturally unsuitable (10 percent).

The land is primarily a gently undulating plateau between 900 meters and 1,500 meters above sea level, but is broken occasionally by steep escarpments. The country can be divided broadly into three relief regions: (1) the southern areas drained by the Zambeze and its tributaries; (2) the northern areas drained by the Chambeshi-Luapula system and the headwaters of the Congo; and (3) a central watershed region separating the two drainage basins.

Zambia's tropical continental position and its relief have a marked influence on its climate and water resources. Although relatively better watered than many high-elevation tropical areas, the adequacy of the year-round water supply is often a serious problem. This problem is caused by:

- . Variations in the seasonal rainfall
- . Unequal distribution of rain throughout the country
- . Fluctuations in the start of the rainy season
- . Excessive evaporation during the hot season

Annual rainfall varies from more than 47 inches in large sections of the west, north, and northeast to less than 27 inches in large areas along the southern border and especially in the southwest (Map I-1). The dry season typically runs from May through September with maximum rainfall in January. The four broad types of vegetation found in Zambia include:

- . Tall grasslands
- . Deciduous savanna woodland
- . Mopani savanna (sparse ground cover of ephemeral grasses)
- . Chipya (a mixture of high grass and woodlands)

Although woodland areas provide a variety of commercially important timber, only limited supplies of hardwoods of the better quality are found.

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1. With only negligible exceptions, traditional and commercial grazing ranges do not overlap with areas designated as tsetse fly areas.



The four main ecological zones are shown in the following table:

Table I-1. Major Ecological Zones

Zone	Area (in square kilometers	Rural population (in thousands)	Rural population per square kilometer
Northern high rain- fall zone	350	1,220	3.5
Western semiarid plains	208	500	2.4
Central, southern, and eastern	94	810	8.6
Luangwa-Zambezi rift valley	101	230	2.3
Total	753	1,760	3.3

These are discussed below.

1. The Northern High Rainfall Zone -- This zone comprises the major parts of Northern, Luapula, Copper Belt, and North-Western provinces and has a rainfall of between 39 and 59 inches, all falling between November and April. Most of the area is a gently undulating plateau varying between 1,200 and 1,700 meters. Most of the plateau soils are free-draining with poor physical and chemical structure, heavily leached and of low fertility. Various forms of shifting cultivation (chitemene) have evolved and are practiced throughout the region. When a new, more intensive, settled agricultural system is adopted, most soils in the region require careful management in order to maintain fertility. In addition to the shifting cultivation on the plateau, there are large areas of river valley and lake basin agriculture (for example, Luapula, Chambeshi, Lake Bangweulu, and Lake Mweru). These are mainly based on cassava cultivation. Large areas in this region are infested with tsetse fly which limits cattle production.

2. The Western Semiarid Plains -- The plains comprise most of Western Province with parts of North-Western Province, notably the Zambezi District. This is the driest area in Zambia, with an annual rainfall ranging from 24 to 40 inches. The chief climatic limitations to plant growth in this zone are the extremes of heat, frost, and aridity. The main feature of the region is the extensive Pliocene plain, which is cut from north to southeast by the wide flood plains of

the Zambezi. Wide areas are covered by a deep mantle of Kalahari sands which are generally infertile and suitable only for limited cattle grazing. The majority of the region is tsetse-free, and a predominantly cattle economy has evolved, with varying systems of semipermanent hoe cultivation intimately connected with seasonal movements of the water table.

3. The Central, Southern, and Eastern Plateau -- This area contains the most fertile soils in Zambia. These plateau soils differ from their northern counterparts by being less leached and having a higher percentage of red earths or loams. The sandvelts around Mkushi, Kakwe, Choma, Kalomo, Katete, and Chipata are best suited for tobacco, maize, and beef, while the red loams of Eastern Province around Petauke, like the upper valley soils of Mumbwa, Mazabuka, and Lusaka, are more suited for cotton and maize. Almost all the land alienated for expatriate settlements during preindependence days lies in this zone. Rainfall varies from 58 inches in the east to 27 inches in the south.

4. The Zambezi-Luangwa Rift Valley -- This valley has extensive escarpment and hill country on either side of the valleys and effectively cuts off the Eastern Province from the rest of the country. With altitude down to 600 meters and a rainfall of less than 27 inches in the Gwembe Valley, rising to 1,200 meters in the north of the Luangwa Valley, the zone has a hot, humid climate for most of the year. The escarpments are generally unsuitable for agricultural production except for very isolated pockets of better soils. The whole zone is of minor significance agriculturally.

## B. Politics

For the decade lasting until December 1963, Northern Rhodesia formed part of the Federation of Rhodesia and Nyasaland. The first majority African government was formed after the October 1962 elections with Dr. Kenneth Kaunda of the United National Independence Party as prime minister of a coalition government. After the collapse of the federation, Zambia became an independent republic within the Commonwealth (October 1964) with Kaunda as its president. The UNIP continued its electoral dominance, and a one-party state became law in December 1972.

Since independence, government policy has been directed toward increasing control of the economy by Zambians through Zambianization in employment, restriction of trading activities to Zambian citizens, and nationalization of foreign-owned assets within the country. In 1968 the government acquired a 51 percent holding in 25 major foreign-owned businesses in Zambia. In 1969 the reforms were extended to cover a 51 percent government ownership in the main copper-mining companies. Insurance, building societies, and several major foreign-owned companies were taken over in 1970. Zambianization of the wholesale and retail sectors was increased between 1969 and 1972 with the restriction of trading licenses to Zambian citizens only. The restrictions have reduced the range of commercial

activities that may be undertaken by non-Zambians. In 1975 the government secured control of the daily press and cinemas and also abolished all private holding of freehold land. The government also has recently declared that all firms with profit of over K500,000 (about \$625,000) would be taken over by the government. No further action in this direction has been taken, however.

The government has taken a basically hostile posture toward private enterprise, capitalism, and foreign ownership -- particularly controlling ownership -- of economic enterprises. This is the outgrowth of President Kaunda's humanism, which calls essentially for a highly egalitarian society and a rediscovery of traditional values. For example, President Kaunda has said, "Let me emphasize that I want Zambian businesses to expand and prosper. But for goodness sake, I do not propose to create Zambian capitalism here. This is incompatible with my concept of humanism." This philosophy has resulted in the increased role for government in the economy, as documented above. It has also contributed to the continuing difficulties Zambia has experienced in the agricultural sector.

Within the agricultural sector, the government appears to favor co-operatives strongly as being most compatible with humanism. Cooperatives have proved to be relatively unsuccessful, however. The obvious alternatives -- state farms or private individual farms -- are both viewed as being in conflict with humanism. "The centrality of man and the rediscovery of traditional values do not easily co-exist with massive state farms which necessarily imply the perpetuation of the master-servant relationship." Also, the encouragement of individual peasant farming would be likely to lead to the growth of an elitist class and the creation of the Zambian capitalism which the President abhors. The President has therefore attacked elitism in a variety of forms. The position appears to be that differences in wealth, education, and the like generate elitist feelings and an undesirable type of society and should therefore be eliminated.

The humanistic view is manifest in a number of actions, including the:

- . Proposed revamping of the educational system along the Chinese, Cuban, and Tanzanian models
- . Abolition of private holdings of freehold land (although this action probably was directed primarily at expatriate farmers)
- . Nationalization threats toward firms with incomes over K500,000
- . New health-care system which has no provisions for special care.

Although Zambia is a one-party state, many well-informed observers suggest an insecurity in the government which is reflected in the various economic policies favoring important political groups. For

example, a common explanation for the agricultural price policies which favor the urban consumer at the expense of the farmer is the political strength and importance of the urban workers and particularly the miners' unions.

#### C. Demography

The 1975 population is estimated to be 4.9 million, with a growth rate of 3 percent. This provides a density of population of six persons per square kilometer, with a rural population of 3.6 persons per kilometer. Estimates for 1969 indicate that the nonindigenous population was 58,351, of which 75 percent were European, 18 percent Indian, and 7 percent Coloured.

#### D. Population

Zambia is divided into eight provinces. More than 35 percent of the people live in urban areas, with the largest urban conglomeration lying along the line of rail from the Copperbelt in the north through Lusaka to Livingstone. Lusaka had a 1973 population of 415,000 followed by five Copperbelt towns with population between 100,000 and 350,000. While the annual rate of growth of the population is about 3 percent, urban population is growing at about 6.8 percent a year, compared to 1.6 percent for the rural population.

Despite the high growth rate, Zambia's government views the country as sparsely populated and hence is not receptive to programs of population control.

#### E. Tribes

The major waves of Bantu-speaking immigrants began to arrive in Zambia in the 15th century with the greatest influx in the period between the late 17th and the early 19th centuries. They came primarily from the Luba and Lunda tribes of southern Zaire and northern Angola but were joined in the 19th century by the Ngoni who migrated from the south and the Lozi who settled in the mid-Zambese flood plain in the Western Province. At present, there are over 70 distinguishable Bantu-speaking tribes, only one of which -- the Tonga tribe in southern Zambia -- constitutes more than 10 percent of the population.

#### F. Education

Since independence, a major social goal of the government has been to raise the general level of education and to develop a wide range of technical, administrative, and managerial skills to lessen the dependence upon expatriate expertise. The expansion of educational facilities has been impressive, but the shortage of educated and skilled manpower has remained the most important constraint to Zambia's economic development.

At independence in 1964, Zambia had one of the lowest education profiles in the developing world. Less than a hundred university graduates and less than 1 percent (32,000) of the population had completed the full primary course. In a decade enrollment in primary education has increased by 191 percent in grade I and 306 percent in grade VII. About 81 percent of the children of age group 7-13 were enrolled in school by the mid 1970s. Enrollment in secondary schools increased by more than 450 percent in the same period. The literacy rate is given as 15-20 percent for 1971, the latest official estimate, but the current figure should be higher. Chart I-1 presents Zambia's 1971 education pyramid.

Between 1964 and 1974 the University of Zambia produced 860 graduates. The achievements in the field of technical and vocational training have been equally impressive. Despite the progress, however, most professional positions are still held by expatriates. For example, as recently as 1973 only 4 percent of the medical doctors, 30 percent of the engineers, and 12 percent of the secondary-school teachers were Zambians.

#### G. Role of the Expatriate

An announced goal of the government is the Zambianization -- the replacement of the non-Zambians by Zambian workers -- of the economy. This process has proceeded quite rapidly.

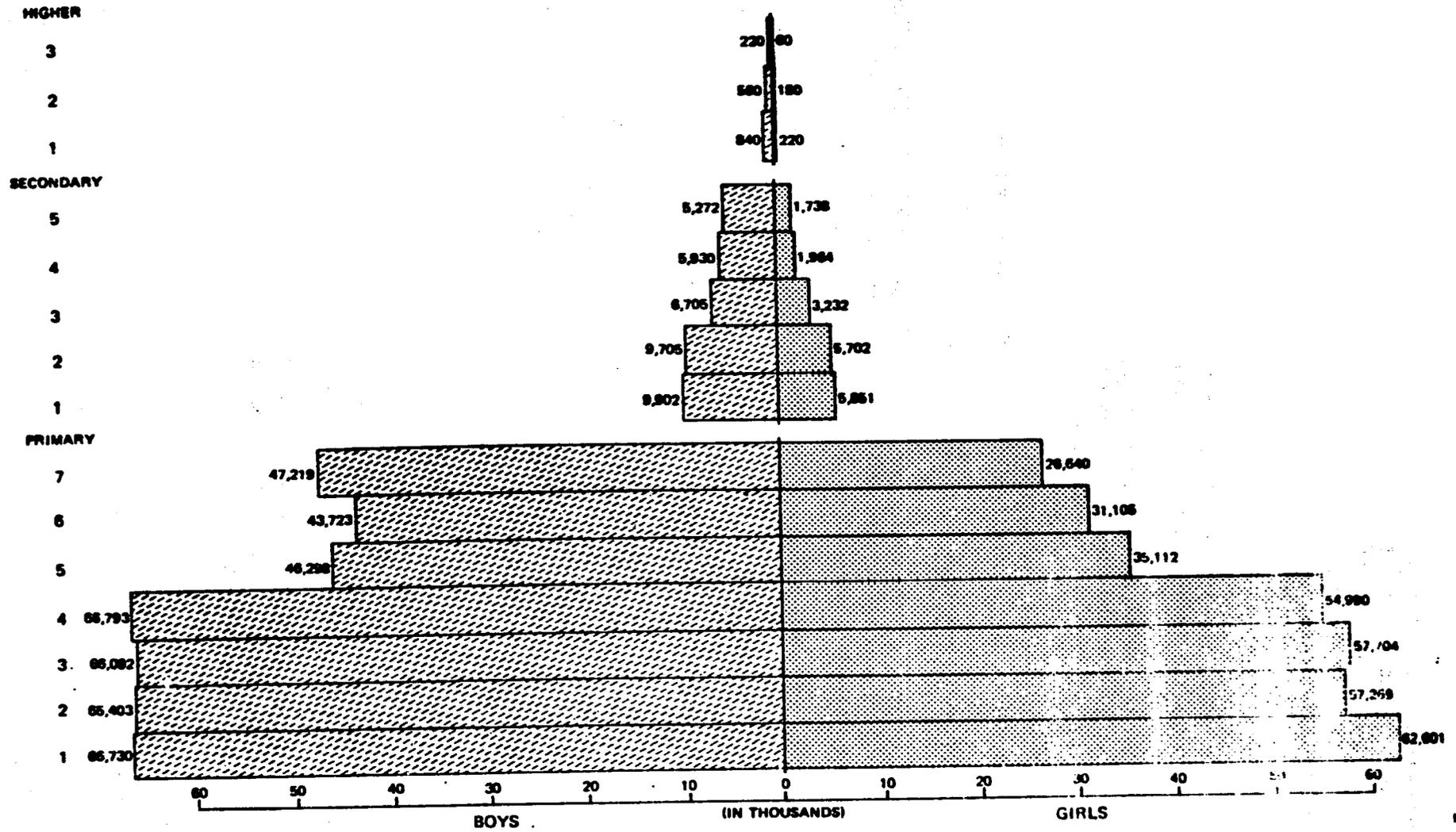
According to the 1969 Census, there were a total of 58,351 non-Africans in Zambia in 1969. This included 43,390 (75 percent) European; 10,785 (18 percent) Indian, and 4,176 (7 percent) Coloured. This is a decline of non-Africans to 69 percent of the 84,382 in Zambia in 1961. The number of Europeans in Zambia decreased to 58 percent of the 1961 level.

Tables I-2 and I-3 provide an intertemporal view of employment changes by sector. In overall employment, non-Zambians represent 8 percent of total employment: 16 percent of the work force in mining, 10 percent in electricity, and about 10 percent in commerce (the Distribution and Finance sectors under the new breakdown) are non-Zambian. It should be noted that tables I-2 and I-3 do not include owner-operators, whose numbers may be relatively large in agriculture and trade.

In overall employment, the numbers of non-Africans declined between 1960 and 1970. However, the number of non-Zambians rose slightly between 1972 and 1974. It will also be noted that the 1971 and 1972 data concerning the African and non-African populations differ from the earlier data, apparently reflecting changes in the collection procedure.

Tables I-4 and I-5 indicate the degree of Zambianization within the government and mining. Table I-5 indicates a decline in the use of expatriates. However, Table I-4 indicates the heavy reliance upon expatriates in certain occupations (for example, professional, medical, and secondary-school teaching. Tables I-6 and I-7 are illustrative of Zambian plans for gradual replacement of expatriates with Zambians in the various economic sectors.

Chart I-1  
Zambian Education Pyramid, 1971



World Bank-7518

Table I-2  
Employees by Industrial Sector (1)

	All employees			Agriculture, forestry and fisheries		Mining and quarrying		Manufacturing		Construction	
	Total	African	Others	African	Others	African	Others	African	Others	African	Others
1960 ... ..	277,000	244,000	33,000	37,000	740	42,700	8,030	17,900	2,640	36,000	2,730
1961 ... ..	270,600	232,000	32,600	37,800	620	42,100	9,120	17,500	2,750	30,000	2,450
1962 ... ..	244,300	231,000	33,300	38,700	660	41,100	8,330	17,400	2,800	23,900	1,900
1963 ... ..	257,500	225,000	32,500	36,000	700	40,800	8,230	15,000	2,900	23,400	1,900
1964 ... ..	248,700	237,000	31,700	34,500	670	42,500	8,290	18,000	2,940	29,100	2,030
1965 March ...	280,300	249,000	31,300	32,500	570	44,200	8,360	19,800	2,830	34,400	2,080
June ...	301,600	267,760	33,840	31,020	500	44,730	6,560	24,730	4,330	44,740	2,140
September ...	304,430	268,900	35,530	29,760	700	45,540	7,490	28,170	4,330	44,070	2,030
December ...	298,360	266,500	31,860	35,000	750	44,800	7,730	23,400	3,450	49,200	2,610
1966 March ...	313,760	282,840	30,920	34,050	460	44,290	6,900	29,390	4,330	46,500	1,960
June ...	313,360	284,480	28,880	31,540	450	46,570	7,490	27,100	3,020	58,310	2,420
September ...	332,930	303,450	29,480	33,010	480	47,500	7,540	28,410	3,190	67,800	2,470
December ...	336,830	307,450	29,370	34,900	470	47,610	7,170	27,860	2,950	68,620	2,620
1967 June ...	338,730	309,650	29,080	37,470	550	48,480	6,630	29,430	2,820	60,580	2,520
December ...	347,050	317,770	29,280	35,910	540	48,320	6,420	30,530	2,890	64,820	2,700
1968 June ...	354,730	325,800	28,930	37,510	620	49,150	5,780	32,450	2,870	67,420	2,710
December ...	353,600	324,440	29,160	34,060	540	48,650	6,100	31,540	2,760	61,380	2,590
1969 June ...	357,150	327,330	29,820	38,970	450	49,420	5,970	33,820	3,110	57,470	2,650
December ...	363,030	334,970	28,060	34,500(4)	490	50,090	5,170	34,430	2,880	57,800	2,120
1970 June ...	372,130	344,700	27,430	33,480	450	51,060	5,450	33,920	2,890	66,740	2,750

	Electricity, water and sanitary services		Commerce		Transport and Communications		Service (2) (excluding domestic)		Domestic service (3)
	African	Others	African	Others	African	Others	African	Others	
1960 ... ..	2,700	260	14,700	6,780	10,400	3,070	46,200	8,760	35,800
1961 ... ..	2,500	280	14,900	6,580	10,300	3,020	46,800	8,740	35,900
1962 ... ..	2,400	300	15,300	6,790	9,600	3,120	46,200	9,320	36,200
1963 ... ..	2,000	310	13,900	6,290	8,300	2,920	48,200	9,180	36,000
1964 ... ..	1,800	340	14,500	6,380	8,700	2,660	52,400	8,380	35,400
1965 March ...	2,100	370	16,100	6,700	9,200	2,450	54,100	7,950	35,000
June ...	2,150	460	16,440	6,420	13,810	3,420	55,140	10,010	35,000
September ...	1,760	440	16,440	6,420	14,370	3,750	53,790	10,370	35,000
December ...	3,640	410	19,500	7,170	10,100	2,210	46,000	7,500	35,000
1966 March ...	2,630	370	20,380	7,260	16,560	2,700	54,040	6,940	35,000
June ...	2,900	400	19,160	6,220	17,280	2,460	46,530	6,410	35,000
September ...	2,950	410	20,850	6,250	18,750	2,640	49,180	6,510	35,000
December ...	3,340	410	22,100	6,350	18,070	2,630	49,950	6,770	35,000
1967 June ...	3,370	420	22,990	6,390	16,910	2,400	55,420	7,340	35,000
December ...	3,430	450	23,960	6,460	17,870	2,450	57,940	7,380	35,000
1968 June ...	3,640	420	24,500	6,350	18,970	2,730	57,170	7,450	35,000
December ...	4,360	410	25,290	6,270	20,740	2,810	63,720	7,680	35,000
1969 June ...	3,410	390	28,290	6,580	20,060	3,180	60,890	7,490	35,000
December ...	2,420 (5)	380	30,290 (6)	5,870 (6)	19,510	2,900	70,930	8,250	35,000
1970 June ...	2,040	370	28,940	4,640	20,770	2,410	72,750	8,470	35,000

(1) At the end of quarter. Annual figure is quarterly average for the year.

(2) Government services, health, education, and other community services, business services, recreational services, and personal services other than domestic services.

(3) Estimated.

According to new International Standard Industrial Classification (ISIC)

(4) Excludes Veterinary Services which are now included in Services.

(5) Excludes Sanitary Services which are now included in Services.

(6) Excludes Banking, Insurance and Real Estates, which are now included in Services.

Table I-3  
Employees in Each Industry

Average for the quarter ending	All Industries			Agriculture, forestry and fisheries		Mining and quarrying		Manufacturing		Electricity and water	
	Total	African	Others	African	Others	African	Others	African	Others	African	Others
1971 Jun- ...	359,359	331,470	28,437	37,270	530	32,100	5,500	37,500	2,750	3,560	420
December	365,550	339,000	26,550	38,740	580	52,800	5,360	39,020	3,000	3,590	450
1972 June ...	364,710	333,750	29,930	37,670	570	52,050	5,420	37,970	2,720	1,410	430
	Total	Zambian	Non-Zambian	Zambian	Non-Zambian	Zambian	Non-Zambian	Zambian	Non-Zambian	Zambian	Non-Zambian
1972 December	367,600	333,220	34,380	34,520	1,180	47,040	11,160	37,490	3,310	4,220	510
1973 June ...	377,570	342,770	34,650	35,100	1,460	50,030	11,310	37,600	3,350	4,960	590
December	383,670	348,730	34,940	35,310	1,500	51,230	11,360	39,500	3,450	5,080	580
1974 June ...	386,270	351,190	35,080	34,880	1,640	52,820	11,210	39,710	3,420	4,900	570

	Construction and allied repairs		Distribution, restaurants and hotels		Transport and communications		Finance, insurance, real estate and business services		Community, social and personal services (1)	
	African	Others	African	Others	African	Others	African	Others	African	Others
1971 June ...	67,470	2,690	29,440	4,470	20,340	1,830	8,310	2,000	75,150	6,190
December	63,140	2,730	33,350	4,580	21,010	1,570	8,610	1,950	78,740	6,320
1972 June ...	66,220	2,730	32,410	4,290	24,410	2,210	9,350	1,980	72,330	5,680
	Zambian	Non-Zambian	Zambian	Non-Zambian	Zambian	Non-Zambian	Zambian	Non-Zambian	Zambian	Non-Zambian
1972 December	66,980	3,460	33,190	4,080	23,790	2,040	9,890	2,110	76,100	6,530
1973 June ...	72,200	3,900	32,550	3,910	23,220	2,120	10,600	2,140	76,600	5,810
December	71,630	3,920	31,910	4,050	24,370	1,920	11,570	2,100	78,130	6,060
1974 June ...	70,440	4,330	32,010	3,730	24,620	1,830	12,650	1,930	79,160	6,420

Table I- 4  
Governmental Posts in All Grades

	Est	Non- Zambian	Per- cent	Zambian	Per- cent	Vacancies	Per- cent
Professional	1,030	569	55.2	122	11.8	339	33.0
Technical	5,027	1,071	21.3	2,199	43.7	1,757	35.0
Administrative and Executive	5,812	513	8.8	3,564	61.3	1,735	29.9
Clerical	6,111	124	2.0	4,000	65.5	1,987	32.5
Secretarial	387	205	53.0	55	14.2	127	32.8
Medical	485	292	60.2	17	3.5	176	36.3
Nursing	1,587	643	40.0	169	12.0	775	48.0
Medical Assistants	2,381	343	14.4	741	31.1	1,297	54.5
Police Force	8,548	315	3.7	7,378	86.3	855	10.0
Prisons	1,555	3	0.2	1,476	94.9	76	4.9
<b>Teaching Posts</b>							
Scheduled and Primary School	620	601	96.9	19	3.1	-	-
Unscheduled Primary School	13,803	-	-	13,795	99.95	8	.05
Secondary School	2,411	2,122	96.9	289	3.1	-	-
Other Teaching Posts	913	107	11.7	621	68.0	185	20.3
<b>TOTAL</b>	<b>50,670</b>	<b>6,908</b>		<b>34,445</b>		<b>9,267</b>	

Source: G.R.Z. Report of the Population, Labor Force, Employment and Migration Planning Committee, 1971.

Table I-5a  
Zambianization in Central Government Employment,  
Division 1 and 2

	1963		1966		1968	
	Zambian	Non-Zambian	Zambian	Non-Zambian	Zambian	Non-Zambian
Administrative & Executive	103	719	846	974	1,729	697
Professional	11	418	60	281	193	826
Technical and Works	531	891	720	866	1,375	956
Clerical, Medical, Police Posts and Prisons (1)	712	1,807	2,884	1,530	4,212	920
Teachers (2) - Primary (3)			8,557	501	11,400	549
Secondary (3)			118	1,044	145	1,636
Other (4)			45	265	69	342
<b>Total</b>			<b>13,230</b>	<b>5,461</b>	<b>19,123</b>	<b>5,926</b>

- (1) Medical, posts and prisons were Federal responsibilities in 1963 and are excluded in that year, as reliable data on them is not available; the sections were, however, already highly Zambianized in 1963.
- (2) Many of the figures for all years have had to be estimated for the Zambian/Non-Zambian categories. In 1963, certain schools were Federal and reliable information for Zambian/Non-Zambian teachers is not available.
- (3) Covers Government and Aided Schools. Some of the teachers are not civil servants and, in the case of primary school teachers, some are in Division 3 of Government.
- (4) Includes: Teacher Training Colleges, Trade Schools, Northern Technical College, Evelyn Hone College of Further Education and the University of Zambia.

Table I-5b  
Progress of Zambianization in the Mines  
(Including Broken Hill and Ndola copper refineries)

	Total No. of Expatriates	Total No. of Zambians in the field of Expatriate employment
December 1964 *	7,621	704
March 1966 *	6,592	1,138
September 1966 *	6,358	1,884
October 1967 *	5,671	2,617
June 1968 *	5,024	3,671
December 1969 +	4,444	4,102
December 1970 +	3,774	4,661
December 1971 +	3,551	5,195
December 1972 +	3,168	5,578

\* Actual strength                      + Forecast

Source: C.S.O. Monthly Bulletin of Statistics, June 1973.

Table I-6  
 Zambian Medical Personnel: Selected Categories of Priority Need,  
 Present Situation and Total Additionally Required, 1972-81

	1971 Stock		Additionally required for				Total
	Total	Of whom Zambians	Zambia- nization/1	Filling Existing Vacancies	Attrition/2 of Zambians	Expansion of System	
Matrons & Nursing Sisters	89	21	66	71	13	122	274
Nurse Tutors	27	2	25	12	1	28	66
Public Health Nurses	17	3	14	-	2	52	68
Registered Nurses & Midwives	546	112	434	634	71	650	1,789
Enrolled Nurses	537	488	49	521	307	2,000	2,877
Enrolled Midwives	40	32	8	156	20	700	884
Medical Assistants	809	746	63	382	470	140	1,055
Health Assistants	125	125	-	61	79	350	490
Laboratory Assistants	33	33	-	49	21	155	235
Radiological Assistants	14	14	-	22	9	100	131

/1 Assumed to be completed by 1981.

/2 Computed at an annual rate of 5.0% on the 1971 stock of Zambians.

Sources: Ministry of Health. Mission Estimates.

**Table I-7**  
**Agricultural Manpower Requirements**  
**of Zambia, 1971-81**

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<b>Total manpower available in 1971</b>	<b>314</b>
<b><u>Zambian</u></b>	<b>68</b>
Ministry of Rural Development	37
Parastatal and private	31
<b><u>Expatriate</u></b>	<b>246</b>
Ministry of Rural Development	157
Parastatal and private	89
<b>Total manpower available in 1981</b>	<b>460</b>
<b>Total additional professional manpower required<sup>a</sup></b>	<b>454</b>
Growth	146
Attrition of Zambian labor force	62
Zambianization	246

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a. Computed on the basis of the number of Zambian workers available in 1971 at only 5 percent a year over a 10-year period.



# **II**

## **ECONOMIC OVERVIEW**

- **GDP**
- **Balance of Payments**
- **Other**

## II. ECONOMIC OVERVIEW

### A. Setting

The Zambian economy fits very neatly into the classical case of the dual economy with one modern, well-developed sector and an economically primitive sector. For Zambia, the modern sector is found largely in mining, which constitutes up to 40 percent of the economy's GNP (most of which is copper). Mining also generates 90-95 percent of the foreign exchange earnings of the economy and up to 50 percent of the government revenues. Elements of the modern sector are also found in certain types of industrial production as well as in commercial farming, which produces about 40 percent of domestic agricultural production. In contrast to these modern, generally capital-intensive sectors, the traditional sector is found in agriculture, exclusive of the commercial farms, and also in the informal sector.

The behavior of the Zambian government can be viewed largely in terms of the flexibility provided to it by what were large and growing foreign exchange earnings and government revenues provided by the copper industry. With these revenues the government was in a position to undertake a wide variety of alternative expenditures. On the one hand, the government pursued policies which improved the infrastructure and increased the availability of educational and health facilities. On the other hand, the government also utilized these revenues to support a variety of policies which, from an economic point of view, were ill-advised. For example, the government has pursued a policy of low agricultural and consumer foodstuff prices designed to benefit the consumer. The effect of such a policy has been to generate disincentives to domestic agricultural production. The shortfall in domestic agricultural production has been offset by purchases of agricultural products from abroad which were then sold at lower domestic prices within Zambia. The difference in the price was financed out of government revenues -- a large portion of which originated in the copper industry. In effect, the government utilized copper revenues to subsidize domestic consumption at the expense of domestic agriculture. The result was the deterioration in the agricultural terms of trade which contributed to the large-scale migration to the urban areas. In addition, noneconomic costly political policies were financed with copper receipts -- for example, the closing of the Rhodesian border.

Also, external events have forced the government to direct resources to deal with the domestic economic shocks generated by these events such as Rhodesia's unilateral declaration of independence (1964), the Rhodesian border closing (1973), and the disruption of transport routes through Angola because of the Civil War (1975). Certainly, the poor performance of the economy as judged by traditional criteria is at least partially attributable to the effects of these external events. The problem of dualism in the economy is further exacerbated by the fact that the

modern sector continues to involve large numbers of expatriates (the vast majority of commercial farmers are expatriates typically holding British rather than Zambian passports). A similar situation exists in mining. Since the government obtained majority ownership of the copper mines in 1971, however, the difficulty of control of mining by expatriates has been reduced.

Wages in Zambia -- particularly in the urban sector -- are high by African standards; the reason is probably twofold. First, mining unions and, later, government ownership have resulted in high wages in the mining sector. Second, a large percentage of Zambian wage earners are employed either by the public sector (40 percent in 1974) or by parastatals, both of whose high wage levels reflect government wage policy. The effect is that urban wage levels are relatively high, and they are quite high compared to the rural income level (see Sectoral Analyses -- Urban).

In addition to the economic dualism, Zambia has a large element of regional dualism. Economic development has occurred primarily along the "line-of-rail" running from Livingstone in the south to the Copper Belt in the north central. Most of the major agricultural activity -- especially the activity of commercial farmers -- occurs within this narrow corridor. Also, mining and industrial activity are largely found within this area, with the preponderance being in the Copper Belt.

Utilizing the criterion of GNP per capita, Zambia's 1975 per capita figure of \$460 gives a deceptively optimistic view of the level of economic development. The dominance of the copper industry generates this result. Other criteria suggest a somewhat less sanguine view, however; for example, the recent devaluation has resulted in a reduction of the dollar value of the GDP of Zambia. Particularly distressing is the long-term overall stagnation experienced since the coming of independence in 1964. Since that time, per capita GNP in real terms has declined as overall economic growth has been insufficient to offset increases in population. Mining declined during this period, while agriculture showed only modest increases. Only the manufacturing, electricity, and water sectors have shown substantial increases.

The Zambian economy has also been characterized recently by deterioration of its terms of trade. (The relationship between the prices received for exports and the prices paid for imports is known as the terms of trade.) For Zambia, copper prices have declined in relation to the price of imports. Also, partially reflecting governmental agricultural policies, the terms of trade have seriously deteriorated for the domestic agricultural sector -- that is, prices of agricultural goods have declined in relation to prices of nonagricultural goods. The adverse agricultural/urban terms of trade has led to a high level of migration out of the rural into the urban sector. The result is the very high urbanized level (40 percent) in Zambia.

Although copper revenues were very favorable during the 1960s, the current situation of the copper industry is poor. Copper prices experienced high levels in 1974, but since that time they have been severely depressed. The low level of copper prices in 1975 and 1976 has had a severe effect upon the entire economy. The balance of trade and balance of payments have shown large deficits, and Zambia is now experiencing major balance-of-payments crises with many foreign obligations in arrears. Depressed copper prices have also resulted in budgetary difficulties. There is increasing pressure for the government to finance expenditures through credit expansion, which could ultimately result in higher rates of domestic inflation. Credit expansion, as well as the rate of inflation, has increased recently.

Future prospects of copper are at best uncertain. A strong upsurge in copper prices would certainly improve Zambia's economic situation. Although one would expect price cycles to continue, however, the near-term prospects are unclear. Recovery from the worldwide recession certainly should add strength to prices. However, new supplies, such as those expected from newly developed Iranian fields, could have a depressing effect on Zambian copper prices.

1. Institutions -- Producing enterprises in Zambia fall into one of the following three categories: parastatal, private, or public. A major instrument of government policy consists of a number of often interrelated parastatal companies. These companies typically function as commercial enterprises within the broad framework of government-determined policies. Chief among these is the Zambian Industrial and Mining Corporation Ltd., which is essentially a holding company of the central government of which the President of Zambia is chairman. The Zambian Industrial Mining Corporation operates both through directly controlled operating companies and through a series of subsidiary holding companies, each with its own group of operating subcompanies. Companies within this group include Zambia's major copper mines as well as the oil refinery, transport carriers, finance companies, etc.

Ownership by the government varies from 100 percent to majority ownership in an enterprise involving a private or foreign partner. Similar parastatal organizations exist in agriculture (see Sectoral Analyses -- Agricultural: Section D, Institutions).

Publicly owned companies are, of course, fully owned by the government but do not function under the parastatal framework. Private companies continue to operate, albeit in an increasingly hostile environment. In 1975 "there appeared to be a pronounced shift in government policy away from private enterprise" according to a U.N. report. In general, there is a great deal of ambiguity with respect to the government's attitude toward the private sector. It is clear that the government views the private sector with suspicion and some hostility. The degree to which the government will tolerate private and foreign activity is unclear, however, and appears to vary with each situation and also to be changing through time. In 1972, 42 percent of manufacturing employment was in

the nonprivate sector. It is likely that the nonprivate portion is increasing, since recently, according to a U.N. study, "the only private investment to take place has been an expansion of already established companies, rather than the arrival of new ones."

Within this context it would be interesting to look carefully at the level of investment and its distribution between the public and private sectors. As is discussed in the macroeconomic section of this report, the overall level of investment has been high by international standards. Table II-1 gives the planned levels of investment by sector and source for the Second Plan. Although we do not know what the actual distribution was, the table indicates that the plan called for more than 80 percent of the investment to come either directly from the public sector or from firms in which the government held majority ownership (mining).

Table II-1  
Second Plan Investment  
(Millions of kwacha)

Sector	Source		Total
	Public	Private	
Rural sector	122.5	30.0	152.5
Mining	41.0	361.0 <sup>a</sup>	402.0
Manufacturing	107.0	146.0	253.0
Construction	--	63.0	63.0
Power	198.8	--	198.8
Trade	45.0	10.0	55.0
Transport and communication	369.3	5.4	374.7
Tourism	15.0	10.0	25.0
Housing, etc.	146.0	54.0	200.0
Education	114.5	3.0	117.5
Health	37.0	3.0	40.0
Other	74.9	--	74.9
<b>Total</b>	<b>1,271.0</b>	<b>685.4</b>	<b>1,956.4</b>

a. This figure represents principally the investment of the subsidiaries of MINDECO which are 51 percent owned by the government.

2. Planning -- When Zambia attained independence, in 1964, it was confronted with a number of economic, political, and social problems, the most significant of which were:

a. Structural imbalances and economic disparities of a dual economy in which the control of the economic activities, concentrated in the line of rail, was also concentrated in the hands of a small minority of expatriate settlers. The majority of the indigenous population of Zambia derived their income from subsistence and semisubsistence agricultural activities.

b. Critical shortages of skilled manpower. At independence, there were fewer than one hundred Zambians who were university graduates.

c. Dependence on copper for the major portion of export revenues and the resulting risk of wide fluctuations in the economy.

d. Dependence on southern Rhodesia and southern Africa for external trade routes.

e. Dependence on southern Rhodesia and South Africa for 60 percent of imports.

In the postindependence period, Zambia embarked on a process of planned development. The Emergency Development Plan, initiated immediately after October 1964, and the Transitional Development Plan, initiated in January 1965, were designed to provide a framework for a more comprehensive program of economic and social development and to establish a viable administrative structure. The government of Zambia undertook a number of administrative reforms to achieve a decentralization of the administrative structure and initiated economic, social and legal reforms to accommodate this process.

The First National Development Plan (1966-71) and the Second National Development Plan (1972-76) set out the objectives, policies, and measures designed to solve the various problems facing Zambia. Broadly, the objectives of both plans were more or less identical -- diversification of the copper-based economy, reduction of inherited disparities between rural and urban areas, development of transportation networks, and development of human resources. The Second Plan, based on the philosophy of humanism which stresses equal opportunity without the entrenchment of class structure, placed greater emphasis on rural development. A number of proposals for mobilization of resources, stabilization and redistribution of income, price policies, and appropriate monetary and fiscal measures were elaborated.

Although a systematic evaluation of the success of the economy in achieving the goals of the Second National Development Plan has not been undertaken, the economic performance has generally fallen far short of the targets. For example, the second plan called for a growth rate of 7.4 percent in the GDP whereas actual performance has been about 2.3 percent. The growth rate from 1971 to 1975 has been poor for almost all sectors of the economy.

3. De Facto Development Strategy -- Analysis of the variances which exist between planned and actual expenditures during the period since independence would indicate that the Zambian government has allocated more resources in the modern sectors of the Zambian economy than it has in the subsistence sector. Investment expenditures in the construction, transportation, and power sectors exceeded planned outlays during this period. These increases were at least partly a response to the external situation at the time. For example, the Rhodesian Unilateral Declaration of Independence forced Zambia into heavy expenditures on the Great Northern Road to Dar es Salaam.

The behavior of the policymakers in Zambia is sometimes at variance with goals and suggests a de facto development strategy encompassing the following elements.

The basic long-term economic goals appear to be:

- a. To achieve economic independence from Rhodesia and South Africa,
- b. To further the process of Zambianization, and
- c. To reduce by diversification the dependence of the economy on copper mining.

The basic strategy is to utilize the revenues generated by the copper industry to finance the programs needed to achieve the goals enumerated above.

Goals a and b are essentially politically motivated goals, and to achieve these Zambia has been willing to assume substantial costs. For example, the Rhodesian border-closure policy has been estimated by the UN to have cost Zambia a third of a billion dollars in higher prices and new infrastructure requirements. The costs of Zambianization have probably been manifest in a relative reduction in efficiency and productivity in mining, agriculture, and other sectors.

While goal c also has political dimensions, it can be viewed as primarily economic. In order to achieve the economic diversification required for continued development, Zambian official pronouncements have undertaken a variety of policies including emphasis on further processing of raw materials, expanded manufacturing through import substitution, and the development of the rural sector. However, the government appears uncertain as to what types of policies to pursue in agriculture, and the focus on de facto areas for diversification activity has therefore been largely in the industrial sector.

Thus far, the government has been quite successful in achieving goals a and b -- the political goals -- but has had only minimal success in the weaning of the economy from copper. There have been some successes in diversification, most notably in manufacturing. Overall growth has been quite poor, however, and much of the decline in mining as a percentage of GDP reflects the decline of the mining sector rather than the growth of the other economic sectors.

4. The Impact on the Zambian Economy of Normalization of Trade Relations between Zambia and Zimbabwe -- Historically, Zambia's trade relationship with Rhodesia was largely one way. Zambia, as the old Northern Rhodesia in the Rhodesia Nyasaland Federation, was the producer and exporter of copper for world markets, while it imported agricultural and, to a lesser extent, manufactured goods from Southern Rhodesia. This relation continued until the breakup of the Federation in 1964.

Given the normalization of trade relationships with Rhodesia/Zimbabwe, on the assumption that the transition is sufficiently smooth and peaceful so as not to alter the industrial structure of Zimbabwe severely, a variety of shocks to the Zambian economy can be expected.

First, in the absence of large trade restrictions, the more highly developed Zimbabwe industrial sector can be expected to provide increased competition for Zambian producers. One of the causes of the relatively rapid rate of growth of the manufacturing sector since independence has been the decreased and finally severed economic relations with the more industrially developed Rhodesia, which allowed for the growth of Zambian firms to fill the industrial vacuum. The normalization of economic relations can be expected to create difficulties for the less developed Zambian industrial sector. Zimbabwe's location is, in general, superior to Zambia's, since Zimbabwe has a larger local market, lower costs of transporting imported inputs from sources outside Africa, better access to non-African markets, and at least comparable access to most populated East African markets as well.

In addition, as discussed elsewhere in this report, with the exception of copper, lead, and zinc, Zambia's resource base is no better than, and perhaps inferior to, some located elsewhere in the region. Zimbabwe has superior coal reserves and generally comparable hydropower potential.

With respect to agriculture, Zimbabwe may well provide stiff competition for agricultural markets. Historically, as noted above, Rhodesia has been a major source of Zambia's agricultural imports.

Normalization of trade relations will also have positive advantages for Zambia, however. The opening of Zimbabwe will provide some economic advantages for Zambia through the opening of long-closed transport routes to the sea. With the large investments that Zambia has made over

the past 10 years to circumvent these transport routes, however, the economic advantage likely to be associated with their reopening is minimal at best.

As shown in table IV-25 in the Transport Sector section, the new TAZARA railway to Dar es Salaam is shorter than the traditional route to Beira for four of the five Zambian cities listed. The advantage of the Dar es Salaam route is greatest for the important Copper Belt cities, such as Ndola, for example, which is more than 350 miles closer to Dar es Salaam than to Beira. In addition, it is likely that the Zambian government will choose to promote transport over the indigenous TAZARA railway, whose route is approximately 50 percent in Zambia (from the Copper Belt), rather than on foreign carriers required for the Beira route. Thus, given the completed Dar es Salaam route, the Beira route has a clear economic advantage only from southern Zambia and as a backup route to the sea.

Also, some possibilities exist for development of common or complementary resources. For example, further major development of the hydropower and irrigation potential of the Zambeze along the common border obviously requires a cooperative effort. Also, Zambia's iron-ore resources may have potential for exploitation using Zimbabwe coking coal.

Overall, however, the opening of trade with Zimbabwe is likely to reinforce the inherent comparative advantage of Zambia in mineral production and negate or reduce the potential for the development of the nonmineral sectors of the economy.

#### B. Developmental Problems

As pointed out above, the growth experienced by the economy, especially since 1971, has been poor. The development of the rural and agricultural sector, an important element in the desired structural transformation away from mining, has been limited. In contrast with its vigorous interventionist policy in manufacturing, the government has shown considerable uncertainty in its role of fostering agricultural production. The result has been conflicting policies and incentives which have created uncertainty and relative stagnation.

There are a number of reasons that the agricultural sector must play a critical role -- perhaps the dominant role -- in Zambia's economic development and reduced reliance upon mining. First, 60-65 percent of the population remains rural. Second, the rapid growth of the population, which is unlikely to be significantly reduced in the foreseeable future, compounds this problem by creating an expanding labor force. The potential for employing this growing labor force in the labor-intensive segments of the agricultural sector is far greater than the potential for employment within the basically capital-intensive industrial sector. Also, as is

discussed later in this report, the comparative advantage of Zambia's industrial sectors is limited, and thus its potential for efficient absorption of labor is modest. In addition, normalization of trade relations with Zimbabwe is likely to have an adverse effect upon Zambia's industrial sector.

These considerations, together with the rather favorable physical environment for agriculture and the high level of agricultural imports, suggest the appropriateness of a strategy that involves a major role for the agricultural sector in the near and intermediate term. For such a role to be viable, however, the government must end its ambivalence and undertake a unified, consistent strategy for rural development.

### C. Macroeconomic Performance

1. National Income Accounts -- Given the number of shocks experienced by the Zambian economy from external events, the poor growth of the GDP is perhaps not surprising. In constant prices the growth rate of the GDP since 1965 has been about 2.5 percent, or less than the 3.0 percent growth rate of the population. If the deteriorating terms of trade are also considered, the effective growth rate is even lower from 1965 to 1975, with an absolute decline in GDP after 1971. It will be noted that 1975 was perhaps an atypically poor year; 1976 is likely to be similar in economic performance, however.

Because of the effects of changes in world copper prices upon the Zambian economy, Zambia's national income accounts require an interpretation more sophisticated than normal. Table II-2 presents three measures of Zambia's gross domestic product: in constant prices; adjusted for the terms of trade; and in current prices. The growth of GDP in constant prices, given in row 1, is a measure of the growth of the aggregate production of the economy weighted by 1965 prices.

Examination of the constant price data reveal a very modest overall increase in output. For the 10-year period 1965-75, the economy expanded a total of 25 percent -- that is, GDP in 1975 was 1.25 times the GDP of 1965. As indicated in table II-3, in the 6-year period 1965-71 total growth was 14 percent, while in the period 1971-75 growth was only 10 percent. This amounts to only a modest increase of about 2.3 percent a year for the 10 years, or less than the growth of the population.

Over the period examined, however, Zambia's terms of trade have also changed substantially. Row 2 measures Zambia's GDP adjusted for the terms of trade -- that is, the relationship between the prices Zambia receives for exports and the prices she pays for imports. Since these prices are determined by forces almost entirely external to Zambia, governmental policies can have almost no impact upon Zambia's terms of trade. Over the 10-year period the terms of trade improved initially but subsequently declined (table II-4). Adjusting for the terms of trade,

II-2. **Zambian National Income Accounts**  
(Millions of kwacha)

Sector	1965	1969	1971	1972	1973	1974	1975	Annual rate of change 1965-75
1. GDP (constant 1965 prices) producers' values	711.1	758.5	808.3	885.9	879.0	918.0	890.4	2.3
2. Agriculture	97.4	101.6	112.0	118.2	114.5	117.9	118.0	1.9
3. Mining	291.8	254.9	195.1	219.1	211.6	217.2	196.0	-3.9
4. Manufacturing	48.0	74.2	85.6	104.0	110.7	118.2	115.6	9.2
5. Electricity and water	5.4	14.6	19.5	27.5	28.7	32.2	33.9	33.3
6. Construction	40.9	39.9	39.5	43.0	41.0	40.5	41.7	0.2
7. Wholesale and retail trade	80.5	67.8	85.8	97.1	94.0	102.0	103.0	2.5
8. Hotels and restaurants	n.a.	n.a.	9.3	9.5	9.5	9.6	9.7	
9. Transport and communication	32.8	35.5	50.2	51.7	57.8	65.9	58.6	6.0
10. Financial institutions and insurance	n.a.	n.a.	16.7	16.1	19.6	20.0	10.4	--
11. Real estate	11.6	31.7	32.5	31.4	32.0	32.5	33.0	11.0
12. Business services	n.a.	n.a.	11.8	9.5	9.5	9.6	9.4	--
13. Community personal services	64.0	82.8	134.0	138.4	137.2	138.0	140.3	8.2
14. Import duties	n.a.	22.0	23.0	26.6	19.4	22.8	21.6	--
15. Less imputed banking service charge	n.a.	n.a.	6.7	6.2	7.5	8.4	8.4	--
16. Adjustment for charges in terms of trade <sup>a</sup>	--	+355.5	+40.0	-22.5	144.2	98.3	-124.0	--
17. GDP adjusted	711.1	1,114.0	848.3	863.4	1,033.3	1,016.3	766.4	0.8
18. GDP (current prices)	711.1	1,313.5	1,178.2	1,311.9	1,601.0	1,803.0	1,436.0	7.3

n.a. = Not available.

a. Adjustment requires exports to be deflated by the index of import prices.

**Table II-3**  
**Growth of Major Economic Sectors**  
**1965-71 and 1971-75**  
**(Percent)**

Sector	1971 1965	1975 1971	1975 1965
1. GDP (constant 1965 prices)	1.14	1.10	1.25
a. Agriculture	1.15	1.05	1.21
b. Mining	0.67	1.00	0.67
c. Manufacturing	1.78	1.38	2.41
d. Electricity and water	3.61	1.74	6.28
e. Construction	0.97	1.06	1.02
f. Wholesale and retail trade	1.07	1.20	1.28
g. Transport and communication	1.53	1.17	1.79
h. Real estate	2.80	1.02	2.84
i. Community and personal services	2.09	1.05	2.19
2. GDP (adjusted for terms of trade)	1.19	0.90	1.08

**Table II-4**  
**Zambian Terms of Trade**

	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975
<b>Terms of trade</b>	56.6	62.1	93.5	86.0	89.3	100.0	91.1	63.5	59.5	76.9	66.8	39.8

total growth of Zambia's GDP was merely 8 percent for the entire 10-year period, with an increase in GDP of 19 percent in the first 6 years followed by a 10 percent decline beginning in 1971.

By both measures Zambia's overall growth rate is unsatisfactory. In constant 1965 prices the growth of GDP is less than that of the population. An adjustment for the deterioration of the terms of trade reduces the growth rate to only about a third of the unadjusted rate and well below an average 1 percent a year for the 10 years with an absolute decline beginning in 1971.

Table II-2 gives GDP figures in current prices.

As noted above, the terms-of-trade effect is almost completely determined by forces outside of Zambia's control. However, the poor performance of GDP growth before the adjustment for changes in the terms of trade is perplexing in view of Zambia's high investment levels over the past 10 years (table II-5, row 5). Typically, countries with investment levels above 20 percent of GDP experience rapid rates of economic growth.

At this time, we can merely speculate as to some possible explanations for the poor growth performance. The following are three illustrative, untested hypotheses. Their significance in explaining Zambian economic performance has not been determined.

a. Zambia has been required to use large amounts of resources to replace infrastructure which was removed from Zambia or which became unavailable for political reasons. For example, the separation of Zambia's rail operations from those of Rhodesia resulted in a loss of rolling stock. Much of Zambia's investment, therefore, was merely replacement of lost capital rather than net additions to the total stock of equipment. Also, the border closing in 1973 and the cessation of rail operations through Angola in 1975 required additional investment that was designed to substitute for infrastructure previously used rather than to add to the total stock.

b. Zambia has been undertaking a transition from the use of expatriate skills to the use of the skills of indigenous peoples. As Zambians acquire skills, they replace expatriates who leave the economy. Thus, to some degree there is the replacement of skills rather than a net addition to the stock of skills within the economy. Therefore, the process of Zambianization, while a desired political goal, may be partially manifest as stagnation in the stock of skills and hence in production growth. Some suggestive evidence in support of this hypothesis is found in table I-3, which documents the decline of presumably skilled expatriates.

c. The set of economic policies pursued by the government has generally tended to ignore economic considerations such as price signals, returns, and economic incentives, and the requisite signals and incentives have not been provided by an alternative mechanism. Thus, the extent that incentives and price signals are present, they are often highly distorted

and ephemeral. Response to these signals often results in unproductive investments. This problem is exacerbated by governmental investment policies that tend to ignore economic considerations in the investment decision process. This situation exists in the agricultural sector and may also be common elsewhere.

2. Sectoral Growth -- The growth of the various economic sectors over the period 1965-75 and the two subperiods 1965-71 and 1971-75 are examined in table II-5. In table II-6 sectors are categorized as leading or lagging depending upon their growth over the period 1965-75. Electricity and water are the most rapidly growing sectors, followed by real estate, manufacturing, community personal services, and transport and communication. Wholesale and retail trade have been growing only slightly more rapidly than GDP.

The lagging sectors are agriculture, construction, and mining, with mining the only sector to decline absolutely. The poor overall performance of the Zambian economy is not surprising in view of the fact that the traditionally dominant sectors have experienced the extended period of stagnation.

The low growth rates in many of the dominant sectors suggest that the substantial investments in physical and social infrastructure -- represented by the high overall investment rate and the high growth of such infrastructure sectors as electricity and water, community personal services, and transport and communication -- have not been transformed into substantial increases in output in the mining, construction, and agricultural sectors.

The poor performance of agriculture and mining will be discussed in detail in the sections of this paper covering those sectors. The poor growth of construction is difficult to explain, however, given the high, albeit level investment rate, the growth in sectors with high construction input -- electricity, transport for example -- and the growth of construction employment (table II-5).

The growth sectors are confined to infrastructure and services sectors with the notable exception of manufacturing. Manufacturing showed respectable growth through the entire period examined. The probable cause for this performance is the effects of the disruption of manufactured imports from Rhodesia and South Africa, the historical suppliers of light manufactures. This situation, caused by politically motivated actions, resulted in the creation of a Zambian market largely protected from outside producers. The response, by both private producers and government, was manifest in a rapidly growing Zambian manufacturing sector. (See the Manufacturing section of this report for a discussion of this phenomenon).

**Table II-5**  
**National Income Accounts**  
 (Constant 1965 prices)

Account	1965	1969	1971	1972	1973	1974	1975
1. Government consumption	83.2	102.1	204.6	205.2	202.5	210.5	226.5
2. Private consumption	334.2	403.4	378.9	388.4	378.2	392.2	360.2
Total consumption	417.4	505.5	583.5	593.6	580.8	602.7	586.7
3. Gross investment	173.1	194.6	280.0	275.2	243.2	248.0	220.7
4. GDP	711.1	758.5	808.3	885.9	879.0	918.0	890.4
5. Gross investment as percentage of GDP	74.3	25.7	34.6	31.1	27.7	27.0	24.8

**Table II-6**  
**Sectoral Growth**

Sector	1975-1965
<u>Leading Sectors</u> (Growth greater than GDP)	
Electricity and water	6.28
Real estate	2.84
Manufacturing	2.41
Community and personal services	2.19
Transport and communication	1.79
Wholesale and retail trade	1.28
<u>Lagging Sectors</u> (Growth less than GDP)	
Agriculture	1.21
Construction	1.02
Mining	0.67

3. Balance of Payments -- Copper production accounts for more than 90 percent of Zambia's export earnings and about a third of GDP. Given this dominance, Zambia's economic performance is necessarily highly dependent upon the behavior of the copper price. Fluctuations in the world price of copper will be transmitted into the economy and manifested as fluctuations in the economy -- particularly in foreign exchange earnings (table II-7) and the balance of payments. The volatile nature of the world copper market and the linkages to the economy suggest the likelihood that the economy of Zambia will continue to exhibit a substantial degree of instability. The magnitude of the impact of copper price fluctuations on foreign exchange receipts can be illustrated as follows: In recent years Zambian copper exports have been averaging about 650,000 metric tons, or about 1.42 billion pounds, a year. Since the level of exports has been largely unresponsive to price changes, a 1-cent change in the average annual price results in a \$14.2 million change in foreign exchange earnings. Thus, the decline of 37 cents a pound in average copper prices -- from 93 to 56 cents a pound -- between 1974 and 1975 was responsible for \$525 million of the \$573 million reduction in foreign exchange earnings of copper during that period. The remainder of the reduction -- about 10 percent -- was the result of a decline in quantities exported.

Table II-8 presents Zambia's balance of payments since 1969. As expected the current account balance is highly dependent upon copper prices. From the period after independence through 1970 copper prices were generally favorable and current account surpluses were recorded.

Table II-7

## Zambian Copper Production and Foreign Exchange Earnings

Year	Copper production (thousands of metric tons)	Copper exports (thousands of metric tons)	Average export price (kwacha per ton)	Average price (dollars per pound)	Foreign exchange earnings (millions of dollars)
1973	681.2	670.0	1,116	0.79	1,089.3
1974					
1974	702.1	673.4	1,307	0.93	1,308.1
1975	640.3	630.0	789	0.56	734.9

Sources: Economics Report 1975, Ministry of Finance, Lusaka; Monthly Digest of Statistics, Republic of Zambia, selected issues.

Table II-8  
Zambia's Balance of Payments  
1969-1980

Variable	1969	1970	1971	1972	1973	1974	1975	1976	Projected <sup>a</sup>			
									1977	1978	1979	1980
1. Imports (including non-factor services)	-596.2	-658.7	-736.0	-775.5	-783.3	-1134.5	-1402.0	-1020.0	-1243.8	-1543.9	-1739.7	-1935.5
2. Exports (including non-factor services)	1207.7	959.6	700.8	817.3	1216.4	1505.7	883.0	950.0	1331.4	1728.7	1915.5	2102.3
3. Net factor services and transfers	-138.0	-193.1	-211.9	-238.2	-261.7	-246.2	-200.0	-240.0	-255.0	-270.0	-285.0	-305.0
4. Current account balance	473.5	107.8	-247.1	-196.4	+171.4	125.0	-719.0	-310.0	-167.4	-85.2	-109.2	-138.2
5. Net capital flows (excluding reserves)	-292.5	43.7	-22.0	41.3	+189.6	-108.4	506.0	255.0	233.0	159.5	120.0	120.0
6. Use of reserves (- = increase)	181.0	151.5	-269.1	-155.1	-18.2	16.6	213.0	55.0	-65.6	-74.3	-10.8	+18.2
7. Debt-service ratio	--	--	--	--	--	--	8	18 <sup>b</sup>	15	13	15	16

a. World Bank Estimate.

b. Includes payment of the \$76 million in overseas outstanding at the end of 1975.

Beginning in 1971, however, prices fell and deficits were experienced. Prices were more favorable in late 1973 and 1974 and surpluses appeared in those years. Since 1975, however, copper prices have been depressed. This was reflected in the low export level and the massive deficit of 1975, which continued into 1976 and triggered the current Zambian balance of payments crisis.

Contributing to the deficits has been the rapidly growing level of imports. Import levels in Zambia appear to be responsive to export levels (and hence to copper prices) with a lag of perhaps a year. This reflects the nature of the import-licensing system. During the period 1970-73 the nominal value of imports rose only a total of 19 percent, while import prices rose 25 percent. Thus the real import level declined during this period because of limited availability of foreign exchange, for which low copper prices were responsible. From 1973 to 1975 imports, however, increased 79 percent while import prices increased only 55 percent. Thus real import levels rose, reflecting the availability of foreign exchange. The nominal import levels for 1976 are projected by the World Bank to be reduced, reflecting the delayed response of Zambian import levels to reduced availability of foreign exchange.

The prognosis through 1980, somewhat pessimistic, is given in the projections of table II-8. These projections assume the copper price projections of the World Bank and modest increases in copper production. It is assumed that copper production will jump to 700,000 tons in 1977 and rise gradually to 800,000 tons in 1980. The projections suggest substantial current account deficits through that period. Zambia's current account deficits are projected at \$167.4 million for 1977 and \$82.5 million for 1978 and should rise to \$138.2 million in 1980. It should be noted that a more optimistic view of future copper prices could generate a substantial current account surplus through the period until 1980.

In the bottom row of table II-8 Zambia's debt-service ratio is projected. Although the projections indicate debt levels within Zambia's repayment capabilities, the high debt-service ratio reflects the relative long-run deterioration of Zambia's foreign exchange earnings potential over time as the relative role of copper declines while import growth and foreign borrowing remain high.

A disturbing element of Zambia's balance of payments experience is the inability in recent years to accumulate foreign exchange reserves in times of high copper prices as Zambia was able to do in the 1960s, when favorable copper prices prevailed. Given the volatility of copper prices, Zambia can insulate its economy from such volatility through careful management of its foreign exchange reserves with accumulations during years of favorable copper prices and drawdowns during poor years. Accumulations during 1973-74 did not occur.

4. Terms of Trade -- The terms of trade -- the ratio of the price of exports to the price of imports -- is reviewed in table II-4. Since 1969 the terms of trade have deteriorated from a base of 100 percent to 39.8 percent. This reflects a simultaneous rapid rise in Zambia's import prices while exports prices stagnated and declined. The implication is that Zambia receives only 39.8 percent of real amount imports for a unit of export as it did in 1969. The relation of the terms of trade, balance of trade, and overall balance of payments are presented in chart II-1.

5. Exports and Imports -- Table II-9 identifies Zambia's six major exports by value for the years from 1968 through 1975. As can be seen, the dominant export by far is copper and the top four exports are all minerals. Agricultural commodities -- tobacco and maize -- are the next two largest exports.

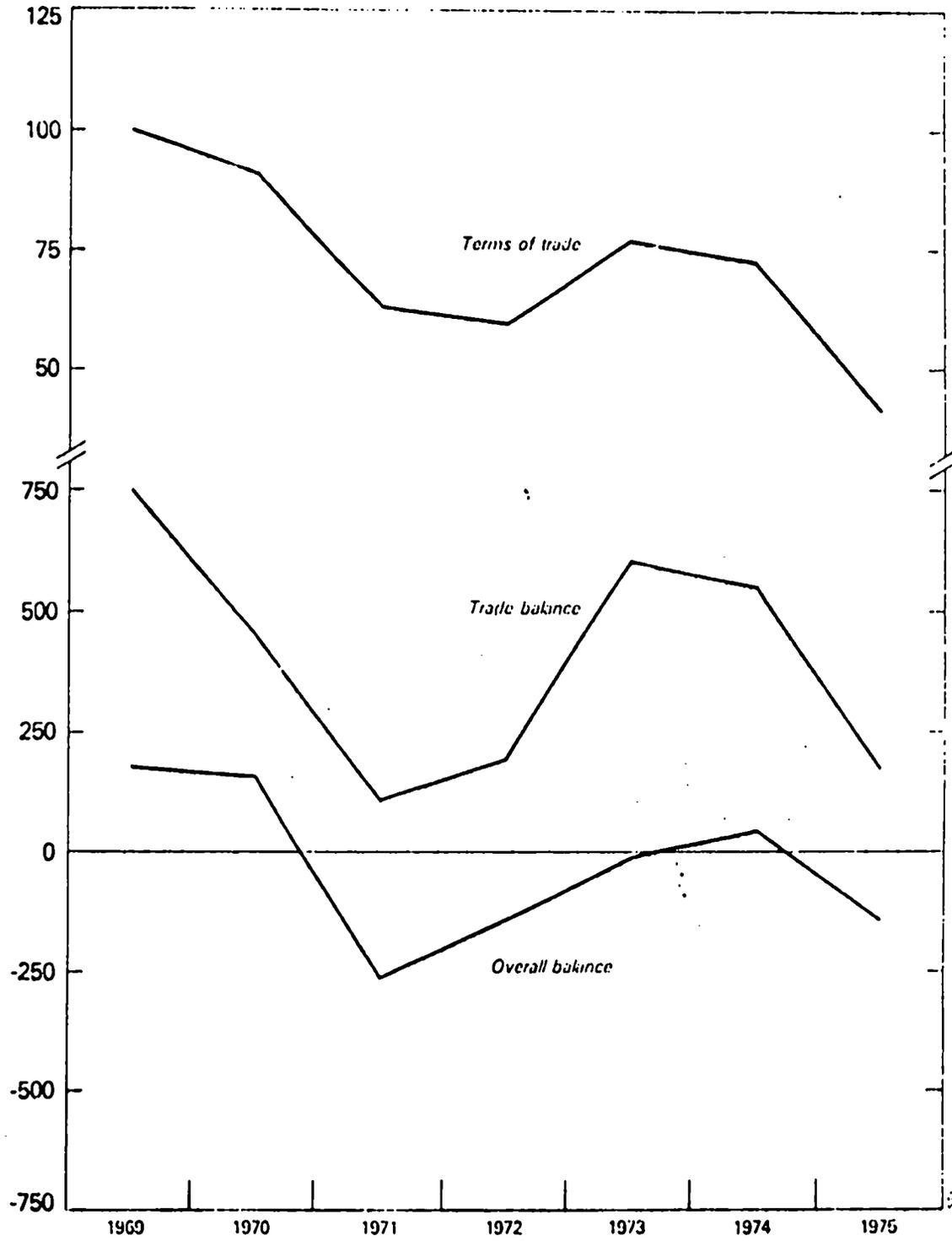
Table II-10 presents Zambia's import levels by major groupings. The last column indicates the percentage change between 1970 and 1975. The major rapidly increasing import sectors include chemicals, electricity, and mineral fuels (including petroleum), and manufactures.

6. Government Budget -- Government revenue is heavily dependent on receipts from various taxes on copper (table II-11) and, therefore, has shown wide annual fluctuations associated with changes in copper production and world market copper prices. The effect of the recent depressed levels of copper prices has been to reduce this source of revenues severely and thus to depress total revenues, even with the substantial increases in revenues from other sources. Despite the reduction in revenues in 1975 and 1976, however, both current and capital expenditures rose in 1975, the effect being a large overall budget deficit for the year. The 1976 budgeted expenditures reflect the decreased availability of revenues and have been adjusted downward. A summary of the budget appears in tables II-11, II-12, and II-13.

Table II-9  
Major Exports  
(Millions of kwacha)

Commodity	1968	1969	1970	1971	1972	1973	1974	1975
Copper	516.1	724.5	681.4	450.2	490.9	698.3	838.5	471.1
Zinc	9.0	12.4	11.0	11.5	16.4	16.7	25.2	20.3
Lead	2.7	6.1	4.9	4.6	5.6	5.4	7.2	5.7
Cobalt	3.4	4.5	6.3	4.1	8.6	4.9	7.9	7.1
Tobacco	2.7	3.2	2.9	3.5	2.7	4.8	5.8	4.9
Maize	2.8	0.4	--	0.2	0.1	2.6	7.6	1.4

Chart II-1  
 Zambian Terms of Trade<sup>a</sup>, Trade Balance (f.o.b.)  
 and Balance of Payments, 1969-75<sup>b</sup>  
 (Millions of U.S. dollars)



a. 1969 = 100.

b. Forecast.

Table II-10  
Value of Imports  
(Millions of kwacha)

Import	1970	1971	1972	1973	1974	1975	$\frac{(2)}{(1)}$
Food	30,451	48,193	37,130	24,344	43,801	37,924	1.25
Beverages and tobacco	1,175	1,417	1,250	973	1,130	1,021	0.87
Crude materials	5,277	7,629	7,943	5,420	10,363	9,896	1.88
Electricity and mineral fuels	35,184	32,235	26,523	33,285	61,095	84,327	2.40
Oils and fats	4,456	4,516	3,907	4,323	6,770	9,135	2.05
Chemicals	26,021	31,688	33,041	35,136	48,445	77,246	2.97
Manufactures	74,797	84,786	87,918	77,339	129,996	140,206	1.87
Machinery and transport equipment	131,716	160,115	168,009	138,911	165,795	211,211	1.60
Miscellaneous manufactured articles	30,540	27,257	35,377	25,383	36,431	28,711	0.94
Miscellaneous transactions	1,094	1,448	1,365	1,753	2,809	3,239	2.96
<b>Total</b>	<b>340,711</b>	<b>399,282</b>	<b>402,471</b>	<b>346,867</b>	<b>506,636</b>	<b>602,918</b>	<b>1.77</b>

Table II-11  
Zambia: Central Government Revenue  
(Millions of kwacha)

Item of revenue	1970	1971	1972	1973	1974 <sup>a</sup>
<b><u>Mineral receipts</u></b>	<b><u>251.1</u></b>	<b><u>114.1</u></b>	<b><u>55.7</u></b>	<b><u>110.6</u></b>	<b><u>305.9</u></b>
Mineral tax	56.4	27.2	27.7	91.3	195.0
Company income tax	79.6	86.9	28.0	16.3	60.9
Withholding tax	--	--	--	3.0	20.0
Dividend	--	--	--	--	30.0
Other	115.1	--	--	--	--
<b><u>Taxes on incomes</u></b>	<b><u>69.9</u></b>	<b><u>79.8</u></b>	<b><u>91.2</u></b>	<b><u>110.0</u></b>	<b><u>117.5</u></b>
Company income tax	32.9	38.5	39.4	44.3	47.0
Personal income tax	37.0	41.2	48.7	59.4	62.5
Other	--	0.1	3.1	6.3	8.0
<b><u>Taxes on domestic goods and services</u></b>	<b><u>38.1</u></b>	<b><u>40.7</u></b>	<b><u>55.5</u></b>	<b><u>67.3</u></b>	<b><u>87.2</u></b>
Tobacco	9.4	8.5	10.0	11.5	13.0
Beer	25.0	27.4	37.7	37.5	39.5
Liquor	0.6	0.9	1.0	1.1	1.2
Soft drinks	--	--	2.8	3.7	3.5
Petroleum products	--	--	--	5.1	16.5
Other	3.1	3.9	4.0	8.4	13.5
<b><u>Taxes on international trade</u></b>	<b><u>32.5</u></b>	<b><u>36.7</u></b>	<b><u>41.9</u></b>	<b><u>46.0</u></b>	<b><u>60.0</u></b>
Import duties	32.5	36.7	41.9	32.7	37.0
Import surtax	--	--	--	13.3	23.0
Other tax revenue	0.2	0.2	4.1	--	--
<b>Total tax revenue</b>	<b>391.8</b>	<b>271.5</b>	<b>248.4</b>	<b>333.9</b>	<b>570.6</b>
<b>Nontax revenue</b>	<b>45.3</b>	<b>40.9</b>	<b>50.5</b>	<b>52.5</b>	<b>47.7</b>
<b>Total revenue</b>	<b>437.1</b>	<b>312.4</b>	<b>298.9</b>	<b>386.4</b>	<b>618.3</b>

a. Revised estimates.

Source: Ministry of Finance, Financial Report, 1970-73.

**Table II-12**  
**Economic Classification of Central**  
**Government Expenditures and Net Lending, 1970-74**

Item of expenditure	1970	1971	1972	1973	1974 <sup>a</sup>
<u>Consumption expenditure</u>	<u>170.3</u>	<u>190.1</u>	<u>185.5</u>	<u>217.8</u>	<u>224.3</u>
Purchases of goods and services	92.2	98.5	87.5	115.8	114.7
Compensation of employees	78.1	91.6	98.0	102.0	109.6
<u>Subsidies and other transfers</u>	<u>49.5</u>	<u>67.6</u>	<u>53.5</u>	<u>56.9</u>	<u>50.5</u>
Subsidies	22.5	38.4	33.3	36.0	33.7
Other transfers	27.0	29.2	20.2	20.9	16.8
<u>Other current expenditure</u>	<u>36.0</u>	<u>69.5</u>	<u>91.6</u>	<u>91.2</u>	<u>161.1</u>
Total current expenditure	255.8	327.2	330.6	365.9	435.9
<u>Capital expenditure</u>	<u>100.4</u>	<u>120.9</u>	<u>103.2</u>	<u>97.5</u>	<u>97.6</u>
Total expenditure	356.2	448.1	433.8	463.4	533.5
<u>Net lending</u>	<u>55.7</u>	<u>24.3</u>	<u>43.1</u>	<u>195.1</u> <sup>b</sup>	<u>53.4</u>
Total	411.9	472.4	476.9	658.9	586.9

a. Budget estimates.

b. Including ZIMCO bond redemption.

Sources: Ministry of Finance, Financial Report, 1970-73, and data provided by the Zambian authorities.

7. Prices -- Table II-13 contains a brief review of the performance of wholesale and consumer prices in Zambia. In general, Zambia's prices have experienced relatively modest rates of inflation, particularly when viewed in the context of the worldwide inflation of recent years. This was the result of policies of moderate monetary expansion and subsidies on major foodstuffs.

8. Zambia's Income Distribution -- R. E. Baldwin's study of Northern Rhodesia gives the following percentage distribution of income for 1959:

Percent of population	Percent income
Top 5	34
Top 5	58
Lowest 40	13
Lowest 20	5

Using the World Bank "Cross-Classification of Countries by Income and Equality" (pp. 8-9), would place Zambia in the "moderate inequality" category. It is expected that independence has generated increased equality, however.

Table II-13  
Prices  
(1969=100)

Year	Consumer price index: low-income group	Wholesale price index
1965	77.3	n.a.
1966	83.4	84.0
1967	87.6	83.3
1968	96.3	89.7
1969	100.0	100.0
1970	102.6	100.5
1971	108.8	93.5
1972	114.6	96.6
1973	121.9	115.0
1974	132.1	130.9
1975	145.0	n.a.

n.a. = Not available.

a. Preliminary.

Source: Monthly Digest of Statistics, Republic of Zambia, Selected issues.



**III**

**FOREIGN DONOR  
ASSISTANCE**

### III. FOREIGN DONOR ASSISTANCE -- CURRENT ACTIVITIES

#### A. Introduction

Zambia has been the recipient of foreign assistance from a wide variety of countries, in both Eastern and Western blocs, and also from international organizations. In many cases the foreign assistance is small; however, the recent financing and construction of the TAZARA railway by the Peoples Republic of China certainly involved a large amount of foreign assistance. In addition, rather large balance-of-payment loans have recently been provided.

#### B. History of Assistance from Foreign Donors

During the 14 years between 1962 and 1975, official development assistance (ODA) to Zambia shifted from a near-total British responsibility to a much larger and more broadly shared flow of assistance (see table III-1). The majority (51 percent) of ODA in recent years (1971-75) has been from international agencies: approximately \$15 per capita annually, second only to that received by Botswana in the region. Approximately one third of recent aid is from DAC countries and the remainder is from Communist donors (since 1970 mostly from China for the TAZARA railroad). The growth in the total from all sources has been far more rapid than for any other country in the region. Approximately 43 percent of all aid going to the region in recent years has gone to Zambia, averaging a relatively high annual \$29 per capita ODA.

#### C. Balance of Payments Assistance

A number of donors are assisting Zambia in financing its external resources gap. The World Bank recently approved a \$30 million program loan. Canada has extended a \$10 million commodity import loan, and European donors have provided \$23 million, including a \$10 million grant from the United Kingdom, a \$3 million loan from Germany, a \$2 million loan from the Netherlands, and an \$8 million grant from the European Economic Community. Thus the loans and grants made available to Zambia for balance-of-payments assistance so far total \$63 million and cover more than half the external financing gap. A recent \$20 million U.S. loan increases total balance-of-payments assistance to \$83 million in 1976.

Table III-1  
OFFICIAL DEVELOPMENT ASSISTANCE

Source	1962-65 (4 years-- millions of dollars)	1966-70 (5 years-- millions of dollars)	1971-75 (5 years-- millions of dollars)	1971-75 percentage distribution	1962-75 (14 years-- millions of dollars)			
United States -- Total	2.7	3.5	0.7	0	6.9			
Dollar economic assistance	2.6	3.2	0.1	0	5.9			
Food assistance (PL-480)	0.1	0.3	0.6	0	1.0			
	1966-68							
	Gross official flows	Percent loans	Gross official flows	Percent loans	1969-70 ODA			
Other DAC donors -- Total	45.0	34	139.9	35	30.3	213.9 <sup>b</sup>	32	429.1
Former colonial power (G.B.)	44.5	34	94.0	8	19.8	93.6 <sup>b</sup>	14	251.9
Other (non-G.B., non-U.S.)	0.5	0	45.9	91	10.5	120.3 <sup>b</sup>	18	177.2
Communist donors -- Total	0.0		224.0 <sup>a</sup>			111.0	17	335.0
USSR	0.0		6.0			0.0	0	6.0
China	0.0		218.0 <sup>a</sup>			61.0	9	279.0
Eastern Europe	0.0		0.0			50.0	8	50.0
International agencies	4.0		71.0			344.6	51	419.6
Total	51.7		468.7			670.2	100	1190.6

Dollars per person (1973) -- 29

Dollars as percentage (1973) -- 5

a. Of which 201 in 1970 was extended by China for the TAZARA Railroad.

b. 1975 DAC proration derived by estimation on the basis of 1971-74 experience.

The other major source of balance-of-payments support has been the International Monetary Fund (IMF), which is included in the balance-of-payments table under the item "Change in reserves." In November 1975 the IMF agreed to drawings by Zambia under the oil and compensatory facilities and under the first credit tranche. Net use of IMF resources by the end of 1975 amounted to about \$23 million. In July 1976 the IMF approved a \$71.3 million standby arrangement for Zambia which permits drawings from the second and third credit tranches and gives Zambia access to IMF resources totaling \$55 million in 1976. The IMF planned to review Zambia's situation in December 1976 to determine what further steps should be taken in 1977.

#### D. Recent Donors and Programs

In addition to recent balance-of-payments loans provided by the World Bank and the United States, a wide variety of other foreign assistance is being provided. For example, the United Nations has been involved recently in projects in Agriculture, Education, Economic and Social Policy and Planning, Health, Industry, Tourism, Management, Science and Technology, and Transportation and Communications. These projects include provision of advisers to the Ministry of Agriculture and Rural Development as well as a team of advisers to assist in the development of Zambia's Third National Development Plan. The United Nations Development Programme (UNDP) has also provided assistance to education in the form of a range of projects from curriculum development to the training of secondary school teachers.

In the health sector, the World Health Organization is acting as the United Nations executing agency for a project to develop basic health services.

In the industrial sector the United Nations Industrial Development Organization is providing assistance for current projects in the production of metal castings and the second phase of a small-scale industries project.

In transport and communications a UNDP project to train railway personnel has recently been completed, and a microwave project is still under way.

The Food and Agriculture Organization (FAO) has a number of programs under way at present. These include the provision of advisers in the areas of occupational safety and health and manpower planning and development. In addition, the FAO, in cooperation with the Germans with the Germans and Dutch, is providing technicians to the National

Agricultural Irrigation Research Station at Mazabuka on a multiyear project to investigate the possibilities of undertaking irrigation in Zambia for a variety of crops.

In addition to the international organizations, a variety of bilateral donors have ongoing programs in Zambia. For example, the Canadians have been involved in a multiyear program to rationalize the management procedures and provide consultants for the railroad. In addition, the Canadians are at present involved in experiments to determine the feasibility of rainfed wheat production, a maize storage study, a fertilizer storage study, provision of technical personnel to assist the minority of Agriculture and Rural Development, and participant training at the university level. Also, the Canadians have extended a multi-million-dollar line of credit to Zambia and anticipate expansion of this credit in the near future. Canadian expectations are for a large increase in their Zambian program.

Other bilateral donors also have various foreign-assistance programs involving a variety of projects. A number of European countries, including Norway, Sweden, the Netherlands, and Denmark, have programs to provide secondary school teachers and, in fact, the majority of secondary school teachers are non-Zambian.

In addition, some countries have rural development projects which provide a variety of inputs to agriculture in the project area. For example, the Swedes have a project of this type near Chipata and the Germans have a project near Gwembe.

Zambia has also received foreign assistance from Communist countries, the most notable being the financing and construction of the TAZARA railway by the Peoples Republic of China. The railway has been in operation since mid 1976.

#### E. Assistance from the World Bank

The World Bank has had substantial activity in Zambia. Since 1956 the Bank has made 21 loans to Zambia amounting to \$477 million. Sixty-five percent of the financing has been for 10 physical infrastructure projects. Power and communications have accounted for 75 percent of the infrastructure, including a recent telecommunications loan. Three bank loans were made for the expansion of educational facilities, and a fourth education loan was approved in December 1976. These projects involved the financing of the construction at the University of Zambia of facilities

required for schools of education, engineering, agriculture, and business education, as well as the construction of farm institutes and training centers distributed throughout the provinces.

Other activities of the bank groups include investments by the International Finance Corporation (IFC) in a shoe company, a tannery, and, recently, a packaging-materials factory. In addition, the IFC and the Bank made a loan to the Development Bank of Zambia.

The Bank has undertaken projects in agriculture and the rural sector, but in some cases the loans have been canceled. However, the Bank anticipates that future lending programs will emphasize agricultural and rural development. It is expected that the recent Bank "Agricultural Sector Study" will provide the basis for improved programs.

In addition to the agricultural and rural sector, the Bank has recently studied urbanization and water supply and sewerage. A loan was made recently involving the upgrading of Lusaka squatter sites and services, and other loans in the sector are likely.

# **IV**

## **SECTOR ANALYSES**

- **Agriculture**
- **Mining and Minerals**
- **Transportation**
- **Energy**
- **Health**
- **Education**
- **Population**
- **Industry**
- **Other**

#### IV. SECTORAL ANALYSES -- AGRICULTURE

##### A. Setting

Only about a third of Zambia's surface area is suited to agriculture, and of this only 3 to 5 percent is under crops at any one time. Much of the land is used for livestock grazing. The traditional form of agriculture is a slash-and-burn technique called chitemene. This technique is practiced in both the forms of shifting cultivation -- involving periodic relocation of the village -- and bush fallow -- involving a stationary village with shifting garden plots.

Wage employment in agriculture has been declining, falling from 38,500 in 1961 to 33,600 in 1972. Family income in agriculture is substantially less than in the squatter areas of the urban center (see Sectoral Analyses -- Urban).

The performance of the agricultural sector in Zambia since independence has been disappointing. From 1965 to 1975 that sector increased by only 21 percent, or less than 2 percent a year. For the recent sub-period 1971-75, however, the performance was even poorer, with a total increase of only 5 percent (table IV-1).

About 28 percent of the marketed crop comes from about 450 commercial farms. The major location of commercial farming is along the line of rail from Kalomo in the south to Kabwe north of Lusaka. Other prime agricultural areas include the areas around Chipata in the east and near Mkushi in the north.

Like other sectors of the economy, Zambia's agricultural sector can be characterized as dualistic, with modern, relatively capital-intensive, commercial farms operating beside primitive subsistence agriculture. The difficulties in Zambian agriculture are many. At independence European farms had 182,000 acres under crops. Since independence, however, there has been the steady exodus of expatriate commercial farmers whose production constitutes a substantial fraction of domestic agricultural output. At present about 28 percent of the domestic market crop originates from the commercial farms (table IV-2).

Table IV-1  
Agricultural Value Added<sup>a</sup>  
(Millions of kwacha, 1965 prices)

Year	1965	1969	1971	1972	1973	1974	1975
Value added	97.4	101.6	112.0	118.2	114.5	117.9	118.0

a. The increase between 1965 and 1975 is 21 percent.

**Table IV-2.**  
**Commercial Subsistence Contribution**  
**to Agriculture Value Added**  
**(Millions of kwacha)**

Year	Commercial sector	Percent of total	Subsistence sector	Total
1970	27.5	25.0	82.0	109.5
1971	29.6	26.4	82.4	112.0
1972	35.2	29.8	83.0	118.2
1973	30.5	26.6	84.0	114.5
1974	32.9	27.9	85.0	117.9
1975	32.4	27.5	85.6	118.0

Ten years after independence the number of large-scale commercial farms has been reduced from 1,600 to about 800, of which about 450 are managed by noncitizens. Of the 350 managed by Zambian citizens, it is estimated that only about 10 percent are larger than 100 hectares. The remainder have virtually subsistence farms on one corner of a large farming area, thus grossly underutilizing desirable farm land.

About 800 large-scale commercial farms in existence before independence are no longer operated by private farmers. These lands have changed to one of the following categories:

- . Bought by large private farming companies
- . Acquired by neighboring farmers to enlarge their holdings
- . Passed to government parastatals, and operated as state farms.
- . Subdivided for settlement
- . Abandoned and reverted to de facto reserve status.

The broad pattern of production since 1964 has been declining commercial production from expatriate farms offset by an increase in African output,

including output from state farms and also large private corporate farms. The production of milk, tobacco, and beef have suffered particularly from the exodus of expatriates.

Conflicting development policies have also discouraged agricultural development. The continually expressed intention of the government to give top priority to the rural sector has not been carried into practice. In fact, most sectors appear to enjoy at least equal priority.

A major problem is that whereas development objectives demand emphasis on rural development to increase productivity, reach self-sufficiency, develop exports, redistribute incomes by reducing the rural-urban imbalance, and slow urban drift, all policies are subservient to the need to keep the urban consumer happy in the interests of national stability. The major policy tool of increased producer prices as a production incentive is in constant conflict with the need to keep consumer prices down.

The effects of the policy mix applied to agriculture has been manifest in the deterioration of the terms of trade of the agricultural sectors. James Fry has shown that the net barter terms of trade for the African farmer have fallen 22 percent over the period 1964-73, or about 2 percent a year. The farmer would thus have to increase his real output 2 percent a year merely to maintain his real revenues.

One effect is that despite substantial agricultural potential, 40 percent of Zambia's total marketed agricultural production is imported while agricultural exports are minimal. Nevertheless, the potential for the development of Zambia's agricultural sector remains large.

Farm types can be categorized into five groups -- commercial, emergent, traditional, cooperative, and state. Table IV-3 indicates the estimated number in each group as of 1970. These numbers have changed since 1970 with commercial farms declining to about 350, active cooperatives declining, emergent traditional farms enlarging and movement into the marketing channels increasing.

As noted earlier, the government has maintained an ambivalent attitude toward agriculture. The government would prefer agricultural production to be organized along the cooperative model; production cooperatives have not been very successful, however, and the movement is toward service cooperatives. The government views state farms with suspicion, since the worker merely becomes an employee of the state.

Emergent farmers are also viewed with some distrust, since they are viewed as forerunners of a potential elitist class.

Table IV-3  
Types of Farms, 1970

Type	Number
Commercial expatriate	550
Emergent	20,000
Traditional	309,000
Cooperatives	800
State farms	50

Large commercial farms are viewed as undesirable for two reasons. First, most of these are operated by expatriates; second, larger commercial farms reflect a capitalistic structure that is contrary to governmental philosophy. The government has moved against this structure by formally taking over ownership of the land and limiting the extent to which income repatriations can be made. However, the government also realizes that a large percentage of agricultural output is generated by the commercial farms. It is generally agreed that commercial farms offer the best potential for fairly rapid short-term production.

It may well be that the lack of an economically viable form of organization for the modernization of agricultural production that is also ideologically acceptable is the major reason that the government has failed to take the initiative in the agricultural sector and press for increased production and modernization.

#### B. Land Tenure

Before independence, the lands available for the expatriate community made up only about 6 percent of Zambia's total land area (table IV-4). These lands were vested in the British Crown for sale or leased to individuals and included private land. To the remaining rural lands the British applied a protective policy with certain areas designated as Native Reserves -- for exclusive use by the indigenous peoples -- and Native Trust Land -- for the use or common benefit of the indigenous peoples. Tenure in Reserves and Trust Land was regulated by customary, not statutory, law.

Table IV-4  
Land Area by Tenure Category, 1963 and 1970<sup>a</sup>

Category	December 31, 1963 (thousands of hectares)	December 31, 1970 (thousands of hectares)
<u>State land</u>		
Freehold	1,462	1,140
Leasehold	1,012	1,169
Townships	79	878
Forest reserves and protected areas	1,049	945
Tribal occupation	510	570
Inundated by water	152	152
Unalienated	483	5
<b>Total</b>	<b>4,747</b>	<b>4,859</b>
<u>Reserves</u>		
Protected forest areas	391	3,883
<b>Total</b>	<b>14,436</b>	<b>27,073</b>
<u>Barotseland</u>	12,644	b/
<u>Trust land</u>		
Forest reserves and protected areas	2,672	4,401
<b>Total</b>	<b>43,466</b>	<b>43,361</b>
<u>Total land area</u>	<b>75,293</b>	<b>75,293</b>

a. For distribution of these categories see World Bank Map 11540.

b. Included in "Reserves." Shown as "State land" (under tribal occupation) in 1972 Report (unpublished).

Source: Annual Reports of the Lands Department, 1963 (last preindependence year) and 1970 (last published report). Figures were obtained by conversion of acreage totals in each report.

At independence the three land categories were maintained with the Crown Land redesignated State Land excepting private lands. In 1975 the President abolished freehold titles (private lands) and converted them to 100-year leasehold contracts.

### C. Development Potential and Agricultural Policies

The government's stated objectives in Zambia's agricultural and rural sector are to:

1. Achieve a more equal distribution of real income,
2. Become self-sufficient in more foodstuffs and in cotton, and
3. Diversify the economy and widen the export base by exporting agricultural surpluses.

It is less clear, however, that the government has any coherent strategy to achieve these objectives and, in fact, the degree of the government's commitment to the various objectives is unclear.

An analysis of the types of agricultural policies actually undertaken suggests that their effect has been in the opposite direction of the stated objectives, particularly (2) and (3). Although the policies change over time and vary considerably among commodities, a simple generalization would characterize the agricultural price policies as designed to maintain low consumer prices within a subsidy level acceptable to the government. Therefore, the typical price policy is one of low consumer prices in the face of rising domestic and worldwide costs. To the extent that demand exceeds domestic supply at the artificially low government-dictated price, the goods are imported by the government at world prices and made available at lower Zambian prices. The difference between the purchase price and the sale price is made up by government subsidies.

Table IV-5 lists selected producer and consumer prices subsequent to the price adjustments of February 1976. As shown in the table, prices at both levels have risen substantially. Although the new price structure can be expected to increase producer incentives, reduce agricultural imports, and reduce the size of the subsidies required observers generally feel that the adjustments are not sufficiently large.

On the producer side the government has, for most commodities, held producers' prices below market levels. The effect has been to stifle incentives for domestic production and increase pressures for agricultural imports. In effect, the government has been willing to pay a price to foreign producers (via the import price) above what it is willing to pay

**Table IV-5**  
**Price Adjustments of Selected Agricultural**  
**Products, February 1976**  
**(Kwacha)**

Product	Unit	Unit price	Percent change
<b>Producer prices</b>			
Maize	90 kilograms	6.25	25.0
Groundnuts	80 kilograms	25.00	31.6
Wheat	90 kilograms	16.00	--
Soya beans	90 kilograms	17.00	28.8
Sunflower	50 kilograms	10.00	6.0
Cotton	kilogram	0.42	31.3
Rice	kilogram	0.18	20.0
Tobacco <sup>a</sup>	kilogram	1.04	15.6
Coffee			
Good quality	kilogram	0.90	36.4
Poor quality	kilogram	0.35	--
Milk (fresh)	liter	0.15	36.4
<b>Wholesale and retail prices</b>			
Maize			
Wholesale	90 kilograms	4.82	44.3
Retail			
Breakfast meal (60 percent extraction)	50 kilograms	9.00	119.5
Roller meal (90 percent extraction)	50 kilograms	3.80	25.0
Cotton lint			
Wholesale	kilogram	1.45	23.9
Milk (fresh)			
Retail	1/2 liter	0.13	18.2
Fertilizer			
Retail	50 kilograms	6.25	56.3

a. Minimum guaranteed price.

Source: Data provided by Zambian authorities.

domestic producers for the same product. One result is that more than 40 percent of marketed agricultural products in Zambia are imported.

Also, the ostensibly fair policy of equality in producer prices which has led to the same buying price for maize throughout the country, negates comparative advantage, and has also retarded production of other crops.

There is some question as to whether the government fully appreciates the impact of its policies. In general the policies appear to be ad hoc responses to a variety of economic and political pressures. As noted above, however, the government has recently moved to rationalize and decrease the distortions in its policies in response to recommendations of the IMF and the World Bank and to budget constraints which limit its ability to continue the high subsidy levels.

Table IV-6 summarizes Zambia's subsidy system. With the increase in import prices and the need to increase producer prices in 1974 and 1975, the government was faced with either increasing consumer prices or increasing subsidies. The choice, to increase subsidies, is reflected in the nearly doubling of the total subsidy between 1974 and 1975.

Total subsidy amounted to a substantial 42.2 percent of total agricultural sector value added and 20.5 percent of total nonmining government revenues. The trend of rising subsidies was reversed in 1976, however, in response to financial constraints and the suggestion of various international groups.

As table IV-6 shows, the composition of the subsidies has undergone some changes with an increased subsidy to fertilizers -- partly in response to the higher prices generated by increased petroleum prices. Because of the cost-plus method of pricing agricultural products, however, this can also be viewed as a subsidy on consumption.

#### D. Institutions

Agriculture is serviced almost entirely by government or quasi-governmental organizations. The main ones are the departments of the Ministry of Rural Development and its parastatals. The Industrial Development Corporation of Zambia also has subsidiaries, including the National Milling Company (stock feeds), Kabwe Industrial Fabrics (gunny bags) and RUCOM Ltd. (rural industries) servicing the agricultural sector. Few services remain private except some of the machinery and equipment suppliers and the suppliers of agricultural chemicals. (See "Economic Overview" for a discussion of the parastatals.)

Table IV-6  
 Budgetary Subsidies, 1973-76  
 (Millions of kwacha)

	1973	1974	1975 revised estimates	1976 revised budget
1. Total subsidies	37.0	47.4	82.8	51.2
Maize consumer subsidy	10.1	12.3	17.6	21.7
Fertilizer subsidy	2.7	8.4	32.9	20.4
Other <sup>a</sup> (subtotal)	24.2	26.7	32.3	9.1
Milling companies	1.1	--	9.0	--
Tobacco	1.0	3.0	3.4	2.2
Refined oil products	--	--	4.0	--
National Agricultural Marketing Board	13.0	2.5	3.0	--
Cold Storage Board	1.6	0.8	2.4	1.0
2. Total subsidies as a per- centage of agricultural value added	23.1	26.2	42.2	--
3. Total subsidies as a per- centage of nomining revenue	13.4	15.2	20.5	11.1

a. In some cases subsidies related to payments for losses in the previous year.

Source: Government of Zambia, Financial Report, 1973-74, and data provided by Zambian authorities.

The Ministry of Rural Development bears the responsibility for agricultural and rural development. The Ministry was formed in 1969 to bring together the diffuse activities in this field. Fisheries and Forests are the responsibility of the Ministry of Lands, Natural Resources, and Tourism, however. For operational purposes the Ministry of Rural Development is divided into four technical departments. These are Agriculture (itself separated into Extension and Research branches), Water Affairs, Marketing Cooperatives, and Veterinary and Tsetse Control Services.

There are also a large number of quasi-public parastatals in the sector established to carry out specific tasks. They are all under the supervision of the Ministry of Rural Development. The most important parastatals are the following:

The National Agricultural Marketing Board (NAMBoard) is responsible for marketing and storage of grain, distribution and importation of fertilizers and farm equipment and marketing of cotton, and the Board participates in fruit and vegetable marketing. The operations of the Board have always been handicapped by the need to stretch meager managerial resources throughout the country and by its government-imposed obligation to equalize producer prices throughout the country, regardless of comparative advantages pertaining to some areas over others. NAMBoard is the sole legal marketer of maize and receives annual subsidies from the government for its handling of maize and fertilizer and to compensate losses resulting from price/cost differentials.

The Tobacco Board has the sole responsibility for tobacco marketing. It runs the auction floor in Lusaka and a variety of tobacco-production schemes, particularly smallholders.

The Rural Development Corporation represents the government's principle operations in the field of agricultural production. The Rural Development Corporation runs several branches: the Agricultural Finance Company, responsible for farm credits; a number of state farms and ranches; cattle development; rural air services; Zambia's Pork Products, which is responsible for the marketing and processing of pork. As is true of most other parastatals, the cost of the Rural Development Corporation's commercial operations is very high.

The Cold Storage Board is responsible for cattle marketing, the importation of all beef, and cold storage. It is not the sole buyer of cattle, however, and farmers often use alternative marketing channels.

The Dairy Produce Board is responsible for marketing and importation of all dairy products. The Dairy Board is a monopoly buyer.

In 1965 the government embarked on a drive to organize agricultural cooperatives. The main emphasis was placed on the formation of communal farming cooperatives. Within a short time thousands of cooperatives were formed, supported by an attractive government credit scheme. Within a period of 3 to 4 years, however, the majority of these cooperatives had to be dissolved because of poor economic performance. One reason for this failure was the inadequacy of the services provided. A new start was made in the early 1970s, when a new cooperative act was introduced that was designed to be better suited to the needs of the small-scale Zambian farmers. The creation of service cooperatives was emphasized, and with improved services the rate of failure dropped markedly. In addition, the formation of savings and credit unions has been quite successful. By 1975 there were some 56 credit and savings associations in existence with 25,000 members and a share of capital of K2.5 million. The government is now building a Cooperative Training Institute near Lusaka.

#### E. Agricultural Production

Table IV-7 indicates the quantity of marketed agricultural production for 1964-74. One should be careful to note that this is not total output but rather marketed output. Thus, while these data provide some information on output changes, they give more of an indication of the rate at which subsistence farmers are drawn into the market sector than of total production. However, increases in marketed production trends suggest the development of the sector.

1. Maize -- Of all the cereal crops produced in Zambia, maize is by far the most important. It is produced on commercial farms as well as on subsistence farms in nearly all parts of the country and is the main staple food of Zambians, be they rural or urban. Soil and climatic conditions in Zambia are generally well suited to the production of maize and, under good management, yields in excess of 5 tons per hectare are feasible.

Production of maize in Zambia has had a checkered history since 1964. In 1964 some 204,000 tons of maize reached the marketing outlets in the country; the highest marketed production ever achieved was 616,000 tons in 1972, with the lowest since independence of 135,000 tons in 1970. The reason for these fluctuations is an inconsistent price and production policy on the part of the government. The internal marketed demand is around the 500,000 ton mark; roughly one year in two the country was not self-sufficient in maize and must import.

2. Other Cereals -- In comparison with maize, other cereals have so far been of minor importance. In regions with low rainfall the indigenous varieties of sorghum are preferred to maize. In the northern region, where finger millet was grown widely in the past under the chitemene system this crop has only regional importance and is increasingly being replaced with maize. Wheat, for which the demand

Table IV-7  
Quantities of Marketed Agricultural Production

Commodity	Unit	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974 <sup>a</sup>
Maize	Tons	204,270	263,000	348,720	383,080	238,830	273,990	135,200	399,950	616,554	460,480	450,000
Tobacco												
Flue-cured	Tons	10,960	6,600	6,566	4,950	6,280	5,020	4,790	5,910	5,530	6,230	7,160
Burley	Tons	1,703	1,993	855	275	285	240	255	388	385	471	523
Oriental	Tons	297	526	213	131	114	75	8	4	--	--	--
Sugar cane	Tons	--	--	--	--	183,000	257,000	322,000	331,000	397,400	446,350	500,000
Groundnuts	Tons	3,630	6,740	11,530	14,810	5,390	7,820	3,270	5,970	6,480	2,960	5,000
Sunflower seed	Tons	--	--	--	--	--	--	--	16	163	1,050	3,500
Soya beans	Tons	--	--	--	--	--	--	--	--	--	173	400
Seed cotton	Tons	1,649	2,273	2,778	831	4,252	6,915	5,606	11,919	8,453	5,225	5,600
Sorghum	Tons	--	--	24	727	3,545	1,181	545	90	212	34	350
Fruit	Tons	2,600	2,400	2,500	2,600	2,200	3,100	4,800	5,600	5,900	5,500	6,000
Vegetables	Tons	13,500	13,000	14,100	15,200	15,500	17,200	21,000	24,100	27,700	20,000	25,000
Cattle	Head	71,000	69,000	63,000	55,000	47,000	49,000	68,000	68,000	72,443	90,000	91,000
Pigs	Head	16,000	17,000	20,000	22,000	25,000	27,000	35,000	34,000	32,000	36,000	34,000
Chickens	1,000 head	650	905	1,410	2,100	3,200	3,800	4,000	4,425	5,500	6,100	7,600
Turkey & ducks "	head	--	--	17	35	40	46	50	25	40	30	n.a.
Eggs	Millions	17	22	27	36	54	93	99	108	115	123	n.a.
Milk	Tons	20,500	19,770	19,020	18,330	18,430	16,260	15,610	16,000	16,586	16,700	16,800
Day-old chicks	1,000 head	--	--	--	--	280	440	665	910	1,100	1,250	1,300

n.a. = Not available.

a. Estimates.

Source: Planning Unit, Ministry of Rural Development.

increased from about 16,000 tons in 1964 to more than 100,000 in 1975, is a priority development crop for the government.

Much of the technical possibility for wheat production comes from the potential for wheat as the second crop that would be associated with irrigation. Maize would be the principal wet-season crop. A second possibility is found in rain-fed wheat. Presently Trials are under way. The viability of rain-fed wheat production is in question, however. Should suitable varieties of wheat be developed, its expansion could be expected to be quite rapid because its production could be expected to be relatively low in cost. In general, large-scale production would be expected.

3. Rice -- Rice has always been a minor crop in Zambia, grown largely for subsistence or local sale. Various experimental rice-production projects have been undertaken since 1970. The potential for self-sufficiency with respect to rice appears to exist in Zambia because of flood control that has been developed in river valleys in Northern and Luapula provinces. Should increased irrigation be made available a number of sites such as the Barotse Flood Plain, Lake Kariba, and the Kafue Flats might well be feasible.

4. Tobacco -- Most of the important production is found along the line of rail south of Kabwe. The peak in tobacco production was reached in 1964 when some 13,000 tons of tobacco were produced. Production declined steadily to an all-time postindependence low in 1970, when only 5,000 tons were produced. After this depression, production began to increase again, reflecting considerable government efforts, reaching 6,600 tons in 1974. The reason behind the decline in the tobacco industry was the decline in producer prices in the 1960s, escalating production costs, notably in wages, and the decline in the number of expatriate producers.

5. Cotton -- Production was introduced to Zambia in the early 1960s and increased rapidly, peaking in 1971, when nearly 12,000 tons of seed cotton were produced. Production then declined to some 5,600 tons in 1974, mainly because of the relative price increases in maize, which resulted in production substitution. Cotton is generally produced by small- and medium-scale Zambian emergent farmers. The major areas of cotton cultivation are near Gwenbe in the Southern Province, along the Zuangwa Valley and near Mamba in the Central Province.

6. Fruits -- Production is increasing steadily but cannot yet meet local demand. The most important individual crop is bananas. Government-supported schemes provide the bulk of the marketed crop. Other fruits produced are mangoes, avocados, pawpaws, melons, pine-apples, and strawberries. Deciduous fruits such as apples, peaches and apricots are being produced on a trial basis but are not yet significant.

7. Vegetables -- Around the urban centers a substantial vegetable production has developed over the years. Generally, local production is able to meet demand. The source of produce is a function of season: During the warm, rainy season the bulk of the supply comes from large-scale commercial producers, whereas during the cool, dry season (May-October) small Zambian producers capture a good part of the market.

8. Cattle -- In 1974 an estimated 1.5 million cattle were held in the traditional sector and some 210,000 in the commercial sector. In 1974 about 91,000 were supplied to the markets, of which some 40 percent were supplied by the commercial sector. In addition some 47,000 head of cattle (or their equivalent) were imported. The low fertility and poor animal husbandry limits the take-off from the traditional sector, as does the traditional social value placed upon the ownership of cattle. Expansion of the commercial herds is limited by a lack of managers for state ranches and the continuing departure of expatriate farmers. Most of the commercial cattle are found along the line of rail from Monze to Kabwe and in the Mkashi area. There appears to be substantial potential for increasing livestock production in Zambia. Some observers feel that there is a significant need for veterinarians and paravets for control of livestock diseases.

9. Pigs -- Production of pigs increased from 16,000 head in 1964 to about 40,000 in 1975. The market is generally well supplied with pork.

10. Chickens -- Production increased from 650,000 in 1964 to 7.6 million in 1974. The bulk is supplied by commercial producers near the urban centers, but cooperative and settlement schemes increased their share of the market steadily. Zambia is self-sufficient in chickens, and some day-old chicks are exported.

11. Eggs -- Production increased from 17 million to 123 million in 1973. The market is well supplied domestically.

12. Milk -- Since 1964 local production of milk has declined steadily. In 1964 20,500 tons of milk were produced, while in 1974 output had sunk to 16,800. The reasons for this decline are the departure of expatriate producers and poor producer prices. Nearly all the milk is produced by the commercial sector and government-operated production units. Since 1964, consumption of milk has increased tremendously: whereas in 1964 some of the milk was processed, from 1967 increasing quantities of powdered milk have had to be imported. In 1973, of a total of 33 million liters sold in Zambia, only 12.7 million were produced locally and the remaining 20 million liters were reconstituted milk. All other dairy products, cheese and butter, are imported.

13. Forestry -- Approximately half of Zambia's land area is covered with deciduous woodland, which is estimated to contain 10 million cubic meters of commercial timbers. Most of the indigenous forest commonly referred to as "the bush" consists of a mixture of species: the principal genera, *Isoberlinia* and *Brachystegia*, occur in most parts of the country and yield hard, heavy, refractory timbers.

*Brachystegia* is used extensively for mining timbers and props, rut poles, and firewood or production of charcoal. *Baikiaea plurijuga*, Zambian teak, is a valuable species concentrated principally in the South or Western Province. A species of commercial importance, this tree has for many years yielded a commercial quantity of heavy, durable timber which has found ready acceptance in parquet flooring and in mining timbers; it also accounts for nearly all of Zambia's export of timber products. *Pterocarpus angolensis*, mukwa, is the only other indigenous timber of any commercial consequence. This timber is the most amenable species growing in any significant volume in Zambia, and the relative ease with which it can be worked, together with its demonstrated stability, have made it acceptable for many uses. Indigenous forests are utilized to the extent of 200,000 cubic meters annually.

14. Fisheries -- Zambia has approximately 152,000 hectares of open lakes and perennial rivers, as well as substantial swamps and river flood plains, and the fisheries of Zambia are remarkable for their variety. Fishing is carried out by self-employed fishermen, and more than half the total catch comes from the northern region. There are eight major fisheries, most of which are located on or near the periphery of the country, thus complicating the problems of distribution and marketing.

15. Sugar -- Sugar production started in 1968. The government, in cooperation with a private company, Tate and Lyle, established the Nakambala Sugar Estate and, at present, the country enjoys almost complete self-sufficiency. A second estate is being planned, which should ensure continued self-sufficiency and should meet the rapidly increasing demand.

16. Groundnuts -- Groundnuts are grown throughout the country as a subsistence crop. commercially they are produced mainly in Eastern Province, where their output is characterized by wide fluctuations from season to season, reflecting strongly the relative price changes of other commodities, especially maize. Most of the crop is exported as high-value confectionary nuts and contributes little to the local supply of edible oils, 70 percent of which has to be imported.

17. Sunflower -- Commercial sunflower production began in 1971 with a marketed output of 16 tons. Since then production has increased dramatically and is expected to reach 6,000 tons in 1976; sunflower is the largest contributor to locally produced edible oils. Difficulties include small-scale harvesting. Further varietal selection is also required.

18. Soya Beans -- Commercial production got under way in 1972 and has doubled since then -- growth less dramatic in absolute terms than the growth of sunflower. The main problem lies with the technical problems associated with harvesting. Soya bean production requires a higher level of management than production of sunflower seeds and is generally favorable for large-scale production.

#### F. Food Imports and Potential for Export Substitution

The following section analyzes Zambia's international trade in foodstuffs. Imported commodities are of particular interest since their importation indicates the existence of a domestic market. The substantial international transportation costs involved with many agricultural commodities enhance the potential viability of import substitution in these areas.

In 1975 import of foodstuffs totaled \$57 million, while foodstuff exports were \$2.6 million, leaving a foodstuff trade gap of about \$54.4 million. If nonfood agricultural production is included, tobacco and groundnuts, for example -- the ratio of exports to imports improves but the gap remains substantial.

The focus of the analysis is directed to Zambia's trade in foodstuffs with other African countries. Table IV.8 shows Zambia's food imports from other African countries amounted to about K6.5 million in 1975 while her exports were K1.7 million (table IV-9). Focusing upon major sources of imports table IV-10 indicates three African countries which have generated Zambian imports of more than 1 million kwacha. These imports were beef from Botswana, butter from South Africa, and rice from Malawi. Figure IV-1 presents an analysis of the composition of food imports and exports from African sources. All these commodities are produced in Zambia and have potential for substantial domestic expansion. With regard to imports from non-African suppliers, the major commodities are milk, fish, wheat, and malted barley. Figure IV-2 summarizes Zambia's import-substitution potential in agriculture. Milk production can clearly be increased and historically Zambia has produced more than currently. Wheat, while not produced in large quantities locally, appears to offer potential for domestic production either through irrigation or schemes for rain-feeding. Projects leading toward broader production of wheat are now in progress. Production of malted barley also appears to offer potential for increased production and the World Bank report offers a prediction that self-

Table IV-8. Zambia's Imports of Foodstuffs, by  
Country of Origin, 1975  
(Kwacha<sup>a</sup>)

Country	Value	Percentage of foodstuffs imported
<u>Africa</u>		
Malawi <sup>b</sup>	1,865,134	
Botswana	1,162,737	
Swaziland	222,625	
Kenya	945,659	
Uganda	0	
Tanzania <sup>b</sup>	422,527	
Nigeria	24,060	
South Africa	1,384,290	
Namibia <sup>b</sup>	251,742	
Mauritius	2,693	
Ivory Coast	22,286	
Morocco <sup>b</sup>	1,481	
Angola	21,294	
Mozambique <sup>b</sup>	95,066	
Zaire <sup>b</sup>	74,185	
Total Africa	6,495,779	17.4
<u>Others (more than 1 million kwacha)</u>		
China	1,346,397	
United Kingdom	5,039,808	
Australia	6,711,437	
France	1,568,084	
Belgium	2,662,924	
Holland	1,034,281	
Canada	7,645,381	
Total others (more than 1 million kwacha)	26,008,312	70.3
Total others (less than 1 million kwacha)	4,485,747	12.3
Grand total	36,989,838	100.0

a. 1 kwacha = \$1.544 (in 1975).

b. Indicates country with common border.

Table IV-9. Zambia's Exports of Foodstuffs,  
by Country of Destination, 1975<sup>a</sup>  
(Kwacha<sup>b</sup>)

Country	Exports	Re-exports
<b><u>Africa</u></b>		
Malawi <sup>c</sup>	2,683	0
Botswana <sup>c</sup>	0	0
Swaziland	0	0
Kenya	0	0
Uganda	4,466	0
Tanzania <sup>c</sup>	3,919	0
Nigeria	0	0
South Africa	40	0
Namibia <sup>c</sup>	0	0
Mauritius	0	0
Ivory Coast	0	0
Morocco <sup>c</sup>	0	0
Angola <sup>c</sup>	0	0
Mazambique <sup>c</sup>	1,666,522 <sup>d</sup>	1,987
Total Africa	1,677,590	1,987
<b><u>Others</u></b>		
Denmark	0	40
United Kingdom	3,281	0
United States	110	0
Canada	70	0
Total others	3,461	40
Total all countries	1,681,051	2,027

a. SITC Section 0.

b. 1 kwacha = \$1.544 (in 1975).

c. Indicates country with common border.

d. Primarily maize.

Table IV-10. Zambia's Imports of Foodstuffs, 1975  
 (Commodities Valued at more than 1  
 million kwacha<sup>a</sup>)

SITC	Commodity	Value	Main supplier
01113	Beef, frozen	1,565,401	Botswana
02221	Milk, powdered, skimmed	1,832,886	Belgium
02301	Butter	1,016,102	South Africa
03209	Fish preparations, other	1,108,161	Japan
04100	Wheat in the grain	13,239,554	Canada
04220	Rice in the grain	1,227,000	Malawi
04821	Malted barley	3,715,206	United Kingdom
	Total	23,705,278	
			64.0 percent of total foodstuff imports

a. 1 kwacha = \$1.544 (in 1975).

FIGURE IV-1. ZAMBIAN AGRICULTURAL FLOWS

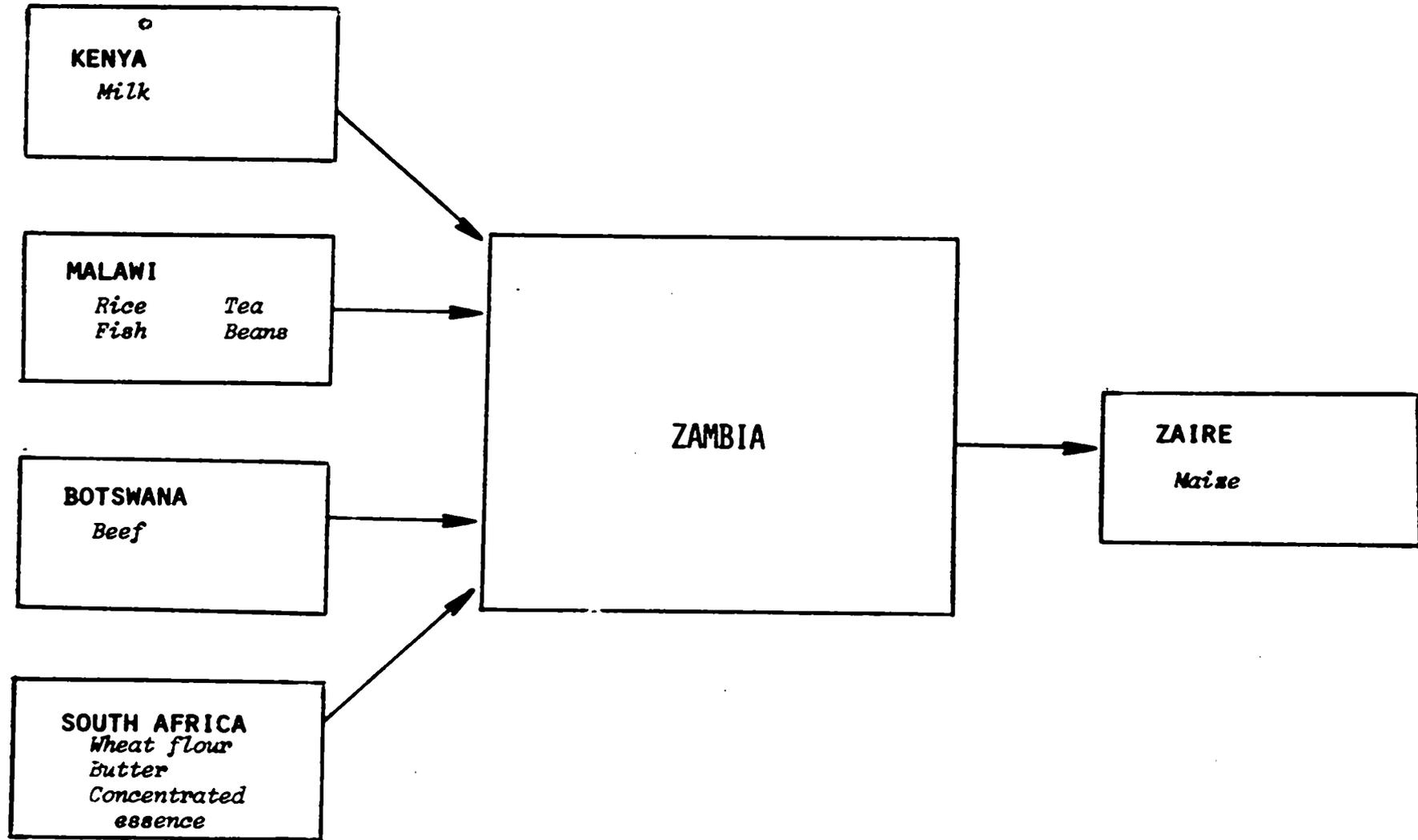
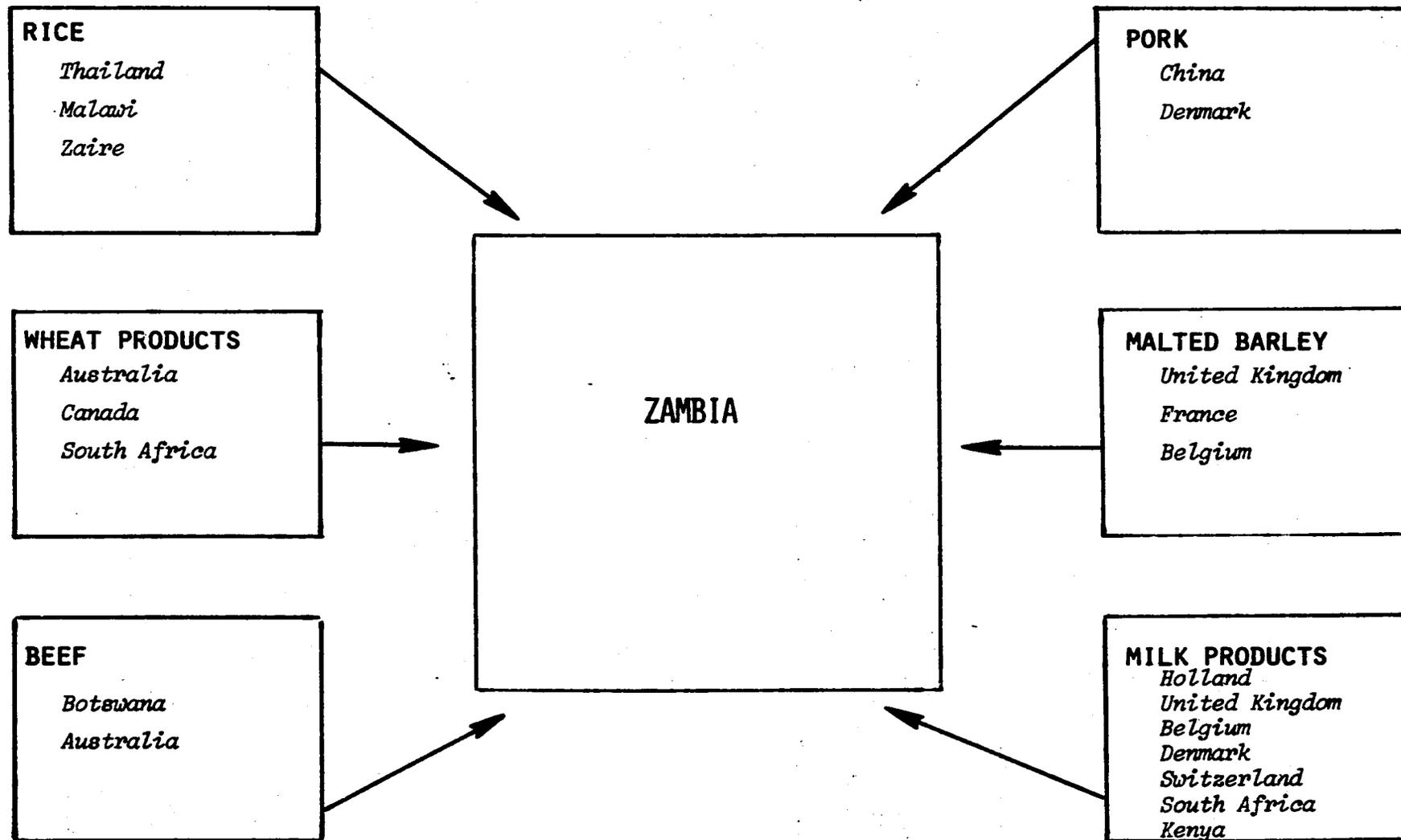


FIGURE IV-2. POTENTIAL IMPORT SUBSTITUTION COMMODITIES  
AND MAJOR SOURCES OF IMPORTS



self-sufficiency can be reached from irrigated production by commercial farms. Irrigated production may be quite expensive, however.

All this indicates that of the seven commodities which constitute 64 percent (K23.7 million) of total imports of foodstuffs, all but fish appear to have substantial import-substitution possibilities. Given the set of agricultural price policies which tend to discourage agricultural production, it appears that a substantial comparative advantage exists within Zambia's agricultural sector for a variety of commodities. Therefore, with the correct combination of price policies and other imports, expertise, and so forth, substantial increases in a wide variety of commodities can be expected to be forthcoming.

Zambia's performance in the export of foodstuffs has been poor. With the exception of exports of maize and groundnuts, Zambia's exports of foodstuffs are negligible. Nonfood (tobacco) is the major agricultural export. The developmental implication appears to be to focus upon plans for import substitution within the agricultural sector. Over the long term, domestic agriculture that demonstrates that it is competitive can begin to produce for export markets.

Table IV-11 indicates the types of farms that typically produce Zambia's major crops. As can be seen from the table, a wide range of crops can be produced under small-scale conditions and thus lend themselves to small and emergent farming and the labor-intensive techniques typically used. These include maize, groundnuts, poultry, bean, and sunflowers, as well as horticulture. Only a relatively few commodities -- sugar and milk, for example -- are precluded from small-scale production.

#### G. Agricultural Research

Zambia does have a system of agricultural experiment stations. Indications are, however, that priority is being given to the Agricultural Irrigation Research Station at Masabuka. Although preliminary results suggest the technical viability of irrigation in Zambia, there are reasons to question the likelihood that irrigation has widespread near-term potential. Considerations include the high costs of irrigation equipment, the uncertainty as to the quantities of water -- particularly groundwater potentially available -- and the consideration that the irrigation would at best supplement the normal rainfall for low-value second crops. Even so, the World Bank appears to be somewhat optimistic about irrigation prospects on a modest scale.

There is also a Canadian team now investigating the possibilities of growing rainfed wheat. Team members seem to feel that present maize areas are suitable for wheat production but that maize -- a crop generally of higher value -- is to be preferred. They hope to introduce wheat into some of the marginal farming areas, however.

Table IV-11  
Commodities by Various Types of Farms

Commodity	Commercial	Emerging	Small Farms	Cooperatives	State
1. Maize	X	X	X	X	X
2. Tobacco	X	X	X		
3. Horticulture	X	X		X	
4. Sugar	X				X
5. Groundnuts		X	X		
6. Poultry	X	X	X	X	
7. Beef	X	X	X		X
8. Milk	X				X
9. Pigs	X	X			
10. Soya beans	X			X	X
11. Sunflower		X	X		

Source: Agriculture in Zambia since Independence

#### IV. SECTORAL ANALYSES -- MINING

##### A. Setting

Mining in Zambia is largely copper, although in 1974 zinc, lead, coals, cobalt, and a few other minerals accounted for about 6 percent of the total mineral value.

Zambia is the fifth major producer of copper in the world; it follows the United States, the U.S.S.R., Canada, and Chile. The dominance of mining in the Zambian economy is illustrated by the fact that mining accounts for about a third of Zambia's GDP, 90 percent of its foreign exchange earnings, and up to 50 percent of government revenues. The existence of the mining sector has given Zambia one of the highest GNP per capita in Africa -- about \$500 -- and has provided the government with a large flow of finances with which to undertake a variety of programs.

The dominance of the mining industry has also created difficulties and distortions, however. Fluctuations in copper prices have serious repercussions upon the economy through changes in foreign exchange earnings (table IV-12), government revenues, and the like. Realizing the implications of the dominance of copper, the government and well-informed observers agree that a program of diversification, away from copper, is desirable for Zambia. At the same time, the dependency of the economy upon copper and potential returns from further development of it have prompted substantial additional investments in this sector (table IV-13, row 2). Although these investments are from private sources, they reflect government policy, since the government has majority ownership in the copper companies.

The government's objectives in the mineral sector call for "the fullest development of Zambia's mineral resources for the benefit of all the people in the country." The specific goals are:

1. To expand local secondary manufacturing industries to utilize the primary products of mining,
2. To encourage the manufacturing of equipment used in the mineral sector,
3. To encourage diversification into additional minerals and smaller mines,
4. To ensure that indigenous business participates in the minerals sector,
5. To ensure acceleration of mapping required to make mineral investment decisions,
6. To intensify oil prospecting,

Table IV-12  
Zambian Copper Production and Foreign Exchange Earnings

Year	Copper production (metric tons)	Copper exports (metric tons)	Average export price Kwacha per ton	Average price (dollars per pound)	Foreign exchange earnings (dollars)
1973	681.2	670.0	1,116	0.79	1,089.3
1974	702.1	673.4	1,307	0.93	1,308.1
1975	640.3	630.0	789	0.56	734.9

Sources: Economic Report 1975, Ministry of Finance, Lusaka; Monthly Digest of Statistics, Republic of Zambia, selected issues.

Table IV-13  
**Second National Development Plan: Total Planned Investment, 1972-76<sup>b</sup>**  
(In millions of U.S. dollars)

Sector	Source of finance					Total investment	
	Domestic resources	External finance	Public enterprises	Total public sector	Private sector	(U.S. dollars)	(percent)
Rural sector	138.7	32.6	18.6	189.9	46.5	236.4	7.8
Mining	44.4	19.1	--	63.6	559.6	623.1	20.6
Industry	45.0	--	120.9	165.9	226.3	392.2	12.9
Trade	69.8	--	--	69.8	15.5	85.3	2.8
Power	112.2	162.8 <sup>a</sup>	33.2	308.1	--	308.1	10.2
Transport and communication	121.7	164.8	202.3	572.4	8.4	580.8	19.2
Tourism	23.3	--	--	23.3	15.5	38.8	1.3
Broadcasting and information	6.2	6.2	--	12.4	--	12.4	0.4
Housing and real estate	178.8	46.5	--	226.3	83.7	310.0	10.2
Construction	--	--	--	--	97.7	97.7	3.2
Education	153.0	24.5	--	177.5	4.7	182.1	6.0
Health	57.4	--	--	57.4	4.7	62.0	2.0
Other social services and government administration	103.7	--	--	103.7	--	103.7	3.4
<b>Total</b>	<b>1,055.1</b>	<b>540.0</b>	<b>374.9</b>	<b>1,886.4</b>	<b>1,062.4</b>	<b>3,032.4</b>	<b>100.0</b>

a. Includes \$82.6 million for Kariba North Bank Power Project. The cost of this and other projects has increased considerably, however, because prices of capital goods have risen since the Plan was drawn up.

b. International Monetary Fund, Zambia, Recent Economic Developments, May 30, 1975.

Source: Republic of Zambia, Second Five-Year Development Plan, 1972-76.

7. To strive for a realistic mineral-pricing mechanism,
8. To ensure that reasonable mineral development incentives exist, adequate conservation practices are followed, and the environment is protected, and
9. To accelerate the training of Zambians and the Zambianization of the mining industry.

The lack of stress on the copper industry in these goals is indicative of the government's desire to diversify its economic base. The mining sector's share of planned investment for the second plan, however, was more than 20 percent of the total. And during 1972-74 a total of K329 million (\$509 million) was invested in copper (table IV-14). It should be noted that the government owns an interest of 51 percent in the copper-mining companies and therefore can control the levels of private investment.

The government has a certain ambivalence toward copper. On the one hand copper is critically important to the economy; on the other, the government would like to see the importance of copper decline.

In fact, the performance of the copper industry can best be described as stagnant. A decline in the contribution of minerals as a percentage of GDP is observed using either constant or current prices (table IV-15 and IV-16). This phenomenon could reflect the success of the diversification policy. As tables IV-16 and IV-17 show, however, copper production has stagnated and declined since 1965. Thus, the declining contribution of minerals is largely a reflection of the decline of the sector rather than of the success of diversification.

Table IV-14  
Mining Capital Expenditures  
(millions of kwacha)

Mineral or activity	1972	1973	1974 (estimated)	Total 1972-74
Copper	86	127	116	329
Lead and Zinc	3	6	10	19
Other mining and quarrying	0.5	0.5	0.5	1.5
Other projects	1	5	18	24
Prospecting and exploration	2.6	3.7	2.6	8.9
Promotion	--	--	--	--
Total	93.1	142.2	147.1	382.4

Source: Mid-Term Review of the Second National Development Plan.

Table IV-15  
Mining Component of GDP in Current Prices  
(Millions of kwacha)

Year	GDP (millions of kwacha)	Mining sector (millions of kwacha)	Mining sector as a percentage of GDP
1970	1,257.7	462.4	36.8
1971	1,178.2	300.3	25.5
1972	1,311.9	324.0	24.7
1973	1,601.0	368.0	35.5
1974	1,803.0	622.0	34.5
1975	1,436.0	151.0	10.5

Table IV-16  
GDP Originating in the Mining Sector  
(1965 Constant Prices)

Year	Mining value added	As a percentage of GDP
1965	291.8	41.0
1969	254.9	33.6
1971	195.1	24.1
1972	219.1	24.7
1973	211.6	24.0
1974	217.2	23.7
1975	196.0	22.0

**Table IV-17**  
**World Copper Production, 1973**  
 (Thousands of tons of copper content)

Country	Primary production	Refined production
Total production	5,989.3	6,550.0
CIPEC countries <sup>b</sup>		
Chile	745.9	411.0
Peru	220.0	39.0
Zaire	490.2	230.2
Zambia	706.7	638.7
CIPEC total	2,162.8	1,318.9
South Africa	160.0	85.0
Canada	816.2	497.7
United States	1,590.0	2,100.0
Philippines	225.0	--
Australia	210.5	166.3
New Guinea	180.2	--
Europe	300.0	1,340.0
	Percentage	
CIPEC share	36.1	20.1

a. Excluding centrally planned economies (thousands of tons of copper content).

b. CIPEC = Intergovernmental Council of Copper Exporting Countries.

Source: CIPEC Annual Report for 1973.

To some extent the Mufulira mine disaster of September 1970 is responsible for low output levels of 1970-72; it is estimated that the mine accident resulted in a loss of 200,000 tons during that period. The continued stagnation of the production of copper beyond 1972 cannot reasonably be attributed to the accident, however.

Another measure of the poor performance of the copper industry is the shortfall of production from the goals. The SNDP called for a production of 900,000 tons in 1976, but actual production for 1976 is estimated to be only about 650,000 tons.

The Ministry of Mining and Industry is responsible for government policy in mining. It is the Zambian Industrial and Mining Corporation, however, which is the holding company for state interest. The present structure of the mining industry can be divided into three sections. Zambia Industrial and Mining Corporation owns 51 percent of the major copper-mining companies directly. It also owns the Mining Development Corporation, which is responsible for small mines. Finally, it fully controls the Metal Marketing Corporation of Zambia and thus controls the marketing of copper.

The pattern of ownership suggests that the control of the mining industry by the government is comprehensive. Even so, the government is still largely dependent upon the technical advice of expatriate advisers. Because of the highly technical nature of the industry, the rate of Zambianization is slow.

The Zambian government, along with the governments of Chile, Peru, Zaire, and newly admitted Indonesia, has attempted to influence the world price of copper by the formation of the Intergovernmental Council of Copper Exporting Countries. The Council has not been particularly successful, however, in affecting the supply or the price in the world market. The notable lack of success is probably largely attributable to the relatively small fraction of world production involved -- 36.1 percent in 1973 -- and the council's inability to coordinate cutbacks in production (see table IV-17).

#### B. The Impact of Mining upon the Economy

Given the dominant position of copper in the economy, Zambia's economic performance is necessarily highly dependent upon the behavior of copper prices within the world market. Fluctuations in the world price of copper will be transmitted into the economy and manifest as fluctuations in the economy, particularly in foreign exchange earnings and the balance of payments. The volatile nature of the world copper market and the linkages to the economy suggest the likelihood that Zambia's economy will exhibit an inordinate degree of economic instability. For example, the magnitude of the impact on foreign exchange receipts can be illustrated as follows.

In recent years Zambian copper exports have been averaging about 650,000 metric tons a year, or about 1.42 billion pounds. Since the level of exports has been largely unresponsive to price changes, a 1-cent change in the average annual price results in a \$14.2 million change in foreign exchange earnings. Thus, the drop of 37 cents a pound in the average price of copper (from 93 to 56 cents a pound) between 1974 and 1975 would be expected to reduce foreign exchange earnings of copper by \$524.2 million. The actual reported decline was \$573.2 million; the difference between the actual and estimated is attributable to the modest reduction in volume which occurred in 1975.

This illustration demonstrates both the instability introduced into the economy by its extraordinary dependence upon copper and also the extent to which economic projections are sensitive to the set of copper prices assumed in those projections.

#### C. Constraints to Increased Mineral Production

In addition to recent difficulties with low copper prices on world markets, Zambian copper production has been plagued with increasing costs and stagnating production despite substantial investment expenditures. Between 1970 and 1974 production costs rose 42 percent (table IV-18). Also, the rate of increase of costs is more rapid in Zambia than the world average (table IV-19). The increased costs have a number of causes, including worldwide inflation, stagnation of productivity, higher labor and transport costs, production from poorer grades of ore at less accessible locations, and so on.

The rising costs and the declining prices together have created a situation unfavorable to expanded production (table IV-20). In fact, some small mines have recently been closed. To some extent the recent 20 percent devaluation of the Zambian kwacha will help alleviate this difficulty through its effect in lowering the dollar value of domestic costs. It is unlikely that there will be much expansion in the absence of improved copper prices in the world market (table IV-21). After improving during the summer of 1976, however, copper prices have again declined substantially.

Contributing to the higher costs of production is a slight but continuing deterioration in the quality of the copper ore mined. The copper content of Zambian ore fell from 2.93 percent in 1964 to 2.53 percent in 1973. The copper content continues to be relatively high, however, by international standards (for example, ore with copper content of less than 1 percent has been mined economically in the United States). Also contributing to both high costs and low levels of production have been the recent transport difficulties brought on by the Angolan Civil War. By mid 1976, however, the new TAZARA railway to Dar es Salaam was operating, and most of the earlier port-congestion difficulties had been corrected.

Table IV-18  
Copper Production, 1968-74<sup>d</sup>

	1968	1969	1970	1971	1972	1973	1974
1. Value (in millions of U.S. dollars)	796.1	1,143.7	1,004.0	684.6	743.8	1,151.7	1,390.4
Percentage change	15.9	43.7	-12.2	-31.8	8.6	54.8	20.7
2. Volume (in thousands of tons)	664.8	747.3	683.3	663.4	698.0	682.0	690.0
Percentage change	7.9	12.4	-8.6	-7.3	10.2	-2.3	1.2
3. Unit price per ton (in U.S. dollars) <sup>c</sup>	1,198.0	1,530.0	1,469.0	1,080.0	1,066.0	1,688.0	2,015.0
4. Average production costs per ton In U.S. dollars	--	--	722	840	863	914	1,029
of which: Labor costs <sup>a</sup>	(--)	(--)	(212)	(249)	(248)	(282)	(279)
Transport costs <sup>b</sup>	(--)	(--)	(98)	(99)	(107)	(105)	(119)
Other costs	(--)	(--)	(412)	(419)	(508)	(527)	(631)
5. Average output per employee (1969 = 100)	90.3	100.0	91.6	82.5	89.0	83.8	85.1

a. Estimate.

b. Includes transportation by road/rail from the mines to the port, port handling charges, customs fees and sea freight to the port of final destination.

c. As of September 25, 1975 the future price per ton of copper on the London Metals Exchange was £616 or \$1,372 (at the official exchange rate).

d. International Monetary Fund, Zambia, Recent Economic Development, May 30, 1975.

Source: Data provided by the Zambian authorities.

**Table IV-19**  
**World Average Mining Costs per Metric Ton**

	World average	Zambia
1950	200	100
1960	300	250
1965	350	300
1970	450	465
1972	490	567
1973	520	575

Source: Unpublished.

**Table IV-20**  
**LME Copper Price, Annual Average<sup>a</sup>**  
**(Kwacha per Metric ton)**

Year	Price
1965	925
1966	1,091
1967	811
1968	887
1969	1,048
1970	1,011
1971	767
1972	765
1973	1,156
1974	1,327
1975	802

a. (These figures are for electrolyt wire bars, "Settlement and Cash Sellers Prices")

Source: Monthly Digest of Statistics.

Table IV-21  
Copper Prices

	1967-69	1970-72	1973	1974	1975 <sup>a</sup>	World Bank forecast				
						1976	1977	1978	1979	1980
1973										
constant dollars	87	69	81	77	42	45	62	64	64	64
Current dollars	58	54	81	93	57	62	98	109	117	126

a. Preliminary

An additional source of increased costs can be found in declining productivity of labor (table IV-18 column 5). Although this may be accounted for partially by lower-grade ores, it may also be the result of an attempt to Zambianize too rapidly.

A further important constraint, but one difficult to quantify, is found in the uncertainty of expatriate workers and investors about the policies concerning mining and expatriates that the government will follow. Staffing problems have become acute, and many expatriates are reluctant to renew their contracts. Many high-level managers are among those leaving. The principal reasons appear to be the noncompetitive salary structure, poor prospects of expatriates for promotion, general dissatisfaction with life in the Copper Belt, where day-to-day shortages of consumer goods are common, and restrictions on repatriation of salaries.

Related to the difficulties associated with the expatriate mining worker is the effect of the Zambianization of mining. Mining is a highly technological industry, requiring workers with a wide variety of technical skills as well as administrative and managerial skills. Zambia has shown substantial progress in replacing expatriates with Zambians (see table IV-22 and IV-23), but expatriates continue to dominate technical positions. The transition to the increased utilization of Zambians will no doubt involve some inefficiencies.

Table IV-22  
 Summary of Training Financed by the Mining Industry,  
 June 1975

Institution	Sponsorship			Other scholarships	Total
	Roan	Nchangg	Mining Industry		
University of Zambia	5	11		375	391
Overseas:					
"A" levels/degree			1	67	68
Diploma					--
Short courses	5	5	1		11
Zambia Institute of Technology	6	25		134	165
Northern Technical College, Ndola		1		70	
Evelyn Home College, Lusaka	2	6	4	9	21
University Teaching Hospital, Lusaka	8	10			18
Trades Training Institute, Lusaka	1				1
Administrative Training School, Chingola	12	13	1	3	30
Trades Training Institute, Kadwe				18	18
Total	39	71	MPIZ 1 Mindeco 6 Kafironda 1	676	794

Source: MPTZ, CISE.

Table IV-23  
Zambia's Mining Industry - Manpower Forecast, 1973-1983  
(Selected categories)

Occupational category	Skill category	1973			1983		
		Number of posts	Number of Zambians	Short-fall	Number of posts	Number of Zambians	Short-fall
Mining engineer	Graduate	210	13	197	224	156	68
Geologist	Graduate	130	1	129	130	50	80
Metallurgist	Graduate/technologist	409	11	398	319	117	202
Engineer	Graduate/technologist	361	17	344	376	264	112
Accountant	Graduate/professional	504	105	399	515	421	94
Computer programmer/ systems analyst	Graduate	104	1	103	130	34	98
O and M officer	Graduate	20	1	19	20	14	6
Medical officer	Graduate	72	1	71	72	24	48
Pharmacist	Graduate	13	--	13	13	13	--
Mining technician	Technician	839	474	365	859	736	163
Surveyor	Technician	148	30	118	168	163	5
Metallurgical/ technician	Technician	319	201	118	279	279	--

Source: Copper Industry Service Bureau, Kitwe).

#### IV. SECTORAL ANALYSES -- TRANSPORTATION

##### A. Setting

Zambia's landlocked geographic location, the dominant role of copper exports, and the heavy reliance on a variety of imports makes adequate transportation routes essential to the survival of the economy. The dependence upon transportation links with non-African markets together with the political uncertainties on a number of its borders has resulted in the placing of a high priority upon transportation infrastructure in Zambia's first two national development plans.

Zambia was colonized as a result of the northward expansion of British influence in southern Africa. The railways came from the south to facilitate the development of mineral extraction -- primarily copper. This resulted in a transport network tied to mineral development and the subsequent high level of development and concentration of population along the north-south line of rail.

When achieving independence in 1963, Zambia received a colonial legacy of a highly developed transport infrastructure. The unilateral declaration of independence by Rhodesia, however, and the subsequent separation of the old Northern (Zambia) and Southern Rhodesia transport and rail systems (1967) resulted in most of the rolling stock falling under the control of Rhodesia. Zambia was required to respond by rebuilding her transport capacity.

Subsequently, setbacks occurred in the transport system. The closing of the Rhodesian border by Zambia in 1973 eliminated traditional routes to the sea, upon which more than 50 percent of Zambia's external trade passed through Rhodesia. The 1975 war in Angola eliminated the alternative transport route by way of Lobito. Much of Zambia's transportation infrastructure development effort has been in response to these adverse impacts.

To the extent that Zambia has substituted domestic transport for foreign, the result contributes to the growth of GDP in the transport sector.

The transport and communication sector has been one of the more rapidly growing sectors in the Zambian economy, showing a real increase of 53 percent between 1965 and 1971 and an additional increase of 17 percent in the period 1971-75.

As indicated above, difficulties presented themselves after mid 1975 with the closing of the Angola route, but by mid 1976 the newly completed Tanzania-Zambia railway (TAZARA) to Dar es Salaam and the increased port facilities at Dar es Salaam appeared to have eliminated these difficulties effectively.

Present indications are that the transport sector will receive less emphasis in the Third National Development Plan now being formulated. The emphasis is likely to be placed on relieving organizational, managerial, and manpower constraints in the transport sector. In addition, attention will be directed toward programs to improve urban transport, rural transport networks including feeder roads, and maintenance capabilities.

Zambia's location is such that any regional transport system requires connection through Zambia. However, railway end stations at Salima, Tete, Zawi, Groot Fontain, and Serva Pinto do not enter Zambia. Also, there are virtually no direct modern roads linking Zambia with Mozambique, Angola, Botswana, or Namibia, and the roads to Zaire and Malawi are below standard. During the last 6 years, however, efforts have been made to improve the situation. The main achievements have been the construction of the Great North Road to Tanzania, the Great East Road toward Malawi, the TAZARA railway from Ndola to Dar es Salaam, and the TANZANA pipeline, which carries crude oil to the Zambian oil refinery. These transport links will enhance regional trade and integration, but their main purpose has been to enable Zambia to trade with countries outside the region.

The basic transport policy objectives of the Zambian government appear to be to provide services which every citizen throughout the country can afford and to ensure uninterrupted import-export traffic flow.

Various ministries share responsibility for meeting these objectives. The Ministry of Power, Transport and Works (MPTW) is responsible for carrying out the first objective and part of the second. This is done through planning, developing, and maintaining infrastructure; regulating transport operations; and controlling parastatal transport organizations. Recently, in line with the government's decentralization policy, local authorities such as Rural Councils have been permitted to establish and implement investment proposals of local importance. Other ministries such as the Ministry of Planning and Finance, are supposed to assist in coordinating plans of the various agencies. The Contingency Planning Office, established as part of the prime minister's office, is specifically charged with carrying out the second objective.

The Second National Development Plan (1972-76) allocated to the transport sector K335.3 million, or 28 percent of the total public investment. The main priority was the TAZARA railway from the Copper Belt to Dar es Salaam at an estimated cost of K134 million. The railway was in full operation by summer 1976. Total railway investment accounted for 35 percent of the allocation to the transport sector, with roads accounting for 33 percent of the program.

## B. Railroads

Following the breakdown of the unitary rail system with Rhodesia in 1967, the Zambian railways degenerated into a state of near collapse. In 1970 a 5-year contract was signed with a Canadian management team. Since then a wide range of improvements and additions to infrastructure have been made, and the efficiency of the railroad has been greatly increased.

Rail freight in Zambia is overwhelmingly oriented to the exterior (table IV-24). Although fewer than highways, railroads offer virtually as complete coverage as highways to the north and will offer superior coverage to the west when the Lobito service is restored. The TAZARA railway to Dar es Salaam is now the major link to the sea replacing the Rhodesian routes closed in 1973 and the Zaire/Angola route closed since 1975. Recent accounts indicate, however, that the Angolan route is available for use once permission is received to pass through Zaire. A short additional link could be constructed to tie Zambia to Malawi and directly to Mozambique. There is no tie with Namibia, and major construction would be required to provide the link. A short link would connect areas of Botswana to Zambia. Map IV-1 shows the routes of a number of proposed additional rail connections, while table IV-25 indicates the distances of the proposed routes.

Map IV-1 indicates the principal rail links from Zambia to neighboring countries and the sea, while Map IV-2 includes the highway system. Table IV-25 gives the distances from five major Zambian cities to Dar es Salaam, Beira, and Lobito. It will be noted that the Dar es Salaam route on the newly completed TAZARA railway is the shortest route for every city but Livingstone.

Table IV-26 indicates the import and export tons by route over the period 1969-74. It will be noted that the change in volume reflects the reduction in the use of the Rhodesian route. The period covered precedes the Angolan War with its disruption of the Lobito-Zaire route, however, as well as the completion in 1976 of the TAZARA railway.

## C. Roads

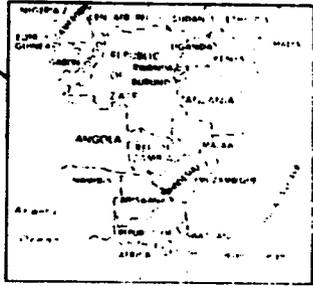
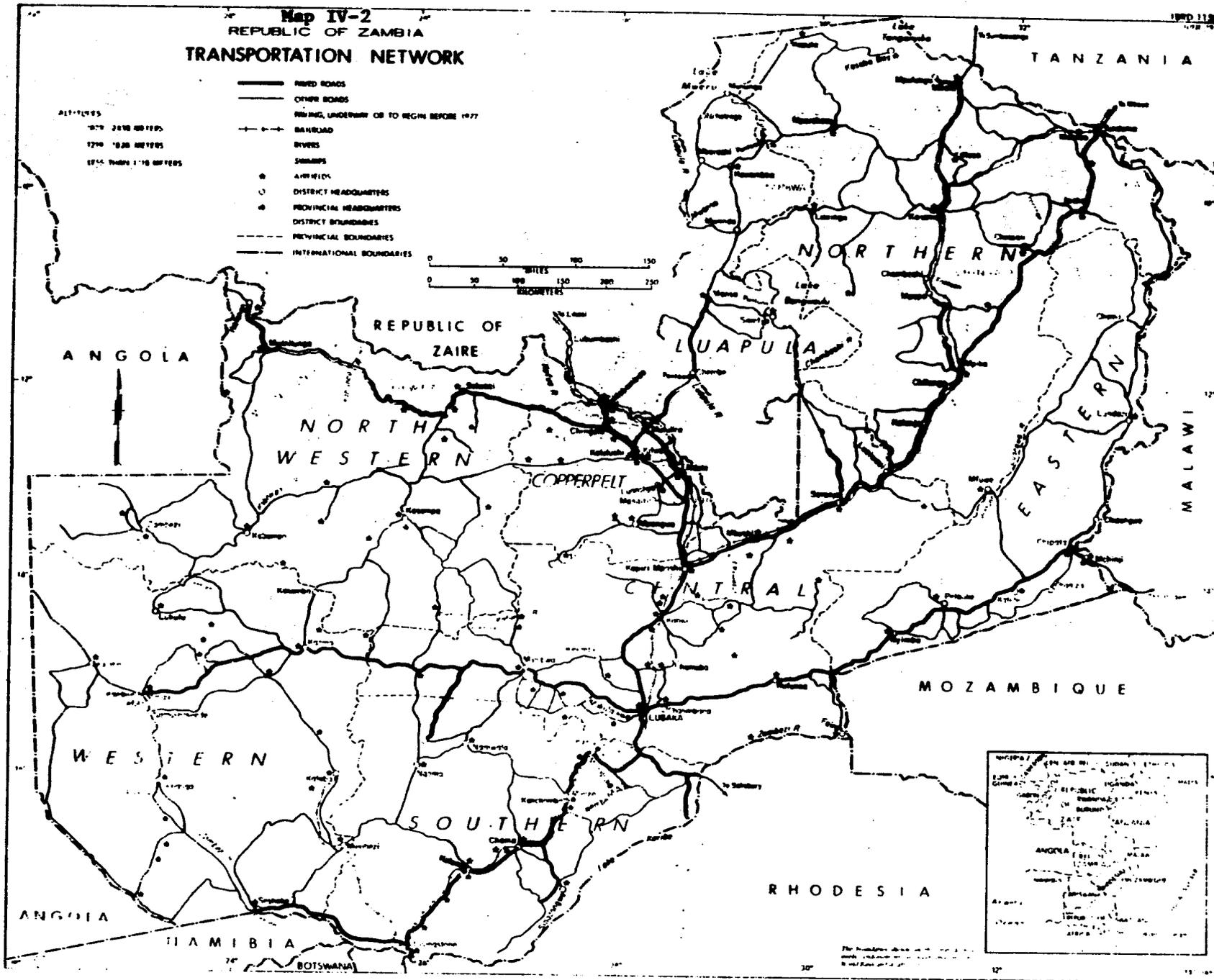
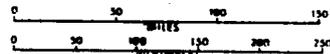
For long-distance transportation over 200 kilometers UN experts feel that only railway transport can be considered economic. The use of road transport to the ports was necessary only as an emergency measure. Table IV-27 provides information on external roads. For shorter in-country hauls, however, road transport offers a viable alternative. In the 10 years following independence about \$220 million was spent on road construction alone. Zambia's road network is one of the most highly developed in Africa, both in density per square mile, in density per



Map IV-2  
 REPUBLIC OF ZAMBIA  
 TRANSPORTATION NETWORK

ALTITUDES  
 1075 2030 METERS  
 1740 1830 METERS  
 1855 1940 METERS

- RIVER ROADS
- OTHER ROADS
- RAILING UNDERWAY OR TO BEGIN BEFORE 1977
- AIRFIELD
- DISTRICT HEADQUARTERS
- PROVINCIAL HEADQUARTERS
- DISTRICT BOUNDARIES
- - - PROVINCIAL BOUNDARIES
- INTERNATIONAL BOUNDARIES



The boundaries shown on this map are based on the information available at the time of publication.

Table IV-24  
Zambia's External Traffic Distribution by Modes of Transport  
(Thousands of tons)

Mode	1969	1970	1971	1972	1973	1974 <sup>a</sup>
Rail total	2,094	1,997	1,382	1,645	902	943
Import	1,481	1,411	1,316	1,008	459	435
Export	613	586	566	637	443	508
Road total	565	533	564	466	783	937
Import	310	270	312	249	408	518
Export	255		232	217	375	419
Pipeline total	329	340	403	451	800	950
Import	329	340	403	451	800	950
Air total	...	...	...	...	25	29
Import	...	...	...	...	25	29

a. Materialized import and export quantities within the period January-November plus estimated traffic in December.

Source: Ministry of Power, Transport and Works (MPTW), December 1974.

inhabitant, and in quality. It comprises 34,500 kilometers of earth roads and 15,900 kilometers of unclassified earth roads. The road network is skewed to the eastern line-of-rail provinces. Present plans give greater emphasis to feeder roads than has been given them in the past.

There are no transcontinental roads to Namibia or Angola, and the western half of the country has a limited number of roads, tables IV-28 and IV-29.

Table IV-25. Comparative Railway Distances  
(Kilometers)

From	To		
	Dar es Salaam	Beira	Lobito
Lusaka	2,042	2,046	2,641
Kapiri Mposhi	1,859	2,229	2,458
Ndola	1,984	2,350	2,333
Kasama	1,270	2,818	3,047
Livingstone	2,511	1,577	3,110

Only one good 885-kilometer highway runs from the northeast (Tanduma) to the southern border (Livingstone). This transcountry road has major branches, the Great North Road (810 kilometers) to Tanzania, the Great East Road (585 kilometers) to Malawi, and western branches toward Angola to Mangu (585 kilometers) and to Solwezi (180 kilometers) near the border with Zaire. A road paralleling the Namibian border (180 kilometers) connects Livingstone and Sesheke. There are also a southeast link to Rhodesia (80 kilometers) and a road from Mansa to Chembe (80 kilometers) in the north.

The classified roads -- about 4,000 kilometers paved, 7,400 kilometers gravel all-weather, and 7,200 kilometers classified as earth -- are maintained by the Roads Department of the Ministry of Power, Transport and Works. The Department also maintains bridges, airfields, and harbors. The unclassified earth roads, about 15,900 kilometers, are maintained by the Rural Councils. Until recently road development was focused only upon the building of all-weather standard main links. Gradually, however, more emphasis has been given to rural low-class roads.

Maintenance by the Roads Department is implemented on a decentralized basis with headquarters in each province. The Roads Department is also responsible for the implementation of national public-works construction plans. Construction projects are normally undertaken by outside contractors, whereas maintenance is undertaken directly using the Department's own personnel and equipment.

Table IV-26.  
Zambia's Imports and Exports by Routes,  
1969-74

(Thousands of tons)

Area	1969		1970		1971		1972		1973		1974 <sup>a</sup>	
	Import	Export	Import	Export	Import	Export	Import	Export	Import	Export	Import	Export
Rhodesia	1,359	490	1,293	398	1,048	390	864	467	35	5	--	--
Lobito- Zaire	121	123	118	187	269	176	144	170	424	438	435	508
Dar es- Salaam	241	244 <sup>b</sup>	248 <sup>b</sup>	253	295 <sup>b</sup>	221	202 <sup>b</sup>	210	232	284 <sup>c</sup>	289	319
Mombasa	--	--	--	--	--	--	--	--	68	46	90	90
Beira-Nacala	56	8	18	6	29	9	39	7	102	39	125	10
Other	13	3	4	4	7	2	8	--	41	6	43	--
Total	1,790	968	1,681	848	1,648	798	1,257	854	902	818	982	927

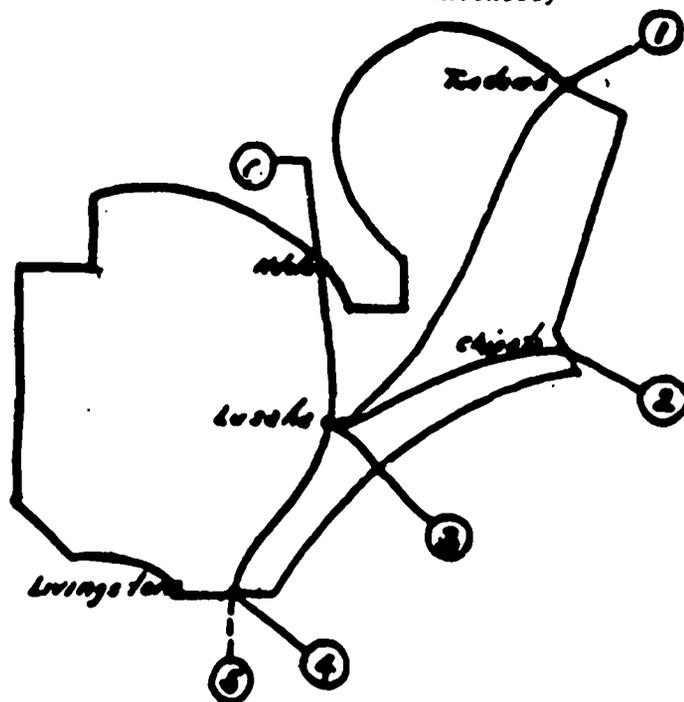
a. Including traffic by way of Mombasa.

b. Represents quantities actually moved within period January through November, plus estimated traffic for December.

c. Including traffic moved by TAZARA Railway to Mwenzo and by road therefrom (17.0 thousand tons), as well as some general cargo moved in from Dar es Salaam by Contract Haulage Ltd.

Source: composite of tables from MPTW, December, 1974).

Table IV-27  
Zambia Road Inventory



External roads	Approximate distance (kilometers)	Type	Condition
To Dar es Salaam port	950	bituminous	surface -- poor
To Blantyre	300	bituminous	good
Nampula	500	no direct road	
Natala	1,100	bituminous	poor
To Salisbury	490	bituminous	fair
Beira port	550	bituminous	excellent
To Bulawayo	460	bituminous	good
Johannesburg	950	bituminous	good
Durban port	2,000	bituminous	good
To Gabarone	770	bituminous	(under construction)
Pretoria	400	gravel in Botswana	good
To Kolwezi	265	bituminous	good
Lobito	1,500	earth and gravel	very poor

Table IV-28  
Road Inventory, 1974  
(Kilometers)

By province or classification	Maintained by Roads Department					Maintained by rural councils (unclassified) <sup>a</sup>
	Class I	Class II	Class III	Unclassified	Total	
Copper Belt	680.1	515.5	145.8	32.7	1,374.1	459.1
Central	1,204.9	172.1	1,357.4	1,163.1	3,897.5	2,139.6
Northern	568.4	592.3	493.5	1,303.2	2,957.4	3,423.4
Eastern	397.8	48.0	843.9	723.5	2,013.2	3,021.3
Southern	631.1	393.7	224.6	1,648.0	2,897.4	1,587.0
Western	348.2	3.0	704.7	711.2	1,767.1	2,890.3
Northwestern	89.8	852.6	108.4	1,156.7	2,207.5	1,598.3
Luapula	98.9	116.5	818.9	468.2	1,502.5	781.1
Total	4,019.2	2,693.7	4,697.2	7,206.6	18,616.7	15,900.1
Interterritorial main	2,705.7	150.2	--	241.9	3,097.8	
Territorial, main	1,043.4	1,709.1	826.8	65.2	3,644.5	
District roads	350.0	834.4	3,870.4	6,765.8	12,020.7	10,185.8
Rural roads	--	--	--	--	--	5,714.3

a. Estimated lengths.

Source: Roads Department, 1974.

Table IV-29  
Road Densities, 1974

Province	RD roads		RC roads		Total	
	m/km <sup>2</sup>	m/inhabitant	m/km <sup>2</sup>	m/inhabitant	m/km <sup>2</sup>	m/inhabitant
Copper Belt	44	1	15	1	59	2
Central	34	4	18	2	52	6
Northern	20	5	23	6	43	11
Eastern	29	4	44	5	73	9
Southern	34	5	19	3	53	8
Western	14	4	23	6	37	10
Northwestern	18	9	13	6	31	15
Luapula	30	4	15	2	45	6
Zambia	25	4	21	3	46	7

Source: Roads Department, Central Statistical Office, own elaboration, 1974.

March 1975.

Consistent with Zambia's decentralization policy, roads of local importance are planned by local agencies and generally built by the Rural Councils with funds allocated to them by the Ministry of Local Government and Housing. Agricultural Offices also undertake road construction. No appropriate inventory of local roads exists, however, so allocation of funds is likely to be arbitrary and inefficient.

Both the Transport Ministry and the Ministry of Planning and Finance state that road maintenance has high priority. Technical opinion suggests that the need for optimal annual maintenance may well be as high as 5 percent of the value of the capital stock of roads. The value of the stock of roads is estimated as approximately K300 million for Zambia, implying an annual optimal maintenance expenditure of K15 million. As an examination of table IV-30 will show, however, recurrent expenditures have generally been less than half this level during the period 1971-74. Even the addition of the budgets of the Rural Council do not change this finding substantially.

Table IV-30. Expenditures by the Road Department  
for Road, 1971-74  
(Millions of kwacha)

Year	Capital expenditures	Recurrent expenditures	Total expenditures
1971	15.3	8.3	23.6
1972	12.3	5.3	17.6
1973	4.3	4.8	9.1
1974	8.3	5.6	13.9

In 1973 planned expenditures represented 42 percent of the capital budget of the Transport Ministry, or 6 percent of the national budget. The recent expenditure is viewed by the World Bank as far below road-maintenance requirements.

The Public Works Departments of the Rural Councils are responsible for all types of works of local importance including construction and maintenance of local roads. The Councils' budgets total about K5 million annually. Only about 20 percent of this is allocated to roads, however.

#### D. Pipelines

A 10-inch TAZAMA pipeline is used to transport imported crude oil to the Zambian refinery. The products of the refinery were viewed as providing self-sufficiency for Zambia, given its 1973 requirements. At present, the AID Berger study states that additional capacity does not appear to be warranted.

#### E. Air Transport

Zambia Airways was established as a national air transport system in 1967. There are now nearly 150 airports in Zambia, of which the principal one is Lusaka International Airport. Zambia Airways is assisted under a management contract with Air Lingus (Irish). Air freight in 1974 accounted for about 1.6 percent of import tonnage but 19.5 percent of the import freight costs. This level of business may be atypical, however, reflecting the emergency situation created by the closing of the Rhodesian border in 1973.

#### F. Water Transport

Water transport is relatively insignificant in Zambia since most bodies of water are on the frontiers and tend to act as barriers rather than as transport routes. Only Lake Tanganyika offers any potential for being a regional link from Mpulungu in Zambia to Bujumbura, Burundi and some transport does exist at present.

#### G. Developmental Problems - Road Transport System

Several types of development problems are found in this sector: (1) there appears to be general agreement on the part of both the UN and the World Bank that the existing road system is being insufficiently maintained; (2) returns from the construction of additional feeder rural roads appear to be substantial and consistent with the thrust toward development of agriculture and the rural sector; (3) the existing stock of vehicles for road transport is rather old and should be expanded; and (4) parastatal organizations responsible for internal transport have inadequate maintenance facilities and a lack of skilled manpower.

#### H. Road Transport Carriers

The National Transport Corporation, (NTC) operating through three subsidiaries -- Contract Haulage, United Bus Company of Zambia, and Bulk Carriers of Zambia -- has not, in general, performed at a satisfactory level. The technical availability of vehicles has declined as have the rates of utilization. Since about half the vehicles engaged in public transport of freight are operated by the National Transport Corporation and the Corporation tends to operate the larger vehicles, a majority of Zambia's capacity is under its direct control. The operations

of the Corporation suffer from a number of problems. These include absence of management training, poor organization, low levels of manpower qualifications, and poor maintenance and driving habits.

#### I. Future Developments

The railway is likely to preserve its dominant position in long-distance transportation of commodities in bulk. With the TAZARA railway now in operation and the congestion constraints at Dar es Salaam relieved, Zambia has an adequate link to the sea. For political as well as economic reasons it is probably desirable to have an alternative route. With the coming of majority rule in Rhodesia, Zambia will probably once again have access to the route that was closed in 1973. Also, if the problems are resolved in Angola, the railway to Lobito should once again be in operation. Reports suggest that only the lack of permission to transport through Zaïre prohibits the reopening of the Lobito route. Another potential route by way of Malawi is feasible, but it will probably be uneconomical if one of the two above-mentioned routes goes into operation again.

According to a UN study, it would be difficult to justify the construction of new railway lines inside Zambia. The study also states that "the construction of sidelines in order to connect rural areas with main railway lines is economically unacceptable." With respect to internal roads, however, the study recommends moving toward the achievement of the following objectives:

1. Completion of the fundamental network to connect all provincial centers with the central part of the country. Thus the construction of the Serenje-Samfya-Mansa road seems most urgent because Luapula is the one remaining province without a modern road connection.

2. The completion of a second-grade network to connect all district centers and all intensive rural production zones with main roads or with main railway stations.

3. The improvement of road connection with neighboring countries, particularly with Botswana, Namibia, Mozambique, and Angola. Rivers, especially along the borders, represent the main obstacle. It seems that priority should be given to the construction of a number of bridges, particularly over the Zambezi, Luangwa, and Luapula rivers.

#### IV. SECTORAL ANALYSES -- POWER

##### A. Setting

In 1964 Zambia found itself dependent upon foreign sources of supply for most of the country's fuel and power requirements. Oil was imported by rail, coke and coal came from Rhodesia, and electricity came from the Rhodesian side of the Kariba Dam and from Le Marinel in Zaire. After Rhodesia's UDI, Zambia took action to insure a continuous flow of power. Coal imports ended after the development of a local coal mining industry. In 1973 hydropower accounted for 91 percent of the electricity generated, and in 1974 Zambia achieved self-sufficiency in electricity (see table IV-31).

Currently existing hydroelectric and coal power stations supply three-quarters of the total national energy needs. The balance is met by petroleum products. A pipeline from Dar es Salaam to the Copper Belt was completed in 1968 to transport refined products into Zambia. After the completion of the Indeni Oil Refinery in 1973, the pipeline was used to transport the crude petroleum to the refinery for the production of diesel fuel, motor fuel, kerosene, bitumin, gas and heavy fuel oil. The refinery was designed to meet virtually all of Zambia's petroleum requirements. The nation's petroleum requirements increased substantially after the commissioning of the Indeni Oil Refinery, however, because of a decision to shift from coal to heavy fuels in copper mining operations. This decision predated the dramatic increase in oil prices that occurred towards the end of 1973.

Despite Rhodesia's UDI, Zambia and Rhodesia continued to support the Kariba hydropower facility which utilized the Kariba Dam across the Zambeze River separating Zambia and Rhodesia. The Central African Power Corporation controlled the dam and the South Bank (Rhodesian) power station. The Corporation, the wholesaler of electrical power, provided power to the Copper Belt as late as 1973. In 1974, however, Zambia became self-sufficient and no longer required power from this source. Zambia now has the Kariba North Station, a power generating facility on the north side of the river (table IV-32).

Until recently, the Corporation also operated an interconnecting system involving both Zambia and Rhodesia. However, given the nature of relations between Zambia and Rhodesia, the viability of the interconnecting system is in doubt.

Two parastatals are responsible for Zambia's energy needs. The Zambia National Energy Corporation Ltd. coordinates the activities relating to all forms of energy in the country and insures the continuous supply of crude oil and petroleum products. The Zambia Electricity Supply Corporation Ltd. is also responsible for the development, generation and distribution of electrical power.

**Table IV-31**  
**Electricity Consumption**  
**(Megawatt kilowatt hours)**

Year	Source			Total
	Kariba (Rhodesia)	Zaire	Local	
1968	2,711	49	649	3,409
1969	2,873	79	683	3,635
1970	2,903	155	942	4,000
1971	2,971	269	1,131	4,371
1972	1,469	21	3,211	4,701
1973	1,808	--	3,343	5,151

Source: Quarterly Economic Review, Zambia Annual Supplement 1975, E.I.U.

**Table IV-32**  
**Electricity and Water**  
**(1965 constant prices)**

Year	Value added	Percent of 1965 production
1965	5.4	--
1969	14.6	270
1971	19.5	361
1972	27.5	509
1973	29.7	550
1974	32.2	596
1975	33.9	628

Since 1965 value added and output increased very rapidly in the electricity and water sector. As Table IV-32 shows, by 1971 electricity and water value added were 361 percent of the 1965 level. By 1975 this figure had risen to 628 percent making this sector the most rapidly expanding in the economy over the 1965-75 period. Since 1974 Zambia has been a net exporter of power.

#### B. Recent Projects

Recently, the Kafue Gorge hydroelectric scheme has completed its first stage and has commissioned 10 megawatts. Work is proceeding on the second stage of the Kafue Project: the addition of two further units of 150 megawatts each and the construction of a dam at Itezhi Tezhi, about 250 kilometers upstream from the Kafue Gorge Station. The total project cost is estimated at \$260 million and completion is expected in 1978. Work is also well underway in the Kariba North Bank Station. The first generation commenced operation in May 1976 with a capacity of 150 megawatts. Construction is also proceeding on the installation of diesel power stations at Feira (200 kilowatts), Kaoma (200 kilowatts), Nakonde (200 kilowatts), Lundazi (400 kilowatts) and Chinsali (400 kilowatts).

At Lusiwasi two hydro units of 3 megawatts each are presently in operations and erection of two more units of 3 megawatts are now in progress.

Along with the development of power generation, a number of transmission lines are under construction. The important lines are:

1. 330 kilowatts - Luano-Chisasa;
2. 330 kilowatts - Kafue Gorge-Kafue West;
3. 55 kilowatts to the new airport and Luangwa South;
4. 66 kilowatts Mahsa to Mporokoso and Luwingu;
5. 66 kilowatts Chishimba Falls to Kasama and Mbala;
6. 66 kilowatts Lusiwasi to Msoro;
7. 66 kilowatts Msoro-Chipata;
8. 66 kilowatts Msoro-Zazele

## IV. SECTORAL ANALYSES -- WATER

### A. Setting

At first glance, Zambia's water potential is impressive with about 90 billion cubic meters of yearly run-off and 150 cubic meters of water in storage. Much of the run-off, however, cannot be used for irrigation purposes because a large percentage travels less than 200 kilometers before running into Mozambique. Water mobilization in Zambia, moreover, is quite low, especially in the agricultural sector and rural areas (map IV-3).

At present, hydropower is the major user of water resources. In 1973 hydropower accounted for 91 percent of the electricity generated in Zambia. Although power generation is usually a non-consumptive use, some generating stations, such as Kafue, are located downstream from the potential agricultural users. Since the stations are allocated rights of water use, they also become consumptive users of power generation. Future upstream needs are discussed in detail in the "Power Sector" section of this report.

About 75 percent of the urban and 10 percent of the rural population is served by piped-water systems (table IV-33). Another 40 percent of the rural population is served by wells and boreholes. The rest of the population uses river or stream water.

Within the Zambesi, Luangwa, and Chambeshi-Luapula Basins there is enough water, even at the low-flow period, to satisfy present and medium-term water demand. In the Kafue Basin, however, shortages could develop from limited water resources, mainly at the low-flow period, insufficient naturally regulated run-off, and high demand for water for hydropower located downstream. Fast-growing irrigation for industrial crops (sugar cane), increasing demand for urban water needs, and single-purpose (hydropower) dam construction in a basin that has the best agricultural production prospects will also mean increased demand for water.

In 1974, irrigation in Zambia was limited to about 7,693 hectares, of which a large-scale sugar cane scheme accounts for 6,500 hectares. The remaining irrigated lands are scattered over the country in small and medium-scale schemes (table IV-34). All types of water sources are used for irrigation. Only a very few commercial farms, however, use groundwater.

### B. Water Resource Organization

The Water Board, acting on an ad hoc basis according to specific requests, supervises allocation of water resources. The Water Board is attached to the Ministry of Rural Development. The Ministry coordinates the development and planning of national water resources.

The Department of Agriculture and the Department of Water Affairs, both in the Ministry of Rural Development control irrigation development. The Zambia Electricity Supply Corporation is responsible for the generation of



Table IV-33  
Zambia: Domestic Water Supply, 1973

Distribution and water services

	Population	Served with piped water	Total	(Mm <sup>3</sup> /y)	Per capita	(m <sup>3</sup> /day)
Urban	1,208,000 (30 percent)	906,000 (75 percent)	134	234	0.4	0.7
Rural	2,852,000 (70 percent)	285,000 (10 percent)	42	73	0.4	0.7
Total	4,060,000 (100 percent)	1,191,000 (30 percent)	176	307		

Urban water service with central water supply (60 percent by house connections, 40 percent by standpipes)

Cities (3)	Municipalities (5)	Townships (11)
Lusaka	Chingola	Choma
Ndola	Kabwe	Kalomo
Kitwe	Livingstone	Mazabuka
	Luanshya	Monze
	Mufulira	Pemba
		Mongu
		Kasame
		Mbala
		Mansa
		Chipata
		Kafue

Rural water service

Type	Dwellings (thousands)	Population (thousands)	Water use	
			Total (Mm <sup>3</sup> /y)	Per capita (m <sup>3</sup> /day)
Private taps	17	70 (2.5 percent)	5.0	0.2
Shared taps	56	229 (8.0 percent)	6.3	0.1
Wells or boreholes	300	1,240 (43.5 percent)	22.7	0.05
River or stream	270	1,113 (39.0 percent)	4.2	0.01
Other	48	200 (7.0 percent)	0.8	0.01
Total	691	2,852 (100.0 percent)	41.0	

Forecast 1986

Population	Served	Water use	
		Total (Mm <sup>3</sup> /y)	Per capita (m <sup>3</sup> /day)
Urban 3,500,000	with piped water 3,200,000 (90 percent)	467	0.4
Rural 3,400,000	with piped water 880,000	128	0.4
	with wells or boreholes 1,700,000 (74 percent)	31	0.05
Total 6,900,000	5,780,000 (83 percent)	626	

Source: Water Supply and Sewerage Sector Study (Washington, D.C.: World Bank Report No. 559-ZA, October 1974) and World Bank estimates.

Table IV-34  
Zambia: Existing Irrigation Schemes, by Province, 1971

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Province	District	Scheme	Area (ha)	Crop
<u>Southern</u>	Gumbe	Muloyi Scheme	100	Fruit, vegetables
	"	Siatolinda	80	"
	"	Bishop of House	40	Bananas,
	Manabunda	Zambia Sugar Co.	6,500	Sugar cane
"	"	National Irrigation Research Station (NIRS)	30	Wheat, various
<u>Central</u>	Kafue	Chitwa	20	Bananas
	Chilanga	Licope farm	30	Wheat
	Chisamba	Grobler farm <sup>a</sup>	130	Onions, maize
	Feira	Feira Pilot Irrigation	20	Vegetables
	Central	Dean farm <sup>a</sup>	30	Citrus, vegetables
<u>Copperbelt</u>	Ndola rural	Chapala	60	Vegetables
	"	Ipafa	40	"
	"	Kafubu	60	"
<u>North Western</u>	Kwinilunga	Kwinilunga	50	Pineapple, vegetables
	Zambezi	Training settlement	30	Vegetables
<u>Western</u>	Kaoko	Kabompe	2	Rice
	"	Pilot Irrigation	5	Vegetables
<u>Eastern</u>	Lundasi	Lundasi scheme	6	"
	Chadisa	Makinye	4	"
	Chipata	Makungwa	4	"
	Petauke	Lusowe	2	"
<u>Northern</u>	Lusaka	Mgoli	80	Coffee
	Mporokoso	Liyatu	40	Fruit, vegetables
	Lusaka	Lusaka scheme	2	Vegetables
	Niala	Nbala "	2	"
	Chisali	Chisali "	20	Rice
	Mika	Kalasha	4	Citrus
<u>Lusaka</u>	Bwalo	Manumuli	60	Bananas
	Kanama	Kanota	20	Vegetables
	Kanana	Expansion scheme	240	Tea
	"	Research station	2	Rice trials
Grand total :			7,693	

a. These are indicative only. There are more than 30 commercial farms with more than 20 hectares under irrigation, mainly for fruit, vegetables, sugar, and wheat.

Source: World Bank estimates.

hydropower, except at the Kariba Project. The Corporation is also responsible for the construction of dam reservoirs required to regulate run-off for power generation. The Kariba Project is administered jointly with Rhodesia.

### C. Irrigation Potential

Irrigation in Zambia is viewed largely as a vehicle for supplementing rainfall. Thus, in most areas, the function of irrigation is to allow the farmer to grow a second crop, probably wheat, in addition to rainfed crop-maise. Irrigation could also protect the maize crop against drought.

The potential for irrigation in Zambia is considerable. Large-scale irrigation could be implemented in four areas: the Kafue flats, Munbumpu and Mpongwe, Kandu-Mzwebe, and the Chambeshi Flats. Medium-scale irrigation could be implemented by both existing commercial farmers and by the government in peri-urban areas. Small-scale irrigation could be established around villages. Table IV-34 lists selected irrigation projects by province. The next two national development plans are expected to pursue an agricultural water use development program on three levels: irrigation, rural water supply and cattle watering.

The government's water development policy, however, has so far given hydropower needs top priority. In general, hydropower development projects have paid little, if any, attention to arranging a trade-off between the incremental unit of power and the incremental unit of irrigation or utilizing water for other purposes. There are at least two areas -- Kafue Flats and areas adjacent to and downstream from Kariba Lake -- where utilization of water for power needs conflicts or will conflict with irrigation requirements.

The Kafue Flats above the Kafue dam have the greatest irrigation potential in Zambia. An area of over 100,000 square miles could be irrigated from river water if more flood run-off were regulated by the heightening of the Itezhitezhi Dam. The soil is particularly favorable for wheat. Given present power generation, however, water availability in the Kafue Flats for large-scale irrigation is severely limited.

Irrigation potential could also exist adjacent to the Kariba reservoir and downstream from the Kariba Dam. Present operation policies, however, which maximize electrical output tend to retard adjacent agricultural development both above and below the dam. A reflow control dam constructed downstream from the present Kariba Dam may provide control of the flow to allow irrigation below the dam.

#### IV. SECTORAL ANALYSES -- HEALTH

##### A. Setting

In 1966 there were approximately 10,000 hospital beds in Zambia. By 1970 this figure had increased to more than 16,000 beds (table IV-35). During the period of the first development plan, health facilities were improved mainly by building health centers in the rural areas. Facilities were also built to train nurses, health assistants and senior medical assistants. Five new training schools for nurses and a teaching hospital were planned.

As table IV-36 shows, the expenditures for health care have gradually increased. In real terms, however, the budgeted funds have remained about constant, with real increases in current expenditures offset by declines in capital expenditures.

In 1972 there were about 562 medical doctors in Zambia. Only 21, however, were Zambians (table IV-37).

The medical facility at the University of Zambia opened in 1970 and, in the future, 25 doctors are expected to graduate each year. The current graduating class also includes 25 to 35 nurses. By 1977 the output of state registered nurses should increase to 200 a year.

In 1972 the construction of district hospitals was proceeding in six centers and six more were planned. Additions were also to be made to 13 others by 1977.

##### B. Major Diseases

Malaria is endemic and occurs in all parts of Zambia, bilharzia is endemic in certain parts of the country, tuberculosis cases total some 10,000 annually and some 30,000 (1967) suffer from leprosy. About 44,000 cases of venereal disease were treated in 1968 and some 20,000 patients had worm infestations. Over 110,000 patients were also treated for measles. Malnutrition exists in both rural and urban areas, even amongst those who can afford the food required but are ignorant of the requirements of a healthy diet. The most common type is protein calorie malnutrition which occurs between the ages of six months and four years.

##### C. Organization and Administration of Medical Services

Central Administration includes medical services, preventive services and administrative services. There are several Statutory Boards including a Medical Council, Nursing Council, and National Food and Nutrition Commission.

Peripheral Administration covers the work of the Ministry in each of the eight provinces, at the Lusaka teaching hospital and at two central hospitals.

Coordinating Committees, which exist at both the central and provincial level, coordinate the government, mines and missions work.

Table IV-35. Facilities and Personnel

Item	1964	1965	1966	1967	1968	1969	1970
Hospital Beds	10,848	11,778	12,559	13,075	13,880	14,495	16,373
Hospitals	46	48	51	53	60	64	76
Leprosaria	30	30	32	30	24	22	N/A
Rural Health Centers	289	293	323	358	391	426	513
Clinics	17	18	20	22	25	28	N/A
Doctors	312	355	329	331	--	362	527
Qualified nurses <sup>a</sup>	639	712	703	803	--	1,145	929
Dentists	35	36	40	31	--	32	35
Medical Assistants	--	--	435	--	--	931	918
Pharmacists	68	--	69	--	--	69	81
Health Inspectors	--	--	56	--	--	--	80
Assistant nurses	--	--	--	--	--	665	--
Enrolled nurses <sup>a</sup>	--	--	--	--	--	--	1,187

a. And midwives.

Table IV-36 Health Budget  
(Millions of kwacha)

Expenditure	1968	1969	1970	1971	1972	1973	1974
Current expenditures	14.8	16.8	20.1	24.1	25.8	28.2	29.4
Capital expenditures	4.8	6.5	7.2	5.4	5.8	5.8	5.7
Total	19.6	23.3	27.3	29.5	31.6	34.0	35.1

Source: Summary of Economic Data: Zambia, Economic Commission for Africa.

Table IV-37  
Zambia: Medical Services -- Staff Employed, July 1971

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	Zambia			Non-Zambia			Total	Grand Total	
	Government	Non-Government	Other	Government	Non-Government	Other			
<b>A. Professional and Technical Personnel</b>									
1. Doctors Specialists	1	-	-	1	72	1	26	99	100
2. Doctors - Others	14	-	4	18	237	36	136	409	427
3. Dental Surgeons	2	-	-	2	18	1	14	33	35
4. Nursing Administrators	21	-	4	25	68	49	76	193	218
5. Registered Nurses and Midwives	112	4	29	145	434	149	201	764	929
6. Nurse Educators	2	-	-	2	25	22	36	90	92
7. Pharmacists	2	-	-	2	28	1	50	79	81
8. Radiographers	-	-	-	-	20	2	10	32	32
9. Laboratory Technicians	8	-	1	9	34	6	20	60	69
10. Occupational Therapists	1	-	1	2	3	-	-	3	5
11. Physiotherapists	-	-	-	-	8	1	8	17	17
12. Hospital Almoners	3	-	-	3	1	-	-	1	4
13. Dispensers	7	10	15	32	2	-	-	2	34
14. Dental Technicians	-	-	3	3	3	-	2	5	8
15. Orthopedic Technicians	3	-	-	3	-	-	-	-	3
16. Health Inspectors	10	-	17	27	22	-	31	53	80
17. Public Health Nurses and Health Visitors	3	-	-	3	14	-	-	14	17
18. Dietician	-	-	-	-	1	-	-	1	1
19. Night Superintendents	-	-	-	-	2	-	-	2	2
20. Senior Statistician	-	-	-	-	1	-	-	1	1
21. Medical Records Officers	3	-	-	3	-	-	-	-	3
22. Hospital Administrator	-	-	-	-	1	-	-	1	1
23. Analytical Chemists	-	-	-	-	2	-	-	2	2
<b>Total</b>	<b>192</b>	<b>14</b>	<b>74</b>	<b>280</b>	<b>996</b>	<b>275</b>	<b>610</b>	<b>1,881</b>	<b>2,161</b>
<b>B. Auxiliary Personnel</b>									
1. Zambia Enrolled Nurses and Midwives	488	112	309	909	49	5	93	147	1,136
2. Radiological Assistants	14	4	10	28	-	-	-	-	28
3. Laboratory Assistants	33	11	17	61	-	-	5	5	66
4. Medical Assistants	746	53	51	850	43	2	4	68	918
5. Health Assistants	125	-	76	201	-	-	-	-	201
6. Enrolled Midwives	32	2	5	39	8	-	4	12	51
7. Community Nurses	41	-	1	42	-	-	-	-	42
<b>Total</b>	<b>1,479</b>	<b>182</b>	<b>549</b>	<b>2,210</b>	<b>118</b>	<b>7</b>	<b>106</b>	<b>232</b>	<b>2,442</b>

#### D. Medical Facilities

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**Hospitals** -- Zambia has three special hospitals for leprosy, mental diseases and children; and three more central hospitals at Kitwe, Ndola, and Lusaka. There are also general hospitals at provincial headquarters and two district headquarters district hospitals at other district headquarters and other hospitals provided by the government, mines and missions. Of the total number of hospitals, 36 are provided by the government, 38 by the missions and 11 by the mines and other industries.

**Health Centers** -- Health centers are designated as Stage I Rural Health Centers -- 4 beds -- and Stage II Rural Health Centers -- 16 beds. There are also Urban Health Centers and Clinics.

**Radiological Services** -- Radiological facilities are provided by the Ministry, missions, industry, and the private sector. In 1969 there were over 100 x-ray plants in Zambia.

**Laboratory Services** -- Laboratories have been developed in association with medical institutions at the teaching hospital in Lusaka, and at other hospitals throughout the country.

#### E. Health

Since independence, health services have expanded substantially. Current problems include serious shortage of trained staff the failure of the administrative organization to develop with the expansion of medical service an over-emphasis on curative rather than preventive health care, inadequate facilities in rural areas, high maternal and child mortality and morbidity, lack of integration of the health services provided by the government, missions and industry, and a high incidence of preventable diseases.

#### F. Summary of the Government's Ten-Year Health Plan, 1972-81

The primary concern of the government will be to develop an effective system of preventive health work by constructing a network of basic health services especially in the rural areas. It is designed to bring under care 80 percent of mothers, infants and pre-school children, and to provide trained assistance at deliveries to an equal percentage of the mothers. On the curative side, the successful campaign against smallpox will continue, all newborn infants will be vaccinated against tuberculosis and immunization against measles will be intensified. Administration of medical services will also be strengthened, and improvements will be made in the collection of morbidity and mortality statistics.

The 1972-81 health plan calls for a capital expenditure of 73.45 million kwacha. In the plan, the government also expresses its determination that, by the end of the 10 year period, every Zambian will be within a few miles of a health center. Training institutions and hospital facilities will also be expanded. In 1972 the Teaching Hospital was developing at a total cost of 15 million kwacha. A total of 20 new hospitals were also projected and others were selected for expansion. The number of health sub-centers to be built or rebuilt was 180, while 44 health centers and 42 district health centers were perfected.

**Table IV-38**  
**Health Situation**  
**1969**

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<b>Vital statistics:</b>	
<hr/>	
<b>Birth rate:</b>	42 per 1,000 population
<b>Death rate:</b>	17 per 1,000 population
<b>Infant mortality:</b>	(among children of under one year of age) 160 per 1,000 live births
<b>Life expectancy:</b>	47 years
<b>Major causes of death:</b>	(recorded in institutions in 1968) measles, diseases of early infancy, broncho-pneumonia, gastroenteritis, avitaminosis and other nutritional deficiencies, pulmonary tuberculosis and anaemias.
<b>Morbidity:</b>	Admissions at medical institutions (1968): 415,754: in-patient days, 3,672,191 ; average stay per in-patient 8.8 days; total out-patient attendance 18,390,364.
<b>Chief diseases treated at institutions:</b>	Respiratory infectious, diarrhea, malaria, measles, pulmonary tuberculosis, malnutrition, anaemias.

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#### IV. SECTORAL ANALYSES -- EDUCATION

##### A. Setting

The educational policy of the government is currently under revision. The President has suggested an educational reform along the lines of Tanzania, China, and Cuba. The new approach would apparently downgrade academics while stressing the vocational and working aspects of education as well as the self-sufficiency of the school. At present there is a great amount of debate on the subject. The Zambian elite believes that such an education would be inferior. The final outcome is in doubt.

Prior to the discussion of the proposed educational reforms, Zambia had made phenomenal progress in education and training. In general, education has been well financed. The Second National Development Plan allocated more for education than any other sector except for transport, communications, power and rural work (table IV-39). Actual expenditures have come close to meeting the initial allocations. Since independence, a major social goal of government has been to raise the general level of education and to develop a wide range of technical, administrative and managerial skills to lessen dependence upon expatriate expertise. The expansion of educational facilities and students has been impressive, (table IV-40) but the shortage of educated and skilled manpower has remained Zambia's most important constraint to economic development.

At independence, in 1964, Zambia had one of the lowest education profiles in the developing world. Less than a hundred university graduates and less than 1 percent (32,000) of the population had completed the full primary course. In a decade enrollment in primary education has increased by 170 percent. About 61 percent of the children of age group 7-13 were enrolled in school by 1972. Enrollment in secondary schools increased about 200 percent in the same period. The literacy rate is given as 15-20 percent for 1971. The current rate, however, should be higher.

Between 1964 and 1974 the University of Zambia produced 860 graduates. The achievements in the field of technical and vocational training have been equally impressive.

Table IV-41 presents Zambian/non-Zambian employment disaggregated by sector for June 1974. A comparison over time is difficult since categories were changed in 1972 from African/non-African to Zambian/non-Zambian. The earlier data, however, revealed a decrease of 3,000 in non-African employment (12 percent) between 1968 and 1972. African employment meanwhile, increased 44,000 (14 percent) during the same period. (Section 1, General Background.)

While education programs aimed at rapid Zambianization at all levels have been fairly successful in the middle and lower categories, professional positions are still largely held by expatriates. For example, as recently

**Table IV-39**  
**Government Investment Program, 1972-76**

Type of service	1972	1973	1974	1975 (estimate)	1976 (estimate)
Social services	37.5	38.1	42.6	67.5	40.0
Education	19.1	22.1	21.7	28.3	19.8
Health	6.7	3.8	4.2	9.6	7.5
Local authorities <sup>b</sup>	11.6	12.1	16.6	28.4	12.1
Others	0.1	0.1	0.1	1.2	0.6
Economic services	118.2	104.7	120.4	194.0	106.5
Rural development	42.9	26.0	18.1	34.1	16.4
Ministry of rural development	(8.6)	(9.4)	(10.2)	(14.7)	(11.1)
Land, mining, natural resources	4.0	3.6	4.7	9.0	5.7
Transport, communications, power, works	69.7	72.5	80.9	142.9	83.7
Trade and industry	1.6	2.6	16.7	8.0	0.7
General services	4.7	10.4	8.2	23.0	10.1
Total	160.4	153.2	171.2	284.5	156.6

a. Includes government direct capital expenditures and gross lending to local authorities and parastatals.

b. Includes investment in low-cost housing, sites and services, and municipal water and sewerage schemes.

c. Preliminary actuals are 248 million kwacha, the sectoral breakdown of which is not available.

Source: Ministry of finance (Sector allocations are World Bank estimates).

TABLE IV-40  
ZAMBIAN STUDENT ENROLLMENT

Year	Primary		Secondary				Total Percent <sup>b</sup>
	Students	Percent <sup>a</sup>	General	Vocation	Teacher Training	Total	
1955 <sup>c</sup>	195,351	2	901	1,700	1,068	3,669	2
1960	287,536	35	2,599	1,455	1,156	5,210	2
1972	777,873	61	60,051	2,673	1,938	64,662	16

a. Percent of 5-14 age group

b. Percent of 15-19 age group

c. African-educated only

Source: Africa: Economic Growth Trend, AID, March 1976

**Table IV-41**  
**Zambian/non-Zambian Employment,**  
**June 1974**

Sector	Total	Zambian	Non-Zambian	Non-Zambian percent
Agriculture	31,700	30,210	1,490	0.47
Mining and quarrying	63,630	52,410	11,220	17.6
Manufacturing	40,820	37,640	3,180	0.78
Electricity and water	4,390	3,890	500	1.14
Construction	68,630	64,220	4,410	0.64
Distribution, restaurants and hotels	33,600	29,970	3,630	1.08
Transporta and communi- cations	24,850	22,930	1,720	0.70
Finances, etc.	14,550	12,690	1,860	1.28
Community and personal services	86,180	80,360	5,820	0.68
<b>Total</b>	<b>368,150</b>	<b>334,320</b>	<b>33,830</b>	<b>0.92</b>

Source: Monthly Digest of Statistics, May/June 1976.

as 1973 only 4 percent of the medical doctors, 30 percent of the engineers, and 12 percent of the secondary school teachers were Zambian. The reliance on expatriates is particularly great in the mining sector. (See table IV-4I). Also, the reliance on expatriate staff was estimated to cost more than K140 million in 1973, of which about half was remitted abroad.

Although the distribution of educational facilities has been relatively even between regions, certain disparities continue to exist. The educational targets of the First and Second National Development Plan proposed higher rates of educational participation in urban than in rural areas. Also, it appears that the urban areas have come closer to fulfilling their educational goals than the rural areas. Although it is not marked, there is also some disparity between the number of boys and girls enrolled at the primary level.

More significant than differences by region and sex are the differences among income groups. For example, a survey in Lusaka in 1973 revealed only 36 percent of school-age children from squatter areas were enrolled while 57 percent from the site-and-service areas and 87 percent from the medium and high cost areas were enrolled.

Government demand and supply projections suggest that at the University and formal vocational and technical training levels the demand for manpower continues to greatly exceed supply. At the lower levels, however, the supply exceeds the demand.

#### B. Agricultural Education

Until 1968 there were no university-level and only one intermediate-level training institution. The Ministry of Rural Development has built an agricultural staff of over 2,300 instructors, but most of these have had little formal agricultural training. The government has made progress in expanding agricultural training institutions by building a school of agriculture at the University, a middle-level agricultural college and farm institute in each province. Other foreign financed education facilities have also been developed, such as the Swedish financed agricultural college at Mpika.

#### C. Technical Education

Zambia has a well developed modern sector based largely upon mining. However, until 1959 Zambians were barred from apprenticeship training and the shortage of skilled Zambian manpower has left expatriate personnel in many key positions. In 1969, the government established a Commission for Technical Education and Vocational Training which has since been incorporated into the Ministry of Education and Culture. This organization has developed a greatly expanded technical training program. However, the lack of trained Zambians persists.

Table IV-42 uses the manpower forecast for the mining industry to illustrate the deficiencies that continue to exist in Zambia's indigenous technical manpower skills. As the table shows, of the 210 positions available for mining engineers in 1973 only thirteen were filled by Zambians. The forecast calls for increasing the Zambians employed in this category to 156 of the total 224 positions forecast for 1983.

Table IV-42  
Zambia's Mining Industry--Manpower Forecast, 1973-1983  
(Selected categories)

Occupational category	Skill category	1973			1983		
		Number of posts	Number of Zambians	Shortfall	Number of posts	Number of Zambians	Shortfall
Mining engineer	Graduate	210	13	197	224	156	68
Geologist	Graduate	130	1	129	130	50	80
Metallurgist	Graduate/technologist	409	11	398	319	117	202
Engineer	Graduate/technologist	361	17	344	376	264	112
Accountant	Graduate/professional	504	105	399	515	421	94
Computer programmer/ systems analyser	Graduate	104	1	103	130	34	
O and M officer	Graduate	20	1	19	20	14	6
Medical officer	Graduate	72	1	71	72	24	48
Pharmacist	Graduate	13	--	13	13	13	--
Mining technician	Technician	839	474	365	899	736	165
Surveyor	Technician	148	30	118	169	163	5
Metallurgical technician	Technician	319	201	118	379	279	--

Source: Copper Industry Service Bureau, Kitwe

#### IV. SECTORAL ANALYSES — MANUFACTURING

##### A. Setting

The objectives for the manufacturing sector for the Second National Development Plan 1972-76 were to:

1. Proceed with a policy of import substitution in the areas of
  - . food products
  - . consumer goods
  - . certain intermediate and capital goods
2. Undertake further processing of raw materials originating in mining and manufacturing
3. Establish small-scale rural industries
4. Create additional employment
5. Promote export of manufactures
6. Utilize capacity more fully

The Ministry of Mines and Industry is given statutory responsibility to facilitate the development of the manufacturing sector. A number of interrelated parastatal companies assist the government in its development plans. Chief among these is the Zambian Industrial and Mining Corporation Ltd. The Corporation is essentially a central government holding company that operates both through directly controlled operating companies and through a series of subsidiary holding companies. For the manufacturing sector the most important of the Corporation's subsidiary holding companies is the Industrial Development Corporation. In 1972, 42 percent of manufacturing companies were either publicly owned or owned by a parastatal. Given the government's apparent inclinations, this proportion is likely to increase. Before 1968 most industrial expansion was in the private sector. Since that time, however, the major manufacturing investments have been undertaken by the state, often in partnership with the private sector or foreign firms. By 1970 more than half the manufacturing output came from wholly-owned or majority-owned public enterprises with the Industrial Development Corporation of Zambia.

In 1964, before independence, Zambia experienced relatively little industrial and manufacturing development. As part of the Federation of Rhodesia and Nyasaland, a customs union with no internal tariff or trade restrictions, Zambia relied upon Rhodesia to provide industrial products. Industrial goods not produced in Rhodesia were imported from South Africa and non-African countries. After independence, Zambia followed a policy of restricting its trade connections, first with Rhodesia and later with South Africa. Trade with Rhodesia was reduced as a result of the UDI in 1965 and finally ceased with the closing of the border in 1973.

The growth of the industrial sector since independence in 1964 has been one of the few bright spots in the Zambian economy (tables IV-43 and IV-44). From 1965 to 1971, manufacturing value added in real terms increased at an average annual rate of more than 9 percent. From 1971 to 1975 the growth has continued at about 8 percent annually. As a percentage of GDP the manufacturing sector accounted for almost 17 percent in 1975 -- up substantially from 10 percent in 1970 and about 8 percent in 1965. Part of this increase, however, reflects the relative stagnation in GDP during the 1970s.

Table IV-45 suggests that manufacturing growth has been unbalanced. Column (2) of table IV-45 presents the ratio of 1975 value added to that of 1965 in current prices. Column (3) adjusts this price ratio for sectoral inflation to give an approximation of the changes in real value added by subsector. For example, the bottom row of column (2) indicates that 1975 manufacturing sector value added in current prices was 5.08 times the 1965 level. Column (3) of that row indicates, however, that in real terms 1975 value added was only 2.41 times the 1965 level. Column (3) shows that the high-growth subsectors were chemicals, paper products, and textiles. Other sectors had only modest or smaller increases in value added.

The chemical sector, a large and rapidly expanding sector, strongly influences the overall sectoral growth measures. The expansion of this sector reflects the operation of a large petroleum refinery constructed in the early 1970s. Textiles and paper products also have expanded rapidly. It should be noted that had the chemical industry remained at its 1965 level -- largely the prerenery level -- overall manufacturing performance would have been considerably reduced from a compound annual growth rate of about 9 percent to about 5.6 percent.

Table IV-43  
 Manufacturing Value Added  
 (1965 constant prices)

Source	1965	1969	1971	1972	1973	1974	1975
Manufacturing	48.0	74.2	85.6	104.0	110.7	118.2	115.6
Food and beverages	-	-	-	46.9	49.2	50.9	50.5
Textiles	-	-	-	9.3	8.3	9.4	9.7
Chemicals	-	-	-	15.8	20.5	23.3	21.6
Nonmetallic Minerals	-	-	-	6.3	6.5	7.1	8.2
Metal products	-	-	-	17.8	18.2	19.0	18.3

Source: Zambia, Quarterly Economic Review, 1976, No. 3, E.I.U.

Table IV-44  
 Manufacturing Growth

Variable	1964	1972
Number of establishments	255	598
Gross output (millions of kwacha)	70.62	437.99
Value added (millions of kwacha)	29.34	163.89
Number of employees	18,492	44,479
Compensation of employees (millions of kwacha)	13.68	61.16

Source: Census of Industrial Production, 1972

Table IV-45  
Manufacturing Value Added  
(Millions of kwacha, current prices)

Industry	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1975	1975 adjusted <sup>a</sup>
												1965 (2)	1965 price increase <sup>b</sup> (3)
Textiles	3.9	4.6	8.3	7.0	9.7	10.7	10.0	13.5	12.3	14.2	16.3	4.18	1.98
Wood products	2.4	3.6	2.8	2.3	5.0	5.0	3.3	4.7	4.9	8.3	6.5	2.71	1.28
Paper products	2.1	2.5	3.6	5.3	4.1	4.5	5.4	6.5	6.6	8.5	9.4	4.48	2.12
Chemicals and rubber products	3.6	4.6	7.4	7.9	10.7	9.5	11.4	20.5	27.7	37.0	41.6	11.55	5.47
Nonmetallic products	6.1	6.3	7.0	7.7	7.5	10.6	9.5	10.1	10.5	12.7	14.6	2.39	1.13
Basic metals	n.a.	n.a.	5.4	5.2	2.4	2.5	2.2	3.1	3.3	4.7	3.5	0.64	0.30
Fabricated metal products, machines, and transport equipment	n.a.	n.a.	17.9	16.6	15.4	15.4	23.0	26.7	27.7	30.0	34.1	1.91	0.90
All manufacturing	48.0										244.0	5.08	2.41

a. For subsector with limited data the 1975/1967 ratio is used.

b. All subsectors are adjusted by the all manufacturing price deflator.

The extent to which Zambia's post-UDI industrial expansion is due to the protection afforded the domestic producers by the increasing restrictions placed upon Rhodesian and South Africa goods is difficult to quantify. However, table IV-46 indicates that the Rhodesian/South African sources for imports have been reduced from more than 60 percent in 1964 to about 6 percent in 1975. The systematic reduction of industrial goods from regional industrial countries that did not face prohibitive transport cost often associated with shipments to Zambia unquestionably provided a positive stimulus to Zambian industrialization.

As can be seen from table IV-46, South African exports initially benefited from reduced Rhodesian imports. Gradually, however, Zambia has been weaning itself from South African suppliers. With the exception of chemicals and vegetable oils, South Africa provided less than 7 percent of Zambia's imports by the trade sector in 1975 (table IV-47).

In addition to the reduction of Rhodesian/South African imports, other factors have stimulated the development of manufacturing in Zambia. Copper has provided a source for generating both foreign exchange and government revenues, while Zambia's high per capita income provides a solid consumer market. Zambia's landlocked position, moreover, with its resulting high transportation costs, provides protection from non-African imported goods. These advantages are offset, however, by the limited size of the market, which precludes industries in which scale economies are large; the low levels of human skills; the relatively high wages, which militate against low-cost production of labor-intensive goods; and the high costs of importing capital goods and intermediate inputs required for production.

Among major manufacturing operations in Zambia now are: breweries, a sugar refinery, producers of edible oils, cigarette factories, cloth manufacturing, sack and rope production, rubber-molding factories, a car-tire plant, a chemical producer making ammonium nitrate fertilizer, a producer of explosives, sulphuric acid plants, paint works, an oil refinery, a cement plant, a radio factory, a producer of semimanufactured copper products, an automobile assembly plant, a truck and bus assembly plant, a shoe factory, a variety of electrical and mechanical engineering companies, and factories producing a wide range of metal products.

Future major industrial projects under way or planned include a large-scale commercial assembly plant, a synthetic-fiber-weaving plant, production of phosphate-based fertilizers, a wood pulp and paper plant, and the manufacture of iron and steel.

The development of small-scale rural industries has been slow.

**Table IV-46**  
**Zambian Imports**  
 (Thousands of kwacha)

Year	Total	South Africa	Rhodesia	South Africa and Rhodesia	Percent of total
1964	156,438	32,406	61,737	94,143	60.2
1965	210,742	41,379	71,077	112,456	53.4
1966	246,116	58,468	46,360	104,828	42.6
1967	306,350	72,172	32,235	104,407	34.1
1968	325,184	76,066	22,573	98,639	30.3
1969	311,797	69,946	21,772	91,718	29.4
1970	340,711	59,097	20,618	79,715	23.4
1971	399,282	60,891	21,128	82,019	20.5
1972	403,471	59,308	11,558	70,866	17.6
1973	346,867	41,069	n.a.	41,069	11.8
1974	506,636	38,716	n.a.	38,716	7.6
1975	602,518	40,345	n.a.	40,345	6.7

n.a. = Not available.

Table IV-47  
Zambia's Imports from South Africa, 1975

SITC <sup>a</sup>	Product or group of products	Thousands of kwacha	Percentage of total imports
0	Agriculture, food	1,384	3.6
1	Beverages, tobacco	30	2.9
2	Hides, wood	680	6.9
3	Fuels, petroleum products	1,218	1.4
4	Vegetable oils	1,695	18.6
5	Chemicals	16,152	20.9
6	Rubber products, textiles, tools	7,595	5.4
7	Transportation equipment, machinery	11,285	5.3
8	Ceramics, apparel	337	1.2
9	Other	3	--
	Total	40,379 (\$62,587)	6.7

a. SITC = Standard International Trade Classification

### B. Natural Resource Industry Base

Zambia's most obvious mineral resource, copper, is the basis of the metal-fabricating industry. Other minerals upon which industrial development may be established include iron ore, coal, lime, clay, glass sand, and talc.

The quality of the coal, however, limits the potential for iron and steel development. The clay deposits are used to produce salt-glazed sewer pipes and high-quality firebricks. Production of cement is utilizing the lime deposits, while the glass sands, although of low quality, could be used for production of semicontainer glass. The talc deposits have been exported for use in production of cosmetics. Potential may exist for the development of an iron and steel industry utilizing Zambian iron ore and Zimbabwe coking coal.

### C. Manufacturing Potential in Zambia

Manufacturing activities can be divided roughly into three categories: resource-based, market-based, and footloose. The first group includes industries that are most economically located near the source of their major input. This is often the case where the input is a raw material that is substantially reduced in weight or bulk as a result of processing, so that transport costs are less for the finished product. By contrast, market-based industries will produce goods that can be more cheaply transported in their less finished state. Industries that experience economies of scale will also tend to be located in major market concentrations so as to minimize transport costs. For footloose industry, the stage of processing makes little difference and economies of scale are typically small.

Zambia's size, resource base, and skill levels suggest that only a fairly small range of industries are likely to operate efficiently within Zambia. These include industries that are tied to the resource base -- for example, copper, food processing, and so on -- and industries in which scale economies are not important.

Zambia has expressed interest in becoming part of the larger regional market and in 1967 applied for membership in the East African Customs Union. Discussions ceased after the military gained control in Uganda, however, and the extent to which unrestricted inclusion in the East African market would benefit Zambia is unclear. Although Zambia is centrally located, it is a considerable distance from the other populated areas of eastern and southern Africa. The geographic isolation of the Zambian economy may make Zambia an uneconomical location for industries that require access to the entire East African market.

This disadvantage would be partly offset if Zambia enjoyed especially cheap or abundant sources of supply of a particular input. In fact, however, the only inputs in this category appear to be copper, lead, and zinc. Most other natural resources found in Zambia are also present elsewhere in Southern and East Africa. Also, as a result of high wage policies in mining and government, wages are generally much higher than elsewhere in the region.

The potential for cheap power provided by hydroelectric development suggests that industries with production processes which have high requirements for the input of energy may have a comparative advantage in Zambia. This is an advantage shared with other countries in the region, however. Zambia may have some unique advantages in the hydropower sector. The advantage of distances which give Zambian industry a natural protection for some type of simple, small-scale production, may disappear if trade is opened with a majority-ruled relatively industrialized Rhodesia.

#### D. Problems in the Manufacturing Sector

Problems in manufacturing include:

- . Uncertainty for investors from the ambivalence of the government toward private and foreign investment
- . Excess capacity
- . The inability of the agricultural sector to supply the requisite inputs to the food processing industry
- . Excessively capital-intensive production resulting in low employment opportunities
- . High-cost low-value-added assembly operations
- . Limited utilization of indigenous inputs and raw materials
- . Regional concentration of manufacturing activity

The government often laments the absence of foreign investors. It is also clear, however, that the government has a basically negative attitude toward both foreign investors and private domestic entrepreneurs. This attitude is the outgrowth of both Zambia's experience with colonialism and its humanism, which produces the fear that an elitist class will arise as a result of successful local business ventures.

Although not well documented, the economic plans express concern over the presence of excess capacity. The difficulty is often found in developing economies and is often the result of an overvalued exchange rate, which encourages utilization of excess amounts of capital. A related cause of excess capacity in Zambia may be its small domestic market and its inability to compete effectively in export markets. In a recent unpublished study the International Labor Organization (ILO) found that the technology utilized in Zambia was excessively capital-intensive with respect to the availability of labor in Zambia. This was partially the result of policies overvaluing the local currency which tended to distort the price of inputs -- particularly making labor too expensive in relation to capital. The result is an inadequate rate of labor absorption by the economy.

An example of this phenomenon is found in table IV-48. The data show that the average capital investment required to generate one job was K17,000 in the period 1968-72 for the major government list.

By contrast, the gross addition to the fixed capital stock in the mainly private manufacturing sector between 1963 and 1967 amounted to K50.7 million, while employment increased by 18,011 -- implying a ratio of new fixed investment to new employment of K2,815. Although these figures are not strictly comparable, they may give some idea of the relative order of magnitude involved.

It should be noted, however, that the problem of excessively capital-intensive technology was cited earlier in the 1969 Schmacker-Porter report. At that time the reaction of the government was quite negative. The government view was that Zambia should introduce only the most modern of technologies.

Additional problems in manufacturing include the rather limited utilization of indigenous inputs and raw materials in the production process and the regional concentration of manufacturing activity. Much of manufacturing has low utilization of domestic resources and therefore has only limited linkages and impact upon the economy. This problem has been most acute with the larger industrial projects, such as the oil refinery, and also in auto and truck assembly, that impart little value added to the economy. This situation varies considerably from industry to industry, however.

As with most activity in Zambia, manufacturing plants tend to be located on the line of rail and specifically in the northern Copper Belt province (see table IV-49).

Table IV-48  
 Capital Costs and Employment in  
 Selected Indeco Projects, 1968-72

Project	Cost of Plant (Millions of kwacha)	Number Employed	Cost per Job (Kwacha)
Indent Oil Refinery	21.0	350	60,000
Metal Fabrication of Zambia	2.4	80	30,000
Nitrogen Chemicals of Zambia	18.0	600	30,000
Kafironda	5.5	500	11,000
Livingstone Motor Assemblers	2.5	250	10,000
Dunlop Zambia	3.8	435	8,736
Kafue Textiles of Zambia	8.0	960	8,333
Kabwe Industrial Fabrics	2.5	570	4,386
Total	63.7	3,745	17,009

Source: Alistair Young, Industrial Diversification in Zambia (New York: Praeger Publishers, 1973), p. 231.

**Table IV-49**  
**Regional Distribution of Manufacturing, 1972**

Province	Number of Establishments	Employees	Provincial Percentage of Total
Copper Belt	326	22,553	50.0
Central	167	15,552	34.5
Southern	49	5,923	13.1
Western	21	346	0.8
Northern	10	231	0.5
Eastern	13	242	0.5
Luapula	8	157	0.3
North-Western	4	13	0.2
<b>Total</b>	<b>598</b>	<b>45,077</b>	<b>100</b>

Source: Census of Industrial Production, 1972

#### IV. SECTORAL ANALYSES -- URBAN SECTOR

##### A. Setting

Zambia is the most urbanized nation in Africa. By 1978 almost 40 percent of the population will live in urban areas, an increase of one million since 1969. Most of the urban growth is occurring in the eight major cities (table IV-50) located in the three provinces (table IV-51) along the line of rail (table IV-52, see map IV-4). In the period 1963-69, urban areas grew by an average of almost 10 percent a year. The growth has since slowed to about 6 percent a year.

Urban areas are characterized by both high levels of wage employment (87 percent, see table IV-53) and relatively high wage levels. In 1972 the average wage of Africans in nonagricultural activities was K.1,034 (\$1,600) a year; squatters' medium incomes were K480-K600 (\$750-\$935) a year with an average household having one working male. The rural population by contrast continues in subsistence agriculture with household income level about K200 (\$312).

Urbanization initially occurred in response to manpower requirements of copper production and related activities.

During the first decade following World War II, rapid growth took place, with the number of Europeans increasing threefold (table IV-54) while African employment doubled (table IV-55) as copper production expanded and ancillary industries were established. Initially the colonial government restricted urban migration to single men with wage employment. Later, however, men were allowed to bring their families but were still viewed as temporary residents. Subsequently, during the Federation, 1954-1963, urban growth slowed as more stable levels of copper production were experienced. During this period most manufactures were imported from non-African countries or produced in Southern Rhodesia and South Africa. Following independence in 1964 and the Rhodesian UDI in 1965, manufacturing activity in Zambia grew rapidly as imports of Rhodesian and South African goods were restricted.

Restrictions on migration were lifted, and during the period 1963-69, migration to urban areas became extremely rapid, particularly among females (table IV-56). During this period the urban population grew at a rate of almost 10 percent a year.

Preliminary estimates (table IV-57) suggest that the rate of growth of urban population has been reduced to about 6.1 percent a year since 1969. The reasons for the slowdown are probably twofold. First there was a one-time flow of women into the urban area adjusting to the removal of restrictions upon females. Second, the slowdown in expansion of copper production and the overall slowdown in industrial growth suggests relatively fewer urban employment opportunities.

**Table IV-50**  
**Zambian Cities, Municipalities, and Townships**  
**Population Growth, 1963-1974**

	Population			Rate of Growth Percent per Annum	
	1963	1969	1974	1963-69	1969-74
<b><u>Cities</u></b>					
Lusaka	123,510	262,425	401,000	13.4	8.9
Kitwe	144,330	232,070	292,000	8.2	4.7
Ndola	92,691	159,786	229,000	9.5	7.5
<b><u>Municipalities</u></b>					
Chingola	93,682	148,154	190,000	7.9	5.1
Kabwe	39,522	65,974	98,000	9.4	8.2
Livingstone	33,026	45,243	58,000	5.3	5.1
Manshya	75,332	96,282	121,000	4.2	4.7
Mufulira	80,609	107,802	136,000	5.0	4.8
<b><u>Townships</u></b>					
Chipata	8,527	13,500	16,585	8.0	4.2
Choma	6,940	11,940	10,413	9.5	-2.7
Kasama	6,734	8,924	16,412	4.8	13.0
Mansa	5,228	9,012	7,937	9.5	-2.6
Mazabuka	5,406	6,274	10,869	2.5	11.6
Mongu	4,279	10,107	11,859	15.4	3.3
Wanze	3,238	4,181	5,131	4.4	4.0
Kafue	2,043	12,500	19,625	35.5	9.4

Source: C.S.O. Sample Census of Population, Preliminary Report,  
February 1975.

Table IV-51  
 Distribution of National Urban and Rural  
 Population, by Province, 1969

Province	Urban (percent) <sup>a</sup>	Rural (percent)	Total (percent)
Central	28.4	12.6	17.2
Copper Belt	61.6	2.2	19.7
Southern	6.2	14.8	12.3
Eastern	1.1	17.5	12.7
Luapula	0.7	11.6	8.4
Northern	1.2	18.9	13.7
Northwestern	0.0	8.2	5.8
Western	0.8	14.2	10.2
Total	100.0	100.0	100.0

a. Cities, municipalities, and townships.

Source: Central Statistical Office. Census of Population and Housing, 1969. First Report, 1970.

Table IV-52  
 Distribution and Growth of Population by Province  
 1963-69 and 1969-76  
 (Thousands)

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Province	Population			Net Increase		Net Migration	
	1963	1969	1974	1963-69	1969-74	1963-69	1969-74
Central	490	707	920	+ 217	+ 213	+ 135	+ 95
Copperbelt	520	809	1,046	+ 287	+ 237	+ 201	+ 101
SUB TOTAL	1,010	1,516	1,966	+ 506	+ 450	+ 335	+ 196
Southern	477	503	540	+ 26	+ 37	- 54	- 34
SUBTOTAL ) Line-of-Rail)	1,487	2,019	2,506	+ 532	+ 487	+ 282	+ 162
Non Line-of-Rail Provinces	2,023	2,081	2,189	+ 58	+ 108	- 282	- 162
TOTAL	3,511	4,100	4,695	+ 589	+ 695	0	<u>0</u>

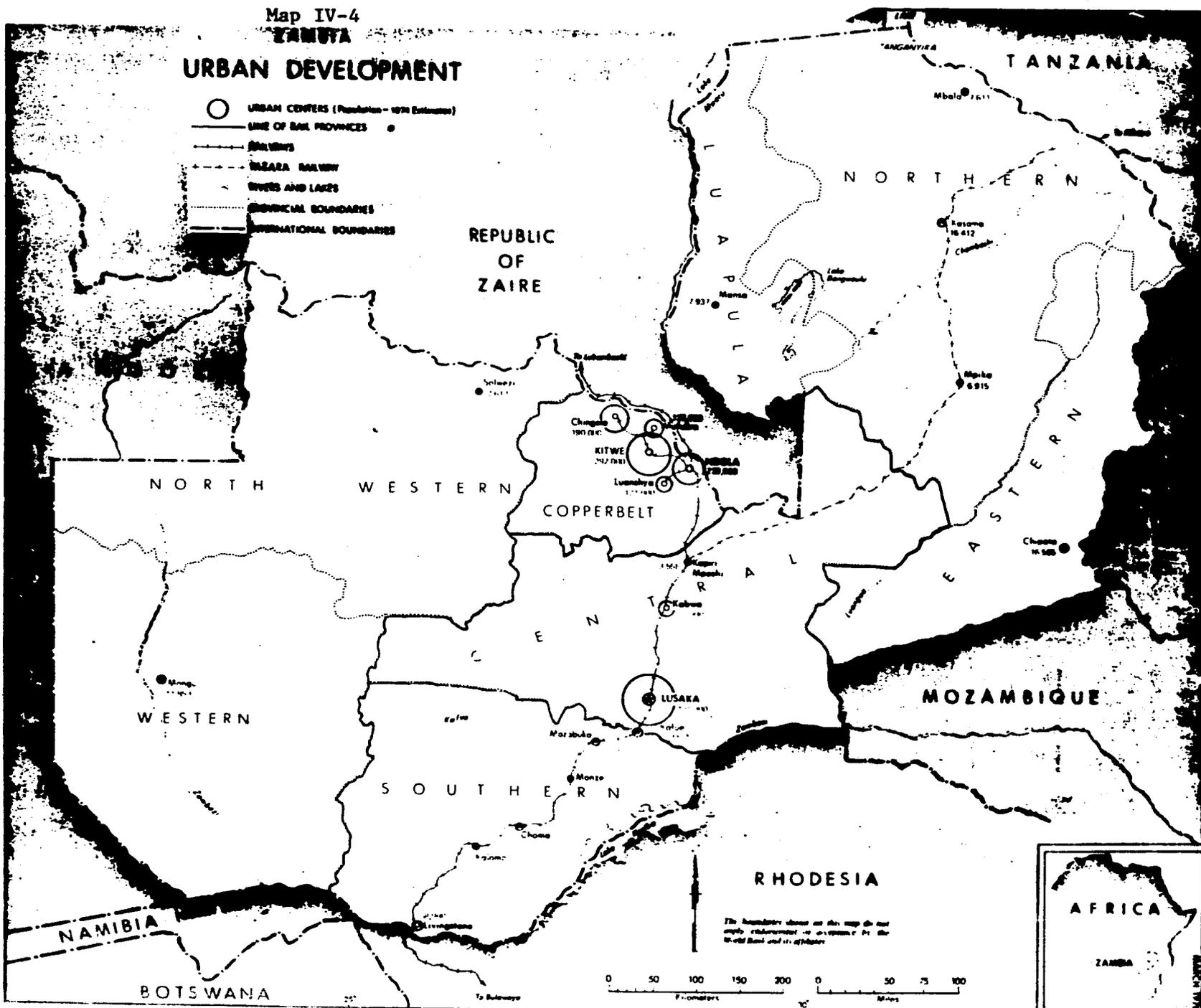
Source: Central Statistical Office. Census of Population and Housing, 1969. First Report, 1970, and 1974 Sample Census.

Map IV-4

ZAMBIA

# URBAN DEVELOPMENT

- URBAN CENTERS (Population - 1978 Estimates)
- LINE OF BAIL PROVINCES
- RAILWAYS
- - - BEARA RAILWAY
- ~ RIVERS AND LAKES
- - - DOMINICAL BOUNDARIES
- - - INTERNATIONAL BOUNDARIES



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1980 11/24/80

**Table IV- 53**  
**Estimated Formal and Informal Sector**  
**African Employment, by Sex, 1971 and 1976**

Group of workers	1971	1976	Rate of growth (percent)
<b><u>Males</u></b>			
Urban labor force	325,000	435,000	6.0
Total number working	287,000	384,000	6.0
Formal sector	252,600	322,000	5.0
Informal sector	34,400	62,000	12.5
<b><u>Females</u></b>			
Urban labor force	93,000	169,000	12.7
Total number working	45,000	82,200	12.7
Formal sector	25,000	38,600	9.1
Informal sector	20,000	43,600	16.8

Source: Annex tables I-30 and I-31.

Table IV-54  
European Population in Major Towns

Town	1946	1951	1956	1969
Livingstone	1,326	2,316	3,673	n.a.
Lusaka	2,813	4,656	9,449	n.a.
Kabwe	1,671	2,851	4,250	n.a.
Chililabombwe			1,787	n.a.
Chingola	1,163	2,602	4,851	n.a.
Kitwe	2,951	5,225	10,393	n.a.
Luanshya	2,741	4,676	6,161	n.a.
Mufulira	2,146	3,703	5,730	n.a.
Ndola	1,242	2,907	7,384	n.a.
Total	16,053	28,936	53,678	43,390

n.a. = Not available

Source: Central statistical Office Censuses of Population, 1946, 1951, 1956 and 1969.

Table IV- 55  
Africans in Employment by Town and Year

Town	1946	1951	1956	1961 <sup>a</sup>	1963 <sup>a</sup>	1969 <sup>a</sup>
Livingstone	6,369	9,604	9,555	10,609	8,980	12,112
Lusaka	7,763	14,756	22,444	30,116	32,460	39,816
Kabwe	6,821	9,400	9,990	9,149	11,730	16,600
Chililabombwe			7,861	7,201	7,870	8,918
Chingola	5,839	12,267	13,142	13,397	12,380	20,552
Kitwe	15,457	22,406	26,387	29,718	31,500	48,144
Luanshya	13,047	19,651	19,115	14,733	14,370	17,705
Mufulira	10,223	16,688	15,740	17,933	15,220	19,426
Ndola	6,737	12,928	22,221	21,070	20,730	34,787
Total	72,256	117,706	146,455	153,926	155,240	218,060

a. Males only.

Source: Central Statistical Office Censuses of Population, 1946, 1951, 1956, 1963 and 1969.

**Table IV-56**  
**Distribution of the Increase in the Urban Population**  
**During 1963-1969, by Province, and the Percentage in**  
**the Urban Population during 1963-69 in the Province**

Province	Proportion of urban population increase between 1963 and 1969		Percentage increase in the urban population between 1963 and 1969	
	Males	Females	Males	Females
Copper Belt	65.0	65.8	51.6	77.5
Central	27.6	25.9	67.5	93.0
Southern	3.4	4.0	27.5	49.8
Luapula	0.9	1.0	60.4	106.6
Northern	0.4	0.7	21.9	58.3
Eastern	1.1	1.3	51.5	88.5
Northwestern	--	--	--	--
Western	1.6	1.3	134.7	161.5
Total	100.0	100.0	100.0	100.0

Source: Central Statistical Office Censuses of Population, 1963 and 1969.

Table IV- 57  
Distribution and Growth of Zambian Towns,<sup>a</sup>  
by Province, 1963-1974

Province	Town	Population			Rate of Growth Percent per Annum	
		1963	1969	1974	1963-69	1969-74
Western	Hongu	4,279	10,107	11,859	15.4	3.3
Central	Lusaka	123,510	262,425	401,000	13.4	8.9
	Kabwe	39,522	65,974	98,000	9.4	8.2
	Kafue	2,043	12,500	19,625	35.5	9.4
	Serenje	3,112	4,241	4,498	5.3	1.2
Eastern	Chipata	8,527	13,500	16,585	8.0	4.2
Luapula	Mansa	5,228	9,012	7,937	9.5	-2.6
	Kawambwa	6,180	8,318	2,762	5.1	-15.0
	Samfya	4,161	5,656	5,722	5.2	0.2
Northern	Kasama	6,734	8,924	16,412	4.8	13.0
	Mbala	3,644	5,282	7,611	6.4	7.6
	Isoka	3,361	4,545	3,556	5.2	-5.0
Southern	Choma	6,940	11,940	10,413	9.5	-2.7
	Mazabuka	5,406	6,274	10,862	2.5	11.6
	Kalomo	4,989	6,565	4,697	4.8	-6.9
	Livingstone	33,026	45,243	58,000	5.3	5.1
	Monse	3,238	4,181	5,131	4.4	4.0
Copperbelt	Chililabombwe	34,165	44,862	56,000	4.7	4.5
	Chingola	59,517	103,292	134,000	9.6	5.3
	Kalulushi	21,303	32,272	41,000	7.2	4.9
	Kitwe	123,027	199,798	251,000	8.4	4.7
	Luanshya	75,332	96,282	121,000	4.2	4.7
	Mufulira	80,609	107,802	136,000	5.0	4.8
	Ndola	92,691	159,786	229,000	9.5	7.5
<b>Total</b>		705,897	1,230,882	1,652,677	9.7	6.1

Source: C.S.O. Sample Census of Population, Preliminary Report, February 1975.

a. Places with populations of over 4,000 in 1969.

Although Zambia's urbanization level of close to 40 percent is high by African standards, it is rather normal in terms of intercountry experience. Chenery and Syrquin have found that a country with a per capita income of \$500 in 1975 prices typically experiences an urbanization level of 35-40 percent.

Throughout the period of rapid urbanization since independence, the government has had the priority of the rural sector as the cornerstone of its stated development program. As noted elsewhere in this report, however, ideological and other considerations have resulted in uncertainty as to government's role in agriculture and the creation of a counterproductive incentive system. The effect of this behavior has been to contribute to the forces which have generated the urban migration.

### B. Employment

By standards of most developing countries, Zambia's employment situation appears favorable. Table IV-58 compares sectoral wage employment in 1961 and 1972. Over this period total wage employment increased by about 46 percent. Slight declines were experienced in agriculture and domestic service. Since non-African employment fell during that period, African employment in the urban-based formal sector increased from 163,000 to 300,000. (In this estimate agriculture, distribution, and domestic services employment are subtracted from the total wage employment of table IV-58 and 6,000 is added for replacement of expatriate employees). This is an annual growth rate of 5.7 percent.

The rapid increase in urban employment opportunities, while contributing to the high migration rates, has also accounted for the low urban unemployment rates. Sample studies in 1966-68 showed that the overall unemployment rates of heads of households in urban areas averaged 2.8 percent. More recent surveys (1972) of squatter areas -- usually felt to be the location of an economy's greatest unemployment -- suggest unemployment rates for heads of households between 4.8 and 9.1 percent. Both the 1966-68 surveys and the more recent squatter area surveys suggest that long-term unemployment has been a relatively minor problem in urban Zambia.

Given the cyclical downturn experienced by the economy in 1975 and 1976, however, it is likely that the current employment picture is less sanguine than that of 1974. Also, a continuation of the overall poor performance of the economy in concert with the rapid population growth, suggests that unemployment could become a growing problem.

### C. Causes of Migration

A simple but useful migration model (Todaro model) attributes the migration decision to the potential rural migrant's perception of the urban wage rates and to his probability of employment -- that is, his expected wage compared with his actual rural earnings. The larger the differences, the more decisions to migrate and the higher the overall rate of migration.

**Table IV-58**  
**Employment of Wage and Salary Workers, 1961-72**

Activity	1961	1972	Net increase		Percentage distribution	
			1961	1972	1961	1972
	(thousands of kwacha)		(percent)			
Agriculture, forestry, and fisheries	38.5	33.6	-4.9	-12.73	14.23	8.50
Mining and quarrying	50.2	57.5	7.3	14.54	18.57	14.55
Manufacturing	20.3	42.6	22.3	109.85	7.50	10.80
Electricity and water	2.8	4.8	2.0	71.42	1.03	1.21
Construction and allied repairs	32.5	68.9	36.4	112.00	12.01	17.44
Distribution	21.5	36.7	15.2	70.69	7.94	9.30
Transport and communications	13.3	26.6	13.3	100.00	4.91	6.93
Services (excluding domestic)	55.5	89.3	33.8	60.90	20.51	22.60
Domestic services	35.9	35.0 <sup>a</sup>	-0.9	-2.51	13.30	8.87
<b>Total</b>	<b>270.5</b>	<b>395.0</b>	<b>124.5</b>	<b>46.02</b>	<b>100.00</b>	<b>100.00</b>

a. Estimate.

Sources: C.S.O. Yearbook of Statistics, 1970; C.S.O. Monthly Digest of Statistics, June 1973.

In Zambia, as noted above, urban wage levels generate incomes considerably higher than rural incomes. This fact, combined with the high percentage of wage employment and relatively low unemployment rates in urban areas, suggests a fairly high probability that the migrant will be employed at a relatively high wage. As indicated above, even in the urban squatter areas incomes are considerably above the typical rural income.

The disparities between urban and rural incomes can be attributed to the rapid growth of manufacturing and other industrial activity in concert with the stagnation of rural incomes arising partly out of the government's producer-price policy with its low inflexible producer-price system. In addition, urban real incomes are higher because of nonmonetized amenities, such as better access to education and other social services not available in many rural areas. The above phenomena are manifest as the deterioration of the rural sector's terms of trade vis-a-vis the urban sector -- that is, as an increased urban-rural income gap which generates continued migration.



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