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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-----

BOTSWANA

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A FRAMEWORK FOR U.S. ASSISTANCE
IN SOUTHERN AFRICA

COUNTRY RESOURCE PAPER

BOTSWANA

Submitted by

THE OFFICE OF EASTERN AND SOUTHERN AFRICA AFFAIRS

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BOTSWANA

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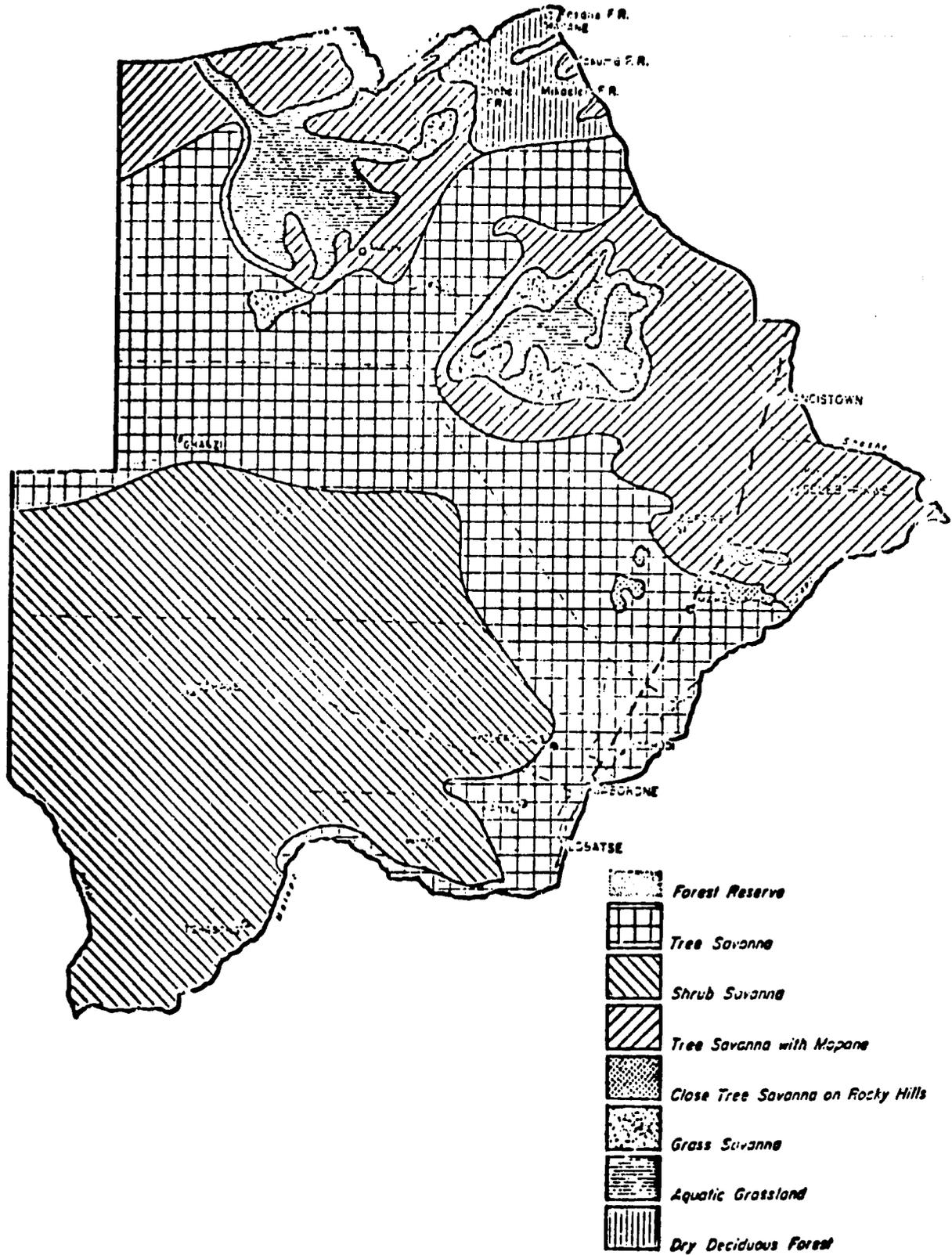
I

GENERAL BACKGROUND

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

FIGURE I-1

VEGETATION



Source: National Development Plan, 1973-1978, Government Printer. Gaborone, p. 2.

I. GENERAL BACKGROUND

A. Physical Features

The Republic of Botswana is 582,000 sq. km in area, or nearly the size of Texas. It lies at the center of the Southern African Plateau at a mean altitude of 1,000 meters above sea level and is landlocked, being bounded by South Africa, Namibia, the Caprivi Strip, Zambia and Rhodesia.

More than two-thirds of Botswana's land surface is covered with sand, a large part of which is referred to as the Kgalagadi (Kalahari) Desert. Most of this area is covered with savannah grasses, much of which is low quality due to lack of rainfall and poor soils (Figure I-1). Because of the harsh environment, the sweet varieties of grasses which do exist are highly susceptible to overgrazing, resulting in severe denudation and bush encroachment.

Except for a few springs, dams and pools, mainly in the east, the Okavango and Chobe drainage systems in the north constitute Botswana's only perennial surface water. The Okavango River rises in Angola and has a catchment area of 205,000 km². The delta covers an area of about 16,000 km² (about 3 percent of the total area of Botswana) of which about half is permanently flooded. Excluding direct rainfall, the mean annual inflow of water is 9.6 million acre feet. This makes it potentially a resource of great importance to Botswana. Though detailed studies of the area have been undertaken over the years, large-scale use of the water will remain problematic for the near term. The studies indicate that transferring Okavango water to the eastern part of the country where population is concentrated is currently prohibitively expensive and the Okavango itself appears to have soils of low fertility and the area is infected with malaria, sleeping sickness and Tsetse Fly. In any case, the Okavango supports large numbers of animals and birds and comprises one of the finest wildlife areas in the world.

Northeast of the Okavango Delta lies the Chobe River, a major tributary of the Zambezi which forms the northern border of Botswana. Belts of indigenous forest, dense bush, and irrigable soils are found in this region.

Only 5 percent of Botswana's surface area is considered suitable for arable agriculture. Almost all of it is found in the Limpopo River Catchment in the east, where over 80 percent of Botswana's population lives (Figure I-2). All the rivers in the eastern catchment are ephemeral and flow only after intensive rain. However, they have deep sand beds which provide an important source of water for the region. There are a few dams on the rivers in the east, the largest ones being the Gaborone Dam which supplies water to the capital and to Lobatse and the Sashe Dam, which supplies water to the township and mine at Selebi-Pikwe.

Botswana's average annual rainfall of 18 inches is quite unevenly distributed, ranging from less than 10 inches in the southwest to more than 26 inches in the northeast. More than 90 percent of the rain falls between November and April.

Analysis of annual rainfall from sixteen locations over eleven years shows a high variability of rainfall and indicates that Botswana is prone to recurrent droughts, which render even the eastern area sub-marginal for crops and a large part of the country sub-marginal for cattle raising.

B. Demography

The most recent comprehensive population census was taken in 1971. Since then, there have been smaller, selective censuses. Table I-1 shows de jure (legal) and de facto (de jure less absentee) population based on the 1964-1971 and more recent censuses for the district and townships of Botswana. De jure population is estimated to be 725,500 in 1976. Approximately 46,000 of these are assumed to be living abroad (mostly working in South Africa), although the number is probably higher.

The 1971 census estimates for crude birth and death rates (excluding absentees), were 45.3 and 14.5 respectively, yielding a natural rate of increase of 3.08 percent per annum. If this rate is maintained, population will double in approximately 23 years.

The population of Botswana is young -- 57.3 percent of the de facto population is below the age of twenty. The migrant labor absenteeism is concentrated among younger men between the ages of twenty and thirty-four. Of this group, 35.7 percent are absent. As a result, the de facto population age-sex pyramid has the truncated look of a nation just having gone through war -- sex ratios are as low as 60.6 men per 100 women in the twenty-five to thirty-nine age bracket (see Figure I-3).

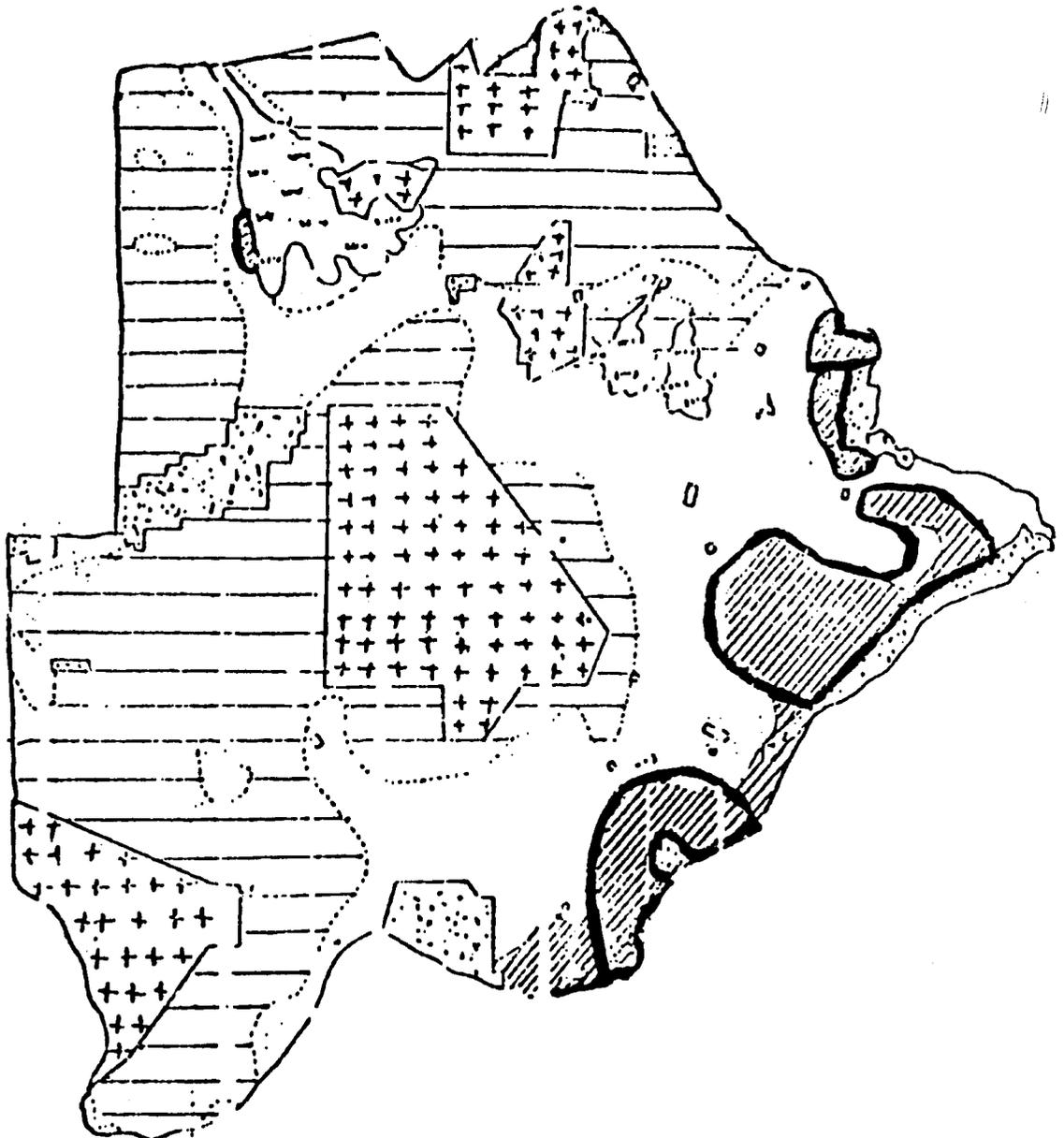
In 1973, the economic dependency ratio in Botswana* was 1.0 as compared to 1.7 for Zambia and 2.2 for Morocco, countries the World Bank has chosen as reference countries for Botswana.

Census data show that in 1964, 4.1 percent of Botswana's population lived in modern townships, whereas in 1976, 17.8 percent lived there. This change reflects, among other things, Botswana's rate of urban migration (between 10 percent and 16 percent) which is one of the highest in Africa.

These estimates of urbanization are somewhat misleading in that they consider only modern sector centers as urban. However, Botswana has a number of sizeable traditional villages. In 1971, 27.5 percent of the population was found living in villages with a population greater than 1,000. Since many Botswana spend part of the year on either their lands or cattle posts, the number of people having residences in these larger villages is probably even higher. In 1971, a minimum of 45.3 percent of the population probably lived in either the modern towns or large villages. Finally, approximately 80 percent of the population lives in the eastern part of the country.

*The economic dependency ratio is the population aged less than 15 and greater than or equal to 65 divided by the labor force aged 15-64.

FIGURE I-2



PRESENT LAND USE

SHEET HISTORY

- 1972 Photo interpretation of cultivated areas by Heam and Rilson
- 1973 1 1,000,000 completion by Field
- 1975 1 6,500,000 edition by Cartographic Section Ministry of Agriculture



- Forests
- Arable
- Open Water & Swamps
- Fenced



- National Parks & Game Reserves
- Cattle Posts
- Unutilized

Source: Botswana Authorities

CURRENCY EXCHANGE RATES
Pula*

	<u>1965</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>
Botswana per dollar	.7163	.7199	.7153	.7215	.7174	.7194	.7153	.7680	.6925	.6793	.7321	.87
dollar per	1.396	1.389	1.398	1.386	1.394	1.390	1.398	1.302	1.444	1.472	1.366	1.15

Source: IMF International Financial Statistics

*Note: Until 1976, Botswana used the South African Rand as legal trade. On August 23, 1976, the Government introduced its own currency, the Pula (1 Pula = 100 Thebe). For the next three months, the Pula was convertible with the Rand, one for one.

TABLE I-1

DE JURE AND DE FACTO POPULATION OF BOTSWANA

	<u>1964</u>	<u>1971</u>	<u>1976</u> <u>estimate</u>
Total De Jure Population	549,510	636,379	725,500
Less Absentees	35,132	45,735	46,000
De Facto Population	514,378	590,644	679,500

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FIGURE I-3
 AGE-SEX PYRAMID OF THE POPULATION IN BOTSWANA 1971
 (Dots represent graduated figures)

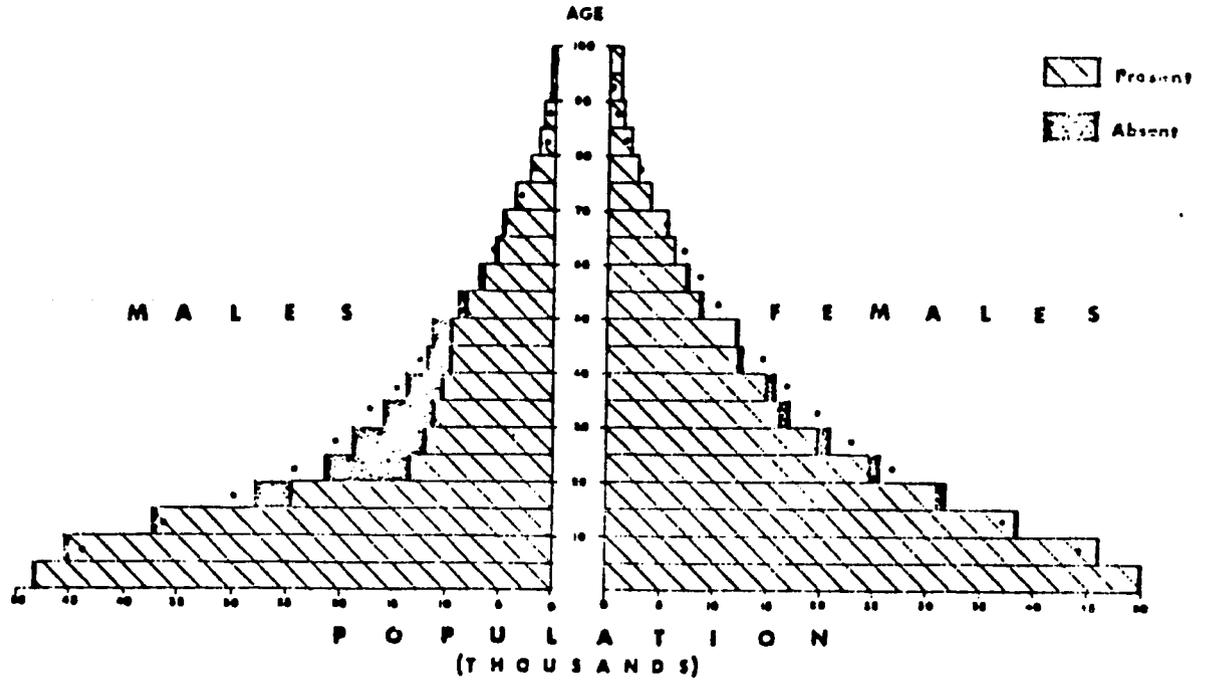
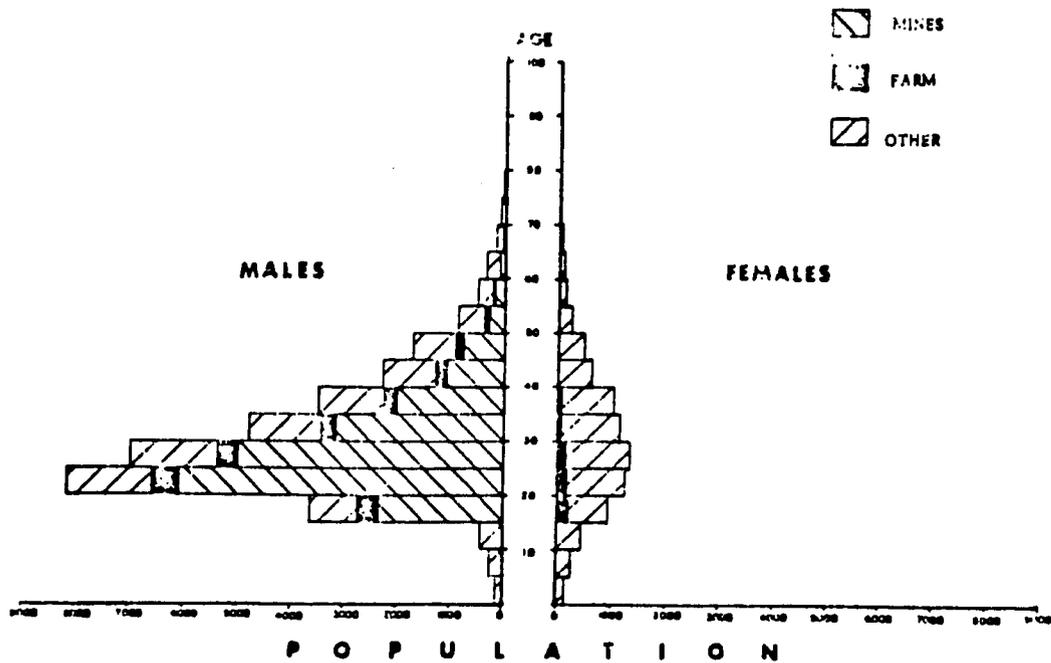


Diagram 1.6
 AGE-SEX PYRAMID OF THE ABSENTEE
 POPULATION



The 1971 census counted 10,861 non-citizens residing in Botswana. Of these, 3,500 are employed, mainly in the modern sector, both in private business and in government (Table I-2). They also own some ranches and farms, the latter primarily in the Tuli and Ghanzi Blocks in the eastern and western parts of the country. On the average, expatriate wages exceed those of citizens by more than a factor of five.

Expatriate employment is highly concentrated in professional, technical and administrative positions. Table I-3 shows that over 60 percent of the professional and technical positions in the private sector and over 58 percent in the administrative and managerial positions in the private sector are held by expatriates. More than 20 percent of the professional and technical positions and 33 percent of the administrative and managerial positions in the central government are also held by expatriates. These figures, as large as they are, nonetheless underestimate the importance of expatriates who hold most of the key positions in the economy and government bureaucracy.

C. Culture

There are eight principal tribes in Botswana. Seven of them are Tswana, one of the three divisions of the Sotho group of the Bantu family, and the eighth is Transvaal Ndebele. To these eight are affiliated other tribes, each of which has accepted the rule of the chief of a principal tribe and has become his subject. Some of these affiliated tribes are Tswana, others derive from one of the other Sotho groups and still others are of quite different origin altogether.

This diversity, however, is more apparent than real. Almost all of these Botswana speak the same language and have largely been assimilated culturally by the Tswana majority. Relative to most other African countries, tribal divisions in Botswana are thought to be quite mild. Table I-4 summarizes information on tribal population.

Outside of this basic tribal structure lies the Bushmen (or Sarwa), who are regarded as the aboriginal inhabitants of most of Southern Africa. Ethnically, culturally and linguistically they are quite distinct from the rest of the population of Botswana, of which they comprise only a small proportion (4 percent in 1971). Historically, they have been nomadic hunters and gatherers, engaging in no cattle raising or cropping. Recently, however, they have largely become wage laborers on ranches, or clients of cattle raising tribes. Approximately 10,000 out of some 29,000 Bushmen in Botswana were still primarily nomadic in 1971.

Despite the relative homogeneity of Botswana's African population (apart from the Bushmen), tribal distinctions seem to have some political importance. This importance is undoubtedly partly due to the fact that each group has its own separate territory and thus remains fairly distinct geographically. Some have suggested that the major element of political importance derives from the overwhelming numerical superiority of the Ngwato tribe, which in 1971 had

TABLE I-2

NUMBER OF PERSONS EMPLOYED AND TOTAL
MONTHLY WAGES/SALARIES BY CITIZENSHIP

SECTOR	Number employed			Total monthly wages/salaries paid to (Rand)			Mean monthly wage/salary per person (Rand)		
	Citizens	Non-citizens	Total	Citizens	Non-citizens	Total	Citizens	Non-citizens	Total
Agriculture	3 145	40	3 185	62 653	9 515	72 168	20	238	23
Mining and quarrying	3 434	547	3 980	231 282	325 620	556 902	67	596	140
Manufacturing	3 218	135	3 353	178 935	55 522	234 457	56	411	70
Electricity and water	561	93	654	41 476	63 093	104 569	74	678	160
Construction	7 106	454	7 560	432 334	230 843	663 177	61	508	88
Commerce	6 312	319	6 631	265 204	106 357	371 561	42	333	56
Transport and communications	1 503	211	1 714	83 165	87 038	170 203	55	413	99
Finance	1 783	219	2 002	151 267	147 077	298 344	85	672	149
Community and social services	2 496	236	2 732	154 988	38 879	193 867	62	165	71
Education	3 671	710	4 381	262 151	135 018	397 169	71	190	91
Sub-Total	33 229	2 963	36 192	1 863 455	1 298 962	3 062 417	56	405	85
Central Government	5 733	500	6 233	846 793	143 970	995 763	148	298	160
Local Government	2 635	48	2 683	191 072	5 992	197 064	73	125	73
Total	41 597	3 511	45 108	2 901 320	1 353 924	4 255 244	70	366	94
Central Government Industrial Class Employees	6 317	-	6 317	392 995	-	392 995	62	-	62

TABLE I-3
EMPLOYMENT BY SECTOR, SKILL AND CITIZENSHIP
August 1975

	Professional & Technical		Administrat. & Managers		Skilled Workers		Unskilled Workers	
	No.	% Exp.	No.	% Exp.	No.	% Exp.	No.	% Exp.
AGRICULTURE	3	100.0	9	22.3	249	13.7	2924	.4
MINING AND QUARRYING	253	66.8	37	97.3	1170	29.2	2520	0
MANUFACTURING	69	72.5	55	56.4	765	6.5	2464	.3
ELECTRICITY AND WATER	40	95.0	16	90.0	292	14.8	306	.4
CONSTRUCTION	176	63.1	47	97.2	2473	11.3	4864	.4
COMMERCE	111	64.9	118	37.9	2348	6.9	4054	1.0
TRANSPORT & COMMUNICATION	53	94.4	16	92.5	339	54.0	1306	0
FINANCE	191	65.0	90	79.6	559	9.4	1182	0
COMMUNITY & SOCIAL SERVICES	235	29.0	55	84.2	1023	4.9	1419	7.0
SUBTOTAL	1111	60.5	443	58.5	9140	13.8	21059	.9
EDUCATION	4103	17.0	7		85	15.3	186	0
SUBTOTAL	5214	26.3	450	57.6	9225	9.1	21225	.8
CENTRAL GOVERNMENT	1585	22.2	1585	33.3	4522	2.4		
LOCAL GOVERNMENT	237	12.3	57	98.2	858	1.0	1531	.7
TOTAL	7036	24.9	633	47.8	14605	8.3	22756	.8

Source: Table 4, p. 5; August 1975 Employment
Survey: Government of Botswana, Central Statistics Office

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TABLE I-4

POPULATION BY MAJOR BOTSWANA TRIBES
1971 Census

<u>TRIBE</u>	<u>POPULATION</u>
Ngwato (Bamangwato)	200,000
Kwena (Bakwana)	70,000
Ngwaketse (Bangwaketse)	70,000
Kgatala (Bakgatala)	32,000
Maletse (Bamaletse)	14,000
Tlokwa (Bathlokwa)	4,000
Rolong (Barolong)	11,000
Tawana (Batswana)	42,000

200,000 people, or about one-third of the population of Botswana. Botswana's President Seretse Khama is a Ngwato and the overwhelming majority enjoyed by his party, the Botswana Democratic Party, is probably partially due to the numerical superiority of his tribe. The party which received the second largest number of votes in the last election (1974), the Botswana National Front, derives much of its support from one of the second largest tribes, the Ngwaketse. Given all this, it is nonetheless difficult to judge the impact these political manifestations of tribal distinctions will have on Botswana's economic development. Two other parties based mostly on ideological rather than tribal distinction currently exist, while continuing economic development and increased migration might further weaken the tribal-political connection.

It is equally difficult to identify other ethnic/cultural factors which affect the development process. Filled with myth and legend, published discussions of this basic issue seem to be inadequate. Many discussions have to do with the commercially irrational nature of traditional cattle-owning customs, which supposedly accounts for the low cattle offtake rates in Botswana, but there is no rigorous evidence for this sort of contention. In general, there probably needs to be more analysis of the cultural aspects of development in Botswana.

Another dimension relates to the political power of traditional elites, particularly the chiefs and their headmen. The chiefs have formal power in the second house of parliament, the House of Chiefs. The house advises the parliament on issues affecting the tribes, and on other issues. They have no veto power; however, in terms of implementing programs that need local cooperation, it is likely that they retain a good deal of influence.

D. Education

Prior to independence in 1966, Botswana's educational system was extremely underdeveloped. Less than 3 percent of secondary school-aged children attended secondary school in 1964, and fewer than half of primary school-aged students went to primary schools (43.3 percent in 1965). In Lesotho (then Basutoland) there existed a university designated for Batswana, but only five Batswana students were enrolled in 1962. A handful of students had received scholarships to study abroad, but by 1962, only 35 Batswana living in Bechuanaland held B.A. degrees. Thus, upon independence Botswana had very few highly educated citizens. Moreover, it faced a 75 percent (or greater) illiteracy rate among its adult population in general. Table I-5 summarizes some of these data.

After independence, Botswana's educational system developed, at first rather slowly, but steadily. Over the nine years following independence primary school enrollments increased at an average annual rate of 5.4 percent and secondary school enrollments increased by almost 19 percent a year. Furthermore, a number of post-secondary institutions were built.

By 1974, 70 percent of the 6-13 age group were enrolled in primary schools and 13 percent of the 14-19 age group were enrolled in secondary schools. Three

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TABLE I-5

SCHOOL ENROLLMENT IN 1965 AS A PERCENTAGE OF
SCHOOL AGE AND SEX GROUP, 1964^{1/}

1. Primary school enrollment	28,892	37,169	66,061
Percentage of respective population, 5-14	37.7	49	43.3
2. Secondary School enrollment	751	574	1,325
Percentage of respective population, 15-19	2.96	2.2	2.59
3. Vocational Training	60	5	65
Percentage of respective population, 15-19	.2	--	.1
4. Teacher Education	134	134	268
Percentage of respective population, 15-19	.5	.5	.5
Percentage of respective population, 20-24	.7	.6	.6

Source: 1964 census, and 1965 Annual Report on Bechuanaland

^{1/} Data availability constrained the options for year and age breakdowns employed, and no claim about their precise appropriateness is made. However, the error involved is probably very small.

hundred students were attending the University of Botswana, Lesotho and Swaziland (now the University of Botswana and Swaziland), 730 students were enrolled in various kinds of post-secondary vocational training, and 452 were enrolled in teacher training.

Although enrollments in the primary schools have increased fairly rapidly, the percentage of primary teachers considered unqualified has remained quite high (36 percent in 1975). Only 10 percent of the secondary school teachers were thought unqualified in 1974, but 80 percent of high school graduates passed their qualifying exams in 1974. The low number of qualified graduates severely limits the population ready for post-secondary training.

In 1972 there were approximately 6,200 Botswana with junior high school education, 1,100 with secondary school education and 180 with post-secondary education. These were insufficient to fill manpower requirements, particularly at the post-secondary level. The excess demand for high school level students is expected to disappear by 1988, but remain at the post-secondary level for quite some time. (See Table I-6.) In general, education and manpower development will remain critical to Botswana's economic effort for many years to come.

E. Politics

By almost any conventional standard, Botswana has the only liberal, democratic, interracial society in southern Africa. Having a parliamentary form of government, Botswana has held three elections in its history, all of which were contested by at least three parties.

The form and stability of Botswana's system, like most other aspects of Botswana's domestic political scene, are due primarily to one man -- Sir Seretse Khama. Direct heir to the chieftanship of Botswana's largest tribe, and quasi-martyr at the hands of South African apartheid and British colonialism, Khama seems almost universally popular in his country and has dominated its politics ever since independence.

The political and economic course run by his country over the ten years since independence reflects Khama's orientation toward a western leaning, essentially capitalist, multi-racial society. He appears to have a rather pragmatic approach, probably best illustrated by his handling of international relations toward his neighbors. He has vocally opposed the Smith and Vorster regimes and has agreed to grant asylum to political refugees. At the same time, Khama has stated that he would not allow his country to be used as a staging area by guerrillas and has maintained economic relations with both Rhodesia and South Africa in deference to Botswana's high degree of economic independence.

Although Khama and his Botswana Democratic Party are in clear command of the government, they are not without opposition. Four parties contested the 1969 and 1974 elections, with the opposition winning 7 out of 31 seats in 1969, and

TABLE I-6

SUPPLY AND DEMAND FOR
EDUCATED MANPOWER, 1972-1988

	<u>FORM III</u> ^{3/} Junior Secondary	<u>FORM V</u> Senior Secondary	<u>DEGREE</u>
<u>1972</u> ^{1/}			
Batswana	6,200	1,100	180
Expatriates	800	700	580
<u>1978</u>			
Required Stock	14,600	4,200	1,450
Supply	11,000	3,300	480
Balance	-3,600	-900	-970
<u>1988</u>			
Required Stock	24,200	7,700	2,410
Supply ^{2/}	22,300	11,700	2,160
Balance	-1,900	+4,000	-250

^{1/} Existing manpower by "required" educational attainment.

^{2/} Includes Batswana remaining from 1972.

^{3/} Includes an allowance for output from programs equivalent to junior secondary (e.g., Youth Brigades).

Source: World Bank

5 out of 32 in 1974. The differences between the opposition parties on the one hand and the Botswana Democratic Party on the other are largely ideological. The former, particularly the Botswana Independence Party and the Botswana Peoples Party, criticize the government's moderate policy toward Rhodesia and South Africa, a policy they think encourages dependence on expatriates. They criticize as well, Botswana's western international orientation and its promotion of capitalist forms of development. In short, they seem to be left of Khama's conservative party and, as would be expected, they derive most of their support from the cities.

The Botswana National Front is more difficult to categorize. It represents an attempt to fuse traditional, labor and civil service support to form a nationalist opposition. It criticizes the Botswana Democratic Party's conservative domestic and foreign policies, but the traditional element in the party prevents it from engaging in the leftist rhetoric characteristic of the other two opposition parties.

Whatever their rhetoric, the opposition has had little success in winning seats from the Botswana Democratic Party. Between 1969 and 1974 the Botswana People's Party and Botswana National Front each lost one seat, even though an additional seat was added to the parliament.

Despite the overwhelming dominance of Khama's party since independence, the existence of an opposition seems to have had some effect in the past and helps create political uncertainty in the future. Prior to the '74 election, the government engaged in what was known as the Accelerated Rural Development Program, which was essentially designed to transfer a relatively large amount of resources to the rural areas in a short period of time. The program was no doubt at least partly motivated by a desire to neutralize a political issue before the election. Recent establishment of diplomatic relations with the Peoples Republic of China and of a resident mission from the Soviet Union is probably also partly an attempt to defuse a potential opposition point.

In terms of the future, the balance of political forces in Botswana depends on two major factors: the continued health of Seretse Khama and the course of the black struggles in Rhodesia and South Africa.

Though only fifty-five years old, Khama is reportedly in poor health. When he becomes unable to serve, the whole political complexion in Botswana will undoubtedly change. His personality will no longer suppress political and ideological differences which may exist within his own party, nor will his popularity continue to dominate the opposition. He has no obvious replacement.

The absence of a charismatic unifier would increase the likelihood that frictions in Botswana, already fermenting from the uneven economic development occurring between the modern and traditional sectors and between citizens and expatriates, would play a much larger role in Botswana's political and economic

development in the future. Such frictions would undoubtedly be greatly exacerbated by a protracted and violent transition in Zimbabwe and South Africa, which would probably enhance the political appeal of ideologies having leftist, anti-foreign and perhaps racial components. Even apart from violence actually spilling over the borders, the political effects of neighboring wars would probably be considerable.

II

ECONOMIC OVERVIEW

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

II. ECONOMIC OVERVIEW

A. Economic Structure

Since independence, Botswana's economy has grown dramatically. In ten years its Gross Domestic Product (GDP) has expanded at a compound annual rate of almost 20 percent in nominal terms, probably 15 percent a year in real terms, reaching over \$330 million in 1976/77. (See Table II-1.) Major developments in mining, particularly within the last six years, and sizeable increases in cattle production and prices during most of this period have been primarily responsible for such growth.

Table II-2 illustrates these trends. It shows that over the period 1965 - 76/77 mining has grown at a compound rate of almost 45 percent, expanding its share in GDP from 0.6 percent in 1965, to over 8 percent in 1973/74. It is expected to comprise 12.3 percent at the end of financial year 1976/77.

The impact of the mining sector, as large as it seems, is nonetheless underestimated if the growth of the building and construction sector is ignored. Much of this sector's output was directly related to the construction of the Selebi-Pikwe copper-nickel mine, particularly from 1972 to 1974. In 1973/74, those mining and construction sectors accounted for almost 20 percent of GDP.

Despite sizeable growth (16 percent per annum from 1965 to 1976/77), Botswana's agricultural sector (predominantly cattle raising) now has a substantially lowered share of GDP, from 45 percent in 1968/69 to 25 percent in 1976/77. Mining has increased its share concomitantly. The obvious result is diversification of the economy, reducing somewhat the country's dependence on cattle, which nonetheless remains extremely important.

In the later years growth in real GDP slowed down. Real GDP probably did not increase at all in 1974/75, and probably increased by only 6 percent in 1975/76. This resulted from the completion of the construction of the Selebi-Pikwe mine, the failure to bring the mine into production and increased oil prices.

Over the next five years, the economy is expected to continue growing but at a somewhat slower rate of 9.6 percent per year in real terms. Mining is expected to continue growing quite rapidly, expanding its share of GDP to over 20 percent by 1981. Agriculture's share, in turn, is projected to fall to around 20 percent while the shares of the other sectors will probably remain fairly stable (Tables II-3 and II-4). Thus the dependence on two main sectors, cattle and mining, is expected to continue, with their relative importance in terms of GDP equalizing over the next five years. In terms of citizen incomes, however, cattle will remain predominant, since a sizeable proportion of mining income accrues to non-citizens.

The growth of per capita GDP mirrors fairly well the growth of GDP as a whole. Between 1965 and 1975/76, per capita GDP grew at an annual rate of 17 percent, from R62.4 in 1965 to over R345 (\$396.7) in 1975/76. (See Table II-5.) These

TABLE II-1

GROSS DOMESTIC PRODUCT (GDP)
1965 - 1975/6^{1/}
(millions of Rand)

	<u>1965</u>	<u>1966</u>	<u>1967/8</u>	<u>1968/9</u>	<u>1971/2</u>	<u>1973/4</u>	<u>1974/5</u>	<u>1975/6</u>
GDP	32.8	36.8	43.8	51.2	103.6	190.9	202.3	234.17
Annual Rate of Growth ^{2/}	--	12.1	--	16.9	23.5	30.6	6	16
Avg. Annual Rate of Growth (1965-76/77:)	19.7%							

II-2

^{1/} 1965 and 1966 are on a calendar year basis; years after that are on an accounting year basis (July to June). Data for 69/70, 70/71 and 72/73 are missing.

^{2/} Rates of growth between years for which intervening year(s)' data are missing are taken as an average annual growth rate over the period. No rate is calculated for 67/68 since the figure before is not comparable.

TABLE II-2

INDUSTRIAL ORIGIN OF THE (GDP) AT CURRENT MARKET PRICES

Gross Domestic Product

Compounded
Annual
Growth Rate
19.5-1976/77

INDUSTRIAL SECTOR	1965		1966		1967/8		1968/9		1971/2		1973/4		1976/7				
	#	%	#	%	#	%	#	%	#	%	#	%	#	%			
Agriculture, Forestry, Hunting and Fishing	11.1	33.8	14.5	39.4	18.3	41.7	23.2	45.3	34.2	33.0	61.2	32.0	75.8	25	16		
Mining, Quarrying and Prospecting	.2	.6	.0	.0	.7	1.6	.2	.4	11.2	10.8	15.9	8.3	36.7	18.3	43.4		
Manufacturing	3.8	11.6	2.9	7.9	3.6	8.2	2.8	5.5	5.1	4.9	10.1	5.3	16.2	5.4	12.1		
Water and Electricity	.2	.6	.3	.8	.3	.7	.3	.6	1.3	1.2	3.4	1.8	77	2.6	30.4		
Building & Construction	2.1	6.4	2.1	5.7	2.0	4.5	1.0	3.7	10.0	9.6	21.1	11.0	18.1	6.1	17.9		
Wholesale & Retail Trade, Restaurants & Hotels	6.2	18.9	6.8	18.5	5.0	11.4	5.1	10.0	17.5	16.9	35.1	18.4	64.2	21.5	19.5		
Transport, Storage and Communication	2.7	8.2	3.0	8.1	2.4	5.5	3.4	6.6	3.8	3.7	5.3	2.8	9.1	3.2	10.1		
Banking, Insurance, Real Estate, Ownership of Dwellings & Business Services	2.1	6.4	2.4	6.5	2.9	6.6	3.5	6.8	5.3	5.1	10.9	5.7	24.3	8.1	20.6		
General Government	4.5	13.7	4.9	13.3	7.7	17.5	9.5	18.5	11.9	11.5	18.2	9.5	31.5	16.5	16.2		
Household, Social and Community Services	—	—	—	—	1.0	2.3	1.3	2.5	3.5	3.4	9.7	5.0	15.1	5.1	22.6		
TOTAL	32.8	100.2	36.8	100.2	43.8	100	51.2	99.9	99.9	103.6	100.1	99.8	28.7	9.7	18.4		

Source: 1965-1973/74, Botswana National Accounts and Selected Indicators;
1966-1976, Government Printer, Gaborone; 1976/77, Botswana Authorities.

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TABLE II-3

PROJECTED GROWTH OF GROSS DOMESTIC PRODUCT 1976/77-1980/81
 (millions of Pula at 1976/77 market prices)

	1976/77	1977/78	1978/79	1979/80	1980/81
Agriculture, Fishing, Forestry and Hunting	75.8	78.5	81.1	83.5	89.3
Mining, Quarrying and Prospecting	36.7	62.8	68.7	88.4	93.3
Manufacturing	16.2	17.7	19.1	22.0	27.0
Water and Electricity	7.7	8.5	8.9	9.1	9.6
Construction	18.1	21.8	23.1	23.6	23.8
Trade, Hotels & Restaurants	64.2	68.8	72.9	75.0	79.0
Transport & Communications	9.1	9.6	10.9	11.8	13.0
Finance, Insurance, Business Services, Real Estate	24.3	26.2	28.4	30.6	33.0
Community and Personal Services	15.1	16.2	17.6	19.9	20.2
General Government	31.5	33.3	36.1	39.4	43.2
TOTAL	298.7	343.6	366.7	403.3	431.2
Percentage increase over previous year	--	14.9	6.8	10.0	7.0

Source: Botswana Authorities

TABLE II-4
 PROJECTIONS OF GROSS DOMESTIC PRODUCT (GDP)
 1976/77 - 1980/81
 (millions of Pula at 76/77 market prices)

	1976/77	1977/78	1978/79	1979/80	1980/81
GDP	298.7	343.3	366.7	403.3	431.2
Percentage Increase Over Previous Year	27.2 ^{1/}	14.9	6.8	10.0	7.0

^{1/} Based on IMF Projection

Source: Botswana Authorities

31X

TABLE II-5
PER (RESIDENT) CAPITA GROSS DOMESTIC PRODUCT (GDP)
1965 - 1975/76
(Rands/Person)

	1965	1966	1967/8	1968/9	1971/2	1973/4	1974/5	1975/6
Per Capita GDP	62.4	68.5	78.8	90.5	171.5	299.1	308.5	345.4
Annual Growth Rate		9.8		14.8	21.3	27.8	3.1	12
Average Annual Growth Rate (1965 - 1975/6)								17%

9-II

1 : 67/68, 1st July of later year used for population. ,75/76, 30th September 1976.

Source: GDP: Same as Table 1; De facto population from Table 1, Botswana National Accounts and Selected Indicators, 1966-76, Government Printer Gaborona.

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figures should be treated with caution, however. Per capita GDP figures are presumably meant to convey some measure of welfare. When the distribution of income is highly unequal between groups of people, however, it is commonly known that per capita GDP can obscure more than it reveals. This appears to be the case in Botswana where income distribution is quite skewed. One of the most important dimensions of Botswana's distribution is that between citizens and non-citizens. No time series of that distribution appears to exist, but estimates for the year 1976/77 suggest that only 59 percent of GDP actually accrued to Botswana citizens. The same source projected that in 1981 the citizen share will drop to 54 percent.

It is not unlikely that, as is expected for the next five years, the rate of growth of citizen per capita GDP in the past five years has been below the growth rate of per capita GDP as a whole, particularly given the high rate of growth of the mining sector dominated by foreign investment. Moreover, income is relatively poorly distributed between citizens, with the rural sector having a Gini Coefficient of .52 in 1974/75, and the whole country a coefficient of .57 in 1971/72.

B. Balance of Payments

Balance of payments data are only available for the years 1971/75, and even these are poor. Until August 1976, Botswana used the South African Rand as its legal tender, and the compilation of balance of payments data was not given a high priority.

Despite the probable imprecision of the figures, however, the major trends are clear. Botswana has run persistent balance of trade deficits which have been more than compensated for by inflows of public and private foreign capital, yielding overall balance of payments surpluses. (Table II-6.)

Balance of payments forecasts for the current year ending in June, and for the next financial year show that an overall balance of payments deficit of 7.2 million rand is expected for the current year while balance of payments surpluses are expected to reappear the following year. Future forecasts are generally sanguine, with trade projected to be balanced by 1980/81. These forecasts are based on the assumption that there will be no major political or economic disruptions. (See Table II-7.)

Botswana's economy has become more open since independence. Its imports were equal to 51 percent of GDP in 1966 and 67 percent in 1975, while exports were equal to 29 percent and 45 percent of GDP in 1966 and 1975 respectively. (Tables II-8 and II-9.) The increase in export share reflects the export-led growth that has been occurring in Botswana, while the increased share of mining in exports from 17.7 percent to over 50 percent in 1975 reflects the mining-led growth in exports. Beef exports are still of substantial importance having grown by an annual rate of 20 percent from 1971 to 1975, comprising over 34 percent of all exports in the latter year. On the import side, food,

TABLE II-6

BOTSWANA: BALANCE OF PAYMENTS ESTIMATES, 1971-76
(in millions of rand)

	1971	1972	1973	1974	1975	1976 ^{1/}
Exports, f.o.b.	27.4	44.3	63.7	74.3	92.7	111.1
Imports, c.i.f.	-55.6	-75.7	-94.7	-123.9	-160.3	-176.9
<u>Balance of trade</u>	<u>-28.2</u>	<u>-31.4</u>	<u>-31.0</u>	<u>-49.6</u>	<u>-67.6</u>	<u>-65.8</u>
International freight, insurance, and other transportation (net)	8.3	8.8	9.8	11.4	13.3	14.8
Investment income (net)	-6.1	-24.5	-26.0	-12.6	5.6	-6.2
Travel (net)	0.9	2.1	3.8	1.7	2.0	3.2
Other services (net)	-9.7	-16.3	-18.3	-16.6	-13.6	-17.1
<u>Balance of goods and services</u>	<u>-34.8</u>	<u>-61.3</u>	<u>-61.7</u>	<u>-65.7</u>	<u>-60.3</u>	<u>-71.1</u>
Transfers (net)	5.4	8.5	14.3	7.8	9.4	10.6
<u>Balance on current account</u>	<u>-29.4</u>	<u>-52.8</u>	<u>-47.4</u>	<u>-57.9</u>	<u>-50.9</u>	<u>-60.5</u>
Private nonmonetary long-term capital	27.2	46.3	36.7	30.3	27.1	--
Private nonmonetary short-term capital ^{2/}	-1.6	-5.2	-9.1	2.0	14.3	--
Government capital	11.6	28.0	25.1	34.2	34.5	--
Errors and omissions	-1.0	2.2	9.0	-0.4	-13.9	--
<u>Overall surplus (ex- cluding allocation of SDRs)</u>	<u>6.8</u>	<u>18.5</u>	<u>14.3</u>	<u>8.2</u>	<u>11.1</u>	<u>--</u>
Allocation of SDRs	0.4	0.4	--	--	--	--
<u>Overall surplus (in- cluding allocation of SDRs)</u>	<u>7.2</u>	<u>18.9</u>	<u>14.3</u>	<u>8.2</u>	<u>11.1</u>	<u>--</u>
<u>"Monetary movements"^{3/}</u>	<u>-7.2</u>	<u>-18.9</u>	<u>-14.3</u>	<u>-8.2</u>	<u>-11.1</u>	<u>--</u>

Sources: IMF staff estimates for 1971-74; Botswana Central Statistics Office for 1975; and staff forecast for 1976.

^{1/} Forecast.

^{2/} Excludes estimated change in currency in circulation.

^{3/} Comprises changes in government balances held outside Botswana, the commercial banks' net foreign position, and currency in circulation.

TABLE II-7
BALANCE OF PAYMENTS FORECAST
(millions of 76/77 Pula)

	1976/77	1977/78
<u>CURRENT ACCOUNT</u>		
Exports, f.o.b.	129.9	160.9
Imports, c.i.f.	165.0	176.1
<u>BALANCE OF TRADE</u>	-35.1	-15.1
Net Imports of Services	-31.2	-32.1
Net Investment and Migratory Incomes	-12.6	- 7.9
Net Current Transfers	12.8	13.0
<u>BALANCE ON CURRENT ACCOUNT</u>	-66.1	-42.2
<u>CAPITAL ACCOUNT</u>		
Net Government	17.5	28.5
Net Private Short-Term Capital	-5.5	-.2
Net Private Long-Term Capital	46.9	31.2
Change in Reserves (-increase)	7.2	-17.3

Source: Botswana Authorities

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TABLE II-8

EXPORTS, F.O.B., BY MAJOR
COMMODITY GROUP 1966 - 1975
(millions of Rand)^{1/2/}

	1966	1967	1968	1969/ ^{3/} 70	1970/ ^{3/} 71	1971	1972		1973		1974		1975		
						#	0/0	#	0/0	#	0/0	#	0/0	#	0/0
Meat and Meat Exports	--	--	--	--	--	16.4	54.8	18.6	41.6	30.8	57.1	31.9	39.9	36.4	36.7
Live Animals	--	--	--	--	--	NA	--	--	0	.1	1.2	.1	.1	.1	.1
Hides and Skins	--	--	--	--	--	.6	2.0	.8	1.9	1.6	2.7	1.6	5.0	1.5	1.4
Diamonds	--	--	--	--	--	5.3	17.7	19.5	43.5	20.0	33.1	30.1	36.9	32.1	30.6
Copper-Nickel Matte	--	--	--	--	--	--	--	--	0	--	--	8.2	10.1	22.0	20.1
Textiles	--	--	--	--	--	NA	--	NA	--	1.5	2.5	1.6	2.0	2.5	2.3
All other goods	--	--	--	--	--	7.7	25.6	5.8	13.0	5.0	8.4	8.0	7.8	10.5	10.0
Total Exports	10.8	7.2	7.5	13.1	20.0	30.0	100.0	44.8	100.0	59.0	49.8	81.7	99.9	105.1	100.0

^{1/} Commodity breakdowns unavailable for years prior to 1971.

^{2/} Percentages do not all add to 100 due to rounding.

NA - Not available

^{3/} Financial year, 4/1 - 3/31.

Source: 1966-1970/71, Botswana National Accounts and Selected Indicators, 1971-1975, p. 12, Government Printer, Gaborone, 1971-1975, Statistical Bulletin, September 1976, V. 1.1-No. 2, p.10.

TABLE II-9

IMPORTS, C.I.F., DUTY INCLUSIVE

BY MAJOR COMMODITY GROUP

1966 - 1975

(millions of Rand) 1/, 2/

	1966	1967	1968	1969/ 70 ^{3/}	1970/ 71 ^{3/}	1972	1973		1974		1975	
						#	#	0/0	#	0/0		
Food Products	--	--	--	--	--		12.8	11.5	14.0	11.5	18.5	
Live Animals	--	--	--	--	--	8.1	4.6	.1	.4	.3	.2	
Beverages & Tobacco	--	--	--	--	--	3.1	3.7	4.9	4.3	6.1	9.4	
Mineral Fuels	--	--	--	--	--	3.8	4.6	6.2	5.5	13.7	15.4	
Chemicals	--	--	--	--	--	2.9	3.4	5.1	4.5	5.9	7.0	
Vehicles	--	--	--	--	--	11.2	13.3	16.2	14.5	18.0	19.6	
Non-Electrical												
Machinery	--	--	--	--	--		17.5	15.6	7.7	8.0	11.7	
Electrical												
Machinery	--	--	--	--	--	22.4	26.1	6.3	5.6	4.7	4.9	
Metals & Metal												
Products	--	--	--	--	--	29.6	35.2	11.4	10.2	10.1	15.8	
Paper & Paper												
Products	--	--	--	--	--		2.4	2.1	3.4	2.3	4.5	
Textiles	--	--	--	--	--		8.4	7.5	11.4	9.4	13.7	
Other Manufactures	--	--	--	--	--		9.6	8.6	12.3	10.1	16.9	
Other Goods	--	--	--	--	--	2.8	3.3	10.8	9.7	11.7	18.4	
TOTAL	18.8	22.4	23.2	34.3	44.8	84.0	100	111.7	100	12.5	100	99.9

1/ Commodity breakdowns unavailable for years 1966-1970/71.2/ Percentages do not always add to 100 due to rounding.3/ Financial years 4/1 - 3/31.

Source: 1966-1970/71, Botswana National Accounts and Selected Indicators, 1966-76, p. 11, Government Printer, Gaborone, 1972-1975, Statistical Bulletin, September 1976, Vol. 1.1-No. 2; Government Printer Gaborone, pp. 8 and 9.

petroleum products, vehicles, and capital goods have predominated. During construction of the Orapa and Selebi-Pikwe mines (1972-73), a great deal of machinery and other capital goods were imported.

C. Terms of Trade

The increase in mining and cattle export value has been due to increases both in quantities produced and in producers' prices over most of the period. Between 1968 and 1973, the terms of trade improved almost 45 percent, with 30 percent occurring between 1971 and 1973. (Table II-10.) Between 1973 and 1975, however, the terms of trade deteriorated due to import price increases resulting from increases in the price of oil, the rand devaluation in 1975, and a decrease in beef export prices.

D. Prices

Price movements in Botswana closely parallel those in South Africa. Whereas between March 1969 and March 1970, prices rose in Botswana by less than 2 percent, during a comparable period in 1975 and 1976, prices rose by more than 12 percent. (Table II-11 and Figure II-1 illustrate these points.)

E. Planning

The Ministry of Finance and Development Planning constructs a five-year plan which is rolled over every three years. The Ministry is highly efficient, extremely powerful and seems to have a great deal of control over major developments in the Botswana economy. As a result, its plan is quite important as a guideline for the future development of the country.

The Ministry is just completing the fourth National Development Plan (NDP IV) which should have been published around January 1977. During the next plan period, which goes from April 1977 to April 1981, the government intends to place almost two-thirds of its development expenditures in the agriculture, education and transportation sectors, including over one-fourth of its expenditures in transportation. (Table II-12.) In general, 36 percent of the expenditure will be in the urban areas, 29 percent in the rural areas, and 32 percent in communications. Approximately 80 percent of the population lives in the rural areas.

Government forecasts of sectoral GDP growth over the period reflect the overall economic plan of the government. Over that period, mining's contribution to GDP is expected to grow the fastest, at 26.3 percent per year, reflecting primarily the expected, large expansion in diamond mining. Agricultural output is expected to grow rather slowly, at only 4 percent per year. Thus, mining's share in GDP is expected to increase from 12.3 percent of GDP in 1976/77 to 21.6 percent in 1980/81, while agriculture's share will decline from 25.3 percent in 1976/77 to 20.7 percent in 1980/81. Manufacturing is forecast to grow at 13.6 percent a year, but from a very small base. (Tables II-12 and II-13.)

TABLE II-10
EXTERNAL TERMS OF TRADE*

	1968	1969	1970	1971	1972	1973
Export Price Index ^{1/}	100.0	100.4	110.2	121.5	150.3	195.7
	51.1	51.3	56.3	62.1	76.8	100.0
Import Price Index ^{2/}	100.0	102.3	105.5	110.4	119.3	135.1
	74.0	75.7	78.1	81.7	88.3	100.0
Terms of Trade	100.0	98.3	104.5	110.1	125.8	144.9
	69.0	67.8	72.1	76.0	86.8	100.0

^{1/} IMF staff estimates of the prices of major exports.

^{2/} Approximated by wholesale price index in South Africa.

Source: World Bank

* (Figures are unavailable for 1974 and 1975.)

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TABLE II-11
 COST OF LIVING INDICES BY INCOME GROUP 1969-1976^{1/}
 (June 1973 = 100)

March	Food, beverages and tobacco			All items		
	Income group			Income group		
	Low	Middle	High	Low	Middle	High
1969	80.3	80.6	79.1	83.1	83.8	79.2
1970	83.3	82.1	80.8	85.1	85.0	83.8
1971	82.5	82.3	80.3
1972	84.3	85.4	85.7
1973	92.8	94.7	99.0
1974	118.7	118.8	117.7	116.2	114.2	109.5
1975	131.8	133.3	134.5	132.6	128.9	123.0
1976	142.1	142.2	147.2	143.9	144.9	142.8

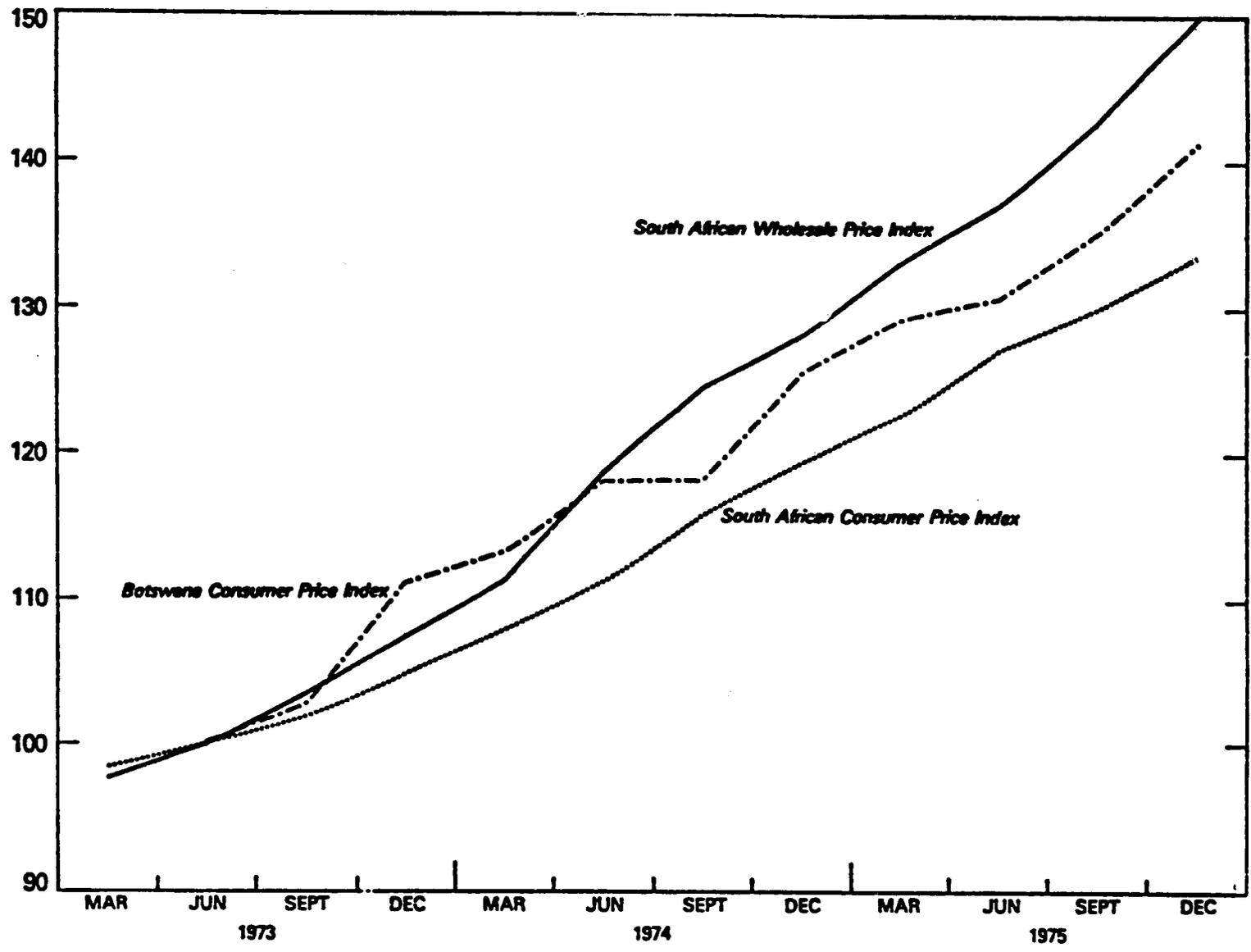
Notes: ^{1/} Source: Central Statistic Office, Botswana National Accounts and Statistics, 1966-1976, Government Printer, Gaborone.

^{2/} Figures are not quite comparable with previous years due to recalculation of weights.

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FIGURE II-1
BOTSWANA
PRICE INDICES 1973 - 1975
(June 1973 = 100)

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Source: IMF

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TABLE II-12

CORE DEVELOPMENT EXPENDITURE GUIDELINES
1976/77 - 1980/81
(millions of 76/77 Pula)
BY MINISTRY

	#	%
1. Agriculture	24.1	9.6
2. Commerce and Industry	4.5	1.8
3. Mineral Resources and Water Development	16.0	6.4
4. Education	39.8	15.9
5. Health	14.0	5.5
6. Works and Communication		
Roads, Airfields, Railways	67.3	26.9
Postal & Telecommunication	11.9	4.8
Buildings, Central Transport Organization	6.4	2.6
7. Local Government and Land's		
Urban Development	40.0	16.0
Rural Development	12.1	4.8
8. Home Affairs	1.8	.7
9. Finance and Development Planning	3.6	1.4
10. Office of The President	<u>8.5</u>	<u>3.4</u>
TOTAL	250.0	99.8

Source: Botswana Authorities

TABLE II-13

PROJECTED ANNUAL GROWTH AND SECTORAL DISTRIBUTION OF GDP

	Growth rates % pa		Percentage Distribution	
	1976/77-1980/81	1973/74	1976/77	1980/81
Agriculture, Fishing, Forestry and Hunting	4.3	32.0	25.3	20.7
Mining, Quarrying, Prospecting	26.3	8.3	12.3	21.6
Manufacturing	13.6	5.3	5.4	6.3
Water & Electricity	5.7	1.7	2.6	2.2
Construction	7.1	11.1	6.1	5.5
Trade, Hotels and Restaurants	5.3	18.3	21.5	18.3
Transport and Communications	9.3	2.8	3.0	3.0
Finance, Insurance, Business Services, Real Estate	8.0	6.7	8.1	7.6
Community and Personal Service	7.5	4.3	5.1	4.7
General Government	8.2	9.5	10.5	10.0
TOTAL	9.6	100.0	100.0	100.0

Source: Botswana Authorities

F. Government Budget

From the time of independence until 1972/73, Botswana's internal revenue sources were insufficient to cover its central government's recurrent budget. The deficit was filled by grants-in-aid from the United Kingdom, on which Botswana had been expected to depend for quite some time. Its development budget was, of course, financed completely from external sources.

Primarily as a result of the renegotiated Southern African Customs Union Agreement in 1969, (combined with the large imports associated with the Shashe project) and the opening of the Orapa Diamond Mine in 1971, Botswana's budgetary position has radically changed. In 1972/73 Botswana had a domestic surplus on its recurrent budget and for the first time, the government was able to devote domestic budgetary funds to the capital (development) budget. In 1973/74 Botswana continued to run recurrent surpluses, contributed rather substantial resources to its capital budgets, and still managed to accumulate sizeable government balances. (See Table II-14.)

The revenue side of Botswana's central government budget is highly dependent on two sources: customs revenue and income taxes. From 1971/72 to 1976/77, between two-thirds and three-fourths of Botswana's revenues came from these sources. Their relative importance has changed over that period, with income tax revenues predominating more recently. The rest of the central government's revenue comes from mining royalties and licenses of one sort or another. (See Table II-15.)

On the expenditure side, recurrent spending has increased by 149 percent between 1971/72 and 1975/76. That growth has been no more rapid than the growth of GDP during the same period (maintaining a fairly constant share of 1.8 percent of GDP) and less rapid than the growth of recurrent revenue. The most rapid increase in recurrent expenditures has been in transfers to local governments, which has increased its share from 3 percent of recurrent expenditures in 1971/72 to 9 percent in 1975/76. Also, in 1976/77 spending on education greatly increased because the central government took over from local governments the cost of teachers' salaries. (Table II-16.) Government wages increased by 175 percent during that period as a result of the wage increases granted in 1973 after many years of stability in public wages. The government has instituted an income policy whereby all wages in the private sector are tied to wages in the public sector. Thus, public sector wages are extremely important for the economy as a whole.

The capital (development) budget has grown markedly within the last five years. Between 1971/72 and 72/73 it more than doubled. This great expansion was due primarily to the Sashe project which consisted of the Selebi-Pikwe copper-nickel mine and massive complementary infrastructure. During the peak years of the project's construction, (1972/73 - 1973/74) government expenditure on it constituted almost two-thirds of the development budget.

TABLE II-14

SUMMARY OF CENTRAL GOVERNMENT OPERATIONS
(in millions of Pula)

	1971/1972	1972/1973	1973/1974	1974/1975	1975/1976	1976/1977
Recurrent Revenue	16.80	26.29	39.20	58.49	65.49	61.80
Recurrent Expenditure	18.17	24.03	25.86	37.40	45.24	51.93
Surplus or Deficit (-) on Recurrent Budget	- 1.37	2.26	13.34	21.09	20.25	9.82
Capital Expenditure	12.25	29.88	30.35	32.79	33.09	33.00
Net Domestic Lending	-----	.22	2.08	- 2.15	- 1.48	- 6.18
Overall Surplus or Deficit (-)	-13.62	-27.84	-19.09	- 9.55	-11.36	-22.00
Financing: Grants from Abroad	.60	.21	.68	6.44	10.26	5.02
Foreign Loans (net)	11.38	27.30	23.38	16.69	7.36	11.33
Borrowing	11.79	27.78	23.84	18.52	9.91	16.78
Amortization	.41	.48	.46	1.83	2.55	5.40
Changes in Government balances (-increase)	1.64	.33	- 4.97	-13.58	- 6.26	5.60

Source: IMF

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TABLE II-15

DOMESTIC RECURRENT REVENUES BY MAJOR SOURCE
1966/67 to 1976/77
(millions of rand)^{1/}

	1966/67		1967/68		1968/69		1969/70		1970/71		1971/72		1972/73		1973/74		1974/75		1975/76		1976/77	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Customs and Excise	1.1	17.7	1.7	30.4	1.4	20.6	5.1	48.1	4.6	40.3	8.3	48.5	12.5	46.5	20.9	51.3	30.4	50.1	24.6	33.8	15.4	23.9
Taxes and Duties	2.2	35.5	1.5	26.8	2.3	33.8	2.4	22.6	2.9	25.4	3.8	22.2	5.9	21.9	8.9	21.9	16.4	27.0	22.8	31.4	27.7	43.0
Licenses	.3	4.8	.3	5.4	.4	5.9	.4	3.8	.5	4.4	.6	3.5	.6	2.2	.7	1.7	.9	1.5	.7	1.0	.9	1.4
Departmental Services Receipts	.2	3.2	.3	5.4	.4	5.9	.5	4.7	.7	6.1	1.0	5.8	1.1	4.1	1.3	3.1	2.1	3.5	2.4	3.3	2.8	4.3
Posts & Telegraphs	.8	12.9	.6	10.7	.8	11.8	.9	8.5	1.0	8.8	1.3	7.6	1.7	6.3	2.0	4.9	2.5	4.1	2.5	3.4	3.1	4.8
Property Income:																						
Minerals	—	—	—	—	—	—	—	—	—	—	.9	5.3	3.0	11.1	2.8	6.9	3.6	5.9	15.2	20.9	7.8	12.1
Other	.6	9.7	.6	10.7	.7	10.3	.7	6.6	1.1	9.6	.4	2.3	1.0	3.7	1.8	4.4	.8	1.3	.5	.7	2.2	3.4
Reimbursements	.7	11.3	.2	3.6	.1	1.5	.1	.9	.1	.9	.3	1.7	.6	2.2	.8	2.0	1.5	2.5	1.6	2.2	2.5	3.9
Interest	.1	1.6	.1	1.8	.1	1.5	.2	1.9	.2	1.7	.2	1.1	.4	1.5	.9	2.2	1.8	3.0	2.8	3.8	1.5	2.3
Other Revenue	.2	3.2	.3	5.4	.6	8.8	.1	.9	.3	2.6	.4	2.3	.3	1.1	.4	1.0	.4	.7	.3	.4	.4	.6
Total Domestic Recurrent Revenue	6.2	99.9	5.6	100.2	6.8	100.1	10.6	98.0	11.4	99.8	17.1	100.3	26.9	100.6	40.7	99.4	60.7	99.6	72.7	100.9	64.4	99.7

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^{1/} Numbers in columns do not always add up correctly due to uncorrectable errors in data sources.

^{2/} Preliminary figures.

^{3/} Estimates.

Source: Botswana National Accounts and Selected Indicators, 1966-76, Government Printing Office, Gaborone, p. 26.

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TABLE II-16

BOTSWANA: GOVERNMENT RECURRENT EXPENDITURE, 1971/72-1976/77
(in millions of rand)

	1971/72	1972/73	1973/74 Actual	1974/75	1975/76	1976/77 Estimate
General Services	<u>6.51</u>	<u>11.21</u>	<u>10.59</u>	20.04	<u>19.55</u>	<u>21.13</u>
Administration	5.00	9.42	8.51	17.44	16.37	17.90
Internal Security	1.51	1.79	2.08	2.60	3.18	3.23
Social Services	<u>3.18</u>	<u>3.81</u>	<u>4.58</u>	<u>7.24</u>	<u>9.13</u>	<u>14.95</u>
Education	1.76	2.05	2.49	3.89	5.16	10.56
Health	1.27	1.53	1.84	3.07	3.97	4.39
Community Development	0.15	0.23	0.25	0.28	--	--
Economic Services	<u>7.04</u>	<u>7.55</u>	<u>7.43</u>	<u>10.41</u>	<u>11.35</u>	<u>16.04</u>
Agriculture	2.45	2.63	3.07	4.61	5.54	5.76
Commerce and Industry	1.54	2.05	0.71	1.12	1.37	1.51
Works & Communications	3.05	2.87	3.65	4.68	4.44	8.77
Post and Telegraph	<u>0.84</u>	<u>1.19</u>	<u>1.18</u>	<u>2.52</u>	<u>3.05</u>	<u>3.20</u>
Interest on Public Debt	<u>0.66</u>	<u>0.71</u>	<u>0.69</u>	<u>1.22</u>	<u>1.37</u>	<u>1.23</u>
Transfers to Local Governments	<u>0.60</u>	<u>0.70</u>	<u>1.50</u>	<u>2.65</u>	<u>4.40</u>	<u>1.77</u>
Unclassified Expenditure	<u>0.18</u>	<u>0.05</u>	<u>1.07</u>	<u>0.04</u>	<u>0.04</u>	<u>0.04</u>
Total Recurrent Expenditure	<u>19.01</u>	<u>25.22</u>	<u>27.04</u>	<u>44.12</u>	<u>48.89</u>	<u>58.36</u>
Adjusted Total ^{1/} of Which: Wages & Salaries ^{2/}	<u>18.17</u> 7.55	<u>24.03</u> 8.19	<u>25.86</u> 9.01	<u>37.40</u> 16.92	<u>45.24</u> 20.74	<u>51.98</u> 22.20

Source: IMF

^{1/} Excludes post and telegraph and principal on public debt (as well as appropriations from revenue.)

^{2/} Includes Civil Service and Teaching Service.

The development budget, having been increased greatly by the Sashe project, nonetheless remained at its new higher level after the Sashe construction tapered off in the years 1974/75 and 1975/76. The new thrust of the capital budget was in road construction (Works and Communications) and rural development (Local Government and Lands) (Table II-17), the former reflecting Operation Lifeline designed to expand Botswana's transportation links with the north, the latter predominantly related to the Accelerated Rural Development Program (ARDP) which intended to transfer a large amount of resources to the rural areas in a short period of time. (See Table II-17.)

During the five years, 1971/72 - 1976/77, the Botswana Government began financing a portion of its development budget reaching over 30 percent in 1974/75 and 1975/76. The remainder of financing came from foreign sources.

G. General Development Problems

There are two major development problems facing Botswana. The first can be termed external over-dependence and the second, uneven development. The first refers to the great degree to which Botswana's capital, expertise, important transportation facilities and trade routes are owned or controlled by foreigners. Botswana is landlocked and depends on its neighbors for access to the sea and for its only railway. 80 percent of the people with post-secondary education working in Botswana are expatriates. Botswana's mines are predominantly foreign-owned and operated. Almost two-thirds of its development budget over the next five years is expected to be financed by foreign aid. These factors, among others, represent external over-dependence.

The second problem, uneven development, refers to the fact that while 80 percent of Botswana's population lives in the rural areas, and half of them own no cattle at all, the bulk of Botswana's economic growth over the past ten years has been concentrated in the mining, cattle and government sectors. The distribution of income between the rural and urban sectors is highly skewed, probably contributing to the high rate of urban growth in recent years (between 10 to 16 percent per year), and its attendant problems. Within the rural sector itself the distribution of income is among the least equal in the world. The government has enunciated a development strategy which, in the short run, has exacerbated (and, through its successes, has created) the uneven pattern development. The apparent expectation is that in the long term, the strategy will solve that problem and the first one as well.

Essentially, the government's proclaimed plan, at least in the last few years, has been to intensively develop the mining sector, using the funds thus generated to develop agriculture and labor intensive manufacturing. In the early 70's, however, the non-cattle owning rural areas were almost completely ignored. In the last two years of the plan period (1974/75, 1975/76), that neglect was partly rectified with the institution of the Accelerated Rural Development Program in 1973/74, which has resulted in moderate improvements

TABLE II-17

BOTSWANA: PUBLIC CAPITAL EXPENDITURE, 1971/72-1975/76
(in millions of rand)

	1971/72		1972/73		1973/74		1974/75		1975/76	
	#	%	#	%	#	%	#	%	#	%
Agriculture	0.43	3.5	0.59	2.0	0.52	1.7	1.71	3.8	1.26	3.8
Trade and Industry	0.06	.5	0.08	.3	0.23	.8	0.43	1.3	0.42	1.3
Mineral Resources	0.86	7.0	0.93	3.1	1.07	3.5	2.81	8.6	2.83	8.5
Finance and Development Planning	6.29	51.3	23.67	73.2	16.29	53.7	4.97	15.2	3.22	9.7
of which: At Selebi-Pickwe	(5.79)	(47.3)	(23.59)	(78.9)	(16.00)	52.7	(4.84)	(14.8)	(1.12)	(3.4)
Education	0.29	2.4	1.01	3.4	1.69	5.6	2.53	7.7	3.63	11.0
Health, Labor & Home Affairs	0.15	1.2	0.35	1.1	0.22	.7	0.59	1.8	0.65	2.0
Local Government & Lands	0.26	2.1	0.84	2.8	4.13	13.6	8.88	27.1	10.56	31.9
Works & Communications	3.86	31.5	2.28	7.6	6.11	20.1	10.65	32.5	10.03	30.3
Office of The President	<u>0.05</u>	.4	<u>0.13</u>	.4	<u>0.09</u>	.3	<u>0.22</u>	.7	<u>0.49</u>	1.5
TOTAL	12.25		29.88		30.35		32.79		33.09	

Source: Data provided by the IMF.

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in education, health facilities and other amenities in the rural areas. Yet, only 29 percent of the development budget over the next five years is slated for these regions. If this plan is followed, there is unlikely to be any major change in the uneven pattern of development in Botswana.

The current strategy has ambiguous effects on external overdependence, however. On the one hand, the expansion of high technology, capital intensive mining increases the number of needed expatriates in the mining sector, while the general expansion of development programs will probably increase the number of expatriates required elsewhere in the private sector and in the government. Although education facilities will be expanded, and the mining companies will train Botswana for technical positions, there is little doubt that dependence on expatriates will increase in the short run if this strategy is pursued.

Along other dimensions, however, external dependence itself, of the risks associated with that dependence, are likely to be reduced by the mineral-led strategy. First, as has been pointed out earlier, mining has diversified the Botswana economy, which reduces dependence on particular markets and countries. Although a major drop in beef prices would still create a great problem for Botswana, it would be less important now than five years ago, and still less critical five years from now.

The funds generated by mining have made the development budget less dependent on foreign funds. Now, even if foreign aid were to completely dry up, Botswana could engage in a moderate-sized development program.

Government surpluses generated partly by mining, directly and through the Southern Africa Customs Union, have helped to create the conditions for the successful launching of Botswana's own currency, a step which should add a measure of independence (no one knows how much). In short, although this export-led development strategy has not diminished Botswana's interdependence with the world market, it has the potential to reduce the great risks of Botswana's inherited dependence.

Though there appears to have been no basic change of heart with regard to this mineral-led strategy, there does appear to be a desire in recent months, for some change of emphasis. A survey of the peri-urban areas around Botswana's towns taken in 1974, showed that unemployment among males was 18 percent and over 40 percent for females. Many in the government would probably like to see rural development proceed at a faster pace, partly because of the disquieting effects of the apparently growing rates of unemployment and high, though perhaps falling, rates of urbanization. Since the new development plan (1976/77 - 1980/81) is still unpublished, it is not clear whether the alteration in emphasis will be translated into concrete actions.

The Government of Botswana does intend to commission a number of studies over the coming plan period evidently designed to create a strategy (or perhaps new tactics) to extend the benefits of economic growth to the bulk of Botswana's

population. These reports include a study on employment generation, one concerning migration, and an evaluation of the Accelerated Rural Development Program. Their practical effects are not likely to be felt within the next three years, however.

Outside of this basic mineral-led strategy, there are other policies and strategies which affect these problems. For example, in order to reduce external transportation dependence, the Botswana Government is planning to finish building and bituminizing a road to Zambia, and is making long-range plans to take over the Rhodesian-owned and operated railroad running through its eastern region. It also is attempting to reduce its commercial dependence on South Africa by attempting to diversify its sources of foreign capital and expertise (as in the case of a new beer brewery owned and built by a German firm). There can be high short-run economic costs to these sorts of measures, and the extent to which they ultimately make economic sense depends largely on the outcome of the extremely uncertain political situation in the whole region.

In terms of the uneven development problem, the government is instituting a radically new land-use policy to stem the rapid deterioration of range lands. This policy could have great and skewing effects on the distribution of rural incomes.

In general, most of what occurs in Botswana will affect these two major problems, and much of what the government does is a response to them. The government appears less certain of its mineral-led strategy now than it was five years ago, and the current plan period could be characterized as one in which the momentum of the past strategy will prevail, but in which a major re-evaluation might well occur.

III

**FOREIGN DONOR
ASSISTANCE**

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III. FOREIGN DONOR ASSISTANCE

Precise figures showing economic assistance by donor and project are not readily available, but Table III-1 lists each donor and its respective on-going projects.

Not surprisingly, the types of projects undertaken reflect the priorities of Botswana's capital budget. Road, education, livestock and water projects predominate. A notable absence is the relative lack of donor involvement in commerce and manufacturing projects.

TABLE III-1

- African Development Fund (ADF)
Northeast Region Water Development Study
Roads
Health Training
Improvements to Hospitals
- African Development Bank (ADB)
Extension of Telephone Exchanges
- Canadian International Development Agency (CIDA)
Airborne Magnetic Survey
Botswana Housing Corporations
Roads
Sashe Project
- Danish International Development Agency (DANIDA)
Livestock Development
Hydrological and Ecological Studies of the Okavongo
Secondary Schools and Brigades
National Museum Art Gallery
Roads
Health Training
- Danish State Loan (DSL)
Meteorological Development
Central Transport Organization
Hospital Improvements
- Frederick Ehert Foundation
Broadcasting Services
- Kredit Anstalt Fur Wiederaufbau (KFW)
Roads
- Norwegian Agency for International Development (NORAD)
University of Botswana Lesotho and Swaziland
Basic Health Facilities
Feeder Roads
Rural Roads Project
- International Bank for Reconstruction and Development (IBRD)
Secondary Schools and Brigades
Feeder Road Improvement
Road Maintenance
Livestock Development
Shashe Project
- United Congregational Church of Southern Africa (UCCSA)
Improvements to Hospitals

Interkerkelijke Co-Ordinate Commissier Voor Ontwinkldinghulp (ICCO)
Secondary School

International Development Association (IDA)
Livestock Development
Town Development

Swedish International Development Authority (SIDA)
Livestock Development
Botswana Enterprise Development
Major and Rural Water Supplies
Sand Rivers Project
Okavongo Development
Rural Power Supplies
Swaneng Hill School
Other schools (primary and secondary)
Vocational Training Center
Libraries
Tati Concession Land Development and Purchase

United Kingdom Aide Program
Agricultural Extension
Livestock Development
Integrated Farming Schemes
Evaluation of Farm Systems
Mineral Exploitation
Secondary Schools
Prisons Police
Land Development and Purchase
Roads
Broadcasting Services

United Nations Development Programme (UNDP)

United States Agency for International Development (USAID)
Study for the Northern Abattoir
Livestock Development and Range Management
Roads
Shashe Project

World Food Program (WFP)
Extension of Botswana Agricultural College
National Health Education Program
Okavongo River and Pontoon System

IV

SECTOR ANALYSES

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

IV. SECTORAL ANALYSES -- AGRICULTURE*

A. Setting

Prior to independence, virtually the entire resident population of Botswana depended for its livelihood on livestock and subsistence agriculture. Despite rather remarkable mineral-led economic growth during the last ten years, that situation has not radically changed. In 1975 80 percent of the population lived in rural areas, 80 percent of whose income depended directly or indirectly on agricultural production. In addition, numerous Batswana who live in urban areas own cattle and crops. Agriculture directly and indirectly contributed approximately 34.5 percent of Botswana's value added in 1973/74. However, even this large figure undoubtedly underestimates the proportions of Botswana citizens' incomes earned from agriculture, since much of the income from mining and trade is captured by expatriates. (No precise figures are readily available to support this contention. The analysis is complicated by the fact that non-citizens own a number of rather lucrative ranches and farms in Botswana.) Agricultural products are also quite important in Botswana's balance of payments, comprising 36.9 percent of exports in 1975.

The significance of Botswana's agricultural sector is not likely to diminish greatly in the foreseeable future. The government estimates that by 1981 only 20 percent of Botswana's work force will be able to find employment in the modern sector. Even by the year 2000, the percentage is expected to increase only to 25 percent. The rest will have to earn their livelihood in the traditional urban sector, the rural sector, or emigrate (to South Africa or elsewhere). However, there are already moderately large squatter settlements around Botswana's cities (their population in 1974 was approximately 24,000), and the government is not anxious to see them grow. At the same time, the large number of young Batswana males who are absent (between forty and sixth thousand currently work in South Africa mines) creates a family structure in Botswana's villages which the government is probably not eager to foster. Thus, from the government's viewpoint, the rural sector will have to productively employ the bulk of Botswana's population for many years to come. Assuming no dramatic increases in the number of rural industries over this period, that task will fall to agriculture.

Over the next decade and a half, Botswana's rural population is expected to increase by 40 percent. This increase will occur in a sector where over 45 percent of the rural households currently live on incomes below the poverty level, and where the distribution of income is among the least equal in the world. Furthermore, it will not be easy to increase agricultural production. The dearth and erratic nature of rainfall makes farming in Botswana extremely difficult and risky. Doubt has even been cast on the continued expansion of livestock -- the mainstay of Botswana's agriculture. Poor livestock management and overgrazing have caused serious range deterioration in many areas of

* The term "agriculture" is here used to mean livestock, crop production, hunting and fishing.

the country, particularly in the east, and continued access to Botswana's major beef export market, the European Economic Community (EEC), is uncertain. Each of these factors alone is sufficient to seriously jeopardize the future development of Botswana's agricultural sector and therefore the entire economy.

Over the last five years, the Botswana Government has become progressively more concerned about rural development. One result has been an expanding series of studies which has attempted to increase the government's understanding of the rural sector and of measures which can be taken to sustain or accelerate its development. While one rather major and some minor programs have derived from them, basic knowledge about production, employment, migration and incentive responses is still scarce. As a result, analysis of the programs and prospects for rural development remain difficult. The government is continuing to commission and carry out numerous studies and appears to be evolving a rural development strategy (which seems to be lacking at present).

B. Principal Products, Structure and Constraints

1. Livestock--Livestock, including cattle and small stock, dominates Botswana's agricultural sector. In 1974/75 livestock comprised approximately 80 percent of total agricultural production. The national herd of cattle, which was halved in the drought of 1965, has grown at a net rate of approximately 8 percent per year since 1971 and is expected to reach 3 million head in 1976.

Over 80 percent of the cattle marketed in Botswana is sold to the Botswana Meat Commission (BMC), a government parastatal which runs the only abattoir suitable for slaughtering cattle for export (Table IV-1). Due to Botswana's excellent veterinary record and adroit negotiating skill, Botswana has been able to export to the European Economic Community. That, combined with a buoyant world market generally has accounted for rapidly rising cattle producer prices until recently (Figure IV-1 and Table IV-2). Farmers' income from sales prices to the BMC totalled 27,386,000 in 1975 (Table IV-3).

Not all farmers benefit from such sales, of course. A detailed government study published recently (The Rural Income Distribution Survey) shows that 45 percent of the families living in the rural areas own no cattle at all. Furthermore, 80 percent of the families own fewer than twenty head, while 80 percent of the cattle are owned by only 20 percent of the rural households (Table IV-4 and Figure IV-2). Small stock are distributed more equally than cattle, which compensates to some extent. Furthermore, the families who own few or no cattle can nonetheless benefit from the cattle industry by working for cattle owners or borrowing cattle from them. (These cattle are called "mafisa'd".) The mafisa system is said to benefit poor farmers by providing them with draft power and milk, and on occasion, people who have borrowed cattle are allowed to keep their calves, enabling small holders to build up their herd. Yet very few people come to own cattle through the mafisa system. In 1971, only 6.7 percent of the owners surveyed acquired cattle in that way.

TABLE IV-1
 NATIONAL HERD OF CATTLE 1965-1976
 ('000)

At 1st July	Opening		Natural Increase	Offtake		Closing		At 30th June
	No.			BMC	Other	No.		
1965	1	481	-83	138	23	1	237	1 966
6	1	237	408	136	17	1	492	7
7	1	492	336	122	18	1	688	8
8	1	688	376	99	20	1	945	9
9	1	945	205	110	23	2	017	1 970
1970	2	017	248	147	26	2	092	1
1	2	092	278	162	31	2	177	2
2	2	177	163	183	40	2	117	3
3	2	117	431	198	34	2	316	4
4	2	316	473	187	38	2	564	5
5	2	564	522	189	42	2	855	6
6	2	855						7

Note: Source: Central Statistics Office and Ministry of Agriculture. The series up to 1971 is not quite comparable with the 1972-76 series. The former is based on veterinary counts, while the latter is based on two C.S.O. baseline sample surveys during 1972 and 1973. For later years a measure of increasing statistical uncertainty over time is involved. In other words, the number of cattle as at mid 1976 could be as low as 2,343 million or as high as 3,367 million -- both equally probable, etc. The margin of error, up or down, is only about the size of the freehold farm cattle population.

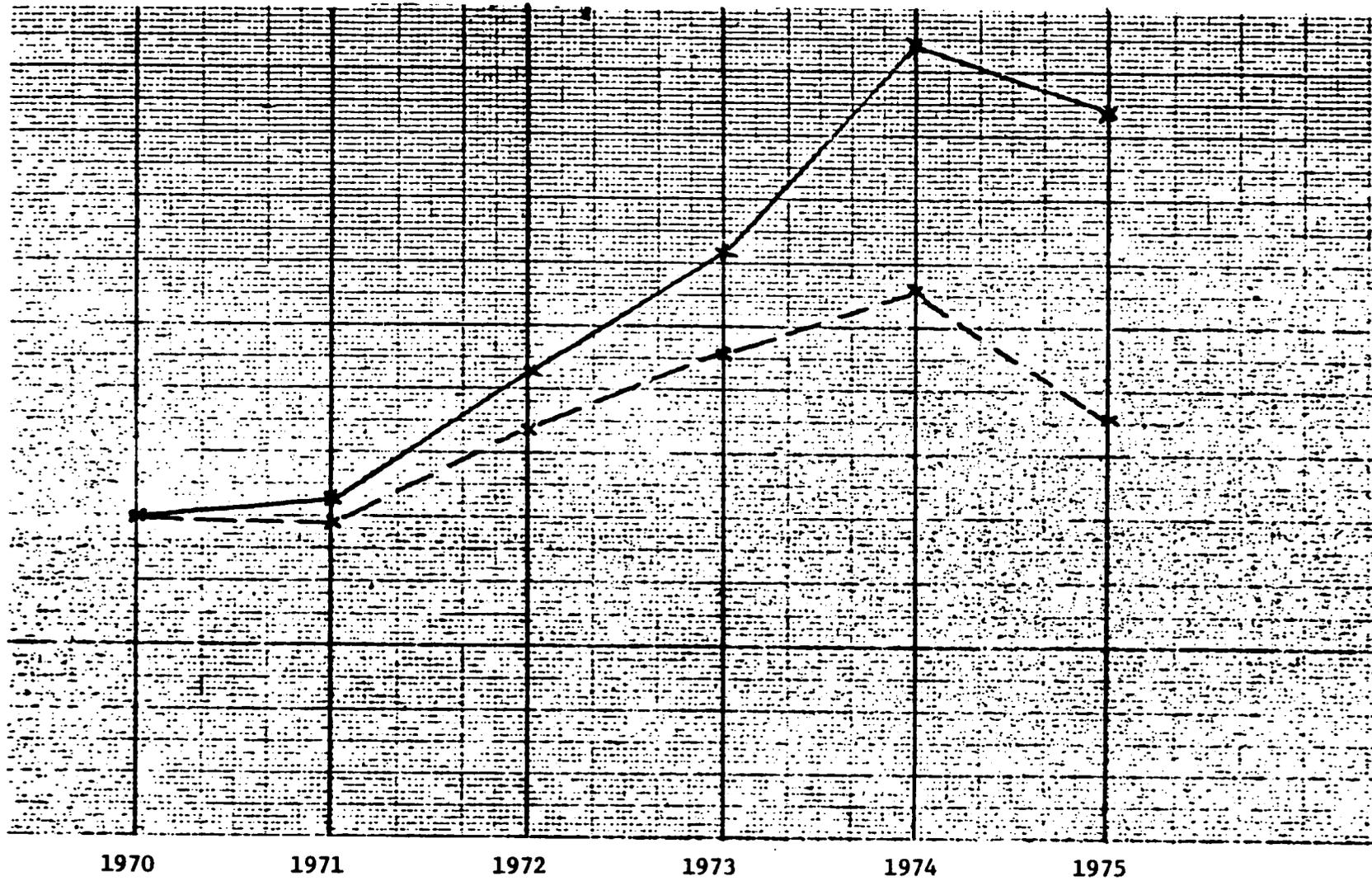
Source: Botswana Authorities

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FIGURE IV-1

BMC PRODUCER PRICES 1970/1975

— In Current Prices
- - - - - In Constant (1970) Prices



IV-4

Source: Botswana Authorities

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TABLE IV-2

BMC PRICE PER 100 Kg. CDW PAID TO PRODUCERS
1966 - 1974 PLUS BONUS PAYMENT AND AVERAGE PRICES PAID^{1/}

	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>1973</u> ^{2/}	<u>1974</u>
Super	R43.56	44.24	46.00	49.10	47.90	52.09	64.30	80.77	87.20
Prime	R38.90	39.95	41.59	44.68	44.37	46.77	58.90	71.19	83.85
1A	--	--	--	40.68	40.70	43.76	54.27	64.92	79.68
1B	R34.25	35.68	37.25	38.19	38.61	40.85	50.81	59.72	76.62
2	R31.77	33.11	34.65	34.50	34.83	37.07	46.16	57.73	75.34
3	R28.03	29.04	30.56	30.84	30.93	33.18	41.22	52.21	69.72
4	R25.50	26.58	28.07	28.34	28.34	29.84	36.62	47.82	66.62
Detained	R24.02	26.42	27.96	28.38	28.07	29.81	37.86	45.97	59.94
Condemned	R17.40	19.54	19.14	19.40	18.33	17.48	19.91	24.06	38.51
Average	R28.73	31.77	33.77	34.47	34.49	36.32	46.34	55.97	73.14
Avg. CDW in Kg.	184	214	227	228	209	197	207	194	202
Avg. Value incl. Bonus	R53.00	68.00	77.00	79.00	72.00	72.00	96.00	126.00	148.00
Bonus on S+D Sales	7.5%	10.5%	16.5%	12.0%	12.0%	18.5%	32.0%	13.5%	9.0%

^{1/} Figures extracted from B.M.C. Annual Reports.

^{2/} During 1973 there were two interim bonus payments of 10% and 20% which are not taken into account in the prices listed above.

Source: Evaluation of the Botswana Range Management and Development Project-USAID May-June 1976, Part II.

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TABLE IV-3

BOTSWANA: FINANCIAL OPERATIONS OF THE
BOTSWANA MEAT COMMISSION
1971-75^{1/}
(in thousands of rand)

	1971	1972	1973	1974	1975	% Change 1971-1975
Sales of meat products	17,101	22,581	36,132	37,957	41,934	145.2
Sundry revenues ^{2/}	149	214	177	446	187	25.5
Payments to producers	12,143	15,096	26,496	27,986	27,386	125.5
Other operating expenses ^{3/}	3,393	5,332	6,373	6,651	13,101	286.1
Revenues net of costs and operating expenses	1,714	2,367	3,440	3,766	1,634	-4.7
Tax payments	1,167	1,632	2,772	3,017	3,198	174.0
Operating surplus after tax	547	735	668	749	-1,564	-385.92
Average producer price for beef (rand per 100 kg. cold dressed weight) ^{4/}	36,32	46,34	55,97	73,14	68,72	89.2

Source:

^{1/} Financial years ending December 31.

^{2/} Includes proceeds from live sales, net revenues from grazing schemes, and interest receivable.

^{3/} Includes interest payable, freight and selling expenses, production costs, depreciation, and stock adjustment.

^{4/} Includes bonus payments dependent on changes in world market conditions.

TABLE IV-4
DISTRIBUTION OF CATTLE OWNED BY RURAL HOUSEHOLDS

No. of cattle owned per household	Estimated no. of rural households owning this no. of cattle	Accumulated % of all rural households	Accumulated % of cattle owning rural HHS	Thousands of cattle owned by all the HHS in the group	Accumulated % of all the cattle owned by these households
0	40 454	45.0%	-	0	0.0%
1	1 209	46.4%	2.5%	1	0.1%
2	2 217	48.9%	7.1%	4½	0.4%
3-4	5 120	54.6%	17.5%	18½	1.5%
5-7	4 874	60.0%	27.3%	29	3.4%
8-10	4 921	65.5%	37.3%	44	6.2%
11-15	5 541	71.6%	48.4%	73	10.9%
16-20	7 458	79.9%	63.5%	132½	19.4%
21-25	3 480	83.8%	70.5%	80	24.5%
26-30	3 082	87.2%	76.7%	85	30.0%
31-35	1 990	89.5%	80.9%	65½	34.2%
36-40	873	90.4%	82.5%	33½	36.4%
41-45	1 446	92.0%	85.5%	61	40.3%
46-50	448	92.5%	86.4%	22	41.7%
51-60	2 080	94.8%	90.5%	115½	49.1%
61-70	724	95.7%	92.2%	47½	52.1%
71-80	702	96.4%	93.5%	53	55.5%
81-100	758	97.2%	94.9%	68½	59.9%
101-125	696	98.1%	96.5%	77	64.9%
126-150	414	98.5%	97.3%	55½	68.4%
151-175	113	98.6%	97.5%	19	69.7%
176-200	188	98.9%	98.0%	36	72.0%
201-250	372	99.3%	98.7%	84	77.3%
251-300	116	99.4%	98.9%	31½	79.4%
301-400	181	99.6%	99.3%	58	83.1%
401-500	136	99.7%	99.5%	61	87.0%
501-750	142	99.9%	99.8%	89½	92.8%
751-1 000	46	99.96%	99.93%	40½	95.4%
1 001-1 500	15	99.98%	99.96%	16	96.4%
1 501+	22	100.0%	100.0%	56	100.0%
Total	89 818 (*)			1 557	

(*) Excluding freehold farm employees.

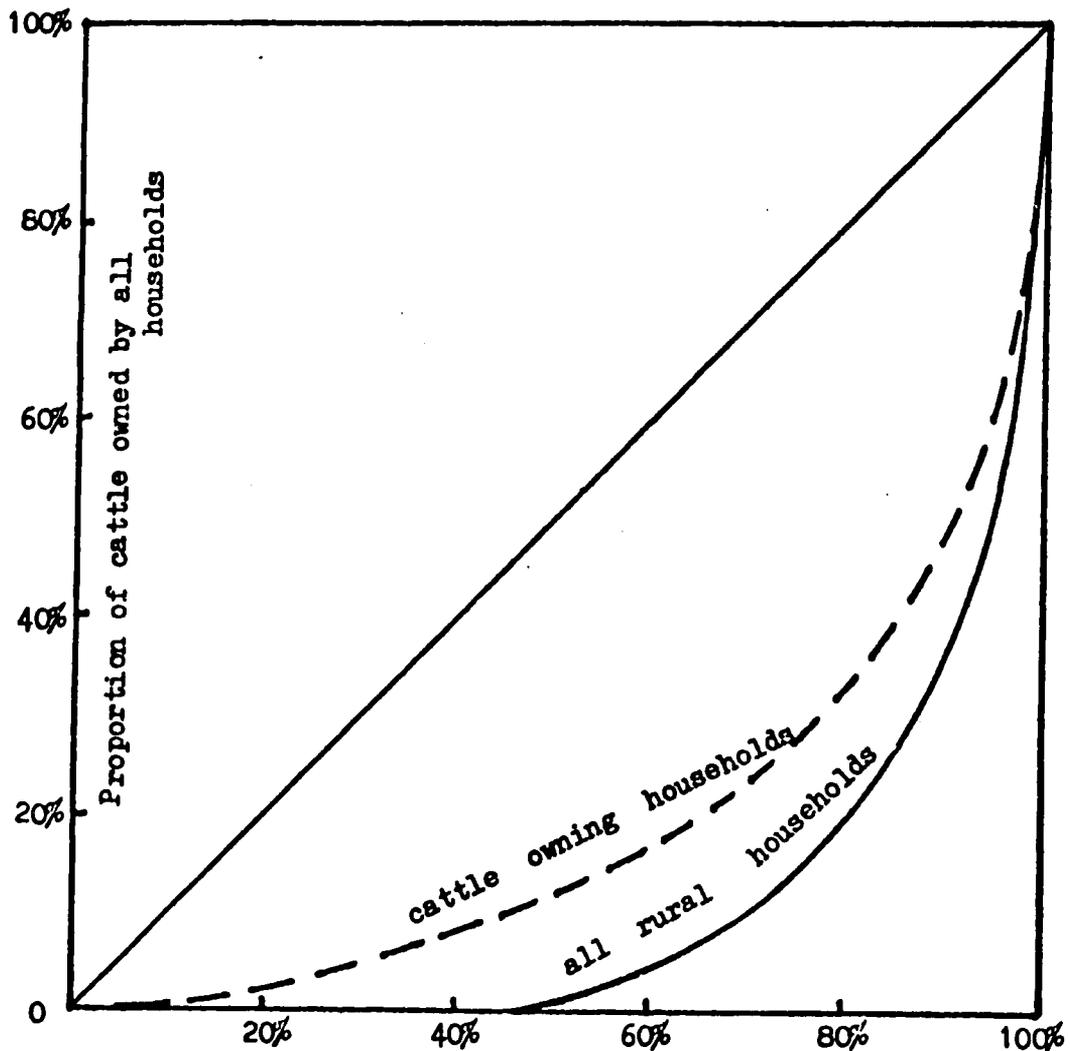
IV-7

Source: Rural Income Distribution Survey, Central Statistics Office, 1976, p.111

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FIGURE IV-2

LORENZ CURVE: THE PROPORTION OF ALL RURAL CATTLE THAT WERE OWNED BY EACH GROUP OF RURAL HOUSEHOLDS



Proportion of all rural households,
arranged in order of increasing number of
cattle owned.

Source: Rural Income Distribution Survey, Central Statistics Office, 1976, p. 113.

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Relative to large owners, those who have small herds benefit disproportionately little from raising cattle. This is due primarily to the BMC marketing system, which entails economies of scale and quota systems, thereby discriminating against small holders. As a result, many small holders sell to middlemen who pay prices lower than those paid by the BMC. Indeed, when middlemen have better information than small holders and are also able to exert market power, their offering prices can be substantially lower.

Small holders have organized co-ops through which to sell their cattle directly to the BMC, bypassing the traders. The co-op system has been improving with the proportion of BMC marketed cattle sold through co-ops increasing from 6 percent in 1971 to 15 percent in 1976 (Table IV-5). The portion marketed by traders and speculators fell concomitantly. In addition, the BMC has instituted other buying schemes, such as auctions, which are attempts to maintain relatively uniform prices. However, such schemes are thought by some experts to have had only limited success because an insufficient number of cattle (7.6 percent in 1964) have been sold through them.

A variety of other factors create differential returns to cattle raising. Cattle are spread throughout Botswana and some have to trek at least ten weeks to reach the abattoir losing up to 50 percent of their weight in the process. A number of trek routes have been developed and maintained, but these apparently are designed to primarily benefit the large farmers and the traders. Smaller holders are disadvantaged by the legal system as well, which does not require traders to use accurate scales or give receipts when buying cattle. In short, Botswana's cattle marketing system has not been designed to maximize small holders' income.

Botswana's land tenure and grazing system has also been responsible for the unequal distribution of cattle in the rural areas, but more importantly, has jeopardized continued cattle raising in general. Botswana's surface area is divided into three legal types: Tribal Lands (274,000 square km), State Lands (266,000 square km) and Freehold Lands (20,500 square km). Tribal tenure laws and custom, though somewhat complicated, essentially prohibit private ownership of land in tribal areas. On the other hand, state lands are administered by the Central Government which grants leases to individuals and groups. This picture needs to be qualified because certain tribes who have lived on state lands (particularly in the west) utilize the land on the basis of tribal custom but currently have no legal standing with regard to land ownership. In any event, the de facto tenure of these groups creates grazing conditions similar to those found in the tribal lands.

There are basically two types of land in the tribal areas: communal land near villages where anyone can graze cattle, and land usually further away from the villages, surrounding boreholes in sandveld areas. Although in principle, the latter are supposed to be communal as well, in practice ownership of borehole rights confers control over the grazing land surrounding the water supply. Yet,

TABLE IV-5

SOURCES OF CATTLE SLAUGHTERED AT BMC
1971 and 1975
(percent)

	<u>1971</u>	<u>1975</u>
Freehold Farmers	55	50
Tribal Land Producers	22	25
Traders and Speculators	17	10
Co-Ops	6	15

because these lands are supposedly communal, no rents, than the borehole drilling fees, are paid,

In the view of most observers, the basic results of this system are:

- The communal areas are overgrazed;
- Since rents are not paid for borehole areas, and since new borehole drilling rights have been rather freely granted, grazing land around boreholes has been allowed to severely deteriorate. (Although rents are not paid, drilling for boreholes can be quite expensive, which provides some incentive for rangeland management around water supplies);
- Because boreholes are expensive to drill, only the wealthier cattle owners can afford to move their cattle away from the overgrazed communal lands, which has probably exacerbated the skewed wealth distribution in the rural areas. (Syndicates are permitted to obtain drilling rights. It is not clear how much that has mitigated the discriminatory effects of high-cost boreholes).

Although the government has been aware of this problem for a number of years, only recently has a systematic policy been designed to deal with it. The delay has undoubtedly been due both to the extremely sensitive economic and political implications of any policy designed to alter the system by which so many Batswana gain their livelihood, and also to the dearth of basic knowledge regarding current land use in the tribal areas.

In July 1975, the government published its National Policy On Tribal Grazing Land. The essence of the policy is the establishment of private property rights in tribal areas, and almost all future livestock programs will be geared to it.

Under the program, tribal lands will be divided into three kinds: commercial farming areas, which will probably be used mostly for cattle grazing, communal grazing areas, and reserved areas. Commercial land will be leased to individuals or groups controlling a minimum number of cattle in an attempt to create incentives for rangeland maintenance. The purchase leases will be long-term (around fifty years) so that durable investment will be encouraged. The communal areas will be regulated in order to limit the number of cattle each family can keep there, and the reserved areas will be kept empty for future use.

While the Tribal Grazing Land Policy is expected to arrest the deterioration of the rangelands, many in the government fear that it will also worsen the distribution of wealth and income in the rural areas. Small holders will be unable to individually afford leases in the commercial areas, and therefore

could be confined to the communal areas. To militate against such effects, the government intends to give first priority in the granting of leases to groups of small holders who form co-ops. However, in light of the difficulties encountered in forming such group ranches, the practical effect of the policy is uncertain.

The government intends to implement the policy rather gradually. Evidently, so little is known about the size and location of areas currently under various forms of grazing, the number and location of boreholes, and the size and location of vacant areas, that, in most areas, the first year or two of the program will consist primarily of data surveys. In addition, the government is mounting a widespread information and consultation campaign to foster cooperation with the program.

If the program is instituted, it will probably have significant effects on the entire economy in ways which currently are only vaguely perceptible.

Besides rangeland management, there are a number of other constraints to expanded cattle production in Botswana. Although there is some controversy over this question, many experts contend that existing abattoir capacity is insufficient to handle expanded cattle production resulting from increased numbers of cattle and/or higher offtake rates. The maximum slaughter capacity at Lobatse is currently 260,000 head per year. In a drought, when it would be necessary for the meat commission to slaughter 10 percent of the national herd, 300,000 cattle would need to be slaughtered.

Moreover, Botswana's offtake rate in normal years is lower than many in the government would like. Between 1970 and 1975, the annual offtake rate from the national herd averaged 9.6 percent compared to 18 percent for commercial ranching projects. The low offtake rate of traditional farmers is often attributed to traditional norms and status relations, but there seems to be little hard evidence to support this contention. In any case, even if higher offtake rates could be achieved, the existing abattoir capacity would probably be insufficient to accommodate them.

A few years ago, the Botswana Government planned to build a new abattoir in the northeast. The plans were dropped for a number of reasons. One was the EEC's refusal to import cattle slaughtered there because of potential health problems arising from the abattoir's proximity to disease zones in Zimbabwe. That particular refusal undoubtedly related to the general problems Botswana has had maintaining the EEC market, the loss of which would cause a severe blow to the Botswana economy.

The history of Botswana's difficulty with the EEC is rather involved and will be discussed here only briefly. In 1973 almost 65 percent of Botswana's net beef exports valued at R20 million, were sold to the United Kingdom. The next year sales to the U.K. dropped to R5 million (Table IV-6). In between, the bottom had fallen out of the world beef market, and, in response, the EEC had

TABLE IV-6

BOTSWANA: DESTINATION OF EXPORTS, 1970-74
(in millions of rand)

	1970	1971	1972	1973	1974	1970	1971	% 1972	1973	1974
Botswana Meat Commission (net sales)										
South Africa	4.5	4.9	5.1	4.6	23.6	37.5	32.7	25.6	14.7	68.8
Other Africa	1.9	3.1	2.5	4.1	3.6	15.8	20.7	12.6	13.1	10.5
United Kingdom	4.8	4.9	10.2	20.0	5.6	140.0	32.7	51.2	64.1	16.3
Other Countries	<u>0.8</u>	<u>2.1</u>	<u>2.1</u>	<u>2.5</u>	<u>1.5</u>	<u>6.7</u>	<u>14.0</u>	<u>10.5</u>	<u>8.0</u>	<u>4.3</u>
Total	12.0	15.0	19.9	31.2	34.3	100	100	100		
Of Which:										
Beef Carcasses (net sales)										
South Africa	3.2	3.3	3.8	3.5	11.5	72.7	6.6	77.5	92.1	100
Other Africa	<u>1.2</u>	<u>1.7</u>	<u>1.1</u>	<u>0.3</u>	—	27.3	3.4	22.4	7.9	
Total	4.4	5.0	4.9	3.8	11.5					
Boneless Beef (net sales)										
South Africa	0.4	0.6	0.4	0.6	7.9	7.1	8.4	5.4	2.6	44.1
Other Africa	0.3	0.8	1.0	3.2	3.2	5.3	11.2	13.5	13.9	17.9
United Kingdom	4.5	4.0	4.6	17.6	5.4	80.0	56.3	62.1	76.5	30.2
Other countries	<u>0.4</u>	<u>1.7</u>	<u>1.4</u>	<u>1.5</u>	<u>1.4</u>	<u>7.1</u>	<u>23.9</u>	<u>18.9</u>	<u>6.5</u>	<u>7.8</u>
Total	5.6	7.1	7.4	23.0	17.9	100	100	100	100	100
Diamond Sales (f.o.b. value)										
United Kingdom	—	2.7	18.7	23.2	30.1					
Copper/Nickel Matte										
United States ^{1/}	—	—	—	—	8.3					
Unspecified Residual										
	3.8	12.2	6.2	9.2	9.0					
Total Recorded Exports										
South Africa	4.5	4.9	5.1	4.6	30.8	28.4	16.3	11.4	7.2	37.7
Other Africa	1.9	3.1	2.5	4.1	3.4	12.0	10.3	5.6	6.4	4.2
United Kingdom	4.8	7.6	28.9	42.1	35.5	30.4	25.4	64.5	66.1	43.4
Other Countries	0.8	2.1	2.1	2.5	12.0	5.0	7.0	4.7	3.9	14.7
Unspecified Residual	<u>3.8</u>	<u>12.2</u>	<u>6.2</u>	<u>9.2</u>	<u>9.0</u>	<u>24.0</u>	<u>40.8</u>	<u>13.8</u>	<u>14.4</u>	<u>11</u>
Total	15.8	29.9	44.8	63.6	81.7	100	100	100	100	100

^{1/} The matte is processed in the United States and then is sold in Germany.

Source: IMF

virtually prohibited beef imports. The South African market took up the slack but, in 1975, quota limits on beef exports to South Africa were reached.

Meanwhile, in early 1975, the Lome Convention was signed between the African, Caribbean and Pacific countries (ACP), and the EEC. In March, the EEC ban on beef imports was raised, but in its place a very high levy was imposed effectively prohibiting Botswana's imports. The ACP began negotiating with the EEC to reduce the levy, and won a 90 percent rebate for a six-month period, which has since been twice extended. The agreement is again under renegotiation, but information on the outcome is unavailable. To the extent that the agreements remain in force for only six months at a time, the state of Botswana's beef industry is uncertain. As a result, public and private planning becomes difficult, and private investment in the cattle industry is undoubtedly discouraged.

The Botswana Government has attempted to diversify its beef export markets, but with little apparent success. Such diversification faces both transport and trade barriers.

2. Crops--1971/72 is the most recent year for which comprehensive farming data are readily available, though scattered findings for later years can be found. Furthermore, there seems to exist no reliable data for freehold farms, largely due to the poor survey response by freehold farmers. Thus the data presented here should be treated with caution. A comprehensive agricultural survey was taken in 1973/74, but the findings are not yet published. The freehold farms are located in the following blocks: Tuli, Tati, Gaborone, Lobatse, Molopo and Sedibeng in the east; and Ghanzi and Xanagas in the northwest.

All totalled, 5 percent of Botswana's land is thought to be arable, and approximately 15 percent of that is believed to be under cultivation. The cultivated land is basically divided into three kinds of farms: (1) large-scale commercial farms (freehold farms), owned largely by expatriates and white citizens; (2) tribal scheme farms which are owned by Botswana in traditional land tenure forms but which are farmed by modern methods; and (3) traditional farms. The freehold farms are located along the eastern and northwestern borders of Botswana; the scheme farms are located primarily in the east with a concentrated group in the Baralong area of the southeast; and the traditional farms are scattered throughout the country. Table IV-7 gives a rough estimate of the land area farmed by each of these groups.

Generally, farming in Botswana complements cattle holding, with 73 percent of the farmers engaged in both cattle and arable farming. There are thought to be some 350 freehold farms in Botswana, but the total hectareage planted on these farms is not known. The total number of non-freehold agricultural holders (a person responsible for the operation of the agricultural holding) in the rural areas covered by the 1971/72 Agricultural Survey is estimated at 63,700, 5,320 of whom are scheme farmers. With 258,100 hectares planted in

TABLE IV-7

AREA CULTIVATED
(in hectares)

Freehold Farms (1970/71)	8,080
Scheme Farms (1971/72)	45,500
Traditional Farms (1971/72)	<u>185,200</u>
TOTAL	238,780

1971/72, the average number of hectares planted is approximately four hectares and 60 percent of the holders planted eight hectares or fewer.

The freehold farms use both dryland methods and irrigation to produce a variety of crops, primarily maize, wheat, groundnuts and potatoes (Table IV-8). Most of this production is exported directly to South Africa and Rhodesia rather than being sold on the domestic market. Although no detailed study has been undertaken to determine the reason for this, most knowledgeable observers site a few factors as being primarily responsible: (1) lack of good roads between the farms and the rest of Botswana; (2) lack of wheat milling facilities in Botswana; and (3) South African pricing policies which make certain exports (particularly maize) quite lucrative.

Whereas the freehold farms grow a number of crops requiring irrigation, scheme and traditional farms mainly produce sorghum and maize using dryland methods. Historically, sorghum was the dominant crop, but within the last few years there has been a marked shift from sorghum to maize production, particularly on the traditional farms. Whereas in 1970/71 maize constituted 18 percent of Botswana's food grain production, in 1975 it comprised over 46 percent (Figure IV-3). Non-freehold farms also produce a variety of other crops including groundnuts and sunflower seeds.

In general, farming in Botswana is difficult and risky. Water is scarce and rainfall is highly erratic from year-to-year and area-to-area. (See Figure IV-3.) Moreover, when it does rain, the wet season is concentrated with more than 90 percent of the rain falling between November and April.

Drought is not agriculture's only nemesis. Birds, assorted insects, and cattle do a great deal of damage in certain areas. Moreover, increased cultivation of maize will probably not improve overall production. In Botswana, maize is generally more difficult to grow than sorghum, primarily because it requires more rainfall.

Besides rainfall and pests, the unequal distribution of wealth retards agricultural production. Most traditional farmers use deep-plowing cultivation methods which require substantial draft power. Yet, many small farmers own no cattle and therefore have to hire or borrow draft power from friends or neighbors. In 1971/72 while 90 percent of the non-commercial farmers employed cattle-drawn plowing, 62 percent were unable to plow exclusively with their own cattle, and 40 percent owned no cattle at all (Table IV-9). Reportedly, many farmers must wait until others are finished plowing to borrow draft power which results in late planting and reduced yields. Many farmers also have to borrow implements which might result in further delays (Table IV-10).

Exacerbating the draft power shortage is the absence of young men in many villages, leaving older people and children to do the plowing. Some maintain that a shortage of agricultural workers is a serious constraint to agricultural production, but hard supporting evidence is not easy to find.

TABLE IV-8

FREEHOLD CROP ACREAGE, PRODUCTION AND YIELD
(including estimate for non-response)

CROP	TOTAL AREA (hectares)		Total Production (metric tons)	Total Yield (lbs per acre)	IRRIGATED AREA (hectares)		Production from Irrigated area only (metric tons)	Yield from Irrigated area only (lbs per acre)
	Planted	For which Production is given			Planted	For which Production is given		
Wheat	194.65	194.65	517.2	2 370	154.18	152.97	394.7	2 302
Sorghum	1 328.18	1 018.19	589.0	516	30.76	30.76	42.64	1 237
Maize	2 856.68	2 776.55	1 576.2	506	66.77	66.37	137.0	1 841
Groundnuts	1 471.84	1 328.18	274.4	184	52.61	52.61	147.9	2 508
Cotton	113.31	113.31	166.0	1 307	60.70	60.70	18.1	267
Commercial Vegetables	1.62	1.62	2.3	1 250	-	-	-	-
Potatoes	2 058.84	2 058.84	504 886 *	99**	2 057.63	2 057.22	503 886 *	99**
Onions	50.79	50.79	57 337 *	459**	49.98	49.98	54 200 *	441**
Tomatoes	4.25	4.25	5.1	1 067	4.25	4.25	5.1	1 067
TOTAL	8 080.16	7 546.38	-	-	2 476.88	2 474.86	-	-

* Pockets

** Pockets per acre

Source: Freehold Farm Survey 1970/71, Government Printer, Gaborone.

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FIGURE IV-3

(in thousands of tons)

CROP PRODUCTION AND RAINFALL 1967-1975



IV-18

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Source: Botswana Authorities

TABLE IV-9

NUMBER OF HOLDERS WHO EMPLOYED CATTLE-DRAWN
 PLOUGHING, BY TYPE OF ARRANGEMENT
 (all regions covered)

Types of arrangement	Thousands of holders	%
1. <u>Single arrangement</u>	(43.5)	(80.9)
1) Owned cattle only	20.5	38.2
2) Mafisa'd cattle only	2.3	4.2
3) Borrowed cattle only	6.8	12.6
4) Exchanged cattle only	7.8	14.5
5) Hired cattle only	6.2	11.5
2. <u>Mixed arrangement</u>	(10.3)	(19.1)
1) Owned cattle with :		
i) mafisa'd cattle	3.2	5.9
ii) borrowed cattle	3.7	7.0
iii) exchanged cattle	1.1	2.0
iv) hired cattle	1.5	2.7
2) Mafisa'd cattle with :		
i) borrowed cattle	0.3	0.6
ii) exchanged cattle	0.1	0.2
3) Borrowed cattle with :		
i) exchanged cattle	0.2	0.3
ii) hired cattle	0.3	0.6
3. <u>Total</u>	(53.7)	(100.0)
1) Holders who used own cattle	29.8	55.4
2) Holders who used mafisa'd cattle	5.8	10.9
3) Holders who used borrowed cattle	11.2	20.9
4) Holders who used exchanged cattle	8.9	16.6
5) Holders who used hired cattle	7.9	14.7

Source: Agricultural Survey, 1971/72, p. 63.

TABLE IV-10

NUMBER OF IMPLEMENTS USED BY OWNERSHIP
(all regions covered)

Implements used	Owned	Borrowed	Hired	All
	(Numbers) (000)			
Single plough	48.3	20.3	9.1	77.7
Double plough	4.5	0.8		5.4
Planter	2.2	2.9	0.6	5.7
Harrow	2.6	2.7	0.3	5.7
Cultivator	2.2	1.4	0.3	4.0
Tractor	1.6	0.2	1.6	3.3
	(Percentage)			
Single plough	62	26	12	100
Double plough	85	14	1	100
Planter	38	51	11	100
Harrow	46	48	6	100
Cultivator	56	36	9	100
Tractor	48	5	47	100

Source: Agricultural Survey, 1971/72.

The net result of all these factors is that overall yields in Botswana are quite low. There is, however, a large variation in yields between various groups of farmers. Scheme farmers who have better access to draft power, implements and who use relatively more modern techniques than traditional farmers, have much higher yields. In 1971/72, scheme farmers' yields per harvested hectare of sorghum and maize were an average 30.6 percent and 102.9 percent higher than traditional farmers (Table IV-11). Partly as a result, the distribution of crop production is rather unequal, with 20 percent of the farmers producing over 60 percent of Botswana's cereal crop. (These data are from 1971/72 and might no longer hold. Data from the Rural Income Distribution Survey taken in 1974 indicate that the distribution was somewhat less skewed. They indicate that 16 percent of agricultural holders contributed around 40 percent of the total crop production. These figures should be treated with caution since they are not fully comparable with the 1971/72 data.) (See Figure IV-4.)

Contributing to the generally difficult agricultural picture have been rather unfavorable marketing and transportation systems in Botswana. Until recently, prices tended to be low during harvest time when most Botswana would sell, and high later in the year when some Botswana would have to buy grain for their own consumption needs. This resulted primarily from a lack of storage facilities, transport and information which created a monopolistic trading structure dominated by South African middlemen. Overall, this system was not a great inducement to crop production.

To ameliorate the situation, the Botswana Government established the Botswana Agricultural Marketing Board in 1974. The Board established a floor price at which it would buy crops, including sorghum, maize, corn, and sunflower seeds, operated storage facilities and also acted as a selling agent for agricultural materials such as empty grain bags, jute twine, and insecticides. After the bumper harvest of 1974, the Board bought over 6,000 tons of sorghum paying R4.75 per twenty-pound bag. Of the 67,878 bags purchased, 45 percent were from sellers of less than ten bags each and 47 percent were bought from sellers of between ten and sixty bags each, suggesting that the Board is helping small farmers who previously were dominated by traders and speculators. By creating a stable and lucrative price environment, the Board is hoping to stimulate surplus production by traditional subsistence farmers. However, it is still too early to fully assess the Board's success in that regard. Rainfall was plentiful in both 1974 and 1975, making for a bumper crop in the former year. Production dropped in 1975, however, due, according to some experts, to large stocks carried over from the previous year. One measure of the AMB's success might be the extent to which it is able to elicit agriculture production in successive years of good rainfall. Incidentally, the argument that crop production in 1975 went down because of stocks held over by subsistence farmers in 1974 seems to conflict with the argument that storage facilities are so poor in Botswana that crops have to be sold at low prices and bought at high ones.

TABLE IV-11

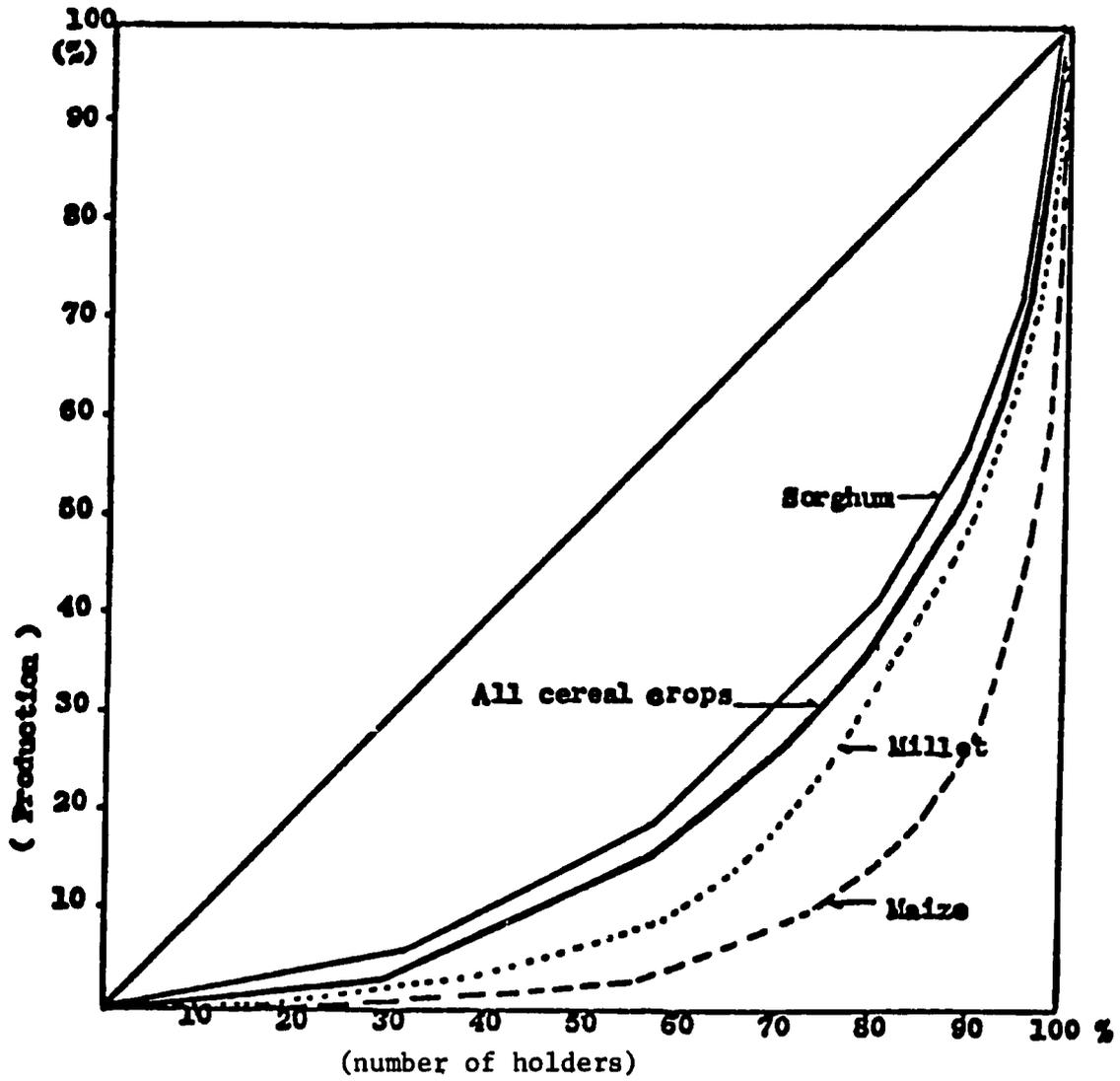
COMPARISON OF YIELDS BETWEEN SCHEME AND NON-SCHEME
FARMERS, 1971/1972, FOR SELECTED CROPS
(kgs/hectare)

	Scheme Farmers (kgs/hectare)		Non-Scheme Farmers (kgs/hectare)		% Increase of Scheme Yields Over Non-Scheme Yields	
	Planted	Harvested	Planted	Harvested	Planted	Harvested
Sorghum	487	487	352	373	38.3	30.6
Maize	696	696	265	343	162.6	102.9
Millet	322	384	245	253	31.4	51.8

Source: Agricultural Survey, 1971/72, p.39.

FIGURE IV-4

LORENZE CURVE
(distribution of production of major crops, 1971/72)



Source: Agricultural Survey, 1971/72, p. 47.

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The government has set a goal of reaching net self-sufficiency in non-livestock agriculture by 1986. The goal results partly from a desire to reduce the believed dependence on imports and the resulting drain on the balance of payments, as well as the desire to increase incomes in rural areas. Some experts in the government have said that even in moderately good growing years Botswana imports 30 to 50 percent of its cereals. However, other knowledgeable sources in Botswana have maintained that in good years Botswana is actually a net exporter. They suggest that due to pricing, transport and milling constraints, a good deal of cereal is exported from various parts of the country and then reimported from South Africa. A tabulation of trade data for 1975, which was not a particularly good crop year, shows that only R902 thousand worth of grains were exported while over R5 million worth of grain products, primarily in milled form, were imported. Assuming that processed grain is twice as expensive as unprocessed, then R2.5 million worth of cereals were implying a deficit of over R1.5 million. Assuming a price of approximately R60 per ton, then in 1974, Botswana had a deficit of approximately 25,000 tons of cereals. This comprised approximately 30 percent of total grain consumption. (25,000 tons net imports plus 62,000 tons produced in 1974/75 is assumed to comprise total consumption. This is probably an underestimate to the extent that stocks held over from the previous year were consumed, in which case, less than 30 percent of grains consumed were imported.) In 1973/74, however, grain production was 71 percent higher than in 1974/75. If 25,000 tons of grain comprised net imports of grain in 1974/75, and if production was 40,000 tons greater in 1973/74, which was considered a good year, then one could infer that in good years Botswana is self-sufficient in cereal production.

The structure of Botswana's crop production and trade is greatly affected by consumer preferences, availability of processing facilities, and South African pricing policies. There seems to have been a shift in consumer preferences from sorghum to maize, particularly on the part of urban consumers. Experts hypothesize that the shift results from the difficulty involved in processing sorghum, relative to buying maize already milled into flour in South Africa. This switch, along with the fact that there are inadequate milling facilities in Botswana, accounts for the large quantity of maize flour imports in recent years. The concomitant switch from sorghum to maize production in Botswana is probably the result of the South African maize subsidy which makes maize a relatively lucrative crop to grow.

3. Other Agricultural Products--Botswana currently produces a smattering of other products including poultry, cut flowers, citrus fruits and dairy products. The government is anxious to diversify the agricultural sector by substantially expanding production of these commodities, but currently their output is quite small.

Moreover, subsistence hunting is still important in some parts of Botswana. In 1973/74, subsistence hunting reportedly comprised almost 10 percent of agriculture's value added. There is also a small fishing industry in Botswana. In 1974/75, approximately R660,000 worth of fishing income accrued to rural households.

IV. SECTORAL ANALYSES -- MINING

A. Setting

The history of mining in Botswana is at least 700 years old, and probably older. In southeastern Botswana, excavations have revealed an ancient iron mine accompanied by a massive slag heap believed to have been developed by a prehistoric cattle-owning people. Abandoned gold, copper and iron mines have been discovered near and north of Francistown, where in 1866, a German rediscovered gold leading to the establishment of the first gold mine worked by Europeans in Southern Africa. Since then, until the early 1970's, various small gold, asbestos and manganese mines have been operated in various parts of the country.

Systematic prospecting began in 1955. In that year, De Beers began searching for diamonds along the eastern borders of Botswana. Later, in 1959, Bamangwato Concessions Ltd., a subsidiary of Anglo-American and AMAX (American Metal Climax), began exploring for base metals (particularly copper and nickel). Both of these explorations have borne fruit in the development of diamonds at Orapa and copper-nickel at Selebi-Pikwe.

In 1967/68 mining production worth R700,000 comprised 1.5 percent of Botswana's Gross Domestic Product and approximately 7 percent of exports. In 1975, Botswana's mineral production valued almost R60 million and mineral exports were worth R53.8 million, comprising 10 percent of GDP and 49.8 percent of the value of all Botswana's exports. In 1967/68, the Botswana Government received very little income from mining production, while in 1976/77, mining will contribute almost R8 million in royalties and dividends and also substantial income taxes (based on a complicated semi-secret formula) to government revenue. All tallied, mining will account for approximately one-quarter of government recurrent revenue in 1976/77.

This phenomenal growth in mining over the last seven years has consisted of three developments. The most successful has been the Orapa Diamond Mine which, in 1975, produced R29.6 million in diamonds and semi-precious stones. The other two projects, a copper-nickel mine at Selebi-Pikwe which began production in 1974, and the Morupule Coal Mine which provides fuel for Selebi-Pikwe and other local power generation, produced R29.3 million worth of minerals in 1975. Table IV-12 summarizes mineral production data.

Mineral production in Botswana is proceeding at a moderate pace. New deposits of diamonds, copper-nickel and coal as well as soda ash, salts and other minerals have been discovered in various parts of the country. Some of the known deposits will be developed within the next few years; others have high potential for early production but are in doubt for particular reasons, while still others are likely to be exploited only in the long term.

In addition, large areas of the country remain unexplored. Only 25 percent of the country has been fairly well investigated. In the remainder, new

TABLE IV- 12

BOTSWANA: MINERAL PRODUCTION AND VALUE, 1971-75

	1971	1972	1973	1974	1975
Diamonds					
Value (R'000)	5,527	19,200	23,229	30,136	29,584 ^{1/}
Volume (thousand carats)	872	2,403	2,453	2,718	2,414 ^{1/}
Manganese					
Value (R'000)	423	20	7	--	--
Volume (metric tons)	35,603	688	340	--	--
Talc					
Value (R'000)	1	--	--	--	--
Volume (metric tons)	130	--	--	--	--
Semiprecious stones					
Value (R'000)	34	31	22	30	21
Volume (kg)	104,642	100,289	72,914	81,000	65,000
Coal					
Value (R'000)	--	--	99	104	618
Volume (metric tons)	--	--	15,532	25,498	68,639
Copper/nickel matte					
Value (R'000)	--	--	--	7,857	28,720
Volume (metric tons)	--	--	--	6,663	16,513

Source: IMF

^{1/} Estimate.

deposits which could radically change Botswana's mineral picture might be discovered. Prospecting is extremely costly, however, and exploration is not proceeding at as rapid a pace as some in the government might like.

B. Knowledge of Deposits, Conditions of Mines and Development Potential

1. Diamonds--Orapa is the site of the 2nd largest kimberlite pipe in the world. The approximate grade at Orapa is .89 carats per ton which is better than average recovery grades of important mines around the world. On the other hand, the proportion of gems to industrial stones of 12:88 is poor. Nevertheless, rising diamond prices have helped to make Orapa a very lucrative mining operation. In 1975 profits before tax and royalty were over R20 million. Furthermore, the Government of Botswana recently completed negotiations with the sponsors of the mine (De Beers Mining Co. Ltd.) which provided for an increased government ownership from 15 percent to 50 percent, and an increase in royalty rates from 7.5 to 10 percent. These and other changes will assure the government two-thirds to three-fourths of the company's profits before tax and royalty.

At the end of 1976 a new mine at nearby Letlakhane is due to come into production. Mine life is projected at about fourteen years, with annual production at 320 thousand carats per annum rising to about 400 thousand carats in the 2nd stage. Although the mine's output and life are substantially less than revenue per carat is expected to average R30 as compared to R13 per carat at Orapa. Contract negotiations between De Beers and the Government of Botswana are still underway. In addition, the Orapa mine output will be expanded, doubling its production by mid-1978. In the longer term, the government is hoping that more kimberlites will be found.

2. Copper-Nickel--The only copper-nickel mine currently operating in Botswana is at Selebi-Pikwe. Owned by the Anglo-American Corporation of South Africa, Ltd./Charter Consolidated Limited Group, AMAX, Inc., and the Government of Botswana, the project entailed the construction of large-scale infrastructure--including a dam, power station, rail line, and town--cost R210 million, and involved complex technical and financial arrangements. The mining operation processes ore, which is smelted into matte and shipped via Rhodesian Railways to Maputo, where it goes for further refining to Port Nickel, Louisiana and finally to Germany, which has a long-term contract to buy the refined product.

Known copper-nickel ore reserves are 46 million tons consisting of 1.9 percent copper and .21 percent nickel at Selebi and 1.51 percent copper and 1.14 percent nickel at Pikwe. The complex, virtually complete in 1973, was expected to produce 3,500 tons of matte a month at its initial capacity and net the government R35.5 million a year. However, a whole series of technical problems delayed full-scale production at the mine, increased costs, and has seriously jeopardized the financial viability of the project. Although the mine is finally expected to reach full-scale production of 3,500 tons a month by

the end of 1976, the government is expecting to receive only R750,000 per year in the foreseeable future. On the whole, the project has been a major disappointment,

Potentially viable, possible large-scale copper and nickel deposits have been discovered in various parts of the country and are currently being investigated by a number of private corporations. These are located in the north near Francistown (7 million tons copper-nickel), further west near Matsitama (10 million tons copper) and in the northwest near Lake Ngami, where U.S. Steel has found substantial quantities of copper. These latter deposits potentially create the prospect for large-scale development of the northwestern region of the country. As of yet, however, economically viable deposits have apparently not been located there, though information on those deposits are closely held by the government.

3. Coal--One coal mine is currently in operation. The mine produces approximately 200,000 tons a year, about half of which is shipped by rail to the Selebi-Pikwe complex to be used for power generation. The rest is shipped by rail for use at the power station in Gaborone.

Despite the small quantities currently being mined, in the long run, Botswana's most valuable mineral resource could be its vast quantities of coal. Current reserve estimates are in excess of 40 billion tons. In general, however, Botswana coal is believed to be of low grade with low calorific values, high ash and average sulphur contents suitable only for power generation. In its untreated state, Botswana coal is of much lower quality than South African export coal and European coal. Washability tests suggest that a suitable export product could be obtained, but at a low yield (36 percent). Accompanying this export coal would be a secondary middling product suitable for domestic use with a yield of about 48 percent. Thus it seems that major coal development of the known types of coal would be constrained by two factors (transportation aside): (1) the need for beneficiation before export (i.e., a large water requirement); and (2) large domestic demand for the residual.

A few qualifications could be added to this general picture. The possibility of exporting unwashed coal for foreign washing has been considered. The successful development of low cost conversion techniques to synthetic crude could radically change the current picture, as would the discovery of coke quality coal in Botswana. Furthermore, the possibility of building large-scale power generation facilities in Botswana to export power rather than coal (possibly to South Africa) is being considered.

These large deposits of coal have been discovered in the southern part of the country (near Letlhakeng), in the east central part near Morupule and in the northeastern part of the country near Kasane.

4. Brine--The brine deposits of the Makgadikgadi depression west of Francistown were under investigation by Makgadikgadi Soda Ltd., controlled by

Anglo-American for over ten years. Sufficient reserves of brine have been proved to sustain a long-term operation for producing common salt, soda ash, sodium sulphate and potash. Minimum production levels have been estimated to be 80,000 tons of soda ash and 100,000 tons of salt a year, but each could be as large as 500,000 tons a year.

After ten years of involvement and the expenditure of sizeable sums of money, the Anglo-American company which was having financial difficulties at Selebi-Pikwe relinquished exploitation rights. Gulf Minerals became interested in the project and the government developed plans for building the requisite infrastructure, including a rail spur. However, Gulf Minerals subsequently pulled out as well and the future development of the deposits is uncertain.

5. Other Mineral Prospects--Various other minerals, including manganese, gold, iron, lead, fluorspar, gypsum, limestone and talc have been discovered and are being further explored by private industry and the government. Furthermore, 75 percent of Botswana is still relatively unexplored.

The Department of Geological Surveys has and continues to undertake a systematic mapping of mineral (and groundwater) resources of the country, including airborne magnetic analysis of the Kalahari desert. Information discovered by private prospectors is also collated by the Department, which, in general, is attempting to compile and disseminate large quantities of geological data.

C. Production Constraints

Apart from the quality of the minerals themselves, four major constraints face future mining development in Botswana: (1) transportation; (2) water; (3) lack of knowledge about existing deposits; and (4) need to attract foreign investment. Compounding all difficulties, of course, is the political uncertainty in the region.

D. Transport

In the next five to ten years the soda ash minerals at Sua Pan could be developed, if a foreign investor were found. Its development would require the building of a railroad spur to the Rhodesian railroad, as well as improvements in the existing line, the degree of necessary improvement being in some dispute. In a somewhat longer time frame, coal deposits could be exploited by one means or another. In most scenarios, exploitation would require fairly large improvements of the current rail line, or, perhaps, the construction of an east-west railway to Walvis Bay in Namibia. Such a railway would probably be a prerequisite for the development of copper deposits in the northwest currently being studied by U.S. Steel, which are thought by some in the government to have a great deal of potential. Apparently no detailed serious study of an east-west rail has been undertaken, though some preliminary figures have been compiled.

In general, there are few minerals projects (apart from diamonds and precious stones which are exported by plane) which would not involve some upgrading, or substantial improvement in transport facilities. These costs are not necessarily prohibitive, but, for at least some projects, they can be extremely significant.

E. Water

Exploitation of either the coal or copper deposits would require fairly large quantities of water, probably much of which would have to come from the Okavongo Delta. The government has commissioned a few studies on the subject of mineral development and water use, partly in the context of an east-west railway. However, these studies are closely held and only scattered findings have been published. Data on water requirements for minerals developed by SWECO, a Swedish consulting firm. In general, the use of Okavongo water raises extremely complex ecological, sociological and financial issues. Some of them have been extensively studied but none apparently settled.

F. Knowledge of Mineral Potential

The geology of Botswana can be divided roughly into those parts that are reasonably well exposed and can be investigated by conventional geological mapping methods and those that are obscured by Kalahari sand cover.

Even in the comparatively well exposed areas the bedrock is largely concealed by superficial sand cover. Most of the well exposed areas have been mapped, but the quality of the mapping is uneven. The particular problems of the Kalahari desert require a new approach. The government is conducting a ground-based and air-borne magnetic survey to yield guidelines for future exploration and prospecting.

All totalled, however, only approximately 25 percent of Botswana's surface area has been well explored. More information would greatly facilitate government planning, and more importantly, might yield the discovery of new, extremely valuable resources. Detailed exploration is a costly and risky undertaking; but even less expensive, more general kinds of investigations would be valuable.

IV. SECTOR ANALYSES -- TRANSPORTATION

A. Setting

A country almost the size of Texas would require an extensive transport system to become fully integrated. Yet, Botswana's transportation system is still in its infancy. Having developed as a result of colonial exigency rather than local need, the system's major component remains the Rhodesian-owned and operated railway, which was built between 1893 and 1897 as part of Rhodes' colonial empire. Approximately 70 percent of Botswana's imports and exports, as well as significant internal freight and passenger traffic travel by rail.

While almost two-thirds of Botswana's people live within 80 km of the rail line, roads between much of this population and the line are quite primitive, often impassable without four-wheel drive vehicles during the rainy season. For many Botswana travelling increasing distances to their farmlands and cattle posts, poor rural roads are also a distinct hardship.

In general, direct links between the east and west of Botswana are virtually non-existent. Prior to the completion of the north-south road, the people living in the northeastern Chobe district were isolated from the rest of the country. Those who live in the Kalahari remain practically cut off except by air, foot and four-wheel drive. Consequently, ranchers from Ghanzi have to trek their cattle as far as 500 km to the railroad or abattoir at Lobatse, resulting in cattle weight loss of as much as 50 percent.

Ameliorating these transport problems to some extent is the multitude of air strips scattered throughout Botswana. However, many of these are in poor condition and only a small proportion of Botswana's population directly benefits from them.

In the last few years, especially since the bulk of the Shashe Project was completed, the government has placed a major emphasis on transportation development. Between 1973/74 and 1975/76, 27.8 percent of the central Government's development budget was spent on transport. During the next plan period that proportion will remain approximately the same. Of the R107 million the government currently plans to have spent on air and road transport between 1975/76 and 1980/81, 88 percent will be for road development. Of that, 50.6 percent will go toward the building and upgrading of the north-south road which will link Botswana with its African neighbors to the north. The Botswana Government evidently feels quite strongly about this latter project which it calls Operation Life-line. Of the R12.2 million the government plans to spend on air transport development, over two-thirds is slated for a new international airport to be built near Gaborone.

The government has publicly announced its intention to take over the Rhodesian-owned and operated railroad. It has hired a railroad advisor to determine the appropriate measures involved, but its precise plans with regard to the railroad are not known. In fact, they may be undecided, particularly in light of

the political uncertainty surrounding the future of the Rhodesian Government.

The government currently has no overall transportation policy, but is attempting to rectify that deficiency. It has hired British consultants to develop a two-part National Transport Plan. The first part has been completed, but the due-date for the final section has apparently not yet been established.

The program which does exist consists of spending substantial resources over the next plan period on transportation development and much of that on two large projects, the International Airport and the north-south road. On the basis of narrow economic criteria, government transport resource allocation priorities can be questioned, but other factors, political and strategic, are certainly playing a large role.

B. Roads

As of 1974, there were approximately 7,000 km of national roads (those roads which the Central Government is supposed to maintain). Almost 250 km were bitumen, 1,510 were gravel and the remainder earth engineered (Table IV-13). The bituminized sections of road are between Lobatse and Mahalapye. Most of the gravel road is between Mahalapye and Francistown, Francistown and Orapa and from Francistown to Maun (Figure IV-5). By the end of 1976, an all-weather gravel road from Nata to Kazungula will be complete. Most of the remaining roads in the country are quite poor and impassable with normal vehicles when it rains. For example, the Tuli Block in the east, one of the richest farming areas in the country, is virtually cut off from the rest of Botswana during the wet season, and is difficult to reach during the rest of the year. The fact that most of the Tuli Block crop production is sold directly to South Africa is undoubtedly partly due to these poor road links.

During the next plan period, the major thrust of Botswana's transportation program will be the upgrading of major roads (Table IV-14). The program will cost over R80 million and will consist primarily of completing the bituminization of the north-south road from Ramatlabama on Botswana's southern border with South Africa to Kazungula, Botswana's gateway to its northern neighbors. Whereas bituminized road was only 3.6 percent of Botswana's national road surface in 1975, it will comprise 14.6 percent in 1981. The proportion of gravel and earth roads will fall concomitantly, indicating that the overall length of the national system will not increase (Table IV-15).

The government is also planning to construct an all-weather road through the Kalahari, ultimately linking Ghanzi with the north-south road via Kanye. The government seems to feel that this road is an important factor integrating the Kalahari with the rest of Botswana. In particular, it would facilitate moving cattle to the abattoir in Lobatse.

The government is also planning to build a road to the Tuli Block which it hopes will re-orient the economic relations of that area toward Botswana. More-over a few local feeder and connecting roads will be built.

TABLE IV-13

NATIONAL ROADS IN BOTSWANA, 1974
(km)

<u>Surface</u>	<u>Main Roads</u>	<u>Main Feeder Roads</u>	<u>Secondary</u>	<u>Total</u>
Bitumen	225	22	--	247
Gravel	889	544	77	1510
Earth	1155	828	3182	5145
Total	2269	1394	3239	6902

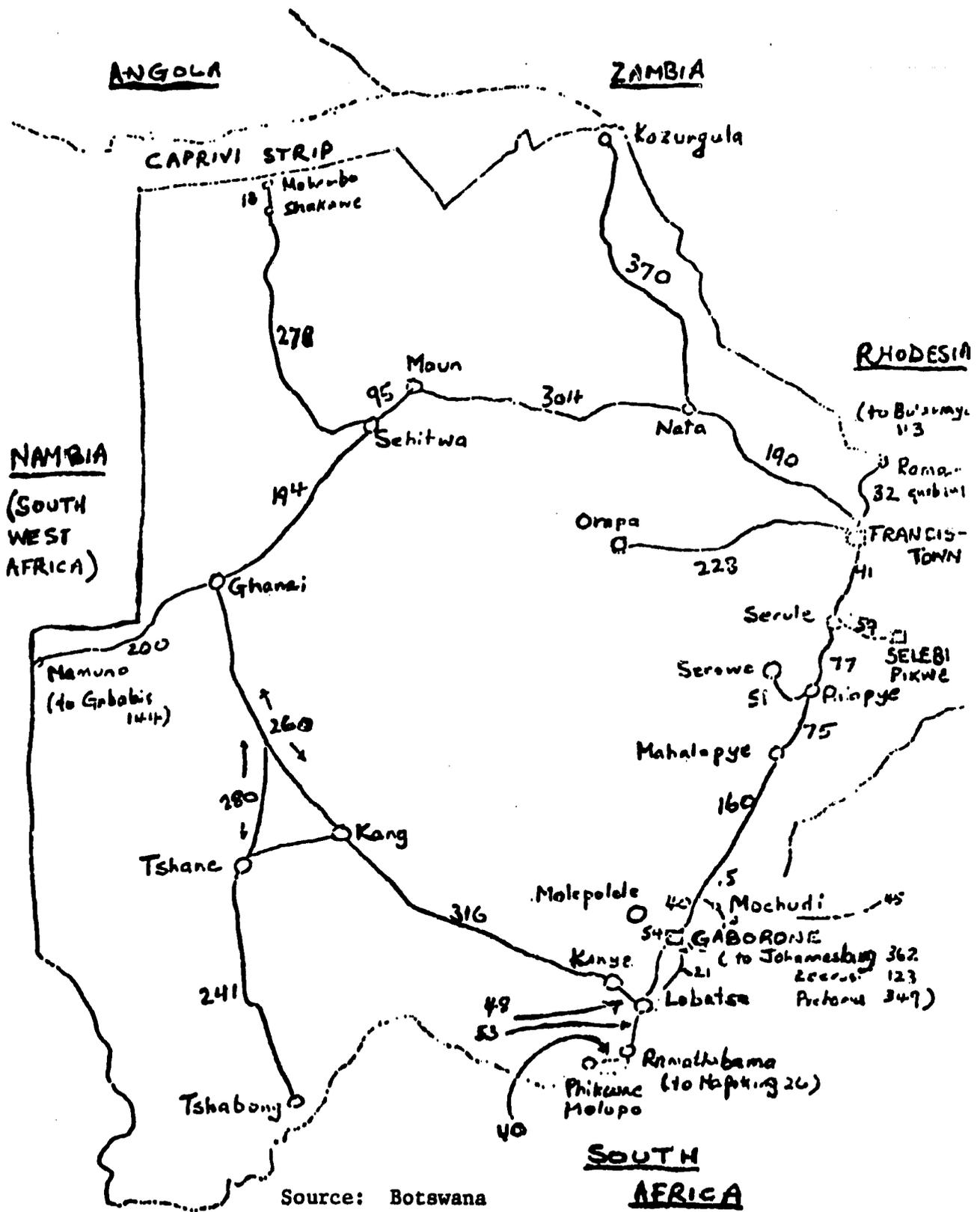
Source: Botswana Authorities.

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FIGURE IV-5

MAIN ROADS

(km)



Source: Botswana
Authorities

TABLE IV-14

CENTRAL GOVERNMENT ROAD EXPENDITURE
1975/76 - 1980/81

	Rand, Millions Total	National Development Plan Priority
North-South Road Botzam Road, and Francistown to Nata	54.2	45.9
(Other) Main Road Construction	13.8	--
Main Feeder Roads	11.0	8.7
Ghanzi-Kanye Road	6.3	--
Secondary Roads	6.5	6.5
Major Roads through Villages	1.1	--
Other Expenditure	0.8	0.3
	<u>94.9</u>	<u>61.3</u>

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TABLE IV-15

QUALITATIVE COMPOSITION OF
NATIONAL ROAD SYSTEMS
(1975 and 1981)
(percent)

	1975	1981
Bitumen	3.6	14.6
Gravel	21.9	20.6
Earth	<u>74.5</u>	<u>66.3</u>
Total	<u>100%</u>	<u>100%</u>

It is not clear that a road from the Tuli Block to the east-west line will succeed in redirecting crop sales from South Africa to Botswana, or if it will, that such a reorientation is economically desirable. Farmers in the Tuli Block sell to South Africa, not only because road links to Botswana are poor, but also because markets for some crops (particularly maize) are better there, partly as a result of South African pricing policies. Also there are no milling facilities for wheat in Botswana. In any case, sales to South Africa generate foreign exchange and it may not be in the country's best interests to discontinue them. This whole question merits further study.

In general, the road program over the next period can be characterized as an attempt to open the door to Botswana's northern neighbors and to integrate Botswana's extremities into the core of the country.

Included in the roads program is a number of rather innovative features. For a few years Botswana has been experimenting with labor-intensive methods of feeder road construction. The program, funded by the Norwegian Government, is an attempt to reduce road building costs and generate employment in the rural areas. A number of officials in the Botswana Government feel the program has been rather successful and would like to extend it. Other reports have indicated that the program faces problems similar to those affecting many public works projects: difficulty attracting workers during planting and harvest times; and high costs relative to capital intensive methods. However, since a definitive study of the costs and benefits of the program is unavailable, these general remarks should be taken as quite impressionistic.

A second innovation relates to experiments with low cost methods of building roads through Kalahari sand, which could have important implications for the planned Ghanzi-Kanye road. Preliminary tests indicate that the method requires large quantities of water, a rather inauspicious result in the desert. Experiments are continuing however.

Finally the government has instituted a selective betterment program which upgrades sections of roads which are below the desired standards reached by other portions of the network. The program is designed to even out road standards. In addition, the government is experimenting with labor-intensive methods of road maintenance on rural roads.

An essential component of an effective road transport system is the capacity to maintain the roadways. Botswana's ability in that regard is currently severely limited. The World Bank is planning to do a road maintenance study in Botswana to help establish an efficient maintenance system there.

In addition to roadways themselves, basic road transport facilities in Botswana are rather underdeveloped. There are only a few modern freight haulage fleets in Botswana, mostly in Gaborone and Francistown. There are a number of bus companies, but generally they are in financial trouble. The total number of privately registered vehicles is approximately 1,200, although the

fleet size doubled between 1970 and 1974. The government has a centralized fleet of some 2,500 vehicles, a large portion of which is specialized road maintenance equipment.

Vehicle maintenance is one of the biggest problems facing the transport industry. Government vehicles, which are administered by the government's Central Transport Organization, are poorly maintained, which detrimentally affects the field operations of almost all the government ministries. Private vehicle maintenance is reportedly not substantially better.

C. Air Facilities

There are over seventy landing strips in Botswana, the most important ones located at Gaborone, Francistown, Selebi-Pikwe, Lobatse, Orapa, Maun and Kasane. The first two are in the major commercial centers of Botswana; the next three service Botswana's major industries (copper, nickel, beef and diamonds) and the final two are important mainly for tourism (in the Okavongo and Chobe game areas). The largest plane that can land at these airports is a DC-4, except in special circumstances. Viscount 700s are currently operated under various restrictions, and Hercules C-130s have been known to land on occasion. No airport can currently service a transcontinental jet.

Many of the airports including the one at Gaborone, are reportedly in poor condition. Over the next plan period the government intends to spend over R12 million on ground facilities of which more than two-thirds will be used to construct a new international airport at Gaborone. A new airstrip will also be built at Kasane, an important tourist center in Chobe National Game Park (Table IV-16).

The apparent rationale for building the international airport is the following: the current Gaborone Airport is in definite need of major repair; as long as it is being repaired, the marginal costs of lengthening the runway to accommodate transcontinental jets are small; but the current airport is dangerously (or uncomfortably) close to residential sections of Gaborone; therefore, a new airport should be built.

Scheduled international air services in Botswana are currently operated by South African Airways (to Johannesburg), Zambian Airlines (to Lusaka) and Air Botswana (to both Johannesburg and Lusaka). The latter is the Botswana flag carrier whose actual aircraft operation has been contracted out to a non-South African company based in Johannesburg. In addition to these airlines, a number of charter companies operate in Botswana including Wenele, the South African-based airline whose operation mainly consists of transporting mine workers to South African mines.

In the recent past, the Botswana Government's attitude toward air transport has been rather ambivalent, reportedly due to the belief that only the wealthy benefit from air services. Over the last three years the government's

TABLE IV-16

PLANNED AIR TRANSPORT EXPENDITURES
1976/77 - 1980/81
(R millions)

<u>New Airports/Airfields</u>		<u>8.71</u>
Gaborone	8.46	
Kasane	0.25	
<u>Improvements to Present</u>		<u>1.69</u>
<u>Airports</u>		
Maun	0.86	
Selebi-Pikwe	0.08	
Francistown	0.75	
<u>Other</u>		<u>1.86</u>
Telecommunications	0.51	
Navigation Aids	0.43	
Fire Services Equipment	0.42	
Flight Information Region	0.50	

Source: Botswana Authorities

expenditure on air facilities has been less than 8 percent of its total transportation expenditures. Some consultants have suggested, however, that given Botswana's size and current transport conditions, an air network may be cheaper to build and operate than roads. They suggest that the government should examine more closely its air transport policy, including its decision to build an international airport. Presumably, these issues will be taken up in greater detail in the second phase of the National Transport Plan.

D. Railroads

The railway running through Botswana consists of a single-track narrow-gauge (3'6") line between Ramogwebana and Ramatlabama, and two short rail spurs (57 km to Pikwe and 16 km to Morupule) that service the copper-nickel mine and the coal field. The former is owned by Rhodesian Railways and the latter two are owned by the Botswana Government, but maintained and operated by the Rhodesians. The track between the Botswana border at Ramatlabama and Mafeking is owned by South African Railways, which has given running rights to Rhodesian Railways.

The main line contains a number of passing loops and sidings which permit up to twelve trains to travel per day in each direction. Train control is achieved by means of a paper order system, now abandoned in the rest of the Rhodesian system. Train crews work on the Bulawayo-Mafeking-Bulawayo section by means of cabooses. Passenger staff permanently based in Botswana number about 1,080 of whom about 840 are Batswana. All totalled, approximately 1,000 Batswana are employed by Rhodesian Railways, almost entirely at unskilled positions.

Most of the traffic on the railway is freight, which totalled over 2 million tons in 1975, half of that in transit. Freight traffic accounted for over 1 billion ton kilometers that same year, over two-thirds of that in transit, while almost 600,000 passengers rode the trains (Table IV-17).

The domestic freight consists primarily of cattle en route to Lobatse (70 percent of cattle sent to abattoir went by train in 1974), coal from the coal fields to the copper-nickel mine, and to power generating station at Gaborone, copper-nickel matte from Selebi-Pikwe, and petroleum products from South Africa to various points along the rail.

The only major export industry not highly dependent on the railroad on the export side is the diamond mine at Orapa, which nonetheless depends on the rail for oil imports to fuel its power plant.

The Botswana section of the railroad reportedly lost R2.1 million in 1973/74. However, this figure should be treated with caution for a number of reasons. The profitability of the railroad depends on, among other things, the pricing policies of Rhodesian Railways which is said to deliberately subsidize certain commodities. Secondly, in most circumstances the measurement of the profitability

TABLE IV-17

RAILWAY TRANSPORT

Year/ Month	Passengers carried					Tonne kilometres of Freight (thousands)			Revenue (R'000)		% Tonnage Transit	% Passenger Revenue
	1st Class	2nd Class	3rd Class	4th Class	Total	To and From Botswana Stations	In Transit	Total	Passenger Traffic	Freight Traffic		
1971	13 683	49 364	191 354	352 787	607 288			1 036 392	981			
1972	14 419	55 831	228 578	395 617	694 445	145 493	861 194	1 006 687	1 220	11 108	83.1	9.9
1973	14 794	56 375	235 083	393 622	699 874	164 492	747 951	912 443	1 363	11 823	82.0	10.3
1974	17 632	64 134	140 387	377 755	599 908	169 789	825 612	995 401	1 258	15 816	82.9	7.4
1975	18 431	68 554	102 159	379 436	568 680	216 311	874 754	1 091 065	1 263	20 462	80.2	5.8

IV-41

Source: Botswana Authorities.

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of a section of rail is bound to be highly dependent on the assumptions made. In any event, the Botswana Government receives R350 thousand per year from Rhodesian Railway for overrun rights.

The publicly announced policy of the Botswana Government is to eventually take over the railway running through the country. The details of the takeover are closely held by the government and are, in any case, subject to a good deal of uncertainty. Rough estimates made within the last two years suggest the capital costs of a takeover would run between R55 and R100 million; there would probably be running deficits as well, at least during the first few years. The government has hired a railroad supervisor to organize the institutions required to run the railroad once it is taken over. Among the plans currently considered by the government is to buy its own railroad cars to be run in the internal loop between Morupule and Selebi-Pikwe. This would constitute a first concrete step toward the development of Botswana's own rail system.

Other plans include the construction of a rail spur between Sua Pan, a rich soda ash area, and the north-south rail. This spur would be owned, and perhaps operated by the Botswana Government. However, the project depends on the Sua Pan mining project, the implementation of which is currently uncertain.

Finally, the government has been speculating for a few years about the prospects of building an east-west railway to a port in Namibia (probably Walvis Bay). The feasibility of such a railway depends on exploiting the large coal deposits in the central part of the country, and/or the copper deposits in Botswana's northwest. The issues involved are so complex and uncertain that, as far as available information indicates, it is not being seriously considered at this time.

IV. SECTORAL ANALYSES -- ENERGY, POWER AND COMMUNICATIONS

The evolution of Botswana's power and communications infrastructure has closely paralleled the overall development of the country's economy. The construction of modern power generating capacity has accompanied major cattle, mining and construction projects in the east, while relatively modern communications primarily connect the townships along the rail. Most of the rural areas depend primarily on individual energy supplies, diesel and wood, and, with the exception of the largest villages, are without telephone communications. While precise projections are unavailable, indications are that over the next plan period the government will continue to expand major energy supplies as needed by the modern sector, while undertaking moderate programs to extend centrally produced electricity to some of the major villages in the east. The expansion of telephone communications are likely to be in line with, or perhaps somewhat behind, expansion in modern sector demand.

One qualification to this generally conservative picture accounts for the possibility that Botswana will develop its vast coal deposits and become a major exporter of power. However likely the implementation of such a project is in the long run, few expect it to occur during the plan period.

A. Power

Electrical power in the modern sector is primarily produced by the Botswana Power Corporation, a government parastatal established in 1970. The corporation has a station at Selebi-Pikwe which supplies the copper-nickel mine and township and another at Gaborone. The former station is a coal-fired steam powered plant. Until recently the Gaborone plant was powered by diesel. Now 75 percent of the power is steam generated by coal. Other power is produced by various groups and individuals, the largest being the Botswana Meat Commission, the diamond mines and Rhodesian Railroads.

Power consumption from these sources increased at an average annual rate of over 38 percent from 1967 to 1973. When the copper-nickel mine began production, energy consumption dramatically increased, from 83,729 kwh in 1973 to 214,435 kwh in 1974, pushing up the rate of consumption for the entire 1969-1975 period to almost 56 percent per year (Table IV-18).

There are also a number of small power producers in Botswana, primarily in the rural areas. Many of these use diesel fueled electricity generators which power boreholes operated in many parts of the country for water. Most cooking in the rural areas is currently fueled by wood, which the villagers gather from the communal lands. In general, these sources of energy are so dispersed that their total power production is not known with any degree of accuracy.

The government is instituting a rural electrification program which will involve extending power lines to villages close to the plant in Gaborone. The first villages benefiting will be Mochudi and Tlokweng, and later Kanye and Mole-

TABLE IV-18

ELECTRICITY GENERATION
MAJOR SUPPLIERS, 1967-75 KWH ('000)^{1/}

Source of Supply	1967	1968	1969	1970	1971	1972	1973	1974	1975 Est.
B.P.C.-Southern Division	4 840	11 692	11 500	15 684	17 246	20 664	27 627	30 598	35 802
-Shashe Division	-	-	-	-	-	-	15 959	154 937	196 844
General Government	<u>2/</u>	<u>2/</u>	1 345	1 500	1 700	1 800	1 900	2 000	2 000
Francistown Town Council	<u>2/</u>	688 ^{3/}	1 379	1 604	1 859	2 316	2 678	1 500 ^{5/}	-
Botswana Meat Commission	<u>2/</u>	<u>2/</u>	7 953	9 699	10 676	10 742	13 565	1 400	10 722
Other ^{4/}	600	700	800	1 000	10 100	21 152	22 000 ^{6/}	24 000 ^{6/}	25 000
Total			22 977	29 487	41 581	56 674	83 729	214 435	270 368

Annual Growth Rate (%): 28.3 41.0 36.2 47.7 156.1 26

Average Annual Growth Rate, 1969 - 1975 (%): 55.9

Average Annual Growth Rate, 1969 - 1973 (%)

^{1/} Botswana National Accounts and Selected Indicators, 1966-76, Government Printing Office, Gaborone.

^{2/} Not available.

^{3/} Consumption only.

^{4/} Mining establishments exclusive of Morupule Colliery and Rhodesia Railways.

^{5/} Estimate. Electricity supplied from B.P.C. Shashe Division as from June 1974.

^{6/} Estimate.

polole. Government officials project a surplus of energy supplies in these villages for quite some time and will probably subsidize their electricity consumption, at least in the first few years.

The major northeastern villages, Serowe, Palapye and Mahalapye present greater problems because they are rather far from the Selebi-Pikwe power plant. The government is considering connecting Orapa's power generator to the Selebi-Pikwe plant, using the line as a basis for rural tie-ins to the major villages in the area.

The government eventually wants to establish a central generating station at the Morupule Colliery which would supply electricity to most of the eastern region of Botswana. Rather more speculative are plans to use Botswana's large coal deposits to generate and export massive quantities of electricity to various points on the African Continent.

B. Communications

At the end of March 1973, the most recent year for which information is available, there were eighty-five post offices in Botswana and thirty-five telephone exchanges with 3,500 lines connected to 5,500 telephones, mostly along the line of rail (Figure IV-6). The number of telephones grew at an annual average rate of 16 percent between 1965/66 and 1972/73, and the waiting list for new phones also grew from seventy-seven in 1967/68 to 504 in 1971/72 (Table IV-19). The number of post offices has grown from sixty-four in 1965/66 to eighty-five in 1972/73, growing at an average annual rate of 7 percent. The government also operates radio links to various rural areas. In addition, a radio station, Radio Botswana, operated by the government broadcasts English and Setswana medium educational and entertainment programs throughout the southern portion of the country.

Moreover, there is still a fairly large dependence on oil in Botswana. The Botswana Government projected in 1976, that approximately 113 million liters of diesel were consumed. Thus, Botswana, like many countries, is highly vulnerable to an oil embargo. Not only do rural water supplies depend on it, but the diamond mines use diesel for their power plants. A few years ago the government considered building large oil storage tanks to protect against a disruption of its oil supply, most of which comes from South Africa. The plan was dropped, but reportedly is being reconsidered.

With regard to traditional sources of power, a major constraint appears to be an approaching shortage of wood supplies for cooking in nearby traditional villages, though no detailed study of the problem has been undertaken.

FIGURE IV-6

TELEPHONE TRUNK NETWORK

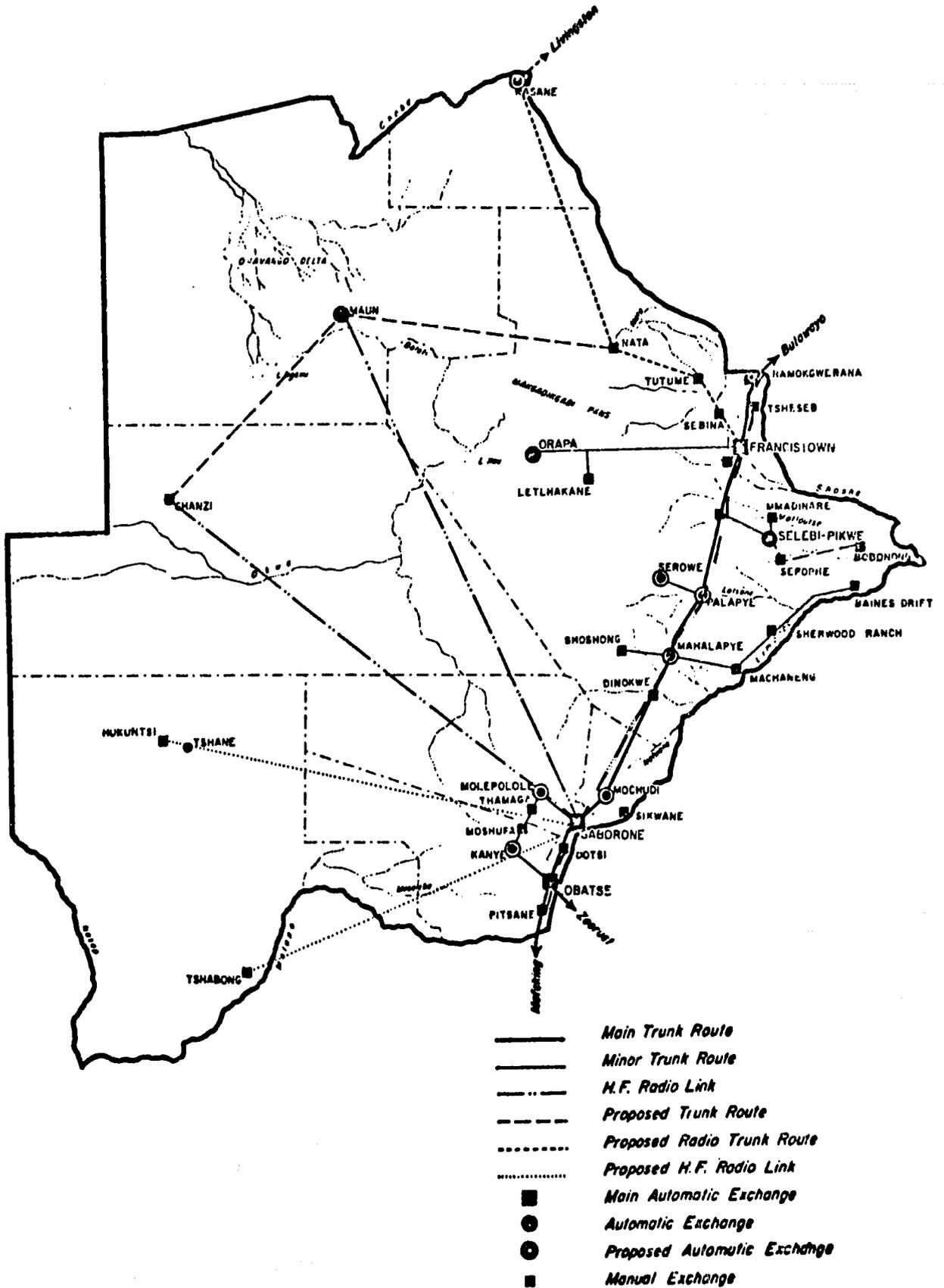


TABLE IV-19
GROWTH IN POSTAL AND TELECOMMUNICATION SERVICES, 1965-78

<i>Financial Year</i>	<i>Number of Telephone Exchange Lines in Service</i>	<i>Number of Telephones</i>	<i>Numbers on Telephone Waiting List</i>	<i>Number of Telex Subscribers</i>	<i>Number of Post Offices</i>
1965/66	1 314	1 907	-	-	64
1966/67	1 462	2 295	-	-	65
1967/68	1 739	2 642	77	-	72
1968/69	1 970	3 099	197	-	74
1969/70	2 324	3 680	252	-	73
1970/71	2 492	4 034	412	-	75
1971/72	2 778	4 558	504	21	77
1972/73 (Est.)	3 500	5 500	-	37	85
Average Annual Growth 1965-73	15%	16%	-	n.a.	7%
Average Annual Growth 1973-78 (projected)	20%	20%	-	30%	7%
1977/78 (Est.)	8 700	14 000	-	140	118

Source: Botswana National Development Plan, 1973-1978, p. 269.

IV, SECTORAL ANALYSES -- HEALTH

A. Setting

Botswana's death rate, 13.7 per 1,000, is commonly considered the lowest in Africa. Statistically, the rate results from relatively little infant mortality, estimated to be 103 per 1,000 male and 91 per 1,000 female births. Although the fundamental reasons for the low mortality rate have not been rigorously examined, one major factor is probably the dry temperate climate in which over 80 percent of Botswana's population lives. Such common African tropical diseases as malaria, sleeping sickness and leprosy are thus confined to the northern part of the country which are considerably less populated. Of course, people living in eastern Botswana have not completely escaped disease. Primary causes of morbidity in this region are respiratory and gastroenteric ailments. Venereal disease also appears to be a major (but overrated) problem (Table IV-20), and schistosomiasis (bilharzia) is known to exist in many parts of the country.

Some believe that the nutritional status of Botswana's population is partially responsible for its relatively good health record, but a number of studies of nutrition have been conducted in Botswana, with somewhat conflicting findings. One study found that children under five were well nourished, while others suggested that 17 percent of the pre-school children had some degree of protein calorie malnutrition. School children were found in this same study to have relatively good height and weight, and no vitamin deficiencies. A quite recent report, the Rural Income Distribution Study, reveals that almost half of rural families have incomes below the poverty datum line. This line was partly calculated on the basis of a nutritionally sound diet. Yet, this is only indirect proof and certainly not conclusive.

The calculations of income made in this study attempted to include income in kind received from the United Nations World Food Program, which has developed a large system for the distribution of food in Botswana, primarily to school children. In 1974 it was estimated that during the school term, about 220,000 persons (i.e., a third of the total population) received at least one meal a day, five days a week. In addition to the school feeding program, there are programs to feed physically vulnerable groups, including pregnant women and children suffering from tuberculosis.

B. Health Facilities

It is also difficult to determine the effect of Botswana's health care delivery system on the health of Botswana's population. There appears to be a general consensus that Botswana has overemphasized hospital based, curative care relative to more decentralized, more preventive facilities and techniques. Overall in Botswana there are fourteen hospitals both run by the government and private interests, the latter primarily missionary (Table IV-21). In addition to these hospitals, there are numerous other health institutions distributed throughout the country. These include health centers, health clinics

TABLE IV-20

Outpatient Visits Reported
through Record Keeping
System - 1973 (Total Country)
but Incomplete)

Outpatient Visits Reported in an
Outpatient Survey April, 1974
(Total Country: All Hospitals,
70% of Health Centers & Clinics)

	<u>Cases</u>	<u>%</u>		<u>Cases</u>	<u>%</u>
Respiratory diseases	63,557	18.8	Respiratory diseases	270	18.3
Venereal diseases	37,954	11.2	Genito-urinary diseases	168	11.4
Enteric diseases	30,354	9.0	Skin diseases	147	10.0
Ill-defined diseases	24,299	7.2	Ill-defined diseases	125	8.5
Skin diseases	24,009	7.1	Venereal diseases	117	7.9
Genito-urinary diseases	22,969	6.9	Injuries, burns	109	7.4
Injuries, burns	19,896	5.9	Pregnancy	52	3.5
Eye diseases	16,765	5.0	Malaria	52	3.5
Digestive diseases	15,758	4.7	Digestive diseases	49	3.0
Other reportable communicable	<u>10,801</u>	3.2	Enteric diseases	<u>43</u>	2.9
TOTAL CASES	338,669			1,478	

(Columns do not add to 100%).

H. G. S.

TABLE IV-21

GENERAL HOSPITALS

(with general in- and outpatient care, an operating theater,
laboratory and at least one resident doctor)

Government Hospitals - 7 facilities with 1,106 beds:

-- Gaborone, Princess Marina Hospital (including its separate tuberculosis department known as the Lady Liesching Health Centre)	286 beds
-- Lobatse, Athlone General Hospital	168 beds
-- Maun General Hospital	103 beds
-- Mahalapye General Hospital	90 beds
-- Serowe, Sekgoma Memorial Hospital	189 beds
-- Francistown, Jubilee Hospital	218 beds
-- Selebi-Pikwe Hospital	52 beds

Mission Hospitals - 4 facilities with 565 beds:

-- Ramotswa, Bamalete Lutheran Hospital	97 beds
-- Molepolole, Scottish Livingstone Hospital	169 beds
-- Mochudi, Deborah Retief Memorial Hospital	132 beds
-- Kanye, Seventh Day Adventist Hospital	167 beds

Mental Hospital - 1 facility with 135 beds:

-- Lobatse, Government Mental Hospital	135 beds
--	----------

and health posts (Tables IV-22 and IV-23). The first are major centers consisting of one to thirty beds for curative care under the charge of an experienced public health or charge nurse. Clinics and health posts are not precisely defined, but generally consist of facilities which are regularly visited by a nurse or doctor. Generally speaking, the hospitals and health centers serve as regional institutions to which clinics and health posts refer cases.

There is one hospital bed for every 300 people living in Botswana, a rather high ratio by African standards. The overall occupancy rate was 70 percent in 1973. Generally speaking, though precise statistics are difficult to come by, these facilities are rather inequitably distributed, with the Kalahari, Ngamiland and Chobe underrepresented, both in terms of quantity and quality of health care.

C. Health Care Personnel

Currently there are approximately fifty-two doctors living in Botswana, or one doctor for every 12,500 people. This is a moderate ratio compared to other African countries. In addition, there are a variety of other health personnel in Botswana, including nurses, health assistants and technicians (Table IV-24). Most of these undergo training in Botswana at one of the nurse or health training schools. Only specialized technicians and doctors must go outside of Botswana to receive medical education. Among these other health personnel are family welfare educators who are trained to give informal education and medical help to people in the rural areas.

Apart from the more modern health care personnel, some 2,000 traditional healers continue to practice in Botswana. Of these there are two major types; herbalists and divine healers. The former prescribe and sell medicinal plants and the latter practice herbalism and bone throwing.

Some people believe that the traditional system complements the modern one. Both healers and their clients are thought to classify diseases as European and Tswana. Diseases considered European include smallpox, upper respiratory diseases and many skin lesions. Tswana diseases include venereal diseases, infertility and hallucinatory disorders. These classifications are rather fluid, depending on particular healers and the observed successes and failures of modern and traditional practice.

TABLE IV-22

HEALTH CENTERS

(with from 1 to 30 beds for curative care, under the charge of an experienced public health nurse or charge nurse)

Government - 6 existing facilities with 88 beds:

-- Ghanzi	28 beds
-- Lethlakane (planned future facility)	0 beds
-- Kasane	33 beds
-- Palapye	2 beds
-- Rakops	12 beds
-- Tsabong	9 beds
-- Bobonong	4 beds

Mission - 2 facilities with 93 beds:

-- Mmadinare, St. Peter's Mission Health Centre	55 beds
-- Maun, U.C.C. Maternity Centre	38 beds

Special Facilities

Government

- Gaborone, The National Health Institute (educational)

In addition there are 2 Industrial Hospitals with a total of 70 beds:

-- Orapa Diamond Mine Hospital	40 beds
-- Selebi-Pikwe Mine Hospital	30 beds

TABLE IV-23

DISTRIBUTION OF CLINICS AND HEALTH POSTS, 1974

District	Clinics	Health Posts
North West (Ngamiland and Chobe)	6	16
Central	12	48
Ghanzi	1	11
Kgalagadi	2	18
Kgatleng	4	26
Kweneng	4	20
North East	1	6
South East	3	4
Southern (Ngwaketse)	<u>4</u>	<u>11</u>
TOTAL	37	160

TABLE IV-24

ESTIMATED NUMBERS OF HEALTH WORKERS, 1974

Category	Number
Medical doctors	52
Danish medical students	4
General (registered) nurses	253
Enrolled nurses	127
Enrolled nurse/midwives	12
Radiographers	3
Laboratory technicians	2
Physiotherapist	1
Health assistants/clinical	45
Health assistants/sanitation	15
Dentists	4
Pharmacists	8
Health inspectors	13
Family welfare educators	100
Administrative/general duty assistants	330

Source: Syncrisis: The Dynamics of Health, Nancy R. Pielemeier, MHS
 U.S. Department of Health, Education and Welfare, May 1975,
 p. 23.

IV. SECTORAL ANALYSES -- EDUCATION

A. Setting

Like many African countries, Botswana faces a serious shortage of well educated citizens trained in modern skills. The present stock of skilled local manpower is far below the demand, the gap being filled by expatriates to the extent it is filled at all. At the time of the 1972 Botswana manpower survey, expatriates constituted 80 percent of the degree holders in wage employment, 50 percent of the workers with senior secondary schooling and 20 percent with junior secondary schooling.

This situation is unlikely to radically change in the near future. Just on the basis of narrow manpower criteria, excess demand for local secondary students is projected to exist until almost 1988. Considering the knowledge and skills required to manage and participate in a modernizing society, even that projection is probably over sanguine. Moreover, there is little doubt that a shortage of local university graduates will exist for many years to come. (Table IV-25).

This situation can be attributed, in part, to Botswana's colonial legacy. At the time of independence, only 3 percent of the secondary school aged children attended secondary school and fewer than half of primary school aged students went to primary schools (43.3 percent in 1965). (Table IV-26.) A university designated for Botswana existed in Lesotho, but only five Botswana students were enrolled in 1962. A handful of students had received scholarships to study abroad, but by 1962 only thirty-five Botswana living in Bechuanaland held B.A. degrees, and over 75 percent of Botswana's adults were illiterate.

Thus, upon independence, Botswana had very few educated citizens. Moreover, most of those who did go to school were not appropriately trained to meet the needs of an emergent economy. Most of Bechuanaland's primary and secondary schools had been established by missionary societies whose curricula stressed liberal arts and religious studies to the virtual exclusion of math, science and more practical subjects.

After 1966 Botswana's educational system developed rather slowly, but steadily. Over the nine years following independence primary school enrollments increased at an average annual rate of 5.4 percent and secondary school enrollment increased by 19 percent a year, but from a small base. In addition, a number of post-secondary institutions were built. (Tables IV-27 to 29.)

However, while there has been progress, the educational system is still inadequate. Many complex issues confront the future development of education in Botswana which a National Commission on Education has been established to study. Its report, expected to be complete by the beginning of next year, will probably have a major impact on the government's educational policy. Thus, as a word of caution, some of the analysis, projections and perhaps suggestions found in this section might well be superceded by that study.

TABLE IV-25

SUPPLY AND DEMAND FOR EDUCATED MANPOWER, 1972 - 1988
(by required educational attainment)

	Junior Secondary (Grades 8 - 10)	Senior Secondary (Grades 11 - 12)	DEGREE
<u>1972</u>			
Botswana	6,200	1,100	180
Expatriates	800	700	580
<u>1978</u>			
Required Stock	14,600	4,200	1,450
Supply	11,000	3,300	480
Balance	-3,600	-900	-970
<u>1988</u>			
Required Stock	24,200	7,700	2,410
Supply*	22,300	11,700	2,160
Balance	-1,900	+4,000	-250

*Includes an allowance for output from programs equivalent to junior secondary (e.g., Youth Brigades).

TABLE IV-26

SCHOOL ENROLLMENT IN 1965 AS A PERCENTAGE
OF SCHOOL AGE AND SEX GROUP, 1964

	Male	Female	Total
1. Primary School Enrollment	28,892	37,169	66,061
Percentage of respective population, 5-14	37.7	49.0	43.3
2. Secondary School Enrollment	751	574	1,325
Percentage of respective population, 15-19	2.96	2.2	2.59
3. Vocational Training	60	5	65
Percentage of respective population, 15-19	.2	-	.1
4. Teacher Education	134	134	268
Percentage of respective population, 15-19	.5	.5	.05
Percentage of respective population, 20-24	.7	.6	.6

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TABLE IV-27

PRIMARY SCHOOLS

Year	No. of Schools	No. of Pupils	No. Trained	% Untrained Teachers	Pupil/Teacher Ratio
1966	251	71,546	947	43.4	43.1
1967	252	71,577	1,029	39.9	42.1
1968	257	78,963	1,114	37.8	44.1
1969	280	82,214	1,228	39.7	40.1
1970	282	83,002	1,344	40.9	36.1
1971	288	78,442	1,448	39.7	33.1
1972	294	81,662	1,693	31.4	33.1
1973	308	95,511	1,950	27.7	35.1
1974	316	103,711	2,053	32.6	34.1
1975	323	116,293	2,231	36.4	33.1

Average per Annum Growth Rate;

2.8%

5.4%

9.5%

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TABLE IV-28

EDUCATION STATISTICS
SECONDARY SCHOOLS, 1966 - 1975

Year	No. of ^{1/} Schools	No. of Pupils	No. of Teachers	Student: Teacher Ratio	No Passing	
					J.C.	Cambridge
1966	9	1,531	89	17:1	200	50
1967	9	1,854	111	17:1	258	66
1968	9	2,299	131	18:1	289	113
1969	10	3,099	157	20:1	358	152
1970	11	3,905	197	20:1	533	166
1971	13	4,740	250	19:1	754	185
1972	14	5,538	283	20:1	901	227
1973	14	6,152	311	20:1	1,201	240
1974	15	7,055	350	20:1	1,381	241
1975	15	8,434	397	21:1	1,510	363
<u>Average Annual Growth Rate</u>						
	5.6%	18.9%	16.6%		22.4%	22.0%

^{1/} Government and aided.

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TABLE IV-29

POST-SECONDARY INSTITUTIONS

Institution	Enrollment	Teachers
National Center for Vocational Training (grades 11-17)	250	18
Botswana Agricultural College (grades 11-14)	180	15
Nurses Training School (grades 11-15)	300	10
University of Botswana and Swaziland	300	75
Teacher Training:		
Primary Grades, 11-12	380	35
Secondary grades, 13-15	72	6

Source: World Bank

However, the general point made here is unlikely to be altered, In Botswana today there are few needs more critical than improved education,

B. The Formal Education System

1. Coverage--Botswana's formal education system consists of the primary level (Grades 1-7), junior secondary level (Grades 8-10), senior secondary level (Grades 11-12), and various post-secondary institutions. Students receive a Primary School Leaver's Certificate after successfully completing junior secondary school, and a Cambridge Overseas School Certificate after passing an examination at the end of the 12th Grade. The government has decided that, due to manpower requirements, only half of those achieving junior level can go on to senior secondary school. Of those who do take the Cambridge, approximately half pass. Since only a small proportion of primary school leavers ever go on to junior secondary school, these factors severely limit the numbers of Botswana qualified for post-secondary education. The net result is that in 1974, 70 percent of the 6-13 age group were enrolled in primary school, only 13 percent of the 14-19 age group were enrolled in secondary schools, and 1 percent of the relevant group were enrolled in post-secondary institutions.

Within this inadequate overall structure, the geographical distribution of school enrollment across districts seems to be relatively equal in Botswana. On the basis of a gini coefficient measure of geographical distribution, Botswana's primary school enrollment is more equally distributed than Tanzania's, and slightly less equal than Kenya's. Senior school enrollment is significantly more equal than either in Thailand or Tanzania.

When geographical distribution figures are disaggregated, these basic results are confirmed, though the inequalities that do exist become apparent. Data suggest that the southern, western, central and northwestern districts of Botswana are underrepresented in terms of school enrollments.

In addition to enrollments, educational facilities are distributed rather equally among the districts. The gini coefficients for the geographical distribution of teachers, classrooms and recurrent expenditure per pupil are .09, .07, and .08 respectively. A more disaggregated analysis shows which districts are underrepresented in particular resource categories. Again they are northwestern, central and southern districts of Botswana.

The distribution of educational facilities and trained teachers, though fairly equal between districts, is nevertheless quite skewed between villages of different sizes. As one might expect larger villages and towns have much better facilities and a larger percentage of trained teachers than do smaller villages. Not coincidentally, students from small villages generally receive worse grades than those from larger villages.

2. Effectiveness--Generally speaking, the performance of Botswana's educational system is rather poor. A number of factors are responsible. As indicated before, the missionary ancestors of Botswana's educational system created curricula, administrators and teachers which were largely oriented toward religious and literary education. That legacy has not been fundamentally altered. (Some attribute this continuity to the dominance of British and/or colonial educational philosophies in Botswana's ministries. Others cite inertia generated by a system in which teachers and administrators have developed vested interests, or are otherwise unwilling to change.) As a result, to the extent that mathematical, scientific and practical studies are more appropriate to Botswana's situation, present curricula are severely outmoded.

In addition, the administration and operation of the education system has been rather inefficient and inadequate until recently, largely due to a lack of qualified staff. Before 1976, the recurrent and capital costs of primary education were funded almost exclusively by the local councils, leaving the central government little control over the quality of teachers, methods or facilities. The capabilities of the local councils were evidently unequal to the task. The Ministry of Education, which is currently responsible for all formal education, has been administratively strengthened, and with the advice of the National Commission on Education, is expected to make significant administrative changes.

Finally, the extremely poor base of educated citizens with which Botswana began would have made rapid educational development extremely difficult even in the best of situations.

As a result of these factors, the quality of teaching in Botswana leaves much to be desired. For example, primary school classes after Grade Two are supposed to be taught in English, but most primary school teachers have inadequate knowledge of the language. Moreover, in 1975, 36 percent of the primary school teachers in Botswana had no teacher training. The government currently has a highly regarded primary teachers program, but its capacity is small, turning out only 220 teachers a year. At world rates deficits of trained primary teachers will continue through 1985. Thus, the subjects which are taught are often taught poorly, and subjects which probably should be in the curriculum are not taught at all. The ultimate result is that primary schools neither adequately prepare students for secondary school, which is their expressed purpose, nor really attempt to appropriately educate the great majority of the students who will never go on to secondary school.

The situation in the secondary schools is not much better. Although only 10 percent of the secondary school teachers were untrained in 1974, 80 percent were expatriates who primarily teach on two-year contracts, and come from a wide range of backgrounds. A productive teaching environment is probably not one of the results of this system. Although large proportions of primary and junior level students (90 percent and 82 percent) pass their locally written

qualifying exams, only 48 percent of the secondary school graduates pass the Cambridge Overseas Certificate examination. It may be that the Cambridge tests irrelevant knowledge. However, most Batswana going to a university must first take refresher courses in math, science and English which suggests that more than the exam is at fault. The World Bank is building increased secondary teacher training capacity and the Botswana Government is attempting to recruit expatriate teachers on the basis of five-year contracts. The government has tried to hire teachers from Nigeria and Ghana with little apparent success. It may be that higher salaries would attract such secondary school teachers, and that foreign donors could help through some sort of subsidy scheme.

In any case, only a small number of Batswana students ever reach the post-secondary education system which consists of a number of institutions designed for specialized manpower needs. They include the National Center for Vocational Training, which trains craftsmen and technicians; the Botswana Agricultural College, which trains agricultural technicians and community development workers; the Nurse Training School; the University of Botswana and Swaziland (formerly University of Botswana, Lesotho and Swaziland), which gives various degree courses; and various teacher training schools.

The post-secondary system has made substantial progress, but is hindered by a variety of problems. Since Lesotho pulled out of the University system in 1975, the University of Botswana and Swaziland has essentially had to start from scratch. Although the primary and secondary teacher training schools are evidently quite good, their capacity is inadequate. Furthermore, some believe that the vocational schools teach in a manner inappropriate to the background and needs of the Batswana and their economy.

C. The Nonformal System

1. Coverage--Detailed information on the nonformal education system is scarce. Generally, the system consists of a variety of programs managed by a myriad of government ministries and community organizations. Some of the programs are extremely innovative, and, in many cases, provide training much more appropriate to rural sector and some modern sector needs than does the formal education system.

However, knowledgeable sources suggest that the capacity of these programs is woefully inadequate. For example, there are currently some 48,000 primary school leavers between the ages of 14 and 18 who are neither in secondary school nor in cash employment. Yet, the Youth Brigades, which constitutes one of the largest nonformal programs, can accommodate only 2,000 students per year. The program thus has a numerically marginal impact on the youth population, to say nothing of the thousands of young and old adults who are also lacking in important skills. While these figures are only suggestive, there seems to be little doubt that coverage of the current nonformal system is insufficient.

2. Effectiveness--While it seems clear that the nonformal education is lacking in quantity, the quality, though uneven, is said to be generally high. Perhaps the best known nonformal education institution is the Youth Brigades, which gives training in craft and mechanical skills to students, while largely supporting itself by selling goods the students produce. The Brigades turn out approximately 700 skilled and semi-skilled workers for the modern sector each year and are generally considered to be quite successful.

The Brigades are only one of a number of rather innovative nonformal educational programs in Botswana today. Another is the Botswana Extension College, which operates a variety of radio and correspondence courses directed primarily toward the rural areas and which is said to reach over 4,000 students a year. There are a number of other programs of varying quality, which combined with those institutions just mentioned, paint a general picture of a nonformal sector which has made a promising beginning, but a long way to go.

IV. SECTORAL ANALYSES -- POPULATION

A. Introduction

In order to understand the nature of population growth in Botswana, it is important to take into account the temporary and permanent emigration that occurs between Botswana and its neighbors, particularly South Africa. Temporary emigration is responsible for the large discrepancy between resident and de jure population (residents plus citizens living abroad), while permanent emigration helps to explain anomalies between natural and observed rates of population growth.

The two most recent comprehensive population censuses were taken in 1964 and 1971, though specialized censuses have been taken since then. The 1971 census estimates that, for the resident population, crude birth and death rates were 45.3 and 14.5 percent respectively, yielding a rate of natural increase of 3.08 percent per annum. However, the intercensal growth rate implied by the 1964 and 1971 censuses is only 1.87. One explanation for this discrepancy is the conjecture that there were abnormally low birth rates and/or abnormally high death rates over the period. Another explanation is that there were high rates of permanent emigration. (It has been estimated that 36,000 persons over the age of ten left the country between 1964 and 1971. Manpower and Employment in Botswana, 1973.) The true explanation is probably some combination of these two hypotheses.

Similarly large numbers of Botswana leave the country temporarily to work abroad, primarily in South Africa. Some 35,700 people were thought to have temporarily left in 1964, while that number is officially estimated to have increased to 48,000 in 1971, though unofficial estimates suggest the true number may be as high as 60,000.

The numerical importance of Botswana's temporary and permanent emigration as well as the uncertainty surrounding their determinants and future, severely complicate analyses and projections of population growth and its significance for Botswana. Any dramatic change in emigration behavior due to political events in surrounding countries, for example, could have a critical impact on Botswana's economy. Even apart from severe departures from trend, the emigration factor complicates any analysis based on traditional summary statistics. Thus, the data and summary statistics presented here must be treated with great caution.

B. Basic Data

On the assumption of a 2.58 percent compound growth rate between 1971 and 1976, Botswana's resident and non-resident population was estimated to be 725,500 people in 1976. The resident population in turn, was estimated to be 679,500 in 1976, based on the assumption that 46,000 Botswana were temporarily absent.

Using that resident population estimate yields an overall population density of 3,089 people per square mile, which is extremely low by most standards. However, Botswana's population is rather concentrated in the east, with over 80 percent of the people living within fifty miles of the rail, or on about one-fifth of Botswana's surface area. Using these figures, the population density in the east is approximately 10.1 people per square mile.

About 5 percent or 11,000 square miles of Botswana's land, located primarily in the east, is arable. Thus, there are 61.77 people per square mile of arable land, or .238 people per hectare of arable land indicating a net growth rate of approximately 3.32 over the entire period. The population per hectare of arable and cattle raising land is, of course, even lower. Even if the resident population were to include all absentees, as well as those thought to have migrated since 1971 (some 70,000 or more Botswana), the number of people per hectare of arable land would be only .263.

The government has made population projections based on a number of different assumptions concerning emigration and fertility, combined with an assumption of declining fertility. If there is no more permanent migration, and fertility does not decline, the resident population is estimated to be 843,000 in 1981 and 1,646,000 in 2001. (Table IV-30.) In the latter year, assuming no more or less land becomes arable, there would be .57 people per hectare of arable land, and the population density in the east, assuming that 82.5 percent of the people continue to live there, would be 41.357 people per square mile.

These data paint a rather sanguine picture of Botswana's population but that is because they ignore most aspects of Botswana's economic situation that are important. If they are used to suggest that Botswana's ecological position is now and will likely remain healthy, they implicitly assume that arable land or land as such is the only factor of production that is important for Botswana's economic and social health, and that Botswana's human population is the only population that lives on the land. Neither of these is the case of course. Rainfall, top soil, capital, equipment and knowledge of appropriate cultivation methods are all integral factors of production; and there are 3,000,000 head of cattle accompanying the human population in Botswana. When these other factors are taken into account, the population picture looks rather more bleak.

However, just as arable land is only one of the important factors of production, neither are the other factors of production fixed. Thus, the question of whether a country's population is too low or too high depends both on current factor endowments, and also on the rate of change and the use of those endowments over time, both of which can be affected by, among other things, government policy.

A projection of employment generation relative to population growth rates is an indirect way of looking at this complex of factors. The government estimates that Botswana's labor force will grow by 10.4 percent over the next five

TABLE IV- 30

PROJECTED POPULATION TOTALS (MID-YEAR ESTIMATES IN THOUSANDS)
AND RATES OF GROWTH (PERCENT PER ANNUM), 1971 - 2000

Year	<i>No Permanent Emigration</i>				<i>Continued Emigration</i>			
	<i>Constant Fertility</i>		<i>Declining Fertility</i>		<i>Constant Fertility</i>		<i>Declining Fertility</i>	
	<i>Total Population</i>	<i>Rate of Growth</i>	<i>Total Population</i>	<i>Rate of Growth</i>	<i>Total Population</i>	<i>Rate of Growth</i>	<i>Total Population</i>	<i>Rate of Growth</i>
1971	617	3.15	617	2.91	617	2.41	617	2.11
1976	720	3.20	711	2.67	693	2.43	685	1.87
1981	843	3.29	812	2.48	782	2.56	752	1.73
1986	991	3.37	917	2.31	886	2.67	819	1.56
1991	1 169	3.45	1 028	2.06	1 011	2.77	885	1.38
1996	1 385	3.51	1 139	1.79	1 161	2.80	948	1.08
2001	1 546		1 245		1 340		1 000	

1701x

years and that the number of jobs in the modern sector will grow by over 22 percent. But even though the percentage of the work force in the modern sector employment will increase from 16.8 percent in 1976 to 18.7 percent in 1981, the total number of residents not employed in the modern sector will increase by 46,000 or 17.6 percent. (Table IV-31.)

Thus, assuming that this modern sector employment generation is a reasonable projection based on rational policies, the question becomes whether the traditional agricultural and urban sector can productively absorb the population increase expected over the next five years.

This whole question does not seem to have been adequately studied by the Botswana authorities. A curious anomaly characterizes most discussions of rural employment and unemployment. On the one hand, activity rates in Botswana are held to be rather low, while at the same time, labor shortages are thought to be a major constraint on agricultural production. There is nothing necessarily contradictory about these two statements. The low activity rates are concentrated among women, and the male labor shortage is probably due to low agricultural returns relative to wages earned from working in South Africa or Botswana's modern sector. Moreover, it is not unusual in agricultural societies dominated by seasonal labor demands to have unemployment or underemployment during some parts of the year and labor shortages during other times. The point, however, is that there is basic lack of information on Botswana's rural employment situation, and more importantly, on how rural employment would respond to various policies.

C. Present Population Programs

The International Planned Parenthood Federation Program (IPPF) has been involved in population control in Botswana since 1968, when it began supplying contraceptives in Serowe, a major eastern village. In 1971, the Botswana Government became an affiliate member of IPPF, and the government decided to create a National Family Planning Program.

Data on the operations of the IPPF program are available from an evaluation undertaken by the IPPF in 1973. This evaluation indicated that between 1968 and 1972, the IPPF program reached approximately 10 percent of the eligible population in areas surveyed, but only 5.6 percent of the country's total eligible population.

Overall, there were eleven acceptors per 1,000 people, 37 percent of whom never returned to the clinic and 17 percent of whom returned only once. The study also showed that a follow-up survey lost 45 percent of the patients, and of those found, 65 percent were currently contracepting. One can assume that the proportion of all acceptors maintaining contraception is lower.

A unique aspect of the Botswana IPPF program is the creation of a new type of worker known as the Family Welfare Educator. These workers are chosen by

TABLE IV-31

GROWTH AND COMPOSITION OF LABOR FORCE
BY EMPLOYMENT, 1976 - 1981

	1976	1981	% Change
Absent ^{1/}	46,000	46,000	-0-
Employed in formal sector	66,000	81,000	22.7
Not employed in formal sector	261,000	307,000	17.6
Total Labor Force	373,000	434,000	16.3

^{1/} This is the number assumed to be temporarily absent.

Source: Botswana Authorities.

their respective villages or district councils and are given eleven weeks training. They are supposed to then return to their villages to motivate people to use health care services. Subjects taught during their training courses include nutrition, health education, first aid, family planning, home economics and community development.

In the field, Family Welfare Educators are supervised by clinic staff and regional medical teams and are engaged in home visiting and follow-up of malnourished children, TB cases, and family planning clients; they work in clinics and visit schools, hospitals, women's groups and prisons.

The effectiveness of these personnel is unclear. Many in the health care profession are skeptical of their usefulness, particularly in view of their limited training. Apart from that, they confront the administrative and transportation problems typical of Botswana.

Other population programs include activities funded by the U.N. Fund for Population Activities through WHO and UNICEF. These programs essentially provide medical staff and equipment for ongoing family health and planning activities.

D. Government Attitudes Toward Family Planning

The Botswana Government's attitude toward population planning, at least as expressed in the 1973 - 78 National Development Plan, is based on the following premise: "At Botswana's stage of development, economic growth is in no way assisted by the rapidly rising population. Living standards are reduced in proportion to the growth in population. Although Botswana is a large country in terms of area, it is not at present underpopulated in terms of current resource endowment."

At the same time, the government has indicated that all population control policies would be based on encouragement and provision of opportunities, rather than through any form of coercion.

While the government seems to feel that controlling population growth is important, and, in 1971, was among the first African countries to institute a national family planning program, it has not apparently devoted much money to developing a program. All totalled, the government seems to have spent approximately R215 thousand for family planning between 1973 and 1976/77, or one-tenth of one percent of the development expenditure for that period.

IV, SECTORAL ANALYSES -- INDUSTRY AND COMMERCE^{1/}

A. Setting

Botswana's modern sector has grown rapidly over the last five years. The impetus for most of that expansion has come from the two major mining and infrastructure projects at Orapa and Selebi-Pikwe. These, together with the construction of the new capital at Gaborone, created a major boom in the building industry, which, through consequent increases in incomes and consumption, helped induce a marked expansion in retail trade and commerce, generally. Between 1968/69 and 1976/77 the construction sector's value added increased over nine-fold while that of the commercial sector grew twelve times over. Though this dramatic growth could hardly have left manufacturing untouched, the manufacturing industry grew from a very low base of approximately R1.4 million in 1968/69 to only R4.5 million in 1976/77. Thus, major linkages between the economy's overall growth and the manufacturing sector failed to materialize, as most of the increased consumption demand generated by Botswana's expansion was met by marked increases in consumer imports.

Associated with the growth of the construction, commercial and industrial sectors were major expansions in cash employment. Between 1968 and 1975, Botswana employment in the construction industry increased more than five-fold, more than four-fold in the manufacturing and more than two-fold in commerce and finance (Table IV-32). These sectors comprised one-third of total cash employment and over 50 percent of citizens cash wages and salaries in 1975.

Yet despite this rapid growth, the commercial and industrial sectors of Botswana's economy employed less than 6 percent of Botswana's total labor force in 1975. Moreover, because of the predominance of foreign capital in manufacturing, construction and commerce, Botswana income represents only a small proportion of the value added of these sectors, probably less than 15 percent in 1974.

Over the next five years, the growth in these as in most sectors of Botswana's

^{1/} A number of different sources are used here for data on the industrial and commercial sectors, and so the activities included under the titles will not always be the same. Industry is used to mean manufacturing exclusive of the Botswana Meat Commission, which, in general, has comprised well over 50 percent of the value added in the manufacturing sector as defined by most statistical publications. BMC was excluded in order to get an idea of the importance of the non-cattle related manufacturing sector. Commerce refers to all retail and wholesale trade, including cattle (which could not be separated out) and hotels and restaurants. In some data, particularly those referring to employment, financial institutions were included because they could not be separated out. In addition to these sectors, the construction industry was included in the analysis because it has been so important in the development of modern sector employment.

TABLE IV-32

**EMPLOYMENT IN MANUFACTURING,
CONSTRUCTION AND COMMERCE BY CITIZENSHIP
1968 - 1975**

	<u>1968</u>			<u>1972</u>			<u>1975</u>		
	Citizen	Non-Citizen	Total	Citizen	Non-Citizen	Total	Citizen	Non-Citizen	Total
<u>Total</u> ^{1/}									
Manufacturing	1,521	170	1,691	2,481	158	2,639	3,218	135	3,253
Manufacturing (exclusive BMC)	365	126	491	1,325	114	1,439	1,773	80	1,853
Construction	1,354	212	1,566	5,711	757	6,468	7,319	467	7,786
Commerce & Finance	3,951	312	4,263	6,035	307	6,342	9,881	409	8,507
Total (with BMC)	6,826	694	7,520	14,227	1,222	15,449	20,418	1,230	21,648
Total (excluding BMC) ^{2/}	5,670	650	6,320	13,071	1,178	14,249	18,973	1,175	20,148
<u>As % of Total Cash Employment</u>	21,879	2,842	24,721	36,751	3,418	40,169	51,871	4,378	56,249
Manufacturing	6.95	5.98	6.84	6.75	4.62	6.57	6.2	3.08	5.96
Manufacturing (exclusive BMC)	1.67	4.43	1.99	3.61	3.34	3.58	3.42	1.83	3.29
Construction	6.19	7.46	6.33	15.54	22.15	16.10	14.1	10.67	13.84
Commerce & Finance	18.0	10.98	17.24	16.42	8.98	15.79	19.05	14.34	18.68
Total (with BMC)	31.2	24.42	30.42	38.71	35.75	38.46	39.36	28.10	38.49
Total (excluding BMC)	25.92	22.87	25.57	35.57	34.46	35.47	36.58	26.84	35.82
<u>As % of Labor</u> ^{3/}			<u>1968</u>			<u>1972</u>			<u>1975</u>
<u>Force</u>			298,461			312,219			350,000
Manufacturing			.57			.85			.96
Manufacturing (exclusive BMC)			.16			.46			.53
Construction			.52			2.07			2.2
Commerce & Finance			1.43			2.03			2.43
Total (with BMC)			2.52			4.95			6.19
Total (excluding BMC)			2.12			4.56			5.76

^{1/} Data for 1968 and 1972 derived from Mannover and Employment, 1973; data for 1975 from Employment Survey, 1975.

^{2/} In 1968 and 1972, BMC is assumed to employ 1,156 citizens and 44 non-citizens. In 1975, BMC is assumed to employ 1,545 citizens and 55 non-citizens. These figures are derived from a World Bank report.

^{3/} These labor force estimates are derived from IMF Sources and include residents plus temporary absentees.

economy is expected to slow down. With the exception of manufacturing, they are projected to grow at a slower rate than GDP as a whole (Table IV-33). Overall cash employment is expected to grow at 5 percent per year, though disaggregated projections are unavailable. By 1981 still only 25 percent of Botswana's labor force is expected to be in cash employment and probably less than 10 percent will be employed in manufacturing, construction, commerce and finance.

Botswana's development strategy, as outlined in its third development plan includes the government's intention to reinvest mining revenue in labor-intensive manufacturing industries and to expand job opportunities particularly in newly created industries. The urgency of this strategy has undoubtedly been enhanced by the rapid migration into Botswana's urban centers (between 12 and 16 percent per annum) and the high levels of unemployment there (18 percent for men, over 40 percent for women in 1974).

To implement the strategy, the government created the Botswana Development Corporation in 1970 to identify and invest in promising commercial developments, to identify interested foreign and domestic partners in commercial development, and to manage the government's investments in commercial projects. By the end of fiscal year 1974/75, the corporation held over R5 million in investments. More than R2 million were invested in 1975/75 alone. However, while many of these investments were in important productive activities they were not, generally speaking, in large employment generating projects. Over two-thirds of the Development Corporation's assets held in 1975 were from investments in real estate development. These investments have undoubtedly had indirect employment effects by establishing services and locations for other enterprises. Some also had short-term employment effects, particularly for the construction industry. However, investments in commercial and industrial endeavors comprised only 11 percent of BDC's portfolio, and tourism, hotels and transport only 4 percent. In any case, the R2 million invested represents only a small proportion (25 percent) of gross capital formation in Botswana in 1974/75 which was approximately R80 million.

Another institution created to help develop commercial activities in Botswana is the Botswana Enterprises Development Unit. It is designed to promote small-scale enterprises on the basis of two programs. The first consists of technical assistance to help citizens establish their own enterprises. Such assistance includes technical advice and help in negotiating financing. The second program involves establishing an industrial estates program for small-scale enterprises. The estates provide working premises, training facilities, and a leasing scheme for machinery, equipment and tools. The government had hoped to invest R1.5 million between 1973 and 1977, but, by the end of the fiscal year 1977, only R1 million will have been spent.

Apart from these governmental activities, there are a number of unofficial activities, including the Youth Brigades which engage in a number of small-scale building and manufacturing enterprises.

TABLE IV-33

PROJECTED ANNUAL GROWTH AND SECTORAL DISTRIBUTION OF GDP

	Growth rates %pa		Percentage Distribution	
	1976/77 to 1980/81	1973/74	1976/77	1980/81
Agriculture, Fishing Forestry & Hunting	4.3	32.0	25.3	20.7
Mining, Quarrying, Prospecting	26.3	8.3	12.3	21.6
Manufacturing ^{1/}	13.6	5.3	5.4	6.3
Water & Electricity	5.7	1.7	2.6	2.2
Construction	7.1	11.1	6.1	5.5
Trade, Hotels & Restaurants	5.3	18.3	21.5	18.3
Transport & Communications	9.3	2.8	3.0	3.0
Finance, Insurance, Business Services, Real Estate	8.0	6.7	8.1	7.6
Community & Personal Services	7.5	4.3	5.1	4.7
General Government	8.2	9.5	10.5	10.0
TOTAL	9.6	100.0	100.0	100.0

^{1/} The data for manufacturing here includes BMC. Non-BMC manufacturing is expected to grow at about 10 percent per annum.

Source: Botswana Authorities.

Generally the information presented here suggests that Botswana's industry and commerce have expanded in step with the leading sectors, particularly mining, but have failed to develop the indigenous linkages which could provide their own internal dynamics. The Botswana government has instituted a number of programs to help develop employment generating industry as well as indigenous capital ownership and accumulation, and while these programs are recognized for their responsible and efficient management (particularly the Development Corporation), so far they have operated on a rather small scale. Moreover, very little has been done to develop rural based industries to augment agricultural employment opportunities. If employment in Botswana is to be more rapidly expanded, more ambitious programs will have to be undertaken.

B. Principal Industries

1. Manufacturing--No up-to-date information on Botswana's manufacturing sector seems readily available, and very little at all is known about very small manufacturing enterprises. The information presented here is based on a study of Botswana's manufacturing industry as of 1973, and refers only to firms employing ten or more workers, or using 25 horsepower or more.

There were fifty-five licensed manufacturing firms in 1973, of which fifty-one provided useable data. Of these, twenty-eight were fully operating in 1973. Of the fifty-five only 7 percent were wholly Botswana-owned while almost 70 percent were completely foreign-owned. For the operating firms, the Botswana wage share was only 60 percent of total wages, even though Botswana workers comprise about 93 percent of total employment in licensed manufacturing. Manufacturing also showed a heavy dependence on imported materials and semi-manufactured inputs -- import costs comprised 33 percent of total sales. Finally, in 1972 manufacturing employed less than 5 percent of those Botswana in cash employment and only a fraction of Botswana's labor force.

Currently the largest enterprise in Botswana's manufacturing sector is the recently constructed brewery which cost R2.5 million to build. The majority owner of the brewery is the Development Corporation while remaining shares are held by German and Swiss investors. The brewery is expected to supply most of Botswana's urban market with beer and, at a later date, with soft drinks.

Apart from the brewery, Botswana's manufacturing sector contains a range of firms producing grains and feeds, metal products and machinery, beverages, games and trophies, furniture, rubber and plastic products. Generally these firms have a rather high degree of export orientation, with operating firms exporting 52 percent of their sales in 1973. At that time the highest degree of export orientation were in game trophies and gems, textiles, garments and rubber and plastic products.

2. Construction--Value added in the construction industry increased nine-fold between 1968/69 and 1976/77, and citizen employment expanded six-fold. A large portion of the construction activity in the middle '70s resulted from the Shashe project (at Selebi-Pikwe) (Table IV-34). As that project was phased out, construction activity did not dramatically fall largely as a result of continued residential housing demand and the large-scale road building projects implemented by the government.

While no precise data seem readily available, it is known that Botswana's construction industry is dominated by foreign contractors. It has been estimated that there are more than forty contractors operating in Botswana, at least half of whom are large-scale in the sense that they could undertake contracts of R100,000 or more. The bulk of the construction activity in Botswana is undertaken by large firms, none locally owned. In 1973/74 10 percent of the firms produced 50 percent of the construction output, and only 30 percent of the firms accounted for over 80 percent of the production. (Figure IV-6.)

While there appears to be no shortage of large contractors, the rural sector apparently suffers from a scarcity of efficient small builders. Some of the Builders Brigades undertake rural construction, but altogether, they accounted for less than 2 percent of total construction in 1972.

3. Commerce and Tourism--Botswana's commercial sector has expanded very rapidly, from value added of R5.1 million in 1968/69 to R64.2 million in 1976/77. Much of this resulted from the increased consumer demand associated with Botswana's economic growth, as well as with growth of tourism in Botswana. The latter resulted primarily from the casino and hotel in Gaborone and the development of tourist hotels in Chobe National Park.

Relatively little information is currently available about the structure of Botswana's commercial sector, but it has been estimated that about two-thirds of the volume of commercial business is accounted for by foreign-owned firms. Botswana traders are thought to be typically small and operate mainly in the rural areas. Some believe they operate at a disadvantage relative to larger firms, particularly with regard to transport, access to markets and higher prices for small purchases. The Development Corporation is considering developing a retail network to reduce the monopoly power currently available to South African traders.

Tourism in Botswana is based primarily on the casino and its accouterments in Gaborone, and the game parks located throughout the country (Figure IV-7). Tourist expenditure was estimated to be over R5 million in 1975 (Table IV-35) though sectoral figures for that period are not available. More disaggregated data for 1973 show that 61.3 percent of tourist income originated in Gaborone, rather than in the game parks (Table IV-36). Total employment in the tourist industry in 1973 was 750 persons, but the number of citizens employed is not known.

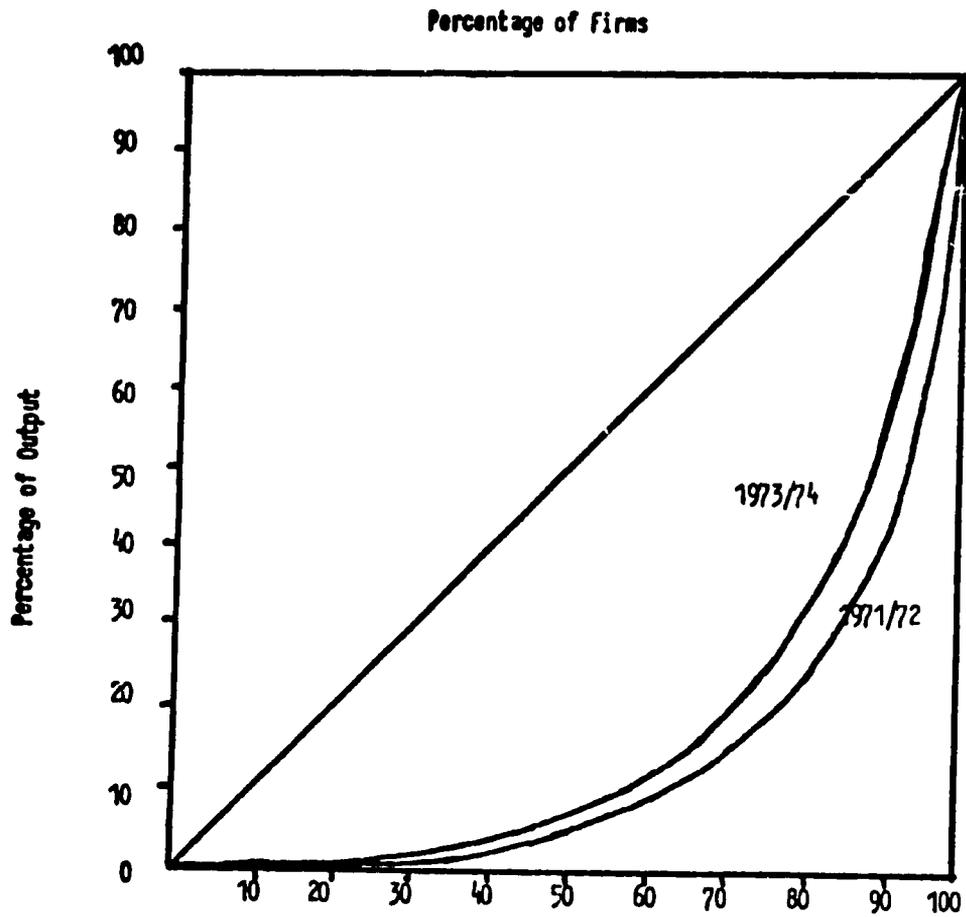
TABLE IV-34

BOTSWANA: VALUE OF CONSTRUCTION OUTPUT
 1971 - 1974/75
 (in millions of rand)

	1971	1972	1973	1973/74	1974/75 (estimated)
Residential building of which: At Shashe	5.0 (...)	9.7 (4.5)	10.5 (4.2)	8.7 (...)	8.0 (...)
Non-residential building of which: At Shashe	4.0 (...)	4.5 (1.5)	6.0 (2.0)	8.9 (...)	8.0 (...)
Other construction of which: At Shashe	6.5 (...)	21.7 (18.2)	16.3 (10.8)	22.7 (...)	20.0 (...)
Total construction of which: At Shashe	15.5 (...)	35.9 (24.2)	32.8 (17.0)	40.3 (16.5)	36.0 (2.5)
Shashe Construction as a % of total	0	67.4	51.8	40.9	6.9

FIGURE IV-6

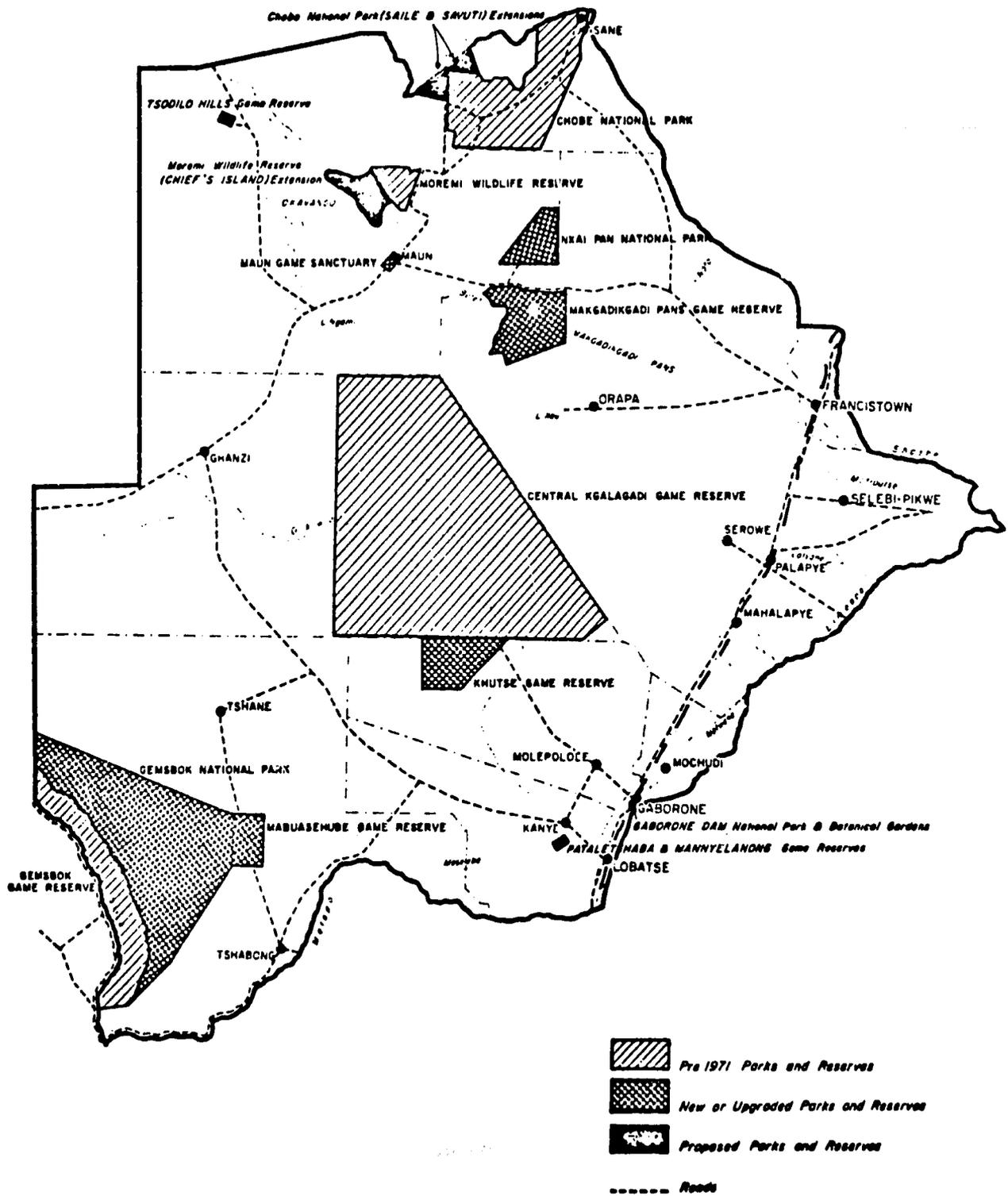
DISTRIBUTION OF OUTPUT WITHIN THE CONSTRUCTION SECTOR



Source: National Accounts of Botswana, 1973/74, p. 5-5.

FIGURE IV-7

NATIONAL PARKS AND GAME RESERVES



Source: National Development Plan, 1973/78, p. 230.

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TABLE IV-35

NUMBER OF DEPARTING VISITORS, EXPENDITURE AND LENGTH OF STAY

Year/Month	Number of Departing Visitors	Declared Expenditure R'000	Avg. Expenditure per Visitor (Rands)	Length of Stay (Days)	Avg. Expenditure per Visitor per day (Rands)
1974	152 643	4 154	27,2	5,1	5,3
1975	154 417	5 037	32,6	5,5	5,9
1975 January	13 409	341	25,4	6,5	3,9
February	7 830	224	28,7	5,1	5,6
March	11 937	332	27,8	4,5	6,2
April	11 983	407	34,0	5,1	6,7
May	12 696	368	29,0	5,5	5,3
June	11 377	374	32,9	4,7	7,0
July	15 239	519	34,1	5,7	6,0
August	15 074	637	42,2	5,9	7,2
September	13 841	550	39,7	5,9	6,7
October	13 163	463	35,1	5,1	6,9
November	11 818	370	31,3	5,9	5,3
December	16 050	453	28,3	5,4	5,2
1976 January	14 455	395	31,7	6,3	5,0
February	10 294	286	31,9	4,3	7,4
March	10 765	319	34,7	4,6	7,5
April	13 363	441	38,0	5,1	7,5

Source: Central Statistics Office

* Average expenditure figures for 1976 are not directly comparable with previous figures as prior to 1976 no allowance was made for visitors who did not declare their expenditure.

Source: Statistical Bulletin, September 1976, p. 4.

TABLE IV- 36

PROJECTIONS OF STATISTICS RELATING TO TOURISM, 1973 - 78

Projections of Statistics relating to Tourism 1973-78

		<i>Gabon</i>	<i>Mali</i>	<i>Kasai</i>	<i>Other</i>	<i>Total</i>
Accommodation Beds	1973	302	145	156	270	873
	1978	430	440	280	400	1 370
Employment (No. of Persons)	1973	280	120	130	220	750
	1978	340	340	200	330	1 200
Tourists (Bed Nights)	1973	60 000	15 000	25 000	20 000	120 000
	1978	91 000	72 000	61 000	36 000	263 000
Occupancy Rate (per cent)	1973	55	30	45	20	38
	1978	60	45	60	25	46
Total Tourist Expenditure (Rand)	1973	1 200 000	180 000	375 000	200 000	1 955 000
	1978	2 350 000	1 440 000	1 220 000	432 000	5 442 000
Import Content of Expenditure (Rand)	1973	600 000	90 000	187 500	100 000	977 500
	1978	1 175 000	720 000	610 200	216 000	2 721 000
Investment Required (Rand)	1973	500 000	1 500 000	500 000	1 000 000	3 500 000
	1978*					

*Does not include Infrastructure

Source: National Development Plan, Part I, 1973/78, p. 238.

The government's attitude toward tourism development is somewhat ambivalent. Non-wildlife tourism, primarily the casino in Gaborone, has social ramifications which the government is not anxious to foster. Yet, since the casino has been a highly profitable operation the government is considering expanding it.

Wildlife tourism on the other hand is quite costly to develop because of the lack of infrastructure in the remote game preserves. Moreover, the authorities are wary of engaging in the type of wildlife development which will jeopardize the main attraction of Botswana's game parks--their wildness. Thus, the government has chosen a policy of catering to small numbers of high-value tourists who are willing to pay handsomely for Botswana's remoteness. At least for the foreseeable future, the government is not planning any large-scale developments of wildlife tourism, though some infrastructure improvements, for example, improvements in airports at Maun and Kasane are planned, will be made.

C. Commercial and Industrial Development: Constraints and Potential

The most important factors determining the context within which Botswana's commercial and industrial sectors operate are the nature of the labor market in Botswana, the size of Botswana's domestic market, the structure of Botswana's commercial and political relations with South Africa, and the political situation in Southern Africa generally. Other factors, such as the relative cost of power transport and water in Botswana are probably important, but there seems to be no consensus on, and relatively little existing analysis of their respective effects.

Botswana's labor market is characterized by two overriding elements: the relative lack of skills of most of Botswana's labor force, and the close integration of Botswana's labor market with that of South Africa. The essential effect of these two factors is that labor costs in Botswana are not low. The development of Botswana's mining sector and the expansion of central government employment, combined with the apparent power of Botswana's civil servants and mine workers has reinforced, though not created (as some have suggested), this basic condition.

Some have argued that the shadow price, or real social opportunity cost of Botswana labor is below the private cost. The contention, based on a well-known model^{2/}, is that the marginal product of labor in the agriculture sector constitutes the social opportunity cost of labor to the economy, but that for cultural reasons agricultural workers earn their average product which is higher. The implication of this argument is that, if one wants to optimize the development of the modern sector, some mechanism should be implemented to reduce the private cost of labor facing those in the modern sector who are buying labor, thereby making apparent incentives socially appropriate.

^{2/} W. Arthur Lewis, "Economic Development with Unlimited Supplies of Labor," Manchester School, 22 May 1954, pp. 139-191.

The argument seems incorrect because it ignores the enormous effect that the South African labor market has on Botswana. The opportunity cost of Botswana's labor is not its marginal product in agriculture, but rather, the social benefits accruing to Botswana labor in South Africa. Once that is recognized, however, it becomes important to consider the possible divergence between the private and social returns accruing to Botswana labor working in South African mines. Calculation of that divergence is beset with a number of empirical and conceptual difficulties, but there seems to be little doubt that a divergence exists. The discrepancy results from the costs incurred by Botswana's family and social fabric from the loss of a large proportion of its young males. There are economic costs as well which may not be considered by migrant workers, such as reduced standard of living of rural Botswana left behind. In general, this entire issue is quite complex, but it is not unlikely that, for a variety of reasons, the shadow price of labor to Botswana is lower than the market price. But as suggested here, the reasons have little to do with most conventional notions of surplus labor.

Such a divergence between private and social labor costs creates a rationale for some government policy to bring the two in line, but does not of course alter the fact that current market labor costs are not a great inducement to commercial development.

A number of less developed countries have attempted to develop their industrial sectors through a range of import substitution policies, usually behind some form of trade barrier. Prior to the renegotiation of the Southern African Customs Union Agreement in 1969, Botswana was legally precluded from choosing this option. Moreover, Botswana has been in a free trade area with Rhodesia since 1930. Thus, apart from subsidization Botswana had no way to protect import competing industries from South African and Rhodesian suppliers. The 1969 Customs Union Agreement, however, contained a provision allowing the BLS countries to impose an infant industry tariff for no longer than eight years. The first country to invoke that provision was Botswana, which has levied a 50 percent tariff on imported beer to protect its new R2.5 million brewery.

Most observers feel, however, that the desirable scope for such import substitution policies is rather limited. The major constraint cited is the size of Botswana's market which makes it difficult to produce solely for the internal market on a scale which would render production costs reasonable. One wonders, though, whether there is too much pessimism on this score. There is undoubtedly a range of small-scale service and manufacturing techniques and industries which could be developed to meet demands in Botswana's market. Important opportunities might exist to provide building materials to the construction industry, for example, and BEDU, the Brigades and the BDC to a lesser extent are attempting to promote such industries. Of course, however, it is important to avoid developing inefficient industries behind protective barriers. Thus, the size of the domestic market, South African and currently to a lesser extent, Rhodesian competition will continue to delineate the reasonable boundaries

within which import substitution can take place,

On the other hand, Botswana's participation in the Customs Union provides the opportunity, at least in principal, for unhindered export to the large South African market. That opportunity suggests that the development of Botswana's industrial sector should be geared towards exporting to South Africa.

There are potential problems associated with such a strategy, however. There have been a number of cases of South Africa taking measures to prevent BLS countries from establishing industries to take advantage of the Customs Union arrangement. One example concerns Swaziland's attempt to build a R5 million fertilizer plant which would have exported at least 80 percent of its output to South Africa. South Africa attempted to pressure the Swazis to cancel the project in order to protect South African firms. They threatened to increase tariffs on inputs the Swazi's would have had to import, and threatened to eliminate South African consumer subsidies on fertilizer imported from Swaziland. As far as available information suggests, South Africa's exercise in dissuasion was successful. This represents only one example of a number of such actions on South Africa's part, and tends to temper any industrialization strategy based on export promotion to the South African market.

Even if the export market in South Africa were completely open, however, the desirability of basing a strategy on exports there might be questioned. The South African market is protected by the external tariff of the Customs Union. To the extent that the viability of Botswana's export industries depends on that tariff, Botswana's future flexibility, particularly with regard to leaving the Union would be constrained. On the other hand, to the extent that Botswana's industries can produce at world prices, the flexibility will be maintained, and returns will be higher.

Of course, South Africa does not have a monopoly on consumers. Botswana's associate status with the EEC enables exports with at least 50 percent Botswana value added to benefit from preferential tariffs. Moreover, other markets in Africa exist. Thus far, however, these opportunities do not seem to have been exploited to any large degree.

Apart from the labor market and the ties related to the Southern African Customs Union, Botswana's capital market has been closely integrated with that of South Africa. Until August 1976, Botswana used the rand as legal tender, and prior to that time, there were no restrictions on movements of capital within the area. Moreover, before the establishment of the Bank of Botswana Act and the Financial Institutions Act, both passed in 1975, there was no government regulation of domestic banks.

The close relation between the markets is illustrated by the fact that interest rates in Botswana have closely paralleled those in South Africa and the banks have placed large amounts of their local deposits in banks abroad. As a

result, substantial domestic savings have not been reinvested in Botswana's economy. Nevertheless, domestic bank lending has increased greatly over the last three years, particularly to the cattle, mining and construction industries (Table IV-37). It is not clear how this financial picture will change as a result of the institution of Botswana's own currency.

In addition to the factors already mentioned, the overall political situation in Southern Africa plays an important role in determining current and future prospects for commercial and industrial development in Botswana. The political changes currently occurring in the area could affect Botswana's commercial prospects in a number of different, contradictory ways. Generally, the political turmoil has probably not encouraged foreign investment in Botswana, particularly in those industries which would be geared to regional export. While the institution of stable majority rule in Zimbabwe might lift the pall over foreign investment in Botswana, other effects might not be as auspicious for Botswana industry. To the extent to which Zimbabwean manufacturing is efficient, substantial Botswana imports from Zimbabwe might re-emerge. On the other hand, majority rule in Rhodesia might open up opportunities as well. To the extent that majority rule creates an increase in the general scale of wages paid in Zimbabwe (which does not seem unlikely), labor-intensive Botswana manufacturing might well find a lucrative market. The same possibility holds true with regard to transition in South Africa.

TABLE IV-37

BOTSWANA: LOANS TO RESIDENT BUSINESS ENTERPRISES
 BY SECTOR, 1973 - 75^{1/}
 (in millions of rand; end of period)

	1973		1974		1975	
	June	Dec.	June	Dec.	June	Dec.
Agriculture	4.2	4.6	6.8	6.6	12.6	11.3
Mining and quarrying	1.8	6.5	12.4	13.8	11.3	16.8
Manufacturing	0.3	0.5	1.0	0.9	0.4	0.8
Construction	0.8	1.3	2.4	3.6	4.3	6.4
Commerce	3.2	3.6	4.1	5.0	6.7	8.2
Transport and communication	0.1	0.1	0.1	0.2	0.3	0.4
Financial services	1.3	0.6	0.8	0.5	0.7	0.8
Business services	0.2	0.4	0.6	0.4	0.4	0.6
Social services	<u>0.7</u>	<u>0.7</u>	<u>0.7</u>	<u>0.8</u>	<u>1.3</u>	<u>4.0</u>
Total	12.6	18.3	28.9	31.8	38.1	49.3

^{1/} Excludes loans to banks and the parastatal sector.

Source: IMF

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