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9. ABSTRACT <p>Sponsored by the Office of Eastern and Southern African Affairs, under contract with A.I.D., this paper includes social, geographic, economic, and political information to provide background on the issues and opportunities for economic assistance to the countries of Southern Africa through and following the periods of transition in Zimbabwe and Namibia. This report is a profile of Namibia and includes a general background discussion of geography, demography and culture, and history. An economic overview describes the salient features of the economy and the dynamics of Namibia's economy. Sectoral analyses include agriculture, mining, fishing, manufacturing, water, transportation, power and communication, employment and manpower, education, government, and health services. Namibia, or South-west Africa, is a large, very dry country with one of the highest per capita Gross Domestic Product (GDP) figures on the African continent. The economy of Namibia is based on the extraction of resources for export. The primary sectors, mining, agriculture and fishing, contribute about half of the GDP and provide the basis for the expanding service and government sectors. The mining sector dominates the economy. Led by diamond production from the largest and richest gemstone deposits in the world, the industry has diversified to copper, lead, zinc, uranium, and several other minerals. Namibia has enjoyed large infusions of external funds over the past decade and a half, as South Africa has attempted to install a modern transport and water infrastructure. Both the African and the white groups gain from the water, power and road networks. Additional sizable investments will be required if the physical and climatic problems are to be dealt with. Extensive secondary, post secondary and agricultural training programs will also be required.</p>		
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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
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Africa Bureau, USAID

Transition in Southern Africa-----

NAMIBIA

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

COUNTRY RESOURCE PAPER

NAMIBIA

Submitted by

THE OFFICE OF EASTERN AND SOUTHERN AFRICA AFFAIRS

**BUREAU FOR AFRICA
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NAMIBIA

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I

GENERAL BACKGROUND

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

NAMIBIA

Currency Exchange Rates

(Rand)

	<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>
Rand Per US\$.7163	.7199	.7153	.7215	.7174	.7194	.7680	.7831	.6711	.6897	.7321	.8700
US\$ Per Rand	1.396	1.389	1.398	1.386	1.394	1.390	1.302	1.277	1.490	1.450	1.366	1.150

Source: IMF, International Financial Statistics

I. GENERAL BACKGROUND

A. GEOGRAPHY

Namibia, also known as South West Africa, is a large arid and semi-arid country on the extreme southwestern coast of Africa. It is approximately the size of Texas and Louisiana combined, yet its population is below one million. Common boundaries are shared with the Republic of South Africa on the south, Botswana on the east, Zambia in the extreme northeast, and Angola in the north. Namibia also has an extended coastline facing the South Atlantic Ocean.

The dominant feature of the country is its extreme dryness. In common with other Southern Hemispheric deserts in Peru, Chile and Australia, its west coast is washed by a cold ocean current (the Benguela) while prevailing winds are from the east. Under these conditions, any moisture for precipitation must travel from the opposite side of Africa across a large land mass before it can be deposited.

The bulk of the country receives less than 15 inches of rain annually, and almost half of the land averages less than 6 inches of rain a year. Moisture problems are exacerbated by high evaporation rates, hard soil which inhibits absorption or sandy soil where rain soaks through too quickly, fierce brief storms, and a short and unpredictable rainy season.

1. Physicial Features

Topographically, the country can be divided into four general regions: the Namib, the Central Plateau, the Owambo region, and the Kalahari. The Namib is a dry, desolate strip extending from 50 to 80 miles inland from the Atlantic coast and comprising 15 percent of the total area of Namibia. While there is no outstanding relief other than large sand dunes, the elevation rises rapidly as the desert proceeds inland. The Namib is characterized by very scant vegetation and close to no precipitation (usually below 2 inches annually).

Near the coast, however, dense fog prevails throughout the year. This is a result of interaction between cold ocean air and hot and dry continental air masses. Unfortunately, neither man nor natural plant life has been able to utilize this air moisture. Water for human activity must be obtained by tapping sublow beneath dry stream beds.

The Central Plateau lies immediately east of the Namib and stretches from the Owambo region in the north to the South African frontier in the south. Varying in altitude from three to six-thousand feet, it offers a diversified landscape of rugged mountains, rocky outcrops, sandfilled valleys and gently

undulating plains. Rainfall varies from 2 to 4 inches in the south to between 10 and 20 inches in the north, but is characterized by short, variable and unpredictable periods of precipitation.

Due to its complexity, the plateau can be usefully divided into several distinct areas. The southern third extends from the coastal desert to the frontier of Botswana. This is a rough and dry area suitable only for sheep grazing except for small patches along the Orange River.

The central portion of the plateau becomes more level and enjoys sufficient rainfall for extensive cattle operations. As one travels farther north, rainfall exceeds 12 inches in places and some dryland agriculture can be practiced. The plateau then gradually merges with Owambo.

The Owambo region begins with a large saline lake, Etosha Pan. This is a rich game reserve area but due to the high and salty water table, no crops are raised. Extending further north a large alluvial plain descends from the Angola border into Etosha Pan. This area has sufficient rainfall to support a relatively high population engaged in agriculture and grazing.

The combined area of the plateau and the Owambo region comprises more than 50 percent of Namibia.

The Kalahari Desert covers the eastern portion of Namibia. Its outstanding features are its thick layers of terrestrial sands and limestone. Large parts of the desert are completely sand covered and support no plant life. Although rainfall is generally higher than at corresponding latitudes in the Central Plateau (from 5 inches in the south to over 20 in the north) the porous soil cannot hold moisture near the surface, so cropped land is limited. Cattle and sheep can be supported on the natural grasses, however.

In the northeast is the Caprivi Strip, a long narrow neck of land extending east between Botswana and Zambia. It was originally included in the German colonial claim to allow access to the Zambeze River. This flat undeveloped area is an anomaly, not logically associated with any other part of Namibia. Isolated from the Kalahari by a large sandy desert, it receives more rainfall over a longer period than any other part of the country. This precipitation, however, creates an environment that is often swampy and inhospitable.

Overall, only 1.1 percent of the land is suitable for dryland cropping, with another 30 percent suitable for grazing. The latter is a very fragile area, however, and carrying capacity is low. (See Figures I-1 and I-2.)

FIGURE I-1
AVERAGE ANNUAL RAINFALL
(In Mm.)

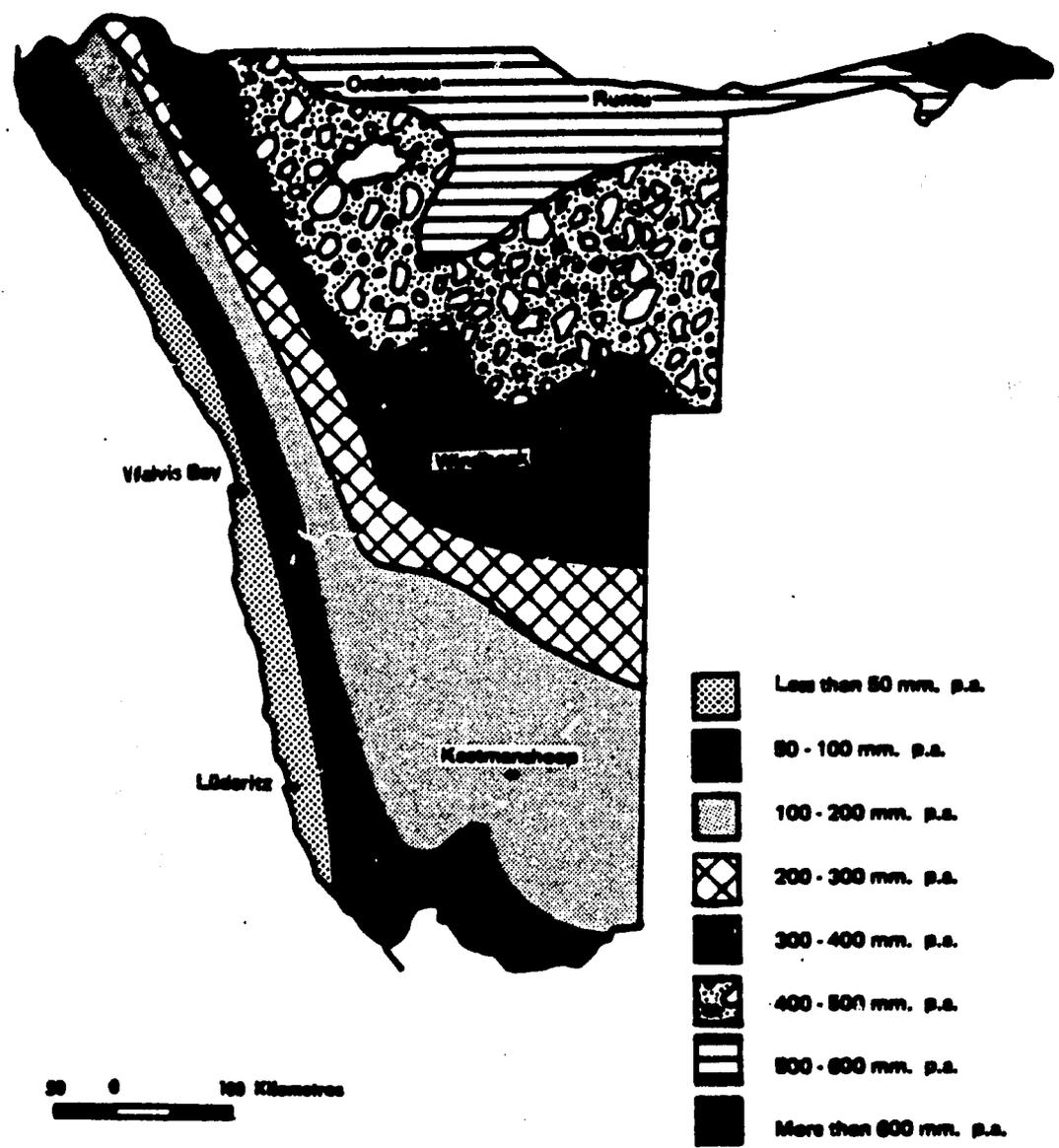
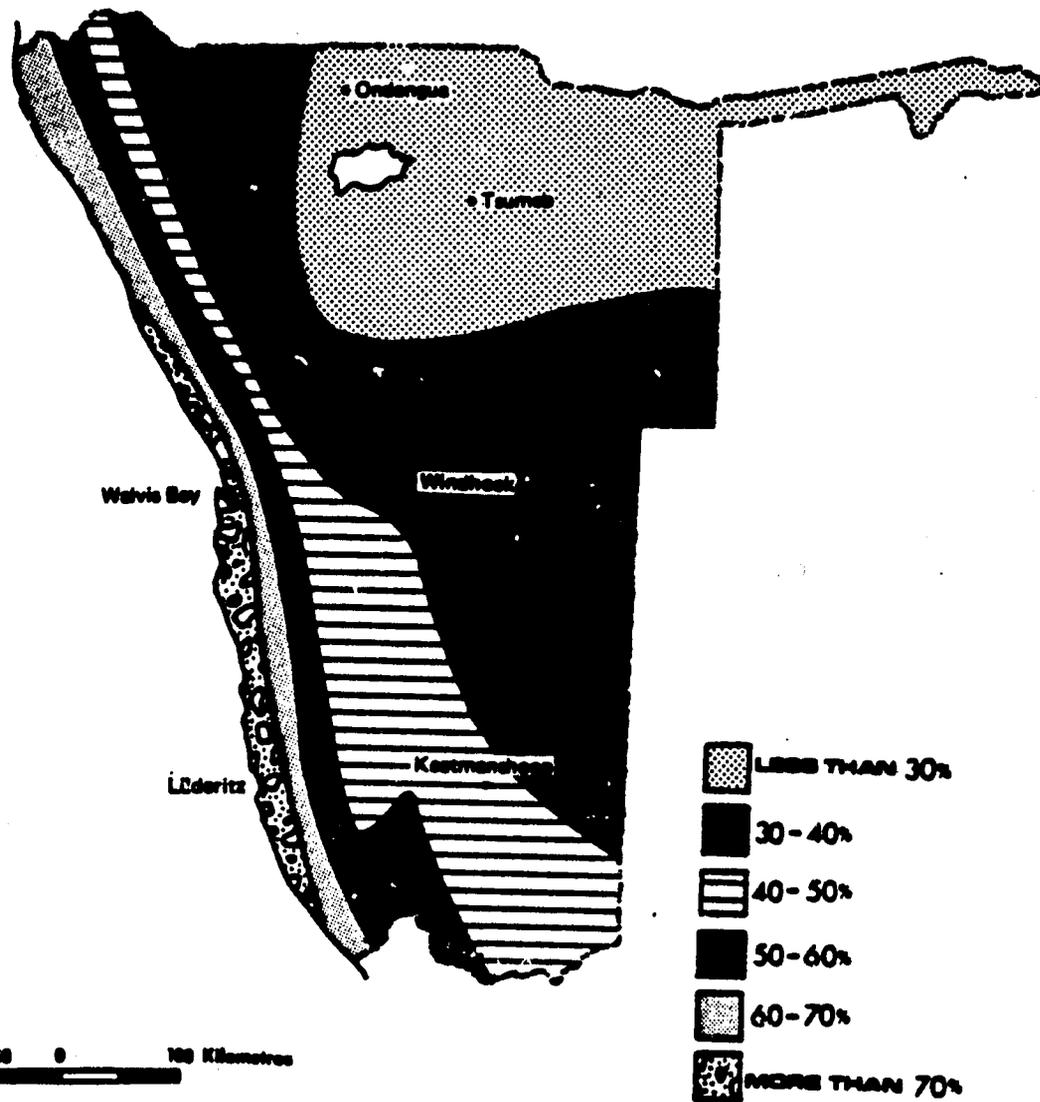


FIGURE I-2
RAINFALL VARIABILITY
Percentual Departure from Average Annual Rainfall



The only perennial rivers in Namibia are the Cunene forming the northern border and the Orange forming the southern border. Most water for human use is artesian or subflow tapped from beneath dry stream beds.

The coastline is generally forbidding and subject to large ocean rollers. Strong currents quickly move sand into dredged harbors and the only good port facility, Walvis Bay, is claimed as part of the Republic of South Africa.

B. DEMOGRAPHY AND CULTURE

Namibia's 1974 population was estimated at 852,000 with an annual growth rate of 2.8 percent. (Although there has been considerable debate over Namibian demographics, these figures are mutually accepted by the Republic of South Africa and the United Nations.) Blacks and Coloureds dominate the population comprising almost 90 percent of the total. White groups make up 11.6 percent.

The population is widely dispersed across the large country and, due to the harsh and dry climate and limiting ecology, settlements are usually small. In 1975 an estimated 25 percent of the population lived in settlements of over 4,000 people. The overall population density is two persons per square mile.

No official population pyramid is available, however, an estimated 43 percent of the total population is below age fifteen (see Table I-1). In spite of a high and increasing annual growth rate, there do not appear to be any programs to discourage continued growth.

1. Composition - Both blacks and whites are divided into diverse sub-groups. The white population is split into four parts:

Afrikaans-speaking	67,300
German-speaking	21,800
English-speaking	7,900
Other	2,000
Total	<u>99,000</u>

Due to its recent colonization most whites in Namibia still have strong ties to other countries--South Africa, Germany or Britain. Approximately 50,000 of the whites are South African citizens who have migrated to Namibia for employment in government, public services or business. More than 10,000 others hold German passports.

On the other hand, a small and fairly cohesive white community has been forged which has a significant stake in the country. These are the people with their own businesses and farms or ranches.

TABLE I-1
POPULATION BY AGE GROUP, NAMIBIA

<u>Age Group</u>	<u>Percent</u>	<u>Thousands</u> <u>(1976 Population)</u>
0-4	17.4	150.9
5-9	13.9	120.9
10-14	12.0	104.0
15-19	10.5	90.7
20-24	8.8	79.1
25-29	7.5	67.6
30-34	6.6	59.0
35-39	5.6	50.3
40-44	4.6	41.8
45-49	4.0	36.0
50-54	3.4	30.2
55-59	2.7	24.5
60-64	2.1	18.6
65-69	1.4	13.0
70 +	1.2	10.6

Source: P.L.A.T.O. Computer Program developed under contract for AID.

TABLE I-2

AFRICAN/COLORED SUBGROUPS

Owambos	396,000
Damaras	75,000
Hereros	56,000
Kavangos	56,000
Namas	37,000
Coloureds	32,000
East Caprivians	29,000
Bushman	26,000
Rahoboth Basters	19,000
Kaokolanders	7,000
Tswanas	5,000
Others	15,000

Source: South West Africa Survey, 1974

The largest group, the Owambo, straddle the Angolan/Namibian border and comprise 47 percent of the territory's population and 57 percent of its non-white numbers. They are a Bantu-speaking matrilineal people who practice settled agriculture and keep stock.

The Owambo are less a cohesive polity than a loose collection of seven linguistically and culturally associated subethnic groupings which today live together under a South African-imposed local governmental arrangement but which, in the past, refused to acknowledge a single all-tribal hierarchy. Historically the Owambo were poorly integrated with the rest of the country, however large-scale recruitment of contract workers from Owamboland has changed this situation.

The Damara, 75,000 in number (9 percent of the population) live in a poorly watered homeland northwest of Windhoek and in the towns and throughout the remainder of the territory. The Damara do not speak a Bantu language and have for many decades constituted a serf, now a laboring, class in white as well as black eyes.

The Herero rival the Owambo for territorial primacy only by heritage. They were very numerous before warring against the Germans between 1904 and 1908, but now number only 60,000 or 6 percent of the total population. The Herero were early influenced by Coloured and Afrikaners, and then by settlement from South Africa. They became extensively Christianized and thus sympathetic to many of the main trends of modernization.

At present, about half of the adult males live at home and are engaged in stock raising and herding. The others fill in the

lower ranks of the teaching and civil services, are in commerce, or form a part of the local and South African migratory labor forces. Traditionally cattle raisers, they live northeast of Windhoek and in enclaves to the east and south of the capital.

The Kavango, who live along the southern bank of the Okavango River, are as numerous as the Herero. They speak a Bantu language and practice settled agriculture as well stockraising. Occupying perhaps the most favored portion of the northern reaches of the territory, they farm, fish, and hunt with success. Few have been involved in the process of migratory labor.

The other indigenous groups are of lesser importance largely because of their size. The Coloured, Nama, and Baster populations have always sought to defend claims of intermediate status and relative benefit accorded to part-whites in the evolving South African and Southwest African context. The Coloureds are mainly composed of immigrants from the Cape Province. They are active in construction throughout Namibia and fill the lower ranks of civil service. Many Coloureds teach school, some fish commercially, and small numbers trade or farm. Although Coloureds who live in African areas must carry passes, they can own land. The Baster community, technically (in the South African sense) Coloured because of their origins on the Cape frontier early in the nineteenth century, are almost exclusively raisers of cattle and sheep. They still hold title to freehold farms and are remarkably cohesive. Associated with both the Basters and the Coloureds, but generally engaged in occupations lower on the social scale than either group, are the Nama, ethnically Khoisan (Hottentot) and not Bantu-speaking.

The Kaokovelders, who occupy a homeland in the arid coastal northwest, are isolated from modern Namibia. They number only 7,000 and are exclusively herdsmen. The people of the eastern Caprivi strip, although Bantu-speaking, and settled agriculturalists, are isolated from the remainder of Namibia by an arm of heavy Kalahari sand. Ethnically, they are related to the peoples of southwestern Zambia. They share the dominant language, Silozi, with its Zulu origins. Their wage earning involvement is restricted to the Caprivi and does not extend to Namibia proper.

C. HISTORY

The area presently encompassed by Namibia has long been the home of several indigenous groups of people. The Owambo settled in their present land near the Cunene River, Herero's and Namas moved into the Central Plateau area, and Bushmen resided in different locations to the south and east.

The first European contact was made by the Portuguese, but no permanent settlements were started until the latter half of the nineteenth century. The British were first, establishing a base at Walvis Bay in 1878. Five years later a German explorer, Luderitz, acquired land from a Hottentot chieftain and renamed the area for himself. German penetration continued and the entire country was marked off as a German colony in 1892. Meanwhile, the 434 sq. mile area of Walvis Bay was annexed as part of the British Colony of Good Hope in order to protect British commercial interests. Walvis Bay was retained as an integral part when this colony became one of the four provinces of the Union of South Africa.

The German occupation of Namibia was violently resisted by Herero and Hottentot tribesmen. Bloodshed resulted, with the Germans issuing extermination orders and the Hereros were decimated as they came up against modern weapons.

South African forces occupied the country in the first few months of the First World War. After the peace treaties were signed, the League of Nations awarded South Africa a mandate to administer the former German colony.

After the Second World War, South Africa refused the request to place the mandated territory under United Nations protection. Instead, it requested that the Territory be incorporated as the fifth province of the Union of South Africa.

When the United Nations refused, South Africa began to act on its own. In 1949, the South African Parliament passed an Act which gave the territory representation in the South African Parliament (two Senators and six Deputies). In 1966, after years of debate, the United Nations withdrew South Africa's mandate and in 1967 appointed a commission to administer the Territory for the United Nations. South Africa refused to accept this decision and undertook a series of measures to integrate Namibia more completely into the Republic.

In 1971, the International Court of Justice declared the South African presence in the Territory illegal.

In a recent change of policy, the South African Government appears to have given the go ahead for political developments which would lead to self-determination for Namibia. The first step, announced in mid-1974, was a multi-racial constitutional conference to discuss the Territory's future. This is expected to lead to a referendum with options of either federation or autonomy. The South African Government has given indications that it is prepared to abandon the principle of quasi-independent homelands for blacks within Namibia and allow for modifications in the apartheid policy.

II

ECONOMIC OVERVIEW

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

II. ECONOMIC OVERVIEW

A. SALIENT FEATURES OF THE ECONOMY

1. Gross Domestic Product - The GDP of Namibia in 1973 was R615.6 million. (\$889.0 million). While this figure is not large when compared with most neighboring countries, it provided the population of 852,000 with one of the highest per capita GDP figures on the African continent; \$1,043. Of the ten countries of southern Africa, Namibia ranked sixth in total GDP but second in GDP per capita.

TABLE II-I

	TOTAL GDP 1973 (\$million)	GDP PER CAPITA (\$)
ANGOLA	\$2,895.0	\$ 492
BOTSWANA	185.0	230
LESOTHO	84.0	100
MALAWI	529.0	110
MOZAMBIQUE	3,147.0	336
NAMIBIA	889.0	1,043
RHODESIA	2,173.0	430
SWAZILAND	154.0	300
ZAMBIA	2,017.0	430
REPUBLIC OF SOUTH AFRICA	26,329.0	1,089

Average or aggregate GDP figures conceal a very unequal distribution of national wealth however. In 1965 (the last year for which official GDP statistics by population group are available) the national average GDP per capita was R360. For whites it was R1,602. For non-whites in southern areas it was R229, and for non-whites in northern areas only R61 per capita. If the GDP of 1973 were divided by similar proportions using 1973 demographics, the following picture would emerge:

Whites	R4,798
Non-whites in southern areas	R 522
Non-whites in homelands	R 123

This disparity is partially a result of duality in the economy. About one-third of Namibia's economically active population is engaged in subsistence agriculture with limited participation in the wage economy. More important, however, is the racial separation and discrimination imposed by the white minority. Through formal and informal mechanisms, the black and coloured majority is systematically denied access to the skills, opportunities, employment and wages that provide the whites such an affluent lifestyle.

Another distortion in GDP figures comes about due to the gap between GDP and GNP due to income paid abroad. In the early 1960s approximately 30 percent of the GDP was comprised of profit and interest payments abroad. Despite claims to the contrary, it appears that this gap has narrowed in recent years. Although serious, the current gap appears to be less than 20%.

In most of the current literature, a GDP/GNP difference of at least 30 percent is still claimed. Depending on the source, this is alternatively comprised of mining profits, all profits, all profits plus all taxes collected by the Republic of South Africa, or all profits and taxes plus wages paid to expatriates.

Since all taxes collected in Namibia must (by South African law) be spent in Namibia, the use of taxes in this equation becomes a wash. Although wealth is diverted out of the country to Pretoria, it returns by way of government expenditure. Corporate profits of foreign firms and expatriate wages reduce GDP but provision must be made for profits and wages spent in Namibia rather than assuming the total amount is sent abroad.

A lack of necessary data makes a precise analysis of this problem impossible, but Table II-2 examines the profit and expatriate wage situations for 1973. For sensitivity, liberal estimates were made of profits and wages combined with conservative reinvestment estimates. Under these conditions, total GDP lost to foreign sources totalled R100.1 million--16.3 percent of GDP. It should also be noted that mining profits were considerably higher in 1973 than in previous years--about 50 percent over 1971. As a result, it is the author's estimate that GDP/GNP gap has probably been reduced to around 15 to 20 percent.

The apparent reason for the narrowing of this gap is not only declining profits in the mining sector but increased government spending and a resulting construction-retail-services boom. This has expanded the total base, making profits a relatively smaller part of GDP.

Even the existing gap is significant however. It indicates that as much as one-fifth of the wealth created in Namibia is not applied to the direct benefit of Namibians. It is also an indication of the major role, and cost, of foreign investment in the economy.

2. Dualism - The economy of Namibia exhibits some characteristics of a dual economic structure consisting of two distinct economic sectors: a static and impoverished subsistence sector into which much of the African population falls; and a market sector controlled by whites and with extensive South African and foreign interests.

TABLE II-2
GROSS DOMESTIC PRODUCT LOST TO FOREIGN SOURCES - 1973
 (Rand in millions)

MINING			
-	Consolidated Diamond Mines (CDM)		
	Total project after tax =	R.96.53	
	Minus P.A.T.* on foreign investments	<u>-20.83</u>	
	P.A.T. on Namibian operations =		R75.70
-	Tsumeb Corp. P.A.T.		3.00
-	S.W. Africa Corp. P.A.T.		0.20
-	Other P.A.T. (estimate)		8.70
-	Estimated reinvestment from profits (CDM alone was R19.0)		<u>-25.00</u>
-	Net. GDP lost to abroad from mining		R62.60
OTHER			
-	Fishing profits (assuming a P.A.T. of 15% on gross sales)		12.75
-	Agriculture profits (assuming a P.A.T. of 15% and one-half of gross produced by foreigners)		7.28
-	Estimated reinvestment from profits		<u>-5.00</u>
-	Repatriated earnings (assuming 50% of white employees are foreign, average wage of R5,000/yr., 30% saving rate)		<u>22.50</u>
-	Net G.D.P. lost to abroad from other		<u>37.53</u>
	Total G.D.P. Lost to Foreign Sources		<u><u>R100.13</u></u>
	1973 G.D.P.		R615.60
	Percentage of G.D.P. Lost to Foreign Sources		16.3%
	*Profit after taxes		

African participation in the market economy is largely limited to labor. Except for a wage barely sufficient to continue day-to-day, Africans rarely see any of the surplus created by the economy. A few run small stores in African townships and reserves and a growing number of farmers participate in commercial marketing. On the whole, however, blacks have been unable to accumulate capital, own sufficient land, acquire an adequate education and overcome the formal barriers between them and meaningful ownership and participation in the economy. Although similar conditions exist in many African countries the problem is spotlighted here due to the very high wages whites receive and the standard of living they enjoy.

The two sectors are interdependent due to extensive African labor participation in the market sector. The subsistence sector would be crippled without the very major support it receives in the form of wages from the market economy. Neither could the market continue to operate without the labor provided by the African workers.

3. Structure of Production - It should be made clear at the outset that very little good data are available on the GDP or its composition. Comprehensive government figures ceased in 1965 and, to add to the confusion, even the 1965 figures have been revised. The United Nations and other sources have estimated the structure of the GDP based on the few official and unofficial figures available, however, these estimates are laced with inconsistencies and errors.

The UN, for example, claims that mining contributes 60 percent of the 1973 GDP, this figure would mean mining's value added totalled R369 million. At the same time it stated that gross output for mining was R230 million. Thus, it would appear that mining contributes more to GDP than its total sales! Similarly, the combined output of the primary sectors (agriculture, fishing and mining) totals 80 percent of the GDP in UN estimates--this creates an economy where manufacturing, government, construction, all services and infrastructure contribute only 20 percent toward national wealth.

Table II-3 represents the author's effort at a more realistic analysis of GDP. The most current official government figures were used where available and confirmed elsewhere. In addition, Namibia's historic gross output to GDP ratios from 1960-1965 and comparative data from neighboring Botswana (which has a roughly similar economy) were used. There undoubtedly are problems with these estimates, however, they certainly represent a more realistic picture than UN or other analyses currently available.

The economy of Namibia is relatively simple. As in the case of many of its neighbors, it is based on the extraction of resources for export. The primary sectors--mining, agriculture and fishing--contribute about half of GDP and provide the basis for the expanding service and government sectors.

The mining sector clearly dominates the economy and has been the engine of growth since before World War II. Since 1970 mining's portion of GDP has consistently averaged from 30 to 35 percent. Led by diamond production from the largest and richest gemstone deposits in the world, the industry has diversified to copper, lead, zinc, uranium and several other minerals.

Commercial and subsistence agriculture employ more people than any other sector and create the second largest share of GDP--about 15 percent. Livestock accounts for almost the entire value of production and is composed of beef sales and karakul (Persian lamb) pelts. The industry is based on a fragile balance between land and precipitation. Overgrazing and drought can create serious production and output problems.

The upwelling of the cold, nutrient-rich Benguela Current off the Atlantic coast of Namibia provides the basis for a strong fishing industry. GDP contribution figures for fishing as a primary industry are deceptively low, but almost half of the manufacturing output is closely associated with the fishing industry, so total GDP for the activity probably approaches 10 percent. Fishing output is made up of fishmeal and fish oil (about 50 percent), canned fish (about 30 percent), and rock lobster (10 to 15 percent).

Manufacturing is constrained by the small local market. With no comparative advantage in labor price or production technology, its output is basically limited to processing local raw materials or producing building materials and consumer goods.

The remainder of the GDP is dominated by government, trade and transport. Although official figures are not available, it

TABLE II-3

NAMIBIA: 1973 ESTIMATED GROSS DOMESTIC PRODUCT

<u>Sector</u>	<u>Gross Output</u>	<u>Contribution to GDP</u>	<u>Percent of GDP</u>	<u>Source</u>
<u>Agriculture</u>				
-Commercial	96.9	78.5	12.8	-Actual gross x gross output to GDP ratios from 1960's
-Subsistence	N.A.	21.6	3.5	-U.N. and South African estimate
<u>Fishing</u>	84.9	14.4	2.3	-Actual gross x gross output to GDP ratios from 1960's
<u>Mining</u>	230.0	197.8	32.1	-Actual gross x gross output to GDP ratios from 1960's
<u>Manufacturing</u>	84.4	61.0	9.9	-U.N. and South African estimate
<u>Water & Electricity</u>	N.A.	3.4	0.6	-Same figure as Botswana
<u>Construction</u>	59.1	23.6	3.8	-Actual gross, Botswana ratio
<u>Trade, Hotels, Restaurants</u>	204.3	64.9	10.5	-Actual gross, Botswana ratio
<u>Transport, Storage, Comm.</u>	N.A.	21.2	3.4	-Ratio of rail and road miles to Botswana x Botswana Transport sector GDP
<u>Financial, Real Estate</u>				
-Imputed Rent	N.A.	15.0	2.4	-10% of estimated value
-Fin. Institutions, Real Estate	N.A.	8.5	1.4	-Same as Botswana
<u>Government, Other Services</u>				
-Government	151.5	84.8	13.8	-Actual gross, Botswana ratio
-Domestic Services	5.2	5.2	0.8	-2 x Botswana
<u>Miscellaneous</u>	N.A.	15.7	2.6	-Plug
TOTAL	N.A.	R615.6	100.0%	

appears that all three sectors have experienced significant growth over the past ten years, as substantial improvements and investments in infrastructure have been made.

4. The Institutional Structure - Namibia is in a position almost unique among nations of having essentially no national institutional structure for its economy. For years it has been administered as a de facto fifth province of the Republic of South Africa. With complete access to and control by that country's public and private systems, there has been no need or opportunity to develop its own institutions. Upon independence this situation will present the most immediate challenge to the new country's economy.

5. The Public Sector - The public sector generates from 15 to 20 percent of Namibia's GDP. Direct government expenditures come from the South African Government, the S.W. African Territorial Administration, Homeland governments, and municipalities. In addition to this, water, power, and transport are managed by local or South African parastatals and the government is involved in development schemes for the Homeland areas.

Combined expenditures by the South African and SW African Territorial governments totalled R171.3 million in the 1973-74 budget year. About 25 percent of this went to water and public works, 25 percent to Homeland and tribal governments, 10 percent to education and the remainder to miscellaneous activities.

Government revenue is dependent on mining activities. A special tax on diamond exports and profits, and corporate income taxes comprise close to half of total income. Reflecting the relatively advanced system imposed by South Africa, 43 percent of all revenue came from personal and corporate income and profit taxes. As an incentive to immigration to the country, the South African government has set lower personal income taxes in Namibia than those prevailing in the Republic.

Prior to 1970, the government usually operated at a break-even or surplus position. More recently, however, annual shortfalls of as much as R43.2 million have occurred. The South African Government claims to be subsidizing this amount but it is unclear what role this accumulated annual deficit or debt will play in a newly formed government.

As a de facto province of South Africa, Namibia is subject to that government's fiscal and monetary policies. Both interest rates and inflation have been held down but economic problems of the past seven years have resulted in a devalued rand and growing inflation. Namibia's close ties to South Africa result in it reflecting economic growth or stagnation as it

occurs in the Republic. High government spending in Namibia has reduced the impact of South Africa's recent economic problems, however.

6. The Banking System - Namibia has no independent banking system, no central bank, no independent currency. It is totally integrated into the South African system. As a part of the Rand Monetary Area, it shares in the area's common pool of gold and foreign exchange reserves. The South African Central Bank operates as Namibia's central bank and pays a fee to the Territorial Administration for loss of seignorage benefits.

South African banks, building societies and insurance companies operate throughout Namibia under South African regulations and controls.

This integration has resulted in easy access to large amounts of capital and has provided a stable currency upon which to build the growing economy. It is probable that these factors have played a significant role in encouraging investment in the country.

7. Ownership Patterns of the Means of Production - Most of the productive capital in Namibia is in private hands. A large part is held by foreign interests--primarily South African. Indications are that in recent years public ownership has grown as large capital resources were directed at water, power and transportation systems.

While precise figures are unknown, it is established that most mining, fishing, agriculture and manufacturing assets are in private hands. Likewise, most housing and commercial property is privately held. Foreign firms own almost the entire mining industry and most of the fishing and manufacturing industries. Many South African and German nationals are also engaged in agriculture. This is evidenced by the high proportion of GDP that is annually exported in the form of profits and savings.

Africans and coloureds own a very small share of the productive capital. African Homeland areas comprise about one-third of total land area but it is typically arid or semi-arid and of little value. African participation in entrepreneurial activities is also limited by formal regulations, and African ownership of means of production is virtually nil.

8. Foreign Trade - Namibia's exports in 1973 were probably between R350 and R400 million. Mining output, mostly diamonds and copper, comprises from 50 to 60 percent of total exports. Close to equal proportions of agricultural products and fish make up the rest (see Table II-4).

TABLE II-4

NAMIBIAN EXPORTS BY VALUE

(In thousand rand)

<u>Exports</u>	<u>1966</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>	
Karakul Pelts	15,375	19,200	21,900	20,100	27,500	32,500	13.7	32,000	10.3
Livestock	14,115	25,100	24,600	29,000	30,000	35,000	14.7	40,000	12.9
Livestock Products	2,525	-	-	-	-	-	-	-	-
Other Agricultural Products	120	-	-	-	-	-	-	-	-
Fish Meal	22,400	40,000	36,000	33,000	36,000	45,000	18.9	65,000	21.0
Canned Fish	14,000								
Other Fish Products	12,500								
Diamonds	85,014	80,000	90,000	75,000	80,000	90,000	37.8	127,000	41.0
Blister Copper	19,242	35,000	42,000	39,000	37,000	31,000	13.0	40,000	12.9
Refined Lead	12,287								
Lead/Copper/Zinc Concentrates	8,876								
Other Minerals	3,339								
TOTAL EXPORTS	209,293	205,000	218,000	200,000	215,000	238,000		310,000	

Source: Summaries of Economic Data, U.N. Economic Commission for Africa, December 1974.

From 80 to 90 percent of imports and around half the exports were obtained from or sent to the Republic. Namibia's diamonds are shipped to the Republic along with much of the fish and meat products. The diamonds are subsequently marketed worldwide through the DeBeer's Central Selling Organization. Karakul pelts are sold to Germany, Denmark, the USSR and the UK, while copper goes to the USA and Western Europe.

Import figures are unknown, but Namibia must import virtually all the goods necessary for the modern sector: grains, fruits, vegetables, petroleum, consumer goods, coal, transport and construction equipment, iron and steel and electrical products. South Africa is by far the largest supplier (about 80 percent).

In 1966, the last year for which official data are available, total exports were R209.3 million while imports were only R154.0 million, resulting in a positive balance of R55.3 million. Most sources indicate these positive trade balances have continued.

9. Price Data - Separate price data for Namibia are not available. Due to the close banking, investment, commercial, governmental and currency ties with the Republic, however, figures released in Pretoria are generally used with a 20 percent increase for the higher costs of living. The following table indicates that prices have grown at a 3 percent annual rate from 1963 to 1970 and a 7 percent annual rate thereafter.

TABLE II-5

Changes in Consumer Prices

<u>1963</u>	<u>1964</u>	<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>
100.0	102.4	106.0	110.4	113.3	114.7	117.7	121.6	127.0	135.9	154.4

Rising world prices for diamonds, fishmeal and karakul have more than offset local increases and have resulted in substantial real income gains. Diamonds, for example, rose close to 40 percent in value between 1972 and 1973.

B. THE DYNAMICS OF NAMIBIA'S ECONOMY

As mentioned above, data on GDP is difficult to obtain for Namibia and such figures as are available are subject to considerable controversy. Even the South African Government has released contradictory sets of figures (compare 1963-1965 in Tables II-6 and II-7, but see note on Table II-6). The data compiled in Table II-7 are the most recent official figures and estimates based on those figures. They are internally consistent and correspond to other available information on GDP.

TABLE II-6
GROSS DOMESTIC PRODUCT, 1920-73

Year	GDP at Factor Cost			GDP Adjusted to 1958 Prices	Composition by Sector (1)						
	GDP (R million) (Current Prices)	GMP (R million)	GDP/GMP %		Agric.	Fish	Mining	Manuf. & Constr.	Trans. & Trade	Gov't.	Other
1920	13.0	-	-	18.5	13.1		58.4	-	-	-	28.5
1945	19.8	-	-	36.3	45.5		13.1	-	-	-	41.4
1946	22.2	20.4	8.1	-	28.8		26.1	7.2	18.0	9.5	18.4
1950	61.0	46.4	23.9	-	34.1		33.0	5.6	13.6	6.6	6.6
1954	107.2	74.4	30.6	-	30.8		33.4	7.0	14.4	7.1	8.1
1956	141.8	85.1	39.9	-	23.7		42.4	6.1	13.6	6.6	7.6
1958	121.3	83.2	31.4	-	19.2		35.4	11.6	14.1	9.5	10.2
1960	121.9	-	-	117.8	8.1	2.7	48.4	-	-	-	48.7
1961	127.3	82.0	35.6	119.4	9.9	2.7	39.8	10.0	15.4	11.2	11.2
1962	146.7	104.4	28.8	139.6	21.2	2.8	32.2	9.7	13.9	10.3	9.9
1963	163.0	-	-	153.9	21.8	3.2	35.8	-	-	-	48.8
1964	193.6	-	-	180.4	20.4	3.1	41.8	-	-	-	35.5
1965	213.9	-	-	191.7	16.8	3.2	46.6	-	-	-	33.4
1973	615.6	-	-	-	16.3	2.3	32.1	13.7	13.9	13.8	7.9

NOTES:

1) Blanks indicate not available.

SOURCES:

1946, 1950, 1954, 1956, and 1958 from Odendall Report, p.321, cited in Roger Murray, et al., The Role of Foreign Firms in Namibia, p.31 and G. Cervasi, "The S.W. Africa Economy", in R. Segal and R. First, South West Africa, (London 1967), p. 133.

1920, 1945, 1960, 1963, 1964, and 1965 from South West Africa Survey, 1967, S.A. Dept. of Foreign Affairs, 1968, p. 61. 1960-1965 data are noted as being "unofficial estimates" to be "interpreted with due caution".

1961 and 1962 from a combination of the above.

1973 are authors estimate based on Table II-3.

TABLE II-7
GROSS DOMESTIC PRODUCT, 1963-73

<u>Year</u>	<u>Price Index</u>	<u>Current Price GDP</u>		<u>Constant Price GDP (1963)</u>	
		<u>(R millions)</u>	<u>Growth Rate</u>	<u>(R millions)</u>	<u>Growth Rate</u>
1963	100.0	R205.7	-	R205.7	-
1964	102.4	237.1	15.3%	231.5	12.5%
1965	106.0	287.0	21.0	270.8	17.0
1966	110.4	327.7	14.2	296.8	9.6
1967	113.3	335.9	2.5	296.5	0.0
1968	114.7	340.9	1.5	297.2	0.2
1969	117.7	368.9	8.2	313.4	5.5
1970*	121.6	404.8	9.7	332.9	6.2
1971*	127.0	449.0	10.9	353.5	6.2
1972*	135.9	510.3	13.6	375.5	6.2
1973	154.4	615.6	20.6	398.7	6.2

* Estimate - (To reach the 1973 official GDP, a 6.2% constant price growth rate from 1969 to 1973 is required. Estimates assume straight-line growth at this rate.)

SOURCE:

- 1963 to 69 GDP - Taken from South African submissions to the World Court as quoted in S.A. Financial Mail Special Survey, March 2, 1973, p.43.
- 1973 GDP - South West Africa Survey, 1974, S.A. Department of Foreign Affairs, 1975, p.33.
- Price Index - South African Reserve Bank.

1. Growth Trends - Starting with a very small post World War II base, Namibia has experienced high growth rates since that time. Table II-6 indicates a 13 percent current and 8 percent constant annual growth rate from 1945 to 1960. Since 1960, the growth has run at a 12 percent current and 7 percent constant annual rate.

It would be dangerous to extrapolate these growth trends into the future. The economy is highly vulnerable to fluctuation in the international markets for most of its exports. Droughts and disease are recurrent hazards to livestock. Heavy public investment which has been so important to growth is subject to South African control, and political uncertainty is already affecting private investment.

In an economy as small as Namibia's, a specific event concerning a factory or the weather can have significant reverberations throughout the economy. In 1963 heavy investment for the Tsumeb copper smelter resulted in the high GDP growth rates in succeeding years. A drought in 1967-68 brought real economic growth to a halt. Acceleration of growth rates since 1969 has been largely due to high domestic inflation and even higher price increases for Namibian exports.

2. Sectoral Changes - Over the past ten to fifteen years, there has been a gradual shift away from dominance by the primary sector to a more balanced economy. In 1967 South Africa estimated that mining, agriculture and fishing comprised two-thirds of total GDP. By 1974 that portion had declined to one-half. As recently as 1965, mining alone comprised 46.6 percent of GDP. Due to expansion of construction, government, commerce and services this has declined to less than 35 percent. With the construction of fish processing plants, manufacturing now captures a larger share of the fishing industry's value. Still, it should be noted that without primary goods exports, expansion of the support sectors would be impossible.

3. Investment - Figures on total fixed capital investment are not available in any form. Small bits of data can be assembled from various sources which provide a very rough picture, however. Two major projects, the Rossing uranium mine and the Cunene water and power project, will each require total investments of close to R200 million spread over four to seven years. DeBeers annually invests around R20 million in its diamond mines. Using Rhodesia's ratio of government budget to government fixed capital investments, it appears that around R35 million is invested annually by the government in Namibia. This would indicate an annual investment of around 20 percent of GDP. Other sector investments would probably enlarge this figure to around 25 percent, or possible 30 percent. At least it is safe to say that investment is playing a very substantial

role in Namibia's economy and it probably absorbs a higher portion of GDP than in many neighboring countries. Most government and private investment appears to be generated internally from taxes and retained earnings. But large private operations, such as the Rossing uranium or new fish processing plants require heavy infusions of external funds.

III

**FOREIGN DONOR
ASSISTANCE**

III. DEVELOPMENT ASSISTANCE

Due to Namibia's status as a mandate territory under South African control, it has not been a candidate for external foreign assistance in any form. It has been the recipient of considerable investment by the Republic of South Africa, however, and plans have been made for future projects which will require continued heavy investment by the Republic.

South Africa does not have a single, comprehensive development plan for Namibia. The Odendall Commission provided a general framework and direction for future projects, but since its report in 1964, no specific plan has been formulated. Some county-wide roads or transport programs have been administered by the Territorial or South African governments, but generally, South Africa parastatals handle homeland area development and the Territorial Administration handles projects in white lands. The main parastatals include the Bantu Investment Corporation, the Rehoboth Development and Investment Corporation and the Bantu Mining Corporation. These operate under the direction of the South African Department of Bantu Administration and the Department of Coloured Relations and Rehoboth Affairs.

Table III-1 is a partial listing of projects that have been recently planned or completed. Significant amounts have been invested in transportation networks over the past 10 years and recently water projects have become the major recipient of funds. This list does not include a large part of the Cunene project. It is clear that water is planned to receive the major emphasis over the coming years.

The envisioned projects include major canals, dams, wells and pipelines. (These are discussed in Part IV. G. Water). In addition, the Cunene project will provide substantial power generation.

The presence of a power network and relatively cheap power will facilitate water development and will provide water to consumers at reasonable prices. These aspects are of particular importance to Owambo, favorably situated as it is close to the major water and power sources of the Cunene. Even before Cunene power becomes available in the grid serving the rest of the country, the interim hydro-electrical power station, recently completed at Raucana and intended to provide power for pumping at Calueque and for construction purposes on the main works, will supply power to supplement local diesel generation in Owambo. At an earlier stage, therefore, cheap power will be available for the purification and distribution of essential water supplies, to power the local home and service industries now being developed and to provide the amenities to growing towns and communities.

TABLE III-1
A PARTIAL LIST OF DEVELOPMENT PROJECTS IN NAMIBIA

<u>Project</u>	<u>Year</u>	<u>(R or \$ in millions)</u>		
		<u>Spent</u>	<u>Budgeted</u>	<u>Planned</u>
Road Transport Development	1965-71	R104.0		
Walvis Bay Quay Extensions	1966		R 14.2	
Buildings	1965-67	R 23.6		
Roads	1965-67	R 34.3		
Airports	1965-67	R 4.7		
Water Supplies	1965-67	R 10.8		
Capital Schemes	1967-68	R 5.72		R 4.26
African and Coloured Hospitals	1967-68			R 36.0
African and Coloured Education Bldgs.	1967-68			R 8.9
African and Coloured Other	1967-68			R 15.0
Water Supply for Homelands	1970-71			R 21.85
Total Spent on Water for Ovambo	up to 1971	\$ 22.1		
Pumping Scheme for Angola Water	1971	\$ 8.5		
Ovambo Water Drilling	1971			\$ 6.73
Other Ovambo Water Plans	1971-91			\$ 42.5
National Water Plan	1974-2000			R595.0
Kavango Development Expenditures	1974	R 5.0		
Eastern Caprivi Development Expenditures	1974	R 3.5		
Ovambo Agricultural College	1971?	N.A.		

SOURCE:

FAO Internal Working Document.

The effect of power development on water development is significant since power serves as the economic key to the opening up of the water resources of the northern rivers. The construction of hydraulic works for the production of power will thus provide water benefits which could otherwise not be realized.

Owambo's irrigation potential has been studied for some years. Reconnaissance surveys have indicated that only some of the available soils are readily suitable for normal irrigation. Other potentially irrigable soils would demand special and probably expensive preparation of the land as well as the cautious application of water. The first of a number of pilot schemes to facilitate further irrigation research are already in operation at selected sites.

According to information as of October 1974, the Bantu Investment Corporation was planning a couple of large agricultural projects in the north-west of Owambo for the production of, among other things, cotton, nuts and sunflower seed. Research at the Mahanene Research Station will determine the crops to be produced.

The development of agricultural resources of Owambo and of other homelands as well depends on:

- 1) the creation of the necessary infrastructure;
- 2) the development of human resources;
- 3) the provision of economic and related services, including extension, credit and research facilities.

Owambo agricultural extension workers were at first trained at South African agricultural colleges. But since conditions in Owambo differ markedly from those in South Africa an agricultural college accomodating 120 Owambo students was completed recently at Orongo. Students are enrolled for three-year training periods. Courses consist of theoretical and practical as well as academic subjects. After completion of their courses students will be appointed as Extension Officers in the Owambo Department of Agriculture. In-service training will also be provided.

Agricultural extension workers are expected to play an important role in activating Owambo farmers. The aim is to provide one trained extension officer to advise a group of about 100 farmers. This necessitates the initial training of about 400 agricultural extension workers. (For nationwide coverage more than double that number would be necessary). An Agricultural Extension service has been created within the framework of the Owambo Department of Agriculture.

Agricultural credit facilities financed by the South African Government are being created under supervision of the Owambo co-operative movement to enable producers to purchase or obtain the use of stock feeds and remedies, seed, fertilizer and implements at reasonable prices.

Although Owambo has received extensive development funding, similar projects, if on a lesser scale, are being attempted elsewhere. Kavango has received money to develop irrigation potential in hopes of improving cattle, maize, cotton, mango, vegetable and fruit production. Also, Eastern Caprivi is involved in projects to develop rice and timber production.

In conclusion, Namibia has enjoyed large infusions of external funds over the past decade and a half, as South Africa has attempted to install a modern transport and water infrastructure. Although it is difficult to determine who the major beneficiaries of this work are, it appears that both the African and the white groups gain from the water, power and road networks.

Given Namibia's large size and extreme water problems, very sizable investments will continue to be required if the physical and climatic problems are to be dealt with. In addition, extensive secondary, post-secondary and agricultural training programs will be required along with more extension services and credit and research facilities for agriculture.

With the uncertain political situation and the impending separation from South Africa, the future source of these funds is in question.

IV

SECTOR ANALYSES

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

IV. SECTORAL ANALYSES - AGRICULTURE

A. THE SETTING

Agriculture plays a central role in the Namibian economy. It accounts for 15 to 20 percent of GDP, provides between 20 and 30 percent of exports and employs almost half the economically active population. Between 1965 and 1972 the value of gross output grew 104 percent at current, or 45 percent at constant prices.

The 1972 gross value of agricultural output exceeded R.90 million, with 98.5 percent of this accounted for by the livestock industry. Only in the north, often on African subsistence farms, are grain and food crops grown in important quantities.

In spite of these impressive figures, Namibia's agricultural sector does not feed the country. Output is based on livestock export trade, and substantial imports of grains, fruits and vegetables are required from South Africa each year.

Agriculture is severely constrained by climatic factors, stock disease, high transportation costs and the difficulty of gaining access to world markets. To counteract these constraints, the South African government has established policies to encourage Namibia's agriculture. The Land Bank of South West Africa has made generous loans at moderate (subsidized) interest rates available to white farmers in Namibia; presumably the loans are to promote white settlement in, and consolidation of, the country.

The Namibian railway system, a division of South African Railways, indirectly offers preferential rates to Namibian exporters of livestock. Overall freight volume is not at a profitable level and cattle cars are unsuitable for loading on return trips from South Africa, but there appears to be no premium charged for this burden.

Livestock is susceptible to outbreaks of disease, particularly from less well-treated homeland herds, which may be why these herds receive as much veterinary attention as they do. Routine stock treatment programs are handled locally, but large outbreaks, requiring large numbers of specialists, are dependent upon assistance from the South African extension services. This is South Africa's largest service, and Namibia enjoys the advantage of having it available practically upon demand; its personnel are already familiar with local conditions. The benefits of extensive South African agricultural research also accrue to Namibia.

Namibian agriculture is sharply divided between commercial and subsistence activity. This split is generally made along racial

lines with most Africans in subsistence agriculture. Some black groups in the south and the Rehoboth Basters are involved in significant commercial production, however.

Commercial farms are concentrated in the central and southern part of the country. In 1964 there were 8500 European farms, usually along rail or roads and near the large townships. These farms concentrate on beef and karakul pelt production with some dairy products and maize.

Subsistence farms are concentrated in the northeast. These are not privately owned farms, but land allotments made first to an ethnic group as a reserve and then allocated to each farmer according to tribal tradition. These farms produce millet, maize and beef, with some karakul production just starting. While subsistence farms provide the bulk of the employment, commercial farms produce 4 or 5 times as much domestic product.

Major agricultural products include live and canned beef, karakul pelts, dairy products, wool and mutton. Table IV-1 outlines production of 1965, the last year with comprehensive figures:

TABLE IV-1

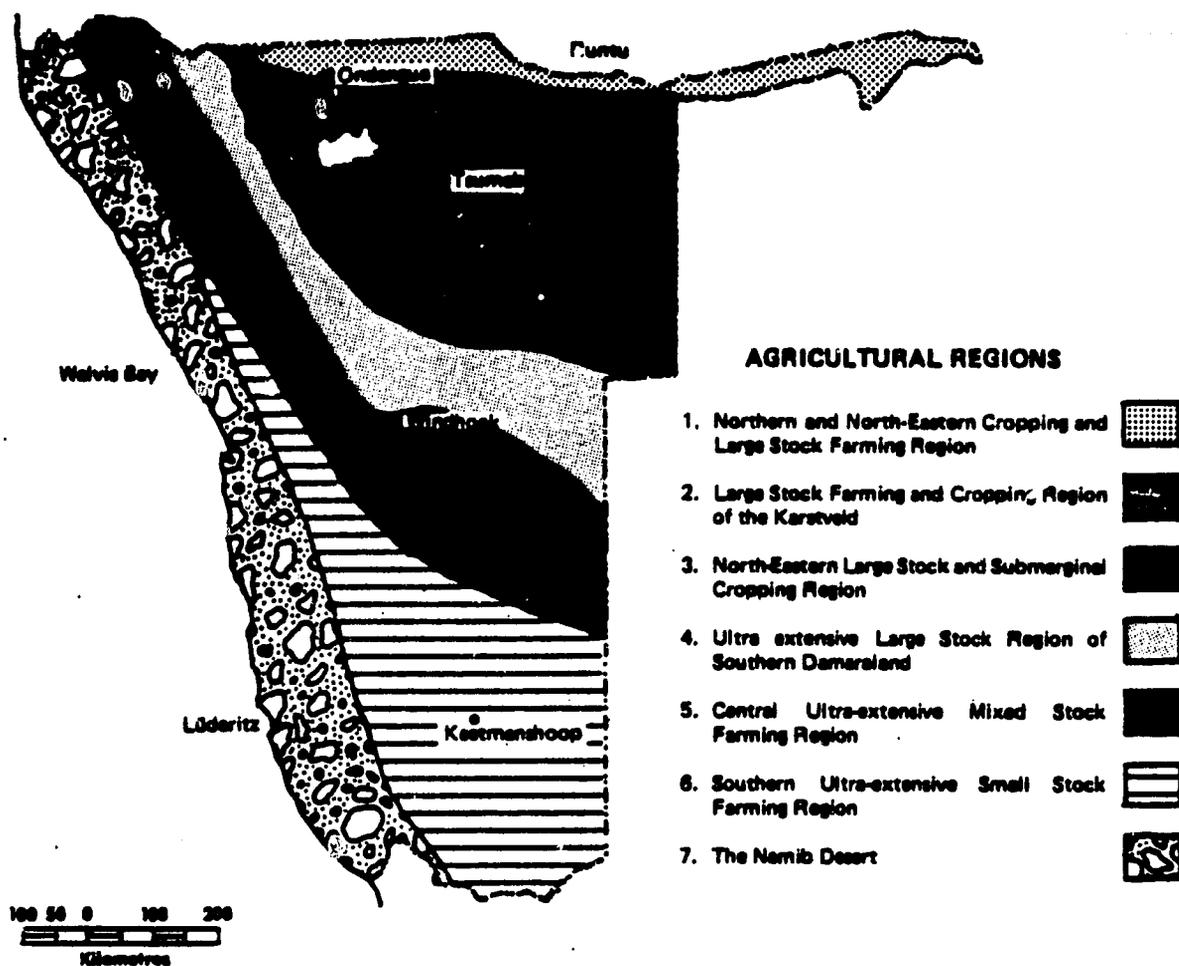
Estimated Gross Value of Agricultural Production: 1965

<u>PRODUCT</u>	<u>RAND</u>	<u>%</u>
Animal husbandry		
Cattle		
Beef	R24,945,976	56.2%
Breeding	215,166	0.5
Dairy Products	2,041,200	4.6
Sheep		
Pelts	14,027,414	31.6
Breeding	33,117	0.1
Wool	1,079,727	2.4
Mutton	970,596	2.2
Hides and skins	376,631	0.8
Pigs	351,720	0.8
Agriculture		
Cash crops	230,001	0.5
Horticulture	120,000	0.3
TOTAL	<u>R44,391,548</u>	<u>100.0%</u>

Source: South West Africa Survey, 1967

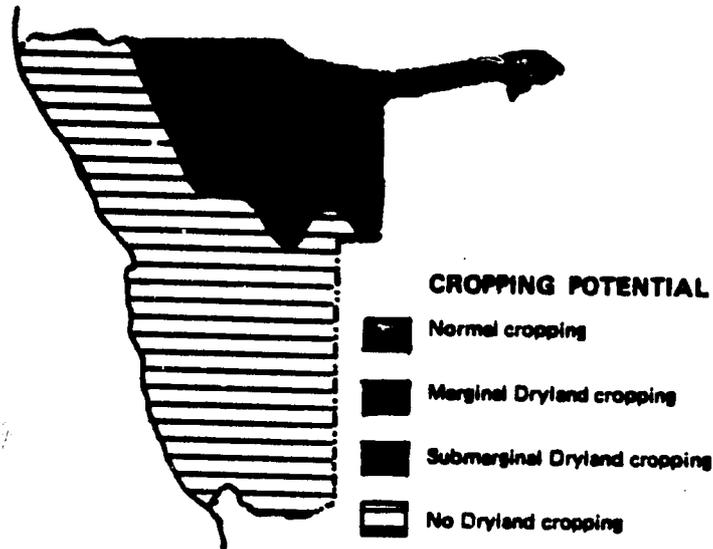
Figures IV-1 and IV-2 outline the agricultural regions of Namibia with their dry-land cropping, irrigation and stock raising potentials.

FIGURE IV-1



Region	Dry-land Cropping	Irrigation	Stock Farming	Timber
1	Normal to marginal; soil fertility low to moderate	Good	Large Stock, extensive	Extensively exploitable
2	Marginal; soil fertility moderate	None	Large stock, extensive	Some exploitation possible
3	Submarginal; soil fertility low	None	Large stock, extensive	Extensively exploitable
4	None	Extremely limited	Large stock, ultra-extensive	Negligible
5	None	Extremely limited	Large stock, and small stock ultra-extensive	None
6	None	Limited	Small stock, ultra-extensive to marginal	None
7	None	Extremely limited	Marginal small stock farming in better parts	None

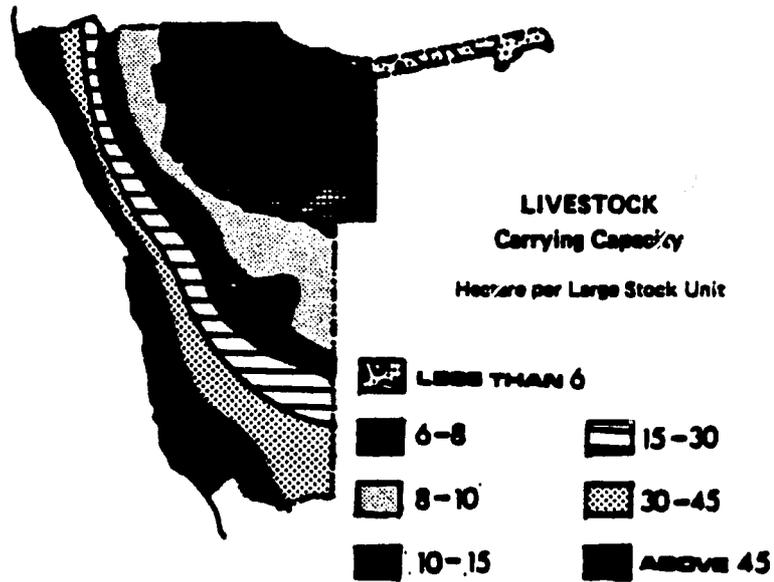
FIGURE IV-2



Dry-land cropping is said to be normal when crop yields are fairly stable, the yearly variation in yield relatively small and total crop failures virtually unknown.

Marginal dry-land cropping: On account of a higher rainfall variability, crop yields are not only smaller in quantity than in the case of normal dry-land cropping, but also liable to violent fluctuations. Total crop failures occur from time to time.

Submarginal dry-land cropping: Both the amount and the reliability of precipitation are smaller than in the case of marginal dry-land cropping. Dry years do not only result in crop failures, but preclude the possibility of cropping altogether.



B. LIVESTOCK

Precipitation and resulting ground cover are the major determining factors in livestock production. In the arid south, only sheep are raised, while as one moves further north in the Central Plateau, both cattle and sheep are raised. Finally, in the better watered far north cattle are raised. About 95 percent of commercial livestock production is on the Central Plateau.

The land has a very low carrying capacity with southern areas supporting only one sheep per 7 to 8 hectares. In the wetter north one head of cattle or six sheep can be supported in an equal area. In 1970 the national herd included 2.8 million head of cattle (1.8 million white owned and 1.0 million African owned), 4.0 million sheep (3.0 million white and 1.0 million African) and 1.7 million goats (0.6 million white, 1.1 million African owned).

1. Beef Cattle - At one time the Africans managed huge herds of cattle. It is these herds of cattle which first attracted the white settlers from the Cape. Now cattle production has been largely taken over by whites but it is still a very important activity in Namibia.

Of the total of 583,168 cattle marketed in 1972, almost three quarters were exported to South Africa. Only some 32,000 or 5.5 percent were consumed locally. Most of the remainder were exported in processed or frozen form to European markets.

It is said that the current herd of more than 2.8 million may be close to the maximum the land will hold. Thus, efforts toward expansion have centered on greater efficiency, including earlier slaughter and faster fattening. While total herd size has only grown 10 percent between 1967 and 1972, annual take-off was up almost 70 percent.

Drought is the most important variable in this business. Long dry spells require more slaughtering to reduce the herds and smaller output invariably follows as stock is rebuilt. Cattle population on white farms fluctuated between 2.1 million and 1.5 million in the 8 years preceding 1965.

Disease also affects production. Lung sickness, foot and mouth and anthrax sometimes infect cattle in the north and possibly throughout the country. Strong measures have been taken to combat these diseases including fencing, vaccinations and veterinary examinations.

Commercial cattle production among Africans has grown in recent years: 1964 sales in homelands were only R239 thousand while 8 years later they were R1.5 million. An abattior/canning facility is now operating in Owambo, which should further accelerate this trend.

2. Dairying - As of 1967, there were ten manufacturers of dairy products. Four produce butter, three cheese, three dried buttermilk, one casein and one ice cream. Fifty-eight fresh milk consuming centers constituted the principal outlets for the territory's commercial milk producers who produced an estimated 113.8 million lb. in 1966, 82.9 percent of which was used for butter, 14.9 percent as fresh milk and 2.2 percent for cheese production.

The output of the dairy industry is particularly susceptible to climatic conditions. 1961 production was valued at R 3.19 million. It dropped to R 1.96 million the following year, but was R 2.73 million in 1966. Seventy to eighty percent (by value) of dairy products is consumed locally, most of the rest being sold to the Republic.

Like beef production, dairying is hampered by the limited size of the local market. This is particularly so for butter, the territory's principal dairy product. The local consumption of butter has been about 2.5 million lb. annually since 1958/59. Surplus butter can only be sold overseas at a loss, due to its high production and transport costs. The Republic's willingness to purchase the territory's surplus, albeit at a higher price than that of New Zealand butter, is of substantial value to Namibia.

Figures for dairy produce for 1968 and 1969 are as follows:

TABLE IV-2

Dairy Produce
(^{'000} lb.)

	<u>1968</u>	<u>1969</u>
Butterfat	3,486,936	2,577,509
Butter	4,250,616	3,135,357
Cheese	254,820	150,455
Casein	524,526	382,278

Source: FAO Internal Working Document.

3. Karakul Sheep - The production of karakul fur, which is variously known as "Persian lamb", "astrekhan" or by the trade name "Swakara", is the second largest agricultural activity in Namibia.

The karakul sheep industry in the southern portion of the territory had its origin in 1902, when a German fur trader, Paul Thorer, visited Russia in the course of his business. As an experiment he decided to buy some of the fur-producing sheep known as the karakul (black lake) or Persian sheep. A total of 69 of the sheep were shipped to Germany on his behalf, but conditions in Europe were totally unsuitable.

The suggestion was then made that climatic conditions in the then Germany colony of South West Africa would be similar to those prevailing in the arid natural home of the karakul in Asiatic Russia. The then Governor, Friedrich von Lindequist, received the idea with enthusiasm. In 1907, 12 karakuls were sent from Germany and results were so encouraging that two years later Thorer shipped out 278 more of the sheep. An experimental farm was established by the Government and the present prosperous industry had its foundation.

The South African administration, after the First World War, continued research in karakul breeding and a new experimental farm was established at Neudam, near Windhoek. The standard of sheep was systematically improved. In 1919, the Karakul Breeder's Association was formed and a karakul stud book opened. As a means of identification, the photography of lambs was commenced and negotiations started with international furriers to place the industry on a sound commercial basis.

The Karakul Board, reorganized in 1968 from the South West African Karakul Industry and Advisory Board, controls exports. Since then, the trade name "Swakara" has been used universally for Namibia fur.

Namibia and South Africa together produce over half the world's supply of the fur, the global total estimated at ten to eleven million pelts per year. The ratio is roughly 70 percent for Namibia to 30 percent for South Africa, of the joint share. The karakul herd in Namibia is now estimated to comprise 4.8 million head, with the biggest flocks in the arid deep south of the territory. Normal yields are three lambs per ewe every two years, the lambs being slaughtered within three days of birth.

Nearly all karakul furs are marketed abroad by three auction houses representing three companies based in Namibia. The main markets for karakul fur are the Federal Republic of Germany, which takes about 60 percent of the combined Namibia/South African output, and Italy, which takes about 20 percent. In 1972, the Karakul Board launched intensive sales promotion in Japan and Spain, where a considerable market is believed to exist.

The increase in karakul exports from Namibia and South Africa over eleven years ending 1971 is shown in the following table:

TABLE IV-3

Namibia and South Africa: Karakul exports, 1960 and 1968 - 1971

	<u>South Africa</u>	<u>Namibia</u>	<u>Total</u>	<u>Average Price</u> <u>per pelt</u>	<u>Total Value</u>
	(million pelts)			(Rand)	(million rand)
1960	0.8	2.0	2.8	4.38	12.0
1968	1.4	3.4	4.8	5.58	27.2
1969	1.7	3.6	5.3	5.94	31.6
1970	1.8	3.3	5.1	5.78	29.8
1971	2.0	3.4	5.4	8.09	45.6

The year 1972 was reported to have been one of "unequaled prosperity" for karakul farmers in Namibia, the average price per pelt exceeding R 10 for the first time, with total revenue amounting to over R 50 million. Namibian farmers are reported to earn some R 15 million per annum from karakul, while the South African Government obtains about R 9 million in taxes and the London auction houses about R 750,000 in commissions. Approximately 20,000 Africans work on the karakul farms, mainly as migrant labourers on contract.

As in the case of cattle farming, the karakul industry is also reaching a limit. Opening the Karasburg Agricultural Show in September 1972, Mr. B.J. van der Walt, the Administrator of South West Africa, stated that the number of karakul sheep in Namibia was already at the saturation point in terms of conservation farming and warned that "our soil cannot take more sheep".

4. Animal Health Services - Animal health services have been put into effect in order to increase marketing possibilities. Periodic outbreaks of foot-and-mouth diseases form one of the main retarding factors in this respect. The information available (as of 1967) indicates that the following steps had been taken: To combat it two quarantine camps with 125 miles of 8 foot fencing have been built; game and stock proof fencing has been erected over a distance of almost 2,000 miles (3,200 km) of which about 959 miles (1,534.5 km) are in homeland areas of the indigenous groups or border on such areas; diagnostic laboratories have been built; and immunization campaigns mounted.

In Owambo, although there is considerable scope for commercial utilization, the marketing of livestock on the hoof is

complicated by the occurrence of contagious cattle diseases and the distances to markets in South Africa and overseas. Steps taken by the South African veterinary authorities to eliminate cattle disease include regular inspections, more effective control of incoming stock, creation of quarantine facilities and extensive vaccination campaigns. A veterinary center has been established at Ondangwa and renders diagnostic and clinical services to Owambo farmers.

Apart from the veterinary services maintained by the South African Government, use is made of facilities and services available in South Africa. During emergencies, when local staff is unable to cope with the volume of work, veterinarians and other trained staff are sent from other regions of the territory to assist. Research work of a specialized nature is referred to the Council for Scientific and Industrial Research and the Onderstepoort Veterinary Institute near Pretoria.

Other measures include the provision of well placed stock watering points, and selective breeding from indigenous stock, the latter to improve productive capacities of indigenous animals for milk and meat. For this purpose a herd of indigenous Owambo cattle has been established at the Orongo Agricultural College, where basic veterinary subjects are to be provided for Owambo veterinary assistants.

C. CROP PRODUCTION AND FOOD SUPPLIES

Owing to lack of water, grain growing plays only a minor role in the south. In good years, the northern African territories are self-sufficient in grains, but in bad years the administration provides large quantities of grains at heavily subsidized prices. The south must regularly get the bulk of its maize from the Republic of South Africa, while the north has to do so intermittently. Imports amounted to 858,008 bags in 1964/65 and 424,370 bags in 1965/66. Furthermore, about 75 percent of the south's requirements of fruit and vegetables comes from the Republic - approximately 6,860 tons a year at a total cost of R 453,000.

TABLE IV-4

Maize and Sorghum Production 1964-1972

('000 metric tons)

	1964	1965	1966	1967	1968	1969	1970	1971*	1972*
Maize	9.0	10.0	10.0	10.0	12.0	12.0	12.0	12.0	14.0
Millet &	14.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	16.0
Sorghum									

* FAO estimates.

The production of wheat remained at 1,000 tons from 1963 to 1967.

The above figures refer to commercial production. Only about 5 to 9 percent of maize production comes from the reserves or "homelands", virtually all in the north, while around 90 percent of the sorghum and millet are produced in those areas.

There are virtually no export crops in South West Africa and all cereals not consumed in the subsistence sector are sold locally.

A variety of agricultural products, including table grapes, are reported to be produced in the 2,400 hectare Hardap Settlement near Mariental, which is irrigated by the Hardap Dam. This dam, which holds 252 million cubic metres and covers an area of 26 square kilometres, is also a tourist attraction, offering various sports and camping facilities as well as a nature reserve.

D. SUBSISTENCE AGRICULTURE

Most subsistence agriculture involves a mixed livestock and crop agriculture on individual plots of communally owned land. The bulk of the 100,000 subsistence farmers live with their families in the northern homeland areas where rainfall is sufficient for some cropping.

In most years these people are able to support themselves by combining locally produced goods with goods purchased with earnings from contract labor. In drought years, however, additional support is needed and maize and wheat are imported in large quantities.

Table IV-5 outlines production figures for both subsistence and commercial agriculture. Although data are outdated, they provide an indication of the variety and scale of subsistence activities.

Trends and developments in recent years are encouraging. As mentioned above, cattle are being utilized more for commercial production and less for traditional purposes. Experiments are being conducted into the cultivation of new types of crops including rice, cotton, sorghum, groundnuts and vegetables. An important aspect of the research program is an investigation into the suitability of the main soil types for irrigated farming. If the research proves successful it may even be possible to irrigate a far larger area of land than the estimated 6,000 acres currently irrigated. The development of the Cunene project should assist this.

TABLE IV-5

AGRICULTURAL PRODUCTS ACCORDING TO PRINCIPAL AREAS: 1962 - 1965

Product	Unit	Year ended June 30	Farms of Whites	Native reserves within southern sector	Rehoboth Baster Gebiet	Northern Native territories	Total: South West Africa
Maize reaped	bags	1962	56,186	80	--	2,120	58,386
		1963	84,742	1,318	--	8,000	94,061
		1964	73,022	30	--	4,100	77,152
		1965	62,990	30	--	6,100	69,120
Wheat and other grain reaped	bags	1962	10,672	253	--	74,915	85,843
		1963	5,119	69	--	158,520	163,708
		1964	6,116	270	--	168,300	174,686
		1965	16,431	270	--	114,000	130,701
Wool shorn	lb.	1962	7,530,864	38,074	82,448	--	7,651,386
		1963	7,870,095	41,408	92,260	--	8,003,763
		1964	7,070,966	30,768	7,362	--	7,109,096
		1965	6,834,833	31,000	96,277	--	6,962,110
Hides sold	number	1962	37,382	1,988	309	--	39,679
		1963	95,809	10,060	813	--	106,682
		1964	57,026	2,544	30	4,800	64,400
		1965	53,741	5,417	683	4,900	64,741
Skins (sheep and goats) sold	number	1962	146,175	12,276	4,673	--	163,124
		1963	225,457	14,912	5,041	--	245,410
		1964	216,957	12,816	100	3,900	233,773
		1965	212,956	14,843	5,307	1,800	234,906

TABLE IV-5 (Continued)

LIVESTOCK AND DAIRY INDUSTRIES: 1961 - 1966

Distribution	Year	Livestock			Dairy Industry		
		Cattle on the Hoof (Number)	Small stock (Number)	Creamery butter (lb.)	Casein (lb.)	Butter-milk powder (lb.)	Value of all dairy products ¹ (Rand)
A. Exported to the Republic of South Africa	1961	232,845	117,292	2,489,700	20,425	88,000	1,875,000
	1962	170,121	68,358	2,174,810	14,960	337,500	751,000
	1963	263,013	103,144	3,234,975	21,850	110,100	937,000
	1964	255,969	150,735	2,455,550	93,279	196,600	899,700
	1965	246,567	107,834	1,291,975	149,445	85,000	563,900
	1966	*	*	1,572,075	139,610	119,200	735,200
B. Processed or consumed in the Territory	1961	64,247	59,823	2,382,932	-	45,875	1,315,000
	1962	92,122	73,481	2,234,321	-	59,750	1,207,000
	1963	99,184	76,980	2,460,031	2,550	44,624	1,583,000
	1964	125,794	82,781	2,546,738	-	48,650	1,675,800
	1965	130,430	84,714	2,557,350	2,805	37,200	1,947,800
	1966	*	*	2,672,336	3,400	12,200	1,993,500

¹ Including products not shown in table. Limited amounts of exports to countries other than South Africa also included under A.

* Figures not available.

E. SOIL

The broad soil regions of Namibia are:

- The coastal desert sandy soils, which include large areas of shifting sands and sand dunes. Wind erosions and dune encroachment are very active. The rainfall is very low and the area has no agricultural potential.
- The coastal lowlands have light textured arid soils with a high content of calcium carbonate and sulfate (Gypsum). A hard cemented horizon is present in the subsoil over large areas. This region has practically no agricultural potential.
- The mountainous regions have very shallow stony soils rock outcrops. The topography is steep and the rainfall is very low. No agricultural potential.
- Semi-arid calcareous soils covering a large hilly or rolling area are found in the south-western and central part of the country. The top soil is usually light textured and is locally underlain by a layer of lime or silica accretion. The layer may be cemented and form a hard platy limestone. The soils are locally stony. The rainfall is generally lower than 10 inches, and the agricultural potential is limited to small areas where irrigation is possible.
- In the Etosha pan, a low-lying area in the north of the country, the soils are affected by salinity and alkalinity. Reclamation of these soils requires leaching of the excess of soluble salts and drainage. Where this is feasible, these soils offer limited agricultural potential.
- An undulating area in the north of the country has heavy textured soils. Although their management is not easy, they have a high natural fertility, and where irrigation water is available, the agricultural potential is high.
- Sandy soils developed on Kalahari sands cover most of the eastern part of the country. The topography is undulating and fossil sand dunes are present in the south-west. The climate is semi-arid; the soil is poor in the plant nutrients and the agricultural potential is limited in the south but increases towards the north of the country with the increasing rainfall.

F. PRODUCTION CONSTRAINTS

A number of limiting factors in agricultural development are evident:

- 1) the vulnerability of the country to climatic factors;
- 2) susceptibility of herds to stock diseases;
- 3) dependence on cattle and karakul sheep;
- 4) inability of meat and dairy products to compete on international markets and, because of the small internal market, reliance on sales to South Africa;
- 5) inability to supply a significant proportion of the inhabitants with grain, vegetables and fruit, so that large quantities have to be purchased from South Africa;
- 6) the high standards of farm management required to combat the harsh and arid environment and to make farming pay under such conditions;
- 7) transport and marketing problems, aggravated by long distances between urban populations and scarcely populated rural areas;
- 8) inherent limitations which the semi-desert environment in the southern sector imposes on the growth of agriculture, particularly crop production.

South Africa's influence and involvement in Namibian agriculture is very significant. Government owned railroads provide heavily subsidized rates. Government highways and roads provide access to lands, cities and inexpensive labor supplies. Policies encourage the continued access to cheap labor. Government veterinary and extension services maintain and improve the quality of production. Virtually all agricultural supplies (seed, fertilizer, insecticides, fencing, tractors, parts, etc.) come from South Africa. Subsidized higher prices are available in the Republic for dairy products and most of the international marketing of Namibian goods is handled by South African firms. At the same time, a large portion of the grains, fruits and vegetables consumed in Namibia are imported from the Republic. Finally, many of the commercial farmers in Namibia are owned by South Africans.

These constraints translate into some basic factors for agriculture:

- Production is highly vulnerable to climatic factors and stock disease, neither of which can be easily

controlled. Since much of the land grazed is marginal, with a fragile ecology and low carrying capacity, the livestock industry must be flexible and able to withstand the various changes climate introduces.

Namibia will probably continue to be dependent on outside sources for much of the food consumed internally and the supplies necessary for its own export-based agriculture. Ties with South Africa are strong and complex, and drastic changes in the relationship between the two countries could result in major losses. Both the beef and the karakul industries require fairly high technology and the loss of necessary supplies or skilled manpower would be felt immediately. The fragile character of the land emphasizes this point.

Thus, it is likely that if political transition is violent or abrupt, resulting in an exodus of commercial farmers or more limited relations with South Africa, agricultural output would decline. Since the affected sectors would be livestock and karakul, it is unlikely that a production decline would affect food supplies, but valuable export earnings would be lost.

G. SUMMARY AND PROSPECTS

The agricultural sector has so far been dominated by animal husbandary, namely, cattle and karakul sheep farming on an extensive basis, and virtually completely run by the white population.

Both the beef and the karakul industries are now operating at close to capacity. Improved efficiency could result in faster weight gain and quicker slaughter in the former, thus improving annual output while maintaining herd size. Improved beef quality could provide access to the more lucrative European market and result in higher earnings. Otherwise, the major opportunities lie in improving subsistence output and increasing irrigated lands.

Even in areas in the south some cultivation appears possible. The Swakop and Kuiseb Valleys appear to have considerable potentiality with the abundant water just beneath the surface of the dry river beds. Dates, citrus fruits, avocados and other tropical fruits could be grown wherever topography permits along the lower regions of these streams. Such fruits could find a ready market in Walvis Bay and Swakopmund as well as in Windhoek and, if the supply and quality are good, for overseas shipments. Furthermore, some of the area could profitably be

devoted to raising alfalfa for fattening of beef cattle prior to slaughter. Much of the cattle currently suffer from long train hauls from the interior, causing considerable losses. Similar cultivation in other southern areas might be foreseen in connection with the increasing number of storage dams being built.

Certainly the Cunene River Basin scheme should not only result in the development of cheap power, giving new impetus to small-scale industry and consumer utilization both in the area and throughout the country, but it should also provide irrigation facilities for a wide variety of crops. What appears to be required are intensified efforts in:

- Research as to suitable crops.
- Extension of agricultural education, beyond capacities of institutions in Namibia.
- Development of agricultural extension services to not only spread the findings of such research but also assist in disseminating improved techniques, particularly irrigation practices.
- Improvement of marketing facilities to serve growing urban or semi-urban areas.
- Development of medium-and small-scale storage facilities for grains to avert shortages resulting from drought periods.

The current problem of migrant labour which drains considerable manpower to the south but also provides monetary benefits to workers' families must also be reviewed in the light of any forthcoming changes and policies. Certainly, extension services should reach the subsistence producers, a large portion of whom are women, and assist them in better production and marketing methods to enable them to contribute to the commercialized sector. In the fields of animal husbandry, positive results from cross breeding with local varieties need to be extended, as well as better management practices and control over the various animal diseases. Timber exploitation in Owambo, as well as other areas in the north, needs to be studied, at least in the light of local consumption, given the relative isolation of Owambo from ports for export.

Particular attention needs to be given to the preservation of existing game reserves, particularly Etosha, which is claimed to be one of the last large reserves for several animal species on the continent, and to the establishment of reserves in other areas, giving due consideration in the setting of their

boundries to ecological factors, including migratory patterns of the animals. The preservation of wildlife is essential, not only in attracting tourism, which could become an increasingly important sector of the country's economy, but also because of its intrinsic scientific and ecological value.

IV. SECTORAL ANALYSES -- MINING

A. THE SETTING

The mining industry is the single most important sector of the economy of Namibia. It plays a major role in contributing to GDP, exports and government revenues. Namibia is the 17th most important mineral producing country in the world.

In 1973 mining's gross output of R 230 million resulted in an addition to GDP of almost R 200 million or about 32 percent of the total. For years, mining has always comprised a third or more of the GDP, making it the largest contributor. Agriculture is second with less than 20 percent.

The role of mining in exports is even more dominant, with mining products averaging close to 60 percent of total exports. In 1966, the last year with official data, 40.6 percent of exports came from diamonds, 9.2 percent from blister copper, 5.9 percent from refined lead and 5.8 percent from concentrates. All mining exports came to 61.5 percent of the total. In the intervening years, it appears the above shares have remained fairly constant, with the exception of shifts among base metals. Of an estimated R 373 million in exports in 1973, diamonds were estimated at R 147 million (39 percent) and base metals at R 83 million (22 percent).

Mining is also the largest contributor to government revenues. Of projected total revenues of R 128 million for 1973/74, mining was expected to contribute directly some R 43.5 million (34 percent) and would indirectly or directly provide a major portion of the customs and excise and personal income tax. Government sources estimate that mining's total contribution to revenue is almost 50 percent.

In terms of value, diamonds clearly lead all other minerals, followed by copper, lead, zinc and a variety of lesser minerals including arsenic, cadmium, silver, tin, tungsten, vanadium, lithium minerals, pyrite concentrates, salt and wollastonite. (See Table IV-6). Some of these metals are not large in terms of output or value, but play critical roles in the South African or other countries' economies. Uranium is not currently mined, but as the huge Rossing facility comes on stream this year, large quantities of uranium oxide will be produced making this mineral second only to diamonds in value.

The mining industry has enjoyed significant growth over the past 10 years. As Table IV-7 indicates, however, most of the growth has been in value as a result of price increases. Physical production output has usually remained constant or even declined in some cases.

TABLE IV-7
MINING PRODUCTION IN NAMIBIA: 1964 - 1974

COMMODITY (metric tons unless otherwise specified)	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974
ARSENIC, white	--	--	40	306	484	2,217	4,062	3,701	2,370	8,147	6,600
CADMIUM - mine output, metal content recoverable	99	108	108	256	214	231	315	266	199	131	126
- metal refined	--	33	132	166	168	191	232	196	157	104	114
COPPER - mine output, metal content recoverable	35,106	39,423	38,924	38,000	37,000	32,604	31,393	32,039	5,186	34,168	32,478
- metal, blister	28,511	29,706	33,832	34,000	32,000	27,482	28,593	26,922	26,119	36,049	46,612
LEAD - mine output, metal content, recoverable	94,368	87,806	85,044	70,000	60,000	65,900	69,900	66,700	60,000	61,700	57,000
- metal, refined	47,795	66,035	75,275	73,500	61,200	60,900	71,100	58,800	64,000	63,600	64,300
SILVER - mine output (000 troy oz.)	1,436	1,541	1,517	1,450	1,350	1,613	1,552	1,757	1,360	1,563	1,556
TIN - mine output (long tons)	1,000	1,070	1,320	1,360	1,370	1,808	1,027	949	974	779	769
VANADIUM - mine output	1,000	1,157	1,227	980	660	502	402	794	529	644	819
ZINC - mine output	32,000	29,900	28,200	40,000	60,000	28,100	46,700	43,780	34,780	37,900	41,700
DIAMONDS - gem (000 carats)	1,387	1,491	1,583	1,531	1,552	1,923	1,772	1,566	1,516	1,528	1,491
- industrial (000 carats)	154	155	176	170	170	101	93	82	80	80	79
LITHIUM METALS	1,100	1,510	1,570	N.A.	N.A.	3,967	6,909	N.A.	3,747	7,051	6,060

Source: U.S. Bureau of Mines Annual Reports

Namibia's mining industry has some characteristics that distinguish it from the rest of the world. (See Appendix 1 - The Economics of Mining). Most important, the diamond industry is considerably more profitable than mining in general. De Beers, the owner of Namibia's diamond industry had a 21.5 percent return on assets for 1975; almost 4 times the average return on assets for the Fortune's 500 Largest Industrial Companies. Also, due to the rich ore deposits, relatively low labor costs and low acquisition costs, most of the base metal producers are able to enjoy a substantial return on assets as well.

Due to the large amount of assets required, mining firms must make a high return on sales to have an average return on assets. Namibian firms usually make a very substantial return on sales and although much of this can be attributed to the requirements of the industry, it appears that these operations are among the most profitable in the world. This high profitability and resulting export of profits has stirred criticism against both the firms involved and the South African government which allows and even encourages this process.

B. OWNERSHIP PATTERNS

When the Rossing uranium mine comes on stream, more than 90 percent of Namibia's mineral output will be controlled by four firms: Consolidated Diamonds, owned by De Beers (South Africa); Rossing, owned by Rio Tinto Zinc and others (British, South African, European); Tsumeb, owned by AMAX, Nemont and Selection Trust (United States); and SWACO, owned by Anglo-American and others (South African). (See Table IV-8). It is clear that the vast majority of the mining industry is in foreign hands: South African, American and British.

C. COMMODITIES

1. Diamonds - Virtually all diamond production in Namibia is controlled by the Consolidated Diamond Mines of South West Africa, (CDM). CDM, in turn, is owned by De Beers Consolidated Mines, a South African corporation. Annual production averages around 1.6 million carats, almost all of which are gem quality. As world prices have increased, the value of this output has grown considerably. 1973 sales were estimated at R 149 million. Namibia accounts for between 10 and 20 percent of the world's gem diamond production.

These diamonds are not found in underground pipes as in South Africa but are washed down the Orange River and deposited in alluvial sand and gravel deposits which accumulate to the north of the river's mouth along the South Atlantic Coast. The Orange River's source in the diamond rich Kimberly area of South Africa accounts for the presence of these gems in the river's alluvial material.

TABLE IV-8

OWNERSHIP PATTERNS IN THE MINING SECTOR

Commodity	Namibian Based Firm	Parent	Percent owned by Parent Co.	Ownership of Parent
Diamonds:	CDM	DeBeers Group	98.3	Anglo-American (100%)
	Marine Diamond	DeBeers Group	83	Anglo-American
	Tidal Diamonds	DeBeers Group Getty Oil	66.4	Anglo-American Getty Oil
Copper:	Tsumeb Corp.	Amax	29.5	Amax
		Newmont Mining	29.5	Newmont Mining
		Selection Trust	14	Charter Consolidated (33%)
		O'okiep Copper Co.	9.5	Amax (11%) Newmont Mining (57.5%)
		Union Corp.	15	Union Corp.
	SWACO	2.5	(See Below)	
	Otjihase Mining	Continental Ore JCI FEDMAR Minerts		Continental Ore Anglo-American (50%) Federale Volksbeleggin (100%) Continental Ore (50%) Federale Volksbeleggin (50%)
Klein Aub Copper	Federale Mybou of S.A. Federale Volksbeleggin GM&F Marine Products		90	Federale Volksbeleggin Federale Volksbeleggin Federale Volksbeleggin
			10	Marine Products
Lead:	SWACO (Southwest African Co., Ltd)	Consolidated Gold Fields	16	Consolidated Gold Fields
		Charter Consolidated	30	Charter Consolidated
		Anglo-American	44	Anglo-American
	Tsumeb Corp.	See Above		

TABLE IV-8 (continued)

Commodity	Namibian Based Firm	Parent	Percent owned by Parent Co.	Ownership of Parent
Zinc:	Tsumeb Corp	See Above		
	Kiln Products	Consolidated Gold Fields	61	Consolidated Gold Fields
		Metallgesellschaft AG	9	Metallgesellschaft AG
		Anglo-American Corp	30	Anglo-American Corp
Otjihase Mining Co.	See Above			
Uranium:	O'okiep Copper Co.	See Above		
	Rossing Uranium	Rio-Tinto-Zinc	30	RTZ
		Total-Compagnie Mineraire et Nucleaire		Total-Compagnie Mineraire et Nucleaire
		GM&F	18	Federale Volksbeleggin
IDC		18	IDC	

Source: U.N. General Assembly Reports, 1974, 1975, 1976.
Murray, et. al., The Role of Foreign Firms in Namibia, 1974.

Mining these sands requires construction of sea dikes to keep out the large ocean breakers while the sand is cleared and the richer gravel beneath is processed. In 1973, 23 tons of overburden had to be removed and 7 tons of gravel mined and screened for each carat of diamond recovered. Although this resulted in a cost of \$20 per carat recovered, the sales price was \$132 per carat, resulting in a gross operating profit of \$112 per carat.

Due to the monopoly control De Beer's Central Selling Organization exercises over the marketing of these stones, it is difficult to isolate when and how profits are allocated, or where they should be. De Beers controls the whole chain from the mine through wholesaling and sells almost all the world's diamonds so it has power to establish prices to a large extent. It can allocate profits in any of four steps in this chain.

In 1973, prices were up 40 percent over 1972 with the CDM income statement reflecting these higher prices:

TABLE IV-9

CDM INCOME STATEMENT

	1973 (R in millions)	1972
Sales	R 149.3	R 97.7
Wages, Materials	<u>21.9</u>	<u>17.7</u>
Gross Profit ("Diamond Account")	127.4	80.0
Other Income less expenses	<u>29.1</u>	<u>21.1</u>
Consolidated profit before tax	156.5	101.1
TAX	<u>59.5</u>	<u>37.1</u>
Consolidated profit after tax	<u>R 96.5</u>	<u>R 63.9</u>

The total share capital and reserves (in 1973) were R346 million, so the return was 27.9 percent. Although other income is used in total profitability calculations, it should be noted that most of this money is generated by CDM investments in South Africa. It should also be noted that the above figures make no allowance for depreciation. Annual new investment averages around R 20 million, however. Finally, it must be said that the relationship between production, sales and inventory is unclear from the Annual Report.

Remaining diamond reserves are not certain, but for most of the past 20 years, they have been estimated at 20 years. CDM has mining rights from the Orange River up the coast to Luderitz until the year 2010.

2. Copper - Copper is Namibia's second largest mineral in terms of sales (R 34.2 million in 1975). Most of the production is from the Tsumeb Corporation although several other firms have copper and other base metal operations. Production volume has grown to over 40,000 metric tons per year and Tsumeb has invested in smelter capacity to handle 70,000 tons. Falling prices have seriously affected performance, with Tsumeb showing a R 2.0 million loss on sales of R 55.0 million in 1975.

3. Lead and Zinc - Namibia is the largest African producer of lead and the third largest producer of zinc. Most of the production is mined by Tsumeb and SWACO, with smelting done by the former. About 65,000 metric tons of lead are mined each year creating R 17.0 million in sales for 1973. Most of the lead is exported to the United Kingdom. Zinc production averages about 40,000 metric tons annually. 1972 sales were R 7.0 million with most of the output going to the Republic of South Africa and the United Kingdom. (Table IV-10 shows reserves of copper and other minerals.)

4. Uranium - The Rossing uranium mine, scheduled to open this year, will be the most important single source of uranium oxide in the world. Located about 35 miles inland from Swakapmund, the open pit mine has required a total investment of over R 200 million through a consortium led by Britain's Rio Tinto Zinc and including South African and European ownership. Targeted output is 5,000 tons of uranium oxide per year with an estimated value of R 95. million. Sales contracts for the production have already been finalized with the United Kingdom Atomic Energy Commission, Japan and Western Europe.

Due to the strategic importance of uranium and the major role it plays in South Africa's drive toward energy self-sufficiency, this mine is of considerable importance to the Republic, and the contracts with Britain, Japan and Europe are important to those countries' supply. As a result of these factors, considerable secrecy has shrouded the entire development.

5. Mineral Fuels - There had been speculation that off-shore oil leases in Namibia would produce economic amounts of petroleum. Over the past three years Getty Oil Co., Chevron, Phillips and Continental have all been exploring for oil. They have failed to find oil, relinquished their tracts and ceased exploration.

Coal deposits were discovered in 1976 which could prove valuable as a substitute for coal presently shipped by rail from the Republic.

TABLE IV-10
MINERAL RESERVES

<u>Company</u>	<u>Reserves</u> <u>(million short tons)</u>	
<u>Tsumeb</u>		
Tsumeb Mine	- Positive ore	7.1 (copper, lead, zinc)
	- Tentative ore	2.0 (copper, lead, zinc)
Kombat Mine	- Positive ore	2.2 (copper, lead)
	- Probable ore	
Matchless Mine	- Probable ore	2.5 (copper, sulphur)
<hr/>		
Total Tsumeb	- Proven	9.3
	- Probable	6.0
<u>Otjihase Mining Co.</u>		
Total	- Proven	16.0 (copper, zinc, silver, gold)
<u>SWACO</u>		
Berg Auka	- Probable	2.1 (vanadium, lead, zinc)
Brandberg West	- Probable	2.5 (tin/wolfram)
<hr/>		
Total SWACO		4.6
<u>Klein Aub Copper</u>		
Total	- Probable	1.7 (copper)
<u>General Mining and Finance</u>		
Total GM&F	- Proven	3.0 (copper)
<u>SWACO/Tsumeb</u>		
Total SWACO/Tsumeb	- Probable	0.6 (copper, lead)
<u>Rossing Uranium</u>		
Total	- Probable	0.1 (uranium)
<hr/>		
TOTAL RESERVES: Proven:		28.3
Probable:		13.0
TOTAL:		<u>41.3</u>

Source: UN "Reports of the . . .", General Assembly, 1973, 74, 75.

6. Other Minerals - Other mineral products of Namibia include cadmium, 124 tons valued at R 670,000; vanadium, mined with lead and zinc; silver, 1.5 million ounces valued at R 5.0 million; tin and tungsten.

D. TRENDS AND PROBLEMS

Although investment has continued at a heavy rate in most of the major mining facilities, (CDM, Rossing & Tsumeb), exploration activities have slowed. A U.N. decree prohibiting the export of mineral commodities from Namibia without the prior authorization of the U.N. Council for Namibia may be partially responsible for this.

The high degree of political uncertainty as evidenced by the U.N. decree and U.S. denial of investment guarantees is having an effect on potential investors. The major operations currently in place apparently feel they can work with a new government and are therefore willing to maintain their operations.

The possibility of political change has created manifold problems for the mining industry. At present, there is considerable dependence on the rail system and rates heavily subsidized by the South African government. Disruption of service or higher rates would damage performance of several firms - notably Tsumeb.

Manpower shortages are also becoming important. Tsumeb has reportedly lost 20 percent of its skilled workforce due to the uncertain future. Heavy emphasis on training programs for blacks has begun and in the long run will prove profitable, however problems exist at present as the gaps are being filled.

Low copper prices have been a major reason for recent losses in that industry. On the other hand, higher prices for diamonds have resulted in a greater output, by value, for the entire industry.

The experience of mining operations in other emerging colonies indicates that usually these operations can and do continue production in spite of major political change. Zaire, Zambia, Botswana and even Angola demonstrate this. Usually the large multinational firms are able to provide the necessary manpower and skills to keep the operations running, and they have had considerable experience in negotiating with new governments so as to minimize upsetting effects.

There is no reason to expect that De Beers, Tsumeb or Rio Tinto Zinc will be exceptions to the past general experience.

Any new government will be anxious to maintain mine production so as to assure revenue for its projects, and the mining firms have begun to improve the wage and skill upgrading opportunities of their operations so as to blunt potential criticism.

APPENDIX 1 - THE ECONOMICS OF MINING

In order to understand Namibia's mining industry, an idea of the basic economics of the mining industry in general is necessary. Otherwise it is easy to misinterpret or misunderstand the financial performance of Namibian mining firms. Table IV-11 below outlines basic financial comparatives for Fortune's 500 largest industrials and AMAX and Newmont, two of the major corporations operating in Namibia.

TABLE IV-11 FINANCIAL PERFORMANCE DATA, 1975

(Ratios based on total sales = \$1.00)

	(1) Total Sales	(2) Total Assets	(3) Net Income	(4) Return on Assets
Fortune 500	\$1.00	\$0.77	\$0.043	5.7%
AMAX	1.00	2.58	0.140	5.4%
Newmont	1.00	2.18	0.102	4.7%

The most important fact printed out by these figures is that mining is very capital intensive. For every dollar of sales, the average industrial firm has to invest \$.77, yet the mining firms must invest over three times that amount. This major difference in sales to assets ratios makes it a requirement that mining companies make over three times the net income per dollar to have an equal return on assets.

Column 3 indicates that the firms have had substantially higher profits per dollar of sales than the average industrial. Column 4, however, shows even those higher profits to sales ratios were insufficient to provide an equal return on assets which is the real measure of performance and profitability (assuming equal debt/equity ratios).

Next, since mining strips a country of non-renewable resources, the firms are often subject to considerable taxes. Being multinationals which often operate in developing countries, this factor becomes more pronounced. These taxes also create the need for high gross profits to sales ratios.

Another feature of the mining industry is the timing of the profits. Usually a large mining operation requires very heavy front-end investment as the mine is purchased, equipment procured and infrastructures prepared. After the first few years of startup, a period of high profitability begins. Finally, as the high grade ore runs out, the mine begins to operate at a loss and

continues doing so until even fixed costs cannot be covered.

In short, mining is a very capital intensive industry which requires high profits to sales ratios in order to obtain a reasonable return on assets. Because of this capital intensity, only large firms with substantial resources and experience can operate in the business. Thus, the industry is generally characterized by large multinational firms making high profits when compared to sales, but only average or below average return on assets.

IV. SECTORAL ANALYSES - FISHING

A. HISTORY

The waters off the Namibia coastline are part of the cold northward flowing Benguela Current. These cold nutrient-laden waters in latitudes well lit by the sun produce excellent conditions for the growth and maintenance of phytoplankton and zooplankton populations, the basis of the food chains leading to the commercially exploited species. On the other hand, the climatic conditions caused by cold waters near the shore which cool the air cause, as a result of the wind directions, the desert conditions in the land along this coast.

Before World War I, fishing along this coast consisted almost exclusively of line fishing for snook taken seasonally by boats from Capetown. This resulted in a century-old trade in dried, salted snook from the Cape of Good Hope to the sugar producing island, Mauritius.

Before World War II, rock lobster canning was started at Luderitz to provide South African shippers with additional supplies of canned lobster for shipment to European markets, mainly France. In the late 1920's and early 1930's, as a result of the world depression, this trade was severely restricted, but it has since flourished with the development of the trade in frozen lobster tails from South Africa's Atlantic seaboard to the United States.

After World War II, the fishmeal and oil industry based on the pilchard resources of the Southeast Atlantic, came into being and expanded rapidly. These operations also involved fish canning and were based on the South African pilchard, chub mackerel, maasbanker, Cape anchovy and the red-eye round herring. In 1950, many of the South African companies already faced with the imposition of Government restrictions on capacity and size of fleets in South African waters, extended their operations by establishing meal and oil plants and canneries in Walvis Bay. The catches continued to expand rapidly and the annual landings exceeded 900,000 tons in 1967 - a level which placed it among the principal fishing ports in the world.

Since 1960 fish off the coast of South West Africa were subject to further exploitation by trawlers and factory trawlers not only from Capetown but also from the USSR, Poland, Bulgaria, Japan, the Federal Republic of Germany, Cuba, the German Democratic Republic, Ghana, Israel and Italy. In 1974, Japanese fleets developed a new fishery for crab off the mouth of the Cunene and near Luderitz. Some of these catches have been landed for processing in Walvis Bay.

B. IMPORTANCE TO THE ECONOMY

After mining and agriculture, fishing is Namibia's next most important industry, contributing almost 20 percent of total export earnings. Gross sales have grown from R40 to R50 million in the 1960's to over R60 million after 1972 when prices shot up. About half of the manufacturing sector's output is based on fish products so between the manufactured and primary sectors, fishing probably contributes close to 10 percent of GDP. Fishing also provides close to 7,000 jobs.

Live weight catch fluctuates widely between half a million metric tons and a million tons. U.N. estimates are:

	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>
Live weight catch (in 000 metric tons)	740.2	982.7	857.0	708.0	587.0	529.0	700.0

Fishing is controlled mostly by South African companies with Africans providing the labor. The industry represents a capital investment of R49 million and is estimated to be served by a fleet of about 240 purse-seine trawlers, of which about 100 operate out of Walvis Bay. All in all, there are nine commercial fishing companies or groups registered in Namibia. In 1971, the total profits of the major fishing companies amounted to R8.2 million after \$3.5 million had been paid in taxes.

The year 1972 was reported to have been an exceptionally profitable year for the fishing industry (see Table IV-12). It was a record canning season and the price of fish meal (\$ US 200 per ton) was considerably higher than that obtained in 1971. The entire production of fish oil, estimated at 16,000 tons, was sold to the United Kingdom interests. A total of 5.7 million cartons of canned fish were placed on the world market.

For the 1972 season, the total catch off the Namibia coast amounted to 368,000 metric tons of pilchards and 161,000 metric tons of "other species", a total of 529,000 metric tons. The total permitted quota had been 995,400 tons (338,700 tons for pilchards and 656,700 tons for other species). It was reported that only about 25 percent of the quota of other species had been landed, although the pilchard quota, which is the more profitable, had been filled without difficulty. For the 1973 season, beginning 1 March, the fishing quota for the Territory remained at the same level, divided equally, however, between pilchards and other species. Table IV-13 indicates production figures from 1964 to 1973.

TABLE IV-12

FISHING - HOW THE COMPANIES DID

<u>Company</u>	<u>Market Capitalization*</u> (Rm)	<u>Total Sales</u> (Rm)	<u>Net Profit for Equity</u> (R'000)	<u>Pre-tax Return for Equity</u> (%)
Angra Pequena	5.6	2.5	166	7.6
Kaap Kunene	20.7	-	604	4.8
Sea Products	13.9	5.1	832	20.2
SWA Fishing	12.6	6.3	1,020	21.7
Suid Kunene	6.0	2.0	480	29.5
Willem Barendsz	8.6	-	-129	-

* On mid-February 1973 values.

Note: Profits and returns are for 1971. 1971 was a poor year for the industry. Vastly improved profits were expected for 1972, and 1973.

Source: South West Africa: Supplement to the Financial Mail, March 2, 1973.

TABLE IV-13
FISHING OUTPUT BY WEIGHT AND VALUE

Product	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973
<u>Live Weight</u> (000 metric tons)			650.0	740.2	982.7	857.0	708.0	587.0	589.0	700.0
<u>Value</u> (R millions)										
Canned Pilchards	R10.0	R13.6	R14.0	R17.8	R8.4	R9.6	R12.4			
Frozen Pilchards	-	-	-	0.6	0.7	0.4	0.2			
Fish Meal	13.9	19.7	22.4	18.0	18.5	15.5	16.4			
Fish Oil	5.6	4.7	4.9	3.8	4.0	2.7	5.6			
Rock Lobster	3.8	5.6	6.7	3.9	6.8	6.2	2.3			
Whitefish, Snoek	0.5	0.6	1.0	0.8	1.4	1.4	2.2			
Seal	<u>0.5</u>	<u>0.7</u>	<u>0.4</u>	<u>0.6</u>	<u>0.6</u>	<u>0.5</u>	<u>0.7</u>			
Total Value	R34.2	R45.0	R49.3	R45.4	R40.4	R36.3	R40.2			
S.A Estimate of Total Value					R59.7			R40.1	R58.8	

SOURCE: Summaries of Economic Data, 1974, U.N. Economic Commission for Africa.

* From South West Africa Survey, 1974.

C. GOVERNMENT CONSERVATION MEASURES

Until 31 March 1969 the fishery industries of Namibia were controlled by the South West Africa Administration based in Windhoek. On 1 April 1969, the South African Department of Industries with its Branch of Sea Fisheries in Capetown took over the control of the fisheries of Namibia.

The rapid exploitation of the hake resources by the long-distance fleets of many countries in the South East Atlantic resulted in the establishment by the various interested governments of the Commission for the South East Atlantic Fisheries (ICSEAF), Madrid-based, which came into existence on 24 October 1974. Its membership now includes South Africa, Japan, Portugal, USSR, Spain, Poland, Bulgaria, France, Belgium and the German Democratic Republic. In 1972, more than 1.1 million tons of hake were caught in the Southeast Atlantic and of this approximately 900,000 tons were taken off the Namibian coast. Only small quantities of these catches are landed in Walvis Bay for processing.

The pelagic fisheries, utilizing mainly pilchards, sardines and maasbankers are mainly conducted by boats based at Walvis Bay and the catches are landed in that port although small quantities (about 10 percent) are landed in Luderitz.

D. FUTURE PROSPECTS

It would appear from investigations by South African scientists as well as the deliberations of ICSEAF that the most important commercial stocks are now fully exploited. Future possibilities for the development of Namibian fishing appear to be in the direction of exploiting new resources which seem to be available, as indicated by the recent development by the Japanese of crab fisheries; the improvement of stocks of inshore species - such as rock lobsters; and possible replacement of the foreign fleets at present fishing for hake. Further offshore, declaring and enforcing a 200 mile limit is an option.

On the other hand, the prospect of political change causes doubt as to whether the industry will remain at all. Most of the investment is South African owned and managed and except for a relatively small lobster operation at Luderitz, the industry is based in Walvis Bay, the South African enclave. In the event of change, unless a solution is reached for the Walvis Bay situation, it is likely that output and employment will suffer.

Finally the natural resource is fragile and subject to major fluctuations as a result of over-fishing or ecologic change. Control over the harvest of ocean resources will have to be a continuing government function.

IV. SECTORAL ANALYSES - MANUFACTURING

A. THE SETTING

Manufacturing is still in its infancy in Namibia and although it contributes 10 percent of the GDP and provides over 10,000 jobs, it is based almost entirely on processing local raw materials. It is essentially an extension of the fishing, agriculture and mining sectors. Manufacturing has kept up with the rapid growth of the Namibian economy, but is so dependent on the primary sectors that there is little change of it becoming a leading sector of the economy. Gross output for the manufacturing industry as a whole rose from R40.6 million in 1961/62 to R79.0 million ten years later, for an average annual growth of 6.9 percent.

Food products accounted for nearly two-thirds the value of all manufactured goods in 1971/72. Fish products, in turn, represented 72 percent of the total value of all food products compared with 20 percent for meat products, 2 percent for butter and cheese and 6 percent for other food products. Metal products was the next largest group and the remainder of the output was in construction materials, consumer goods and miscellaneous activities. Table IV-14 presents the most recent figures available production by group.

In recent years, import substitution consumer goods and construction materials have been more important. A bottling plant, cement factory and clothing and footwear facilities are examples of the new installations. Still, most consumer goods, transport or electrical machinery, and parts are imported.

B. CONSTRAINTS AND PROSPECTS

There are a number of factors which limit manufacturing activity in Namibia. Most important is the small market. With less than a million people in the entire country, spread over a very large territory, it is impossible to achieve any scale economies for the local market. Since labor costs are equal or higher than those in surrounding countries, there is no apparent technological edge and transportation costs are high. There is little reason to expect Namibian penetration into neighboring markets except with its processed local raw materials such as fish or canned beef.

Membership in the South African Customs Union also discourages new industry, as imports come in tariff free from the Republic of South Africa and are shipped at subsidized rates. This makes a very difficult obstacle for any new industry which is already at a disadvantage due to limited market access.

It is likely that manufacturing will remain basically dependent on the primary sectors for some time to come. Two factors, however, will probably result in increased manufacturing activity.

TABLE IV-14

THE MANUFACTURING INDUSTRY: 1960/61 - 1963/64

Type of Industry	Year	Number of Establishments	Total Employment	Total Salaries and Wages	Net Value of Output
Total Manufacturing	1960/61	184	5,950	(R'000) 3,769	(R'000) 13,169
	1961/62	225	6,751	4,446	16,448
	1962/63	209	7,232	*	*
	1963/64	212	8,386	5,359	18,083
Major Groups:					
Food:					
- Canned and pre-served Meat		4	970	509	1,525
- Butter and Cheese		5	216	85	351
- Fish and Allied Products		10	4,107	2,233	10,636
- Bakeries		26	348	231	478
- Other Food Products		11	217	162	344
All Food Products		56	5,858	3,220	13,334
Beverages		19	333	248	847
Clothing and Footwear		18	66	30	92
Wood Products (excluding furniture)		18	158	66	165
Furniture and Fixtures		20	129	97	216
Printing and Publishing		13	189	280	483
Non-metallic Mineral Products		16	418	201	359
Metal Products		16	724	650	1,478
Machinery (excluding electrical machinery)		5	73	97	166
Electrical Machinery, apparatus and appliances		5	61	42	81
Transport Equipment		15	254	312	490
All Other Products		11	123	116	372

* Figures not available.

Source: South West Africa Survey, 1967.

First, availability of cheap electric power from the Cunene Project will stimulate mineral processing. Expanded smelting and refining activities will result and some further processing of copper may also evolve. Second, the new relationship with South Africa after the political transition will probably mean some type of tariff protection will be available for Namibian manufactures. This would probably stimulate import substitution industries.

IV. SECTOR ANALYSES - WATER

A. THE SETTING

A major problem in Namibia is the sparseness, irregularity and, therefore, the ineffectiveness of the rainfall. Practically the whole of the coastal area receives an average of less than 2 inches per annum, while only the north-eastern part of the country receives over 16 inches. The rainfall over the plateau area improves steadily from south-west to north-east. Only along the Okavango River in the north and in the Caprivi Strip can rainfall conditions - 24 inches - be regarded as favorable for a somewhat denser type of human occupation and fairly intensive agricultural exploitation.

Throughout Namibia, the effectiveness of the sparse rainfall is further reduced by its spasmodic distribution and a high rate of evaporation caused by the Country being in the summer rainfall area, with high day temperatures. Low atmospheric pressure, due to high altitude, aggravates the effect.

The distribution of rainfall throughout the year (or years) is such that, in effect, an average rainfall figure often represents the mean between the extremes of drought and flood conditions. In particular is this true of the low rainfall areas. The north-eastern part of the Country however, has the combined advantages of a higher average rainfall, a longer rainy season and better distribution.

As a result of sporadic rainfall, all the inland rivers only flow intermittently, being in spate for a few brief periods during the rainy season and the river beds being dry for the rest of the year.

The only permanent rivers in Namibia rise outside its borders and, usually constitute part of the country's boundaries, rarely flowing through Namibian Territory. In the south, the Orange River flows in a 3,300 foot-deep gorge and so possesses only a minor potential for irrigation limited to the narrow alluvial lands. In terms of an Agreement between Great Britain and Germany signed at Berlin on 1 July 1890, the southern international boundary of the Territory is formed by the north bank of the Orange River, which, therefore, flows entirely within South African territory. Owners of land in Namibia are, however, allowed to abstract water from the river under legislation adopted by the South African Parliament.

The Cunene River Basin Scheme, which also concerns Angola under a now uncertain 1969 agreement between Portugal and South Africa, is still under construction and calls for the regulation of the flow of the river, the generation of electric power and the construction of irrigation works.

The Okavango River seems to offer prospects for irrigation. It has been determined that from the best potential dam site on the Okavango some 50,000 to 60,000 hectares could be irrigated.

Storage dams are increasingly being used on farms, in urban areas and in the Bantu territories. Among these are the Avis and Goreangab dams near Windhoek, the Van Rhyn Dam (Keetmanshoop), the Daan Viljoen Dam (Gobabis) and the Hardap Dam, near Mariental, which is the largest in the country after the Cunene River Basin Dam under construction. For the flat tableland of Owambo "saucer" dams have proved to be the most effective. This type of dam is to be found at Ondangua, Okatana and Oshikango.

Over the greater part of the Kalahari area the main problem, and one which inhibits development, is near-total lack of surface water. Moreover, ground-water often occurs at such depth as to make it uneconomic to exploit. By contrast, floods occur annually in the eastern parts of Owambo and the Caprivi strip, which are much better watered than the rest of the area.

At present, the total assured yield of both surface and underground resources is estimated at 500 million cubic meters per annum, two-thirds of which is already being utilized for human, animal, industrial, and irrigation consumption. (These 500 million cubic meters are less than one-third those of Israel, a country one-fortieth the area of Namibia.) In addition, the groundwater resources are limited. Underground water supplies have been accumulating over the last 5,000 years and annual replenishment does not make a large contribution to the available underground resources.

Compounding the problem is the greater demand due to higher standards of living, population increase and expanding mining, industry, and recreation facilities. These additional demands have become so insistent that new projects rapidly become inadequate. A water project in Windhoek, which was intended to supply that city with adequate water for at least fifteen years, is already supplying water at close to its maximum designed capacity and the project is only three years old. Table IV-15 indicates that by the mid 1980's, estimated water requirements will exceed resources. Using the more liberal water usage estimates provided by the South African government and private sources, demand exceeds resources much sooner and by the year 2000 is more than 5 times over resources.

B. COSTS

Water schemes in Namibia are expensive to construct and operate. Surface water resources require an average capital cost of the \$4.20 per cubic meter to be developed. Comparison with projects in other countries (Table IV-16) shows that the

TABLE IV-15
1970 WATER CONSUMPTION & ESTIMATES TO 2000

	1970	1980	1990	2000
(millions) Population mm ³ pa Consumption (assume 2.8% growth rate in population and a 1.0% growth usage per capita)	0.75 44	0.99 71	1.27 90	1.67 130
(millions) Livestock mm ³ pa Consumption (assume 1.0% growth rate)	2.4 88	2.6 95	2.9 106	3.2 117
(millions) Small Stock mm ³ pa Consumption (assumes 1.0% growth rate)	5.4 39	6.0 43	6.6 48	7.3 53
acres (000's) Irrigation mm ³ pa Consumption (assume 5.0% annual growth - South African government estimate 10.0% growth will be necessary to meet food needs)	6.0 <u>163</u>	9.8 <u>266</u>	15.9 <u>432</u>	25.9 <u>704</u>
Total Consumption (mm ³ pa)	<u>334</u> 1970	<u>475</u> 1980	<u>676</u> 1990	<u>1004</u> 2000

Source: Adapted from Desert Deadlock: Financial Mail Special Survey, p. 37, March 1977.

TABLE IV-16

CAPITAL COST PER CUBIC METER OF STORAGE CAPACITY

Ord River Dam, Australia	0.6 cents
Chalaus Dam, France	9.6 cents
Lur Dam, Iran	10.0 cents
Canston Dam, California	6.5 cents
Tarbela Dam, Pakistan	4.1 cents
Kainji Dam, Nigeria	2.2 cents
Hendrix Verwoerd Dam, S.A.	1.3 cents

SOURCE:

South West Africa Survey, 1974.

average capital cost per cubic meter of water in Namibia is twenty to 300 times higher. In some cases the large metropolitan areas are forced to use relatively expensive methods to supply the water they need. For example, Windhoek recycles its sewage and Luderitz operates a desalination plant. In other cases expensive measures are undertaken to combat surface evaporation, which is a severe problem in Namibia. One of the methods is to build concrete dam walls in catchments with sufficient sand transportation in such a way as to fill the dam basin with coarse sand where the water can be stored. Another method which has been developed is to cover the surface of the water with slabs of a floating concrete mixture containing small hollow plastic spheres.

A total of R139 million has so far been spent on the 177 domestic water supply schemes constructed and operated by the government. These schemes, with a total capacity of 38 million cubic meters, supply water to towns, villages, mission stations, country schools and community centers, centralized cattle watering points and hospitals. In addition, a total of 1,400 boreholes have been drilled and over 500 dams built, with capacities between 5,000 and 60,000 cubic meters. A R595 million master water plan for the whole of Namibia up to the year 2000 has been developed which appears to be complementary and additional to the Owambo plan. It calls for the construction of a grid of canals and pipelines throughout the country. Plans include 344 miles of canals from dams on the Fish River in the south to Windhoek at a cost of R100 million; pipelines and canals stretching 930 miles from Cunene to Walvis Bay at a cost of R210 million; canals from the Okavango River on the northeast border to Tsumeb/Grootfontein/Otavi; pipelines and canals from underground sources near Tsumeb and Windhoek, and a distribution line from Cunene to Windhoek at a cost of R200 million.

C. CUNENE WATER PLAN

A master water plan for Owambo has been drawn up which makes provision for water requirements until 1990 at an estimated cost of R85 million. An important element in this plan is the agreement between South Africa and the Portuguese Government in 1969 which granted the right to pump up to six cubic meters of water per second (about 5% of the river's flow) from the Cunene River at Calueque in Angola and to take

this water across the border into Namibia in two main arteries. One artery will carry water from the bifurcation point along concrete lined canals to Oshakati and settlements along the way. The second artery will feed water along the line of the existing Etaka Canal to Lake Oponono, also serving the settlements and communities along the route. Three hundred and twenty excavation dams with an average capacity of 30,000 cubic meters have already been constructed as of 1971, as well as some 150 miles of collecting canals. The water plan also calls for the drilling of 800 boreholes and the construction of 300 new storage dams.

Recent political changes in Angola will undoubtedly affect this project since the main dams and power plants are in Angola, albeit built with South African money. At this date, information is hazy, but construction has stopped in Angola.

IV. SECTOR ANALYSES - TRANSPORTATION

In a large undeveloped country such as Namibia where much of the economic activity is based on exports and agricultural production is inadequate and geared toward non-food or export products, transportation has to play a major role in the economy. It serves as a link between producing areas and ports and a bond between widely separated people.

Transportation is heavily subsidized by the South African government. Major investments have gone into infrastructure over the past fifteen years and operating losses of government owned systems have been the rule. Thus, the country has an adequate transport infrastructure in place but may face difficulties in trying to run and maintain it without external assistance.

Since Namibia possesses no navigable waterways, internal transportation depends primarily on roads and railways. Due to the size and sparse population, providing a comprehensive system would be a very long and expensive undertaking. Although the task is far from complete, Namibia has good rail and road systems with adequate air service and a modern efficient port at Walvis Bay. (Figure IV-3)

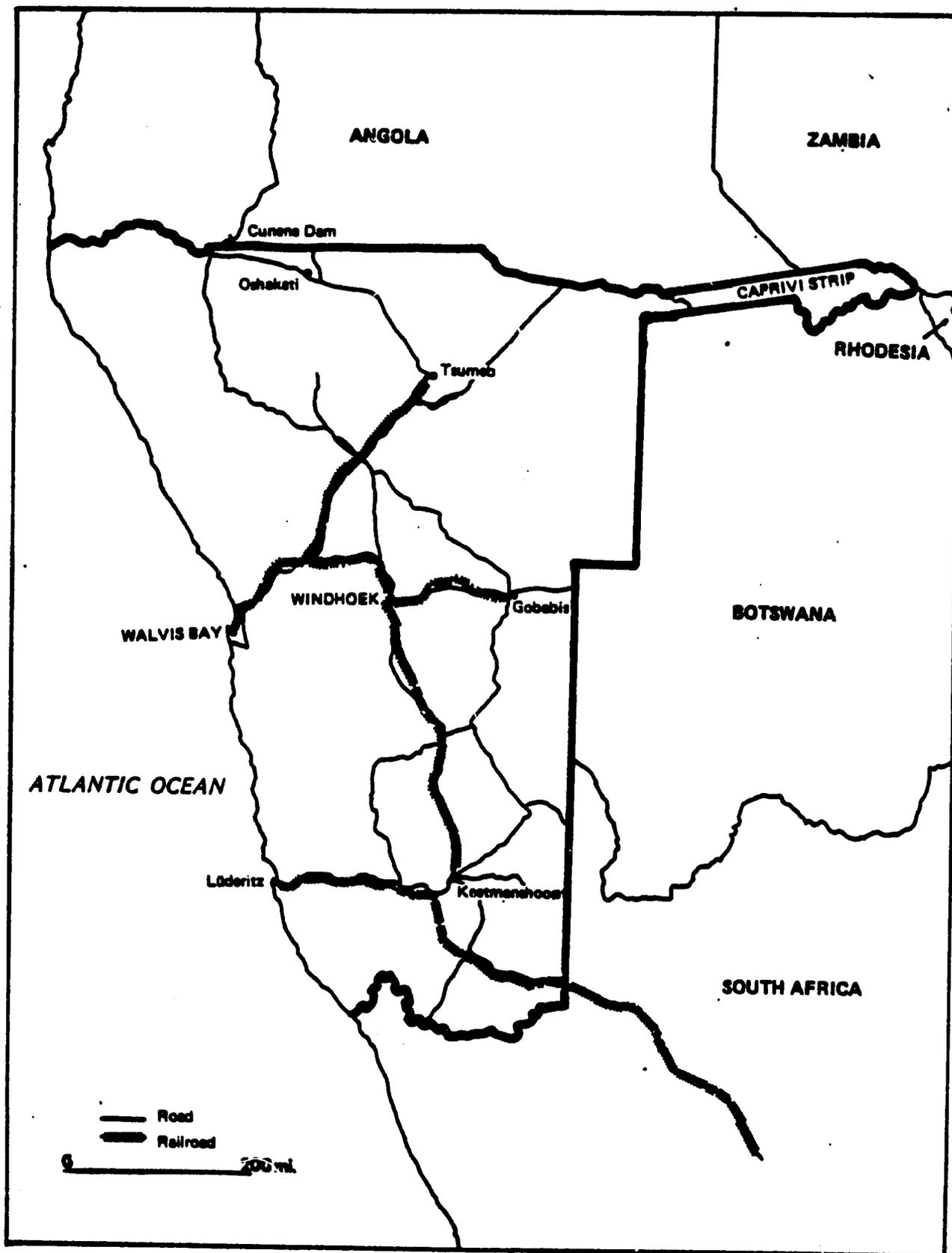
A. ROADS

Major expenditures have gone into improving the road transport system over the past ten years. Between 1965 and 1971 over R 17 million was spent annually to improve the system. In 1953 there were no paved roads. By 1963 there were 447 KM, and by 1973, 2,772 KM of road had been paved. Over the same twenty years road bridges increased from 35 to 373. The South African government estimated the entire road network was worth R 172 million in 1973.

Major roads connect Cunene and Oskakati with Tsumeb in the north; Tsumeb with Walvis Bay and Windhoek; Windhoek with Gobabis in the east, Walvis Bay in the west, Keetsmanshoop and South Africa in the south; and Luderitz with Keetsmanshoop. In addition, there are 9,248 KM of unpaved main roads, 19,627 KM of district roads and 25,408 KM proclaimed farm roads.

The road system is geared toward Walvis Bay and South Africa to facilitate trade. It is efficient at getting goods out of or into the country but does little to encourage rural development in predominately African areas. Upon independence the system will require reexamination to determine if it fits the needs of the entire population. It is likely to require more extensive development in the northern areas where population is more concentrated.

**FIGURE IV-3
SOUTH-WEST AFRICA (NAMIBIA)**



There are several problem areas relating to the national road system. With the country's size, low population density, physical conditions and climate, construction is a very difficult task. Roads to carry heavy traffic have to be built over great distances without a gravel bed because in many parts of the country there is no gravel to be found. Many bridges have to be designed to withstand floods which may occur once every fifty years. Bridge foundations have to be driven through as much as 30 meters of sand in order to rest on bedrock. In the Namib, special barriers against wandering dunes have to be erected.

Perhaps the most important problem is the economic justification for these expensive projects which connect points with small populations situated at great distances from one another. It is this limitation that has directed most road building toward north-south or hinterland-port trade routes.

B. RAILWAYS

Although railways are also burdened with the long hauls, a small economic and population base and difficult building conditions, Namibia has the highest rail mile per capita ratio on the continent. With 18 miles per 10,000 population, it is far ahead of the Republic of South Africa, with 5.6 miles; Rhodesia with 3.7; and Nigeria with 0.4 miles.

Namibia has over 1,500 miles of rail lines with the main routes running south-north between Upington, in the Orange Valley of South Africa, and Windhoek. There are branch lines west to Luderitz and Walvis Bay, east to Gobabis, and north to Tsumeb from Walvis Bay.

Namibia's rail service is owned and operated by the South African Railways and Harbours Administration. As such, the South African Government has total control over this critical element of Namibia's economy. Most incoming traffic from the Republic consists of manufactured goods, coal, and refrigerated fruit and vegetables. Outgoing goods are primarily ore or livestock.

This great mix of goods creates an important operating problem for the system. Loads hauled to Namibia require a different kind of car than loads hauled from the country. Because of this, both types of cars must be hauled up to 1,000 miles although one will ride empty on the way up while the other will be empty for the return. The same problem often occurs with internal shipments - the goods needed at Tsumeb cannot ride out in the same cars which brought copper to Walvis Bay.

As a result of the high construction costs and forced operating inefficiencies the rail service operates at constant losses.

By 1970 the accrued losses totalled R 63 million. This can be compared to total assets of R 220 million for the Railway Administration. Further losses are incurred annually from the Road Transport Services, also run by the South African Railways.

Keeping these services running is essential to the economy but it would require substantial increases in fares for the operations to pay their own way. Mining and agricultural spokesmen claim such increases could not be absorbed by them so the losses continue to pile up.

C. AIR TRAVEL

Namibia has four major airports and numerous smaller fields and landing strips. South African Airways (SAA) makes 20 direct return flights every week between centers in the country and the Republic and 2 SAA planes a week connect in Windhoek with international flights. In 1972/73 the major airports handled 154,900 passengers with the overwhelming majority going to or from South Africa.

As is the case with rail and road transport, air travel is not paying for itself in Namibia. The great distances and small load factors result in losses for the airlines with SAA losing almost R 1 million a year on Namibian service between 1962 and 1972.

D. OCEAN PORTS

There are only two operational ports in Namibia - Walvis Bay and Luderitz, however Swakopmund was a functioning port under the Germans and Mowe Bay has been considered for port development.

Walvis Bay is clearly the most important harbor facility. The South African Railways operates it and Luderitz. The port and its surrounding area are South African territory based on an 1878 claim, so most of Namibia's ocean traffic must pass through South African lands.

Walvis has almost a mile of wharfage space, 110,000 square feet of storage space and at least 29 harbor cranes. It has been modernized and equipped with efficient unloading, loading and repair facilities and is planned for another R 8 million in development. Total cargo landed and shipped was 1.3 million tons in 1973. This represented a 97 percent of the country's total.

Luderitz handles the remaining 3 percent of Namibia's ocean tonnage. It has only limited berthage and is shallow so larger ships are worked by lighters. It is the main port for the rock lobster industry but with the decline in that industry and diminishing government expenditures, it has become less important to Namibia.

Swakopmund was developed as a port by the Germans because it was not expedient for them to use the British port at Walvis Bay. Port installations included a jetty, a pier, and a quay of sorts, but there was neither a real harbor nor a breakwater. While the port was protected to some extent by Pelican point, it lay open to considerable wave action in the form of heavy cape rollers. Nevertheless, nearly all of the supplies, equipment, and personnel for the rapidly developing protectorate were landed there, processed, and transported into the interior along the rail line. When Namibia was given to South Africa the German port was allowed to deteriorate and is no longer used.

At one time a plan was being considered to develop Mowe Bay, a small indentation 270 miles north of Walvis Bay. In return for developing a fishing harbor at Mowe Bay, the Sarusas Development Corporation had been granted a pilchard quota of 90,000 tons. 4.5 million Rand were slated for the construction of the fishing harbor but the Mowe Bay project was postponed indefinitely due to insurmountable problems in harbor development.

E. SUMMARY AND PROSPECTS

Namibia will inherit good road, rail and air transport infrastructure networks from South Africa. If the Walvis Bay question can be resolved, Namibia will also have access to the sea through an excellent well equipped port.

On the other hand, maintenance costs for these systems are high and operating losses are the norm. It will be expensive for a new government to pick up the cost of subsidizing rail and road transport operating costs on top of the heavy construction costs borne by government. Yet increases in rates would have immediate and marked effect on profitability of agriculture and mining.

In any case a country as large as Namibia, with its small economic and population base, will always have difficulty providing complete transportation services. At the same time, the size of Namibia and dispersion of its population and economic activities create the need for those services so difficult to deliver.

IV. SECTOR ANALYSES - POWER AND COMMUNICATION

A. POWER

Until recently, the level and distribution of economic activity in Namibia did not justify the establishment of a comprehensive power grid. Each local authority, mine and other consumer had to provide its own supply. Since Namibia had no known coal deposits which could be exploited for use in thermal power generation, individual consumers either had to use diesel fuel or import coal from South Africa over a distance of 2,000 miles. The transportation expense raised the landed cost of coal from R 4.3 per ton at Johannesburg to R 10.8 at Windhoek and R 11.4 at Walvis Bay. The high cost of fuel coupled with small scale generation made the provision of power relatively expensive. In the past the premium paid per kilowatt hour has been 3.15 cents in Walvis Bay and 5.1 cents in Grootfontein. This compares with an average of .837 cents in Johannesburg and 1.466 cents in Capetown.

At present, the demand for power is great enough that it is becoming economically feasible to commence large-scale generation of power. The Economic Intelligence Unit estimates that the demand for power will increase by 25 percent between 1976 and 1978 and by a further 40 percent by 1980. This need for the generation of more power is concentrated mainly at the Tsumeb mines, where new smelters and a refinery have come into operation; in Windhoek; and in the two port cities.

In February 1967, a conference of the municipalities of Windhoek, Walvis Bay and Swakopmund agreed to purchase power from The Southwest African Water and Electricity Commission at costs not to exceed 1.5 cents per kilowatt hour. Initially, SWAWEK is to supply six large consumers including these municipalities and the Tsumeb Corporation. As part of the agreement, SWAWEK would take over the existing power stations as the first step in the establishment of an integrated generating and distribution system.

The second step in the construction of the system is the planning and execution of the Cunene River project at a construction cost of almost R 200 million. In order to accommodate the rapid growth of power demand in Namibia during the period of construction of the Cunene project it was necessary as a first step to establish the Van Eck thermal power station in Windhoek. Since 1972 this station has been feeding power into the grid which was also developed at that time. The Van Eck was supplying 59 MW by 1973 and is expected to expand to 120 MW by 1977. The hydro power scheme

of Cunene is scheduled for completion in 1977 with an initial capacity of 160 MW with subsequent increases in stages of 80 MW to a planned capacity of 320 MW.

B. COMMUNICATIONS

The distances involved and the low population density are a problem for the communications system as well as for the power grid. Post office and telephone/telegraph services are relatively expensive to maintain for the population served. Because of the distances involved and the paucity of subscribers, an internal high-frequency radio-telephone system has been found most cost-effective. It provides patching services whereby telephone calls can be made to any telephone subscriber in Namibia by going through 305 mobile stations which in turn route it through one of the seven fixed Post Office radio stations.

With 38,746 telephones, Namibia has the highest ratio of telephones to population in Africa, with the exception of the Republic of South Africa. During the period of 1963-1973 the number of telephones doubled from 18,561 to the present number. The Post Office is also proceeding with its plan to convert all manual exchanges to automatic ones. From 1970 to 1973 the trunk lines increased from 594 to 984 making a total of 13,900 miles of physical trunk lines. During the same period nineteen major projects involving the laying of underground cables were completed at a cost of R 1 million. Up to 1973, 366 telegraph channels representing 66,700 miles of circuit had been installed with work progressing on an additional fifty-five circuits representing 9,300 miles of physical lines. In the same ten year time period radio services increased from 394, to 1,756.

In addition, Namibia is served by seventy post offices, twenty-three postal agencies and two mobile post offices. The mass of mail conveyed by the postal system amounted to 46.3 million items in 1971 which gives Namibia an average of 60.1 mail items per person, also the highest in Africa with the exception of the Republic.

The value of the telephone, telegraph, and radio installations amounted to R 35.81 million in 1973. The corresponding figure in 1963 was R 9.87 million. Maintenance on telecommunications services cost R 1.55 million in 1973 as opposed to R0.09 million in 1963. Expenditure on the development and improvement of telecommunications was R 5.95 million in 1973. Planned extensions for the period up to 1978 involve an amount of R 6.96 million. Since 1970 nine major buildings erected to house postal and telecommunications facilities were completed at a cost of R 2.81 million, and a further eight major

estimated at R 3.1 million are scheduled for erection by 1978. Revenues from the Post Office operations fall short of annual operating costs by about R 3 million and are absorbed by the South African Postal Services.

IV. SECTOR ANALYSES - EMPLOYMENT AND MANPOWER

A. THE SETTING

Namibia's 1970 population totaled 762,000 with approximately 421,000 between the ages of 15 and 64. Some 76 percent of them were Africans, 14 percent whites, and 10 percent coloureds. Around 260,000 people, representing 62 percent of the adult population, were reported to be economically active.

Slightly more than one-third of the economically active were engaged in subsistence agriculture; thus the portion of the economically active population in the wage economy was one of the highest in Africa.

In wage employment no single sector predominated although agriculture (21.4 percent), services--primarily domestic (19.4 percent), commerce and finance (11.4 percent), and mining (10.6 percent), have the largest shares. (See Table IV-17) Africans made up 116,500 (67.8 percent) of the wage-labor force, coloureds comprised 21,000 (12.6 percent), and whites 33,500 (19.6 percent).

Migrant or contract workers totalled 43,400 or 25 percent of the wage force. They were distributed as follows:

Agriculture	10,900
Domestic Services	2,700
Mining	12,800
Fishing	3,000
Gov't., commerce & industry	<u>14,000</u>
TOTAL	43,400

Most of them were Owambo and came from their homelands in the northern part of the country. Perhaps as many as one-fourth of them were from other countries (particularly Angola). These people tended toward lower paying agricultural jobs.

Wages vary over a broad spectrum with whites receiving many times the average African's income. In 1973, the South African Financial Mail surveyed minimum African wages in various sectors with the following results:

Agriculture	\$186/yr.	Hotel	\$260-520/yr.
Mining (Tsumeb)	\$329/yr.	Bus drivers	\$1006/yr.
Domestics	\$381/yr.	Police	\$1030/yr.

Average wages probably run between \$200 and \$500 per year with board and room often included with the base wage.

TABLE IV-17

SWA: EMPLOYMENT PATTERN, 1970-71¹

Sector	Ovambos ²	Whites	Coloured Groups	Other Groups	Total No.	%
Subsistence Agriculture	46,000	-	6,500	36,000	88,500	33.8
Modern Agriculture	10,000	6,500	5,000	15,000	36,500	14.1
Fishing and Fish Processing	3,000	500	2,000	2,000	7,500	2.9
Mining	12,000	3,000	1,000	2,000	18,000	6.9
Manufacturing, Electricity and Water	5,000	2,500	1,500	3,000	12,000	4.6
Construction	7,000	1,500	2,000	1,500	12,000	4.6
Transport and Communication	6,000	500	1,000	4,000	11,500	4.4
Commerce and Finance	8,000	5,000	1,500	5,000	19,500	7.5
Government Services including Domestic Services	8,000	14,000	5,000	6,000	33,000	12.7
Unemployed and Unspecified	11,000 ³	- 3	1,500 ³	8,000	20,500	7.9
TOTAL	116,000	33,500	27,000	82,500	259,000	100.0

Notes:

- 1 These figures are highly tentative, pending the release of official data.
- 2 Including contract labor.
- 3 Arbitrariness put at 10, 5 and zero percent respectively for Blacks, Coloured and Whites.

Coloured workers usually have access to more skilled positions and therefore receive higher incomes. Whites enjoy complete access to skilled positions and often receive higher pay for equal work.

In 1972 the average African employee at the Tsumeb mines made \$672 yearly while the average white made \$8,472--over 12 times as much.

Table IV-18 provides an outline of employment by skill group. (Persons engaged in private domestic service or commercial agriculture were not included.) Whites comprise the majority of clerical, sales and all trade workers, yet they represent less than 20 percent of the total wage work force. Whites also occupy 58 percent of the professional positions and 98 percent of the managerial slots. White dominance of these key sectors is even more pronounced than the figures indicate. The African portion of professional positions is 39 percent; however, almost two-thirds of the people are teachers, many of whom have no professional qualifications. Of the remaining third, most are nurses, hospital aides and ministers.

Although blacks and coloureds are making progress in breaking racial barriers for some jobs, it is clear that whites are in critical positions in all sectors of the economy. The implications of this situation are somewhat diminished when the small number of people involved are considered. Less than 5,000 whites are involved in professional and managerial jobs, for example.

Formal training for employment is generally limited to the primary and secondary education system. Almost half the secondary students attend training institutions rather than traditional schools. There are no universities or post-secondary trade schools. However, both consolidated Diamond Mines and Tsumeb Mines operate training schools to upgrade their employees.

B. THE OUTLOOK

Namibia faces two major problem areas with regard to manpower and employment. The first is a long-term problem of providing sufficient training and job opportunities for the expanding population. The second deals with the present problem of wage and opportunity disparities between races and the potential problem of white exodus when independence is achieved.

The lack of training opportunities and blocked access to many types of jobs have been described above. Perhaps more important are the long term problems of finding jobs for the expanding

TABLE IV-18

SMA: RESULT OF MANPOWER SURVEYS 1969 AND 1973¹⁾

Occupation 2)	Present personnel								Shortage/vacancies	
	1969				1973				1969	1973
	Whites	Coloureds	Blacks	Total	Whites	Coloureds	Blacks	Total		
A. All employees except artisans, apprentices and labourers										
01 Professional, semi-professional & technical	3,266	416	925	4,607	5,447	271	3,659	9,377	387	484
02 Managerial, executive and administrative	1,379	7	7	1,393	2,180	8	29	2,217	17	38
03 Clerical	5,430	232	362	6,247	7,248	259	964	8,471	245	189
04 Sales and related work	1,732	272	666	2,670	2,103	556	1,340	3,999	38	45
05 Mining and quarrying activities	521	3	3,038	3,562	1,079	-	6,321	7,400	8	2
06 Transportation, delivery and communication	1,652	270	1,953	3,875	1,632	335	2,380	4,347	273	259
07 Processing of metal, plastics etc., operatives in motor industry	342	71	1,056	1,469	372	105	1,088	1,565	7	5
08 Operatives and semi-skilled in building/construct.	902	522	770	2,194	876	478	3,556	4,910	150	257
09 Processing of wood, furn. etc.	33	63	160	256	10	55	108	173	4	2
10 Washing, dry-cleaning etc.	24	59	119	202	43	109	214	366	3	-
11 Food drink etc. (canning, abattoirs etc.)	216	811	2,645	3,672	156	675	2,225	3,056	29	6
12 Leather and shoe process work	2	21	31	54	2	8	27	37	-	-
13 Bricks, tiles etc.	5	35	99	139	2	13	106	121	-	-
14 Chemical products	7	6	34	47	13	9	97	119	-	-
15 Printing	21	40	24	85	12	42	40	94	6	-
16 Supervisors; other skilled and semi-skilled	1,479	698	760	2,937	1,829	1,198	3,207	6,234	49	92
17 Public, personal and domestic service	1,715	344	3,513	5,572	2,032	575	5,510	8,117	82	254
Sub-total 01-17	18,936	3,870	16,162	38,968	24,968	4,164	30,871	60,603	1,298	1,633

TABLE IV-18 (continued)

SMA: RESULT OF MANPOWER SURVEYS 1969 AND 1973

B. Artisans and apprentices											
19	Metal and engineering trade	1,048	103	-	1,151	1,213	71	-	1,284	113	131
20	Electrical trades	413	13	-	426	528	43	-	571	72	52
21	Motor trades	821	54	-	875	1,018	106	-	1,124	132	80
22	Building trades	851	1,412	-	2,263	911	1,508	-	2,499	317	226
23	Printing trades	74	2	-	76	70	12	-	82	16	-
24	Furniture trades	42	14	-	56	45	20	-	65	10	10
25	Food trades	87	6	-	93	63	1	-	64	10	3
26	Jewellers, engravers etc.	7	-	-	7	26	4	-	30	1	-
27	Hairdressing and Misc. trades	83	1	-	84	90	17	-	107	17	-
	Sub-total 19-27	3,426	1,605	-	5,031	3,964	1,862	-	5,826	600	502
C. Labourers											
18	Labourers	122	1,772	24,066	25,960	101	1,182	20,945	22,228	139	31
TOTAL A + B + C		22,848	7,247	40,228	69,959	29,033	7,808	51,816	88,657	2,125	2,166

SOURCES: Republic of South Africa, Department of Labour. Manpower Surveys Nos. 8 and 10.

Notes: 1) The figures reflect total employment as at 30 April 1969 and 27 April 1973 respectively but exclude "domestics in private service and persons engaged in agriculture and farming".

2) In a few instances, the descriptions of occupations shown hereunder are adaptations for the present table; they are less comprehensive than those appearing in the original sources which also refer to the Republic of South Africa.

36,500 - Modern Agriculture
 33,000 - Domestic
 88,500 - Subsistence
 20,500 - Unemployment & unspecified
 267,157

population. Approximately 26,000 people will be added to Namibia's population in 1977. The working age group will expand by almost 20,000. More than 60 percent of the 20,000 addition will need employment, either in the wage or subsistence sector. Assuming one-third are absorbed in subsistence agriculture at least 8,000 will require wage sector employment.

According to the South African Department of Labor Manpower Studies, wage employment grew an average of 4,700 per year from 1969-1973. This does not include agricultural or domestic service work which probably grew at around 3,000 per year. Total wage employment, then, was growing at around 7,700 per year in a very high growth period of Namibia's economy. It will be a major challenge to provide sufficient jobs as the economy slows and overcrowding makes subsistence agriculture an even less tenable solution.

The question of unequal wages and opportunities and the threat of white exodus also create complex problems. A new majority government will probably move quickly to address the wage and opportunity disparities. Drastic action in the wage area will probably result in inflation, however, and significant changes in either area will fuel white exodus.

While on one hand, the loss of whites will open middle and upper level positions to blacks; it will also result in slowdowns and possibly closing of some activities.

Probably the most vulnerable sector is commercial agriculture, employing more than 35,000. Mostly white-owned, the commercial farms are often the first to suffer in political transition as the farmers are often very conservative and opposed to change. Their land is often a primary target for redistribution by the new government and their isolation leads to fear and the desire for the safety of urban areas.

In losing the white owners, some farming operations would not be seriously affected, however. Skilled black foremen or employees could probably maintain production and employment without major problems. The difficulty of maintaining markets and supplies will be discussed in the agriculture section.

The future of the fishing industry is a big question mark. Almost the entire investment in fleet and on-shore facilities is South African, and much of it is based in Walvis Bay. If the owners were to leave, the equipment would go also, with output and employment evaporating. On the other hand, South African control over Walvis Bay gives the industry more stability than it might have otherwise.

The public sector is heavily staffed with South African civil servants. The loss of these people would create heavy strains for the production and delivery of basic government services. A break with the Republic will require the formation of an entire national government and it is unlikely that people presently holding jobs will involuntarily lose them--instead government employment will probably increase.

Manufacturing, construction and service sectors will largely reflect the general condition of the economy. Problems in fishing and agriculture will immediately affect manufacturing which is dominated by food processing and any economic slowdown will first show up in construction, then services.

Only mining is likely to remain largely unaffected. Large multinational firms control the diamond, non-ferrous metal and uranium mines and they are likely to continue operations without major change whatever the political situation. In other instances similar to Namibia (Zaire for example) mining has not suffered greatly as a result of political transition. Due to large sophisticated ownership, capital intensity in operations and largely independent infrastructure, there is little reason to expect problems for mining in any transition scenario short of widespread violence. Thus, current employment and production levels are likely to continue. It is also probable, however, that new investment would slow until more security and stability is achieved.

IV. SECTOR ANALYSES - EDUCATION

The educational system of Namibia is very similar to that of the Republic of South Africa. Almost all schools are public and are administered by the Republic. White, coloured and black students are educated in separate schools with the whites receiving the highest per capita share of funding, the best qualified teachers and the best facilities.

Virtually all white children of the relevant age groups are enrolled in primary and secondary schools similar to those in Britain or America.

In comparison with other southern African countries, a high percentage of blacks and coloureds attend primary schools, and an average to high number are in secondary schools. When their education is compared to white education in Namibia however, it is found wanting by almost any standard. It should also be noted that an encouraging trend toward increased enrollment and expenditure has occurred over the past decade.

In 1974 from 80 to 90 percent of black and coloured children of the relevant age groups were enrolled in primary school. It appears that less than one-third of these children finish the basic eight-year course, however. An aberration occurs in the enrollment as a percent of age group ratios due to the rapid enrollment expansion in recent years. While there were approximately 60,000 children in the six-to-eight-year-old group, there appeared to be more than 80,000 enrolled in the first three years of primary school. Assuming demographic figures are accurate, this reflects an effort to enroll all children who have not yet started through the system, regardless of age.

1973 black and coloured secondary school enrollment was much lower than primary school levels: only six thousand of a potential seventy-six thousand (9 percent) were enrolled in secondary schools. (See Table IV-19). Approximately 3,500 were in thirteen schools offering entirely academic curricula, while 2,620 were in training institutions with mixed academic and vocational curricula.

In the 1973-74 Republic of South Africa budget, slightly more than \$6.5 million was allotted for black education in Namibia. This was 6 percent of the total central government budget and resulted in a per pupil expenditure of slightly more than \$50 per year. It appears that funds from other accounts are also channelled into education. United Nations estimates place total per pupil expenditure for blacks at \$109 per year. This would be one of the highest per pupil expenditure rates in Africa but still is far below the corresponding amount known to be spent on white students.

TABLE IV-19
BLACK AND COLOURED ENROLLMENT COMPARED TO POPULATION

<u>Grade</u>	<u>Revelant Age</u>	<u>Estimated Age Group Population(000)</u>	<u>1973 Enrollment(000)</u>	<u>Enrollment as a % of Age Group</u>
Primary - Sub-Std A	6	20.4	132.8	90.8%
Sub-Std B	7	19.7		
Std I	8	19.0		
Std II	9	18.4		
Std III	10	17.9		
Std IV	11	17.4		
Std V	12	17.0		
Std VI	13	16.5		
Secondary Form I	14	16.1	6.1	8.0%
Form II	15	15.7		
Form III	16	15.2		
Form IV	17	14.8		
Form V	18	14.4		
TOTAL		222.5	138.9	62.4%

Source : South West Africa Survey, 1974

Note : The secondary enrollment figure include some 2000 students in post-primary training institutes. If they are excluded the enrollment as a percent of age group figure would be 4.6%

TABLE IV-20

Secondary Training Institutes

<u>Name and Location</u>	<u># of Students in 1973</u>	<u>Staff in 1973</u>
Orgwediva, Owambo	658	35
Augustineum, Windhoek	496	37
Cornelius Goroseb, Khorixas	303	15
Rundu, Kavango	348	17
Okakarara, Hereroland	286	9
Caprivi, Katina Nulilo	214	13
Dobra, Windhoek	<u>259</u>	<u>15</u>
TOTAL	2664	141

There is no opportunity for post-secondary education in Namibia. Both blacks and whites have access to higher education institutions in the Republic, but institutional and economic constraints tend to limit the number of black students. The total number of students actually participating in these schools is small and the number of holders of advanced degrees is unknown. It is known that 33 African students from Namibia were enrolled in South African Universities in 1973/74.

As is mentioned above, the black and coloured groups have experienced substantial growth in enrollment figures since 1960. (See Table IV-21). While population has grown 62 percent, enrollment has more than doubled--a 219 percent increase. From 1970 to 1973 population grew by only 9.4 percent while enrollment increased 24.0 percent. Expansion of enrollment is also reflected in government budgets. The black education line item grew 73 percent from 1970 to 1973 while the total budget grew by less than 23 percent.

Along with this growth have come problems, however. The average black or coloured school had 235 students in 1973 versus 139 in 1960. (This could also be a result of larger schools being built in the period.) More importantly, the teacher:student ratio has grown from 1:33 in 1960 to 1:40 in 1973. On the other hand, the white teacher:student ratio has declined from 1:24 in 1960 to 1:19 in 1973.

The expansion has probably exacerbated a professional quality problem of black teachers in Namibia. In 1970 black teachers comprised more than two-thirds of the entire teaching force for black and coloured students. More than one-third of them had no professional qualifications to teach.

Control of both curriculum and general policy is supposedly in the hands of local decision-makers, but it appears that Pretoria and Windhoek play very substantial roles. The curriculum of the elementary schools and the first three years of secondary school is basically the same as that used in the African School System in the Republic. A strong emphasis is placed on mother tongue instruction in the early years of the schooling, however.

TABLE IV-21
EDUCATION IN NAMIBIA

<u>Year</u>	<u>Number of Schools</u>	<u>Number of Teachers</u>	<u>Number of Pupils</u>	<u>Total Population</u>
<u>All Groups</u>				
1960	376	1,976	59,881	526,004
1966	492	3,050	98,188	610,100
1970	606	3,836	134,085	827,000
1973	677	4,685	162,085	827,000
<u>Coloured and Black Groups</u>				
1960	313	1,310	43,624	452,540
1966	415	2,071	78,295	514,100
1970	526	2,713	112,006	671,601
1973	592	3,453	138,890	735,000
<u>Whites</u>				
1960	62	666	16,257	73,464
1966	77	979	19,893	96,000
1970	80	1,123	22,349	90,583
1973	85	1,232	23,195	92,000

Source: South West Africa Survey, 1974.

IV. SECTORAL ANALYSES - GOVERNMENT

Government expenditure and investment have played an important role in economic growth over the past two decades. Although specific figures are not available, it is likely that government has consistently been the fastest growing sector of the economy over this period. This is a result of heavy infrastructure development that has taken place as well as the increased services offered.

The character and structure of the government has changed considerably over the past thirty years as South Africa has moved closer toward complete annexation. Presently there are three levels or types of governments in addition to local municipalities. These include the government of the Republic of South Africa, the Territory of South West Africa Administration, and 10 Bantu states or homelands. In addition, there is the United Nations Council on Namibia and the South West Africa Peoples Organization (SWAPO).

A. SOUTH AFRICAN GOVERNMENT

Namibia is presently administered as a Bantu fifth province of South Africa. The South Africans direct all defense, foreign relative, monetary and fiscal policy, Bantu and Coloured affairs, major infrastructure development and most tax and revenue collection. (Figure IV-4)

Although there are some regional offices of South African agencies, the bulk of these government services emanate from Pretoria. This has raised questions as to the cost-effectiveness and efficiency of a government so far from its subjects.

The Territory is represented in the South African House of Assembly by six delegates, elected by registered white voters of the Territory. In the South African Senate it is represented by four members - two elected by members of the Territorial Legislative Assembly and two appointed by the South African Government.

For the 1973-74 fiscal year, the South African Parliament appropriated R114.5 million for the South West Africa account. The largest part of this, R 39.8 million, was to go to the South West Africa Territorial Administration to finance its activities. R 19.9 million was allocated for Bantu Administration and Development. R 15.8 million to Water Affairs, R 8.2 million to Coloured Relations and Rehoboth Affairs, R 6.0 million to Agricultural Technical Services, and \$ 4.5 million to Bantu Education. (See Table IV-22.)

FIGURE IV-4
FLOW OF FUNDS IN THE NAMIBIAN GOVERNMENTS

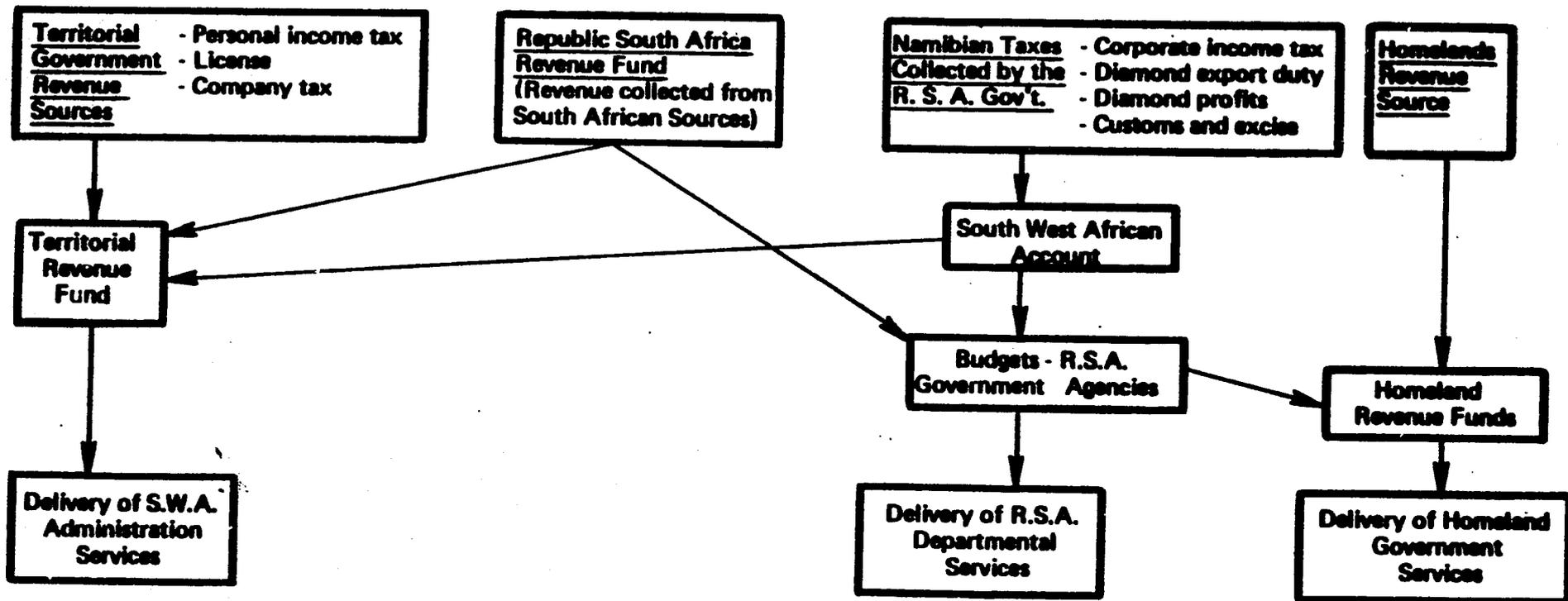


TABLE IV-22
SOUTH AFRICAN GOVERNMENT EXPENDITURES
ON SOUTHWEST AFRICA
 (000's of Rand)

Category of Expenditure	1964	1965	1966	1970	1971	1972	1973	1974
Bantu Administration and Development				12,674	13,133	15,825	14,327	19,526
Water Affairs				12,000	13,000	13,236	11,906	14,287
Coloured Affairs				3,300	5,223	5,456	5,710	7,335
Agricultural Technical Services				2,500	2,950	4,650	5,444	5,706*
Agricultural Credit and Land Tenure				4,200	4,052	4,327	3,500	4,000*
Bantu Education				2,300	2,560	3,405	3,686	4,350
Transport				662	930	3,500	3,268	3,057
Contribution to SWA Finance Corporation Ltd.				2,773	3,303	2,256	2,657	4,393
Industries				690	2,415	2,790	2,613	1,932
Public Works				2,755	2,360	2,669	2,548	2,937
Community Development				2,200	1,785	1,860	2,160	
Agricultural Economics and Marketing				1,100	2,150	3,720	1,937	2,000*
Social Welfare and Pensions				1,250	1,300	1,500	1,633	2,295
Contribution to SWA Territorial Revenue Fund				1,700	1,810	2,019	1,614	1,657
Justice				555	653	751	794	1,423
Health						710	746	800
Prisons				490	545	550	600	
Mines				276	315	410	333	385
National Education						271	285	
Inland Revenue				160	174	210	224	
Planning				114	136	172	181	
Interior				86	95	120	178	
Customs & Excise				95	105	114	135	
Labor				70	75	79	95	
Public Service Commission				60	75	60	75	
Forestry				59	60	75	67	66
Commerce				27	30	85	62	
Civil Defense				100	47	12	9	
Cultural Affairs				85	132			
Radio Services					90			
Miscellaneous Services								
TOTAL	44,470	63,607	69,925	34,585	28,030	32,509	28,619	40,329
				86,867	97,534	103,372	95,706	116,478

* Estimated

Source: 1964-1966 - FAO Internal Working Paper, p.10.

1970-1973 - "Desert Deadlock", Financial Mail Special Survey, March 2, 1973, Johannesburg, p.28.

1974 - U.N. Economic Commission for Africa, Namibia, 1973, 0.14.

Revenues are primarily from the mining companies with corporate tax on other firms, customs and excise and revenue from government operations comprising most of the rest. (Table IV-23). All taxes collected in Namibia are spent in Namibia and until recently, there was usually a surplus. Since 1969/70, shortfalls of from R 12 to R 40 million have been experienced. These shortfalls are covered by the Republic of South Africa's Revenue Fund, now that the old surpluses have been exhausted.

South African control of Namibian life extends even beyond the broad powers exercised directly by the government. South Africa controls much of the funding of the Territorial Administration and most of the homeland funds. It also appoints the Administrator of the Territorial Administration and has substantial control over Homeland leaders.

B. THE SOUTH WEST AFRICA TERRITORIAL ADMINISTRATION

This body has limited power relating mostly to the affairs of the white residents of Namibia. Its structure and powers correspond to provincial governments in the Republic. Table IV-24 outlines the revenue and expenditures of the territorial administration. South Africa supplies about half the funds in a revenue sharing plan where South Africa collects most major Namibian taxes and then turns over part to the local administration.

Expenditures are primarily for rural infrastructure development, white education, health, works and roads.

Autonomy for the Territory as a whole was sharply restricted by legislation enacted during the 1969 Session of the South African Parliament, virtually reducing the Territory to the status of a fifth province of the Republic.

Executive power for the Territory rests with the Administrator, appointed by the South African Government. He is assisted by an executive committee of four members chosen by the South West African Legislative Assembly from among its own members. The administrator is responsible for the day-to-day conduct of the government and, as the representative of the South African Government, has limited power to issue proclamations with the effect of law.

The South West Africa Legislative Assembly consists of 18 representatives elected for five-year terms by white voters. It has authority over all matters not reserved by South Africa and may recommend policies to the Government of the Republic with respect to South Africa's administration of the Territory. However, full and final authority in all areas rests with the South African Government.

TABLE IV-23

**REVENUES COLLECTED BY SOUTH AFRICA FROM
SOUTH WEST AFRICAN SOURCES**
(000's of Rand)

Year	Total	Income tax	Mining	Customs and Excises	Posts and Telegraphs	Other Ordinary Revenue	Extra- ordinary Revenue
1960	30,693	12,473	5,267	5,665	1,513	5,086	1,037
1961	33,086	13,525	5,936	5,947	1,708	5,399	1,231
1962	31,476	11,774	5,455	5,351	1,793	5,370	1,253
1963	36,121	15,378	7,026	5,762	1,902	5,861	1,762
1964	39,634	14,196	9,650	6,407	2,101	7,186	2,716
1965	54,015	21,801	12,147	7,641	2,535	7,331	5,057
1966	68,874	35,157	14,624	8,465	2,878	7,288	2,939
1967	79,389	40,614	12,611	9,243	3,209	8,533	3,168
1968	88,466	46,109	12,612	10,769	3,558	11,269	4,148
1969	88,948	43,688	12,787	12,083	3,944	12,503	3,944
1970	98,600	43,050	14,630	13,740	5,314	18,090	3,776
1971	106,182	51,935	8,147	15,310	8,361	17,359	3,720
1972	106,978	37,695	10,919	16,881	11,365	25,442	4,676
1973	116,203	35,138	15,884	16,684	9,271	33,686	5,540
1974	128,063	47,933	16,662	17,200	11,559	29,684	5,025

Sources: 1960-1969 - G.M.E. Leistner, "Public Finance in S.W. Africa"
March, 1972. p. 27

1970-1974 - S.W. Africa Survey, 1974. p.44

TABLE IV-24Budget of the South West Africa Administration
1973/4 and 1974/5

	<u>1973/4</u>	<u>1974/5</u> (Rm)
<u>Revenue</u>		
Subsidy from South Africa Consolidated Revenue	35.0	43.0
Personal Income Tax	6.5	8.5
Licences	1.7	2.0
Company Tax	1.7	1.9
Cash balance from previous year	1.2	-
Other Revenue	<u>24.2</u>	<u>29.9</u>
TOTAL	70.3	85.3
<u>Expenditure</u>		
Appropriation to the Territorial Development & Reserve Fund	46.3	44.0
Current Expenditure	<u>37.6</u>	<u>44.1</u>
Education	10.8	12.4
Health	8.9	11.0
Works	4.8	5.2
Roads	1.0	
TOTAL	86.6	88.1
<u>Deficit:</u>	<u>16.3</u>	<u>2.8</u>

The deficit for 1974/5 was to be met by drawing on the accumulated surplus to hand of R5.4m, as of April 1, 1974.

Source: "Windhoek Advertiser", May 1973 and May 1974.

HOMELANDS OR BANTUSTANS

The essence of the Bantustan system is that its inhabitants cannot seek political, economic or social rights in white areas. They are temporary sojourners in the white areas and citizens only of their Bantustans. But even in the Bantustans, African rights and powers are extremely limited. Legislative councils and the regional and tribal councils under them have to be approved and recognized by white government. Their powers are circumscribed. Legislative councils are empowered to deal with education (though only its local application, not its overall policy), welfare services, clinics, licences, road, bridge and dam maintenance, afforestation, markets, some aspects of the administration of justice and labor bureaus.

Real power rests essentially with South Africa's State President and the Ministers of Bantu Administration and Bantu Education. The line of command runs directly from Pretoria to white officials and government-approved and paid chiefs in the homelands. All senior managerial and executive posts in the Bantu Administration Department are occupied exclusively by whites. The new Bantustan administrations are themselves dominated by white officials and finances are under South African control.

Separate development through the granting of self-government to the homelands has been pursued lately in view of the nationalist challenge and international pressures via the United Nations. Ovamboland and Kavangoland, renamed Owambo and Kavango, and East Caprivi were granted self-governing status in May and June 1973.

The Odendaal Commission, in its 1964 report, proposed the establishment of about 10 Bantustans involving the assigning of some unoccupied land to them, and to some extent the reapportioning of some of the white land to the African homelands, while to a lesser extent vice versa. Areas proposed by the Commission for the homelands are indicated on Figure IV-5. On completion of the Odendaal proposals, traditional homeland areas would include some 32.6 million hectares while European owned farms would amount to about 37.7 million hectares.

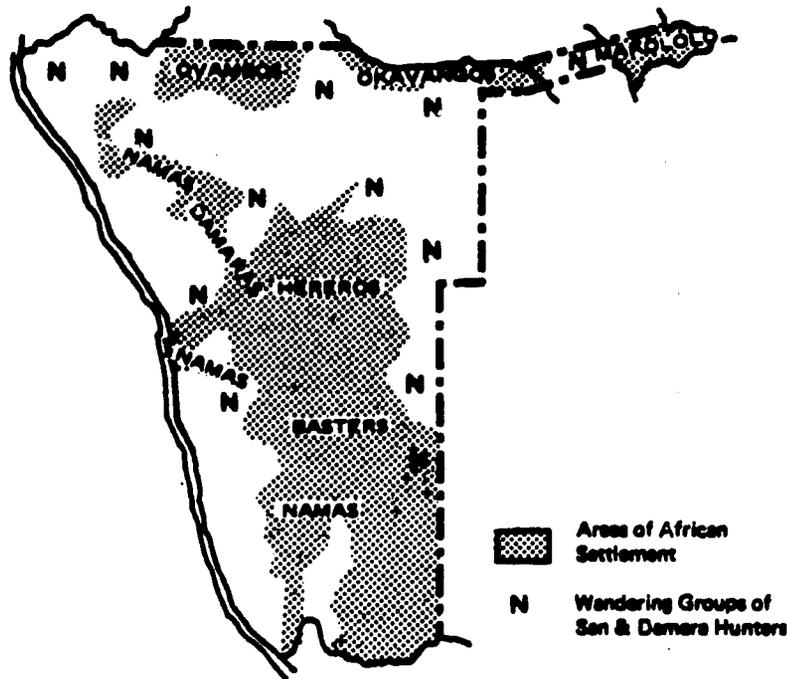
Numerous questions have been raised as to the ultimate economic viability of the homelands. The Odendaal Report itself accepted that at least half of the homeland areas could not be made self sufficient.

The reapportioning and resettlement process began in 1966. By 1972 some 427 of the white-owned units were purchased by the government, covering a total of over 3.2 million hectares, at a total cost of R 26.5 million. The original Odendaal estimates

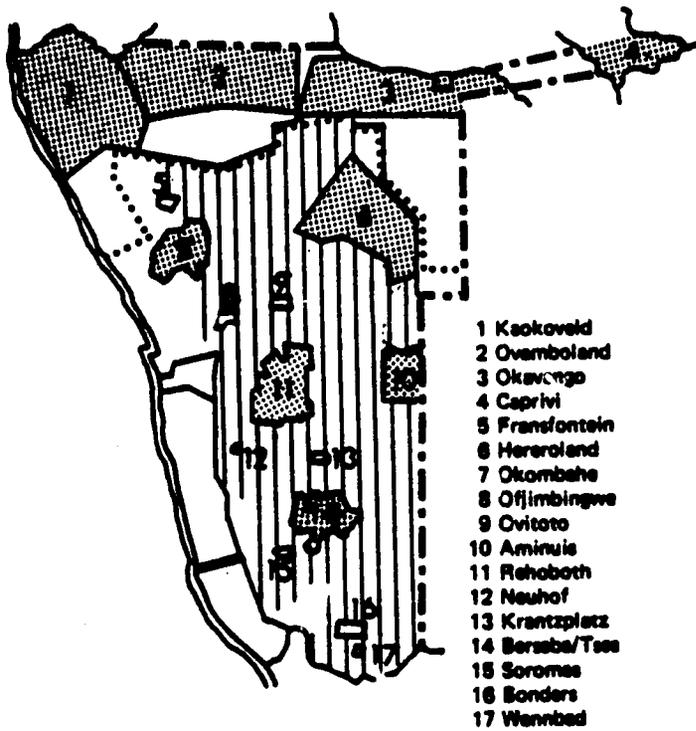
FIGURE IV-5 SETTLEMENT PATTERNS - SOUTHWEST AFRICA

IV-71

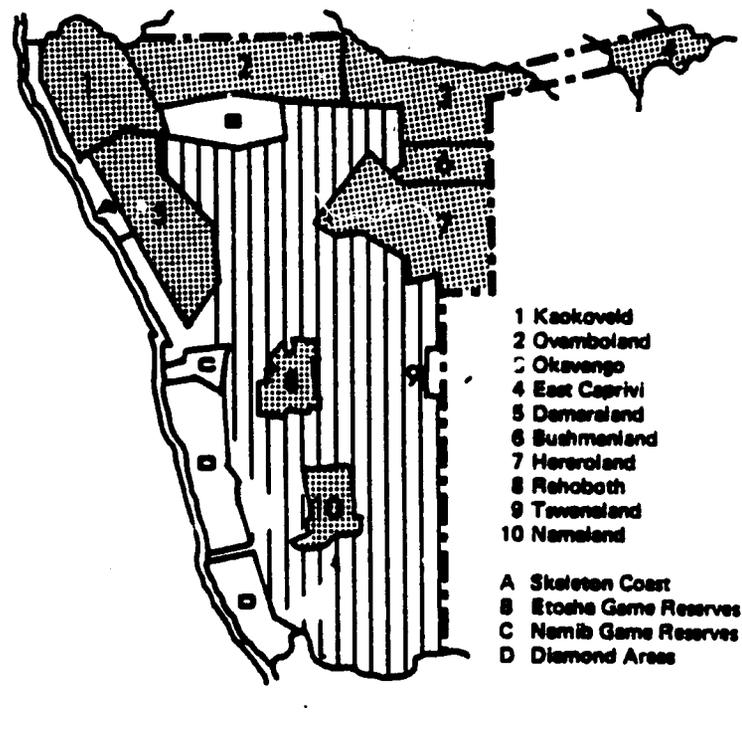
Population in 1900 Before Extensive White Settlement



Population Distribution Up To 1968



Redistribution Proposed Under
Odendaal Plan & Currently Being Implemented



..... Northern Boundary of "Police Zone"

- African Reserves
- White Farmland
- Government Land

- African "Homelands"
- White Farmland
- Government Land

- 1 Kaokoveld
- 2 Ovamboland
- 3 Okavango
- 4 Caprivi
- 5 Fransfontein
- 6 Hereroland
- 7 Okombahe
- 8 Ofjimbingwe
- 9 Ovitoto
- 10 Aminuis
- 11 Rehoboth
- 12 Neuhoof
- 13 Krantzplatz
- 14 Bersaba/Tee
- 15 Soromes
- 16 Bonders
- 17 Wannbad

- 1 Kaokoveld
- 2 Ovamboland
- 3 Okavango
- 4 East Caprivi
- 5 Damaraland
- 6 Bushmanland
- 7 Hereroland
- 8 Rehoboth
- 9 Tswanaland
- 10 Namaland
- A Skeleton Coast
- B Etosha Game Reserves
- C Namib Game Reserves
- D Diamond Areas

were that about 3.4 million hectares would be purchased for R 17 million. While the new homelands appear to be generous on paper, the portions taken from white farmers are considered to be inferior to lands taken from the Africans in the hardbelt, and almost all the rest of the new areas earmarked for the homelands are considered useless semi-desert. It has been estimated that less than one third of the homelands - about 10.3 million hectares - is useful grazing area, as compared with about 38 million hectares of generally better quality white farmland.

Except for the populations of Okavango and the Caprivi Strip, most of the African peoples do not live in tribally consolidated areas. Calculations of the movements of population necessary to relocate people in their homelands showed that 28.67 percent of the non-white population of the country would be required to move to different areas. Over 95 percent of the Namara people are, for instance, living outside the homeland designated for them; and 93 percent of the Nama. Among the Herero, 74.5 percent would have to be removed and 66.8 of the Bushmen. Tswanaland would have to be constituted entirely from scratch.

During 1970 and 1971, steps were taken to speed up the enforced removal of Africans into the homelands. The resettlement of the Herero population in the easterly semi-desert areas, however, has continued to be resisted. Part of the Government's strategy has been the threat to remove water pumps from the existing Herero Reserves and to refuse access to boreholes.

To try and overcome opposition of the Damaras, the second biggest African tribe, the South African Government proposes exchanging some of the seemingly least rewarding part of Damaraland for a relatively rich chunk of farming land now occupied by Europeans.

The most crowded part of Namibia is Owambo, which the 1970 Census showed to have a population of 292,210. Thus, 40 percent of the population live on 7 percent of the land area of the country. With only half of the area comprising usable grazing land, the average of 9.6 hectare per person appears extremely low and, even under relatively fertile conditions and smaller herds, would indicate a serious danger of overgrazing, and possible aggravation of the effects of periodic droughts.

D. OTHER POLITICAL ORGANIZATIONS

Political organization among non-whites in Namibia is subject to many obstacles, including cultural differences and physical isolation, as well as official restrictions on political activity. The application of South Africa's Terrorism Act to the Territory makes a wide range of political activity subject to police discretion and arbitrary penalties.

The major non-white political group is the South West Africa People's Organization (SWAPO), which is officially recognized by the OAU (Organization for African Unity) which operates largely in exile, i.e. from Lusaka and Dar es Salaam. The group, founded in 1959, is committed to the cause of unconditional independence and recruits most of its militants from the Owambo, who are three times as numerous as any other ethnic group. In 1966, armed struggle began in Namibia under PLAN (People's Liberation Army of Namibia), the military branch of SWAPO, and guerilla activities are mainly concentrated on the northern border of Owambo, Okavango and the Caprivi Strip. An estimated 4,000 Namibians are living in settlements near Lusaka, most of which are assisted and supervised by SWAPO. Other parties hostile to Pretoria have grouped themselves in a National Convention favoring a federalization according to ethnic groups to be joined in a United Party.

IV. SECTORAL ANALYSES - HEALTH SERVICES

Current expenditure on health services in South West Africa shows a marked upward trend, e.g.

1971/72	R7,430,000
1972/73	R10,120,000
1973/74	R12,730,000
1974/75 (estimate)	R15,740,000

The estimated 1974/75 level of current expenditure on health services represents a per capita outlay of about R18.

A. HOSPITALS AND CLINICS

There are at present 183 hospitals and clinics. Of these, 145 are for the blacks and coloureds, 17% render services to all population groups and 21 serve the whites.

In 1973 there were 1,085 beds available for whites and 6,300 beds for the other population groups, giving a ratio of about ten beds per 1,000 persons.

Subsidies to mission hospitals and clinics (including free medicines) increased from R400,000 in 1963/64 to R1.4 million.

The value of hospital equipment (excluding buildings) owned by the Health Administration is estimated at R6.1 million.

State hospitals and state-subsidied private and mission hospitals receive all medicine free of charge from the Administration's medical stores, which had an annual turnover of R1.5 million in the financial year 1972/73.

White patients are charged according to a fixed tariff based on income. Non-white out-patients are charged 20 cents for a first visit and 10 cents for each follow-up visit. In-patients are charged 20 cents for admission, irrespective of the duration of hospitalization. If they are unable to pay they are admitted free of charge.

B. MEDICAL PRACTITIONERS

In 1973 there were 143 general medical practitioners and 19 specialists in Namibia. With the exception of South Africa, there are probably few, if any, countries in Africa south of the Sahara with a more favorable ratio of physicians to population.

Various arrangements are in operation to supplement the work of the full-time qualified staff in the northern territories. Since the opening of the state hospital in Oshakati, Owambo, in 1966, a team of specialists is flown up from Windhoek twice monthly. The team includes a surgeon, a physician, a pediatrician, a gynecologist, and orthopedic surgeon, an anesthetist, an eye specialist, and a ear, nose and throat specialist. A similar airlift to the Kavango is also in operation. There is standing authority to transport serious cases to Windhoek by air.

In the south there are 4 specialists and 28 government Medical Officers who act as district surgeons. Their duties are to render curative services and preventive services in connection with infectious diseases, sanitation, housing, vaccination, food inspection, and water supplies. In the northern areas the government doctors act as district surgeons.

Increasing use is made of para-medical personnel. At various centers they distribute medicines, vaccine and serum; giving injections, taking a lead in campaigns against malaria and tsetse fly, and are generally in charge until the next visit by a qualified practitioner.

The strength of the nursing staff in 1973 was 2,330, of whom 1,550 were drawn from the black and coloured population groups. There are twenty training centers for nurses. They are taught by qualified professional nurses some of whom are in possession of qualifications for university teaching. Post-basic courses are available to registered nurses in the Republic of South Africa.

C. TRANSPORT AND LABORATORY SERVICES

Despite the vast distances, heavy rainfall in some parts, and areas of bush and sand, an effective ambulance services system is being maintained at strategic points throughout South West Africa.

Use is made of motor vehicles adapted to local conditions. Urgent cases are transported by air. At present 1.6 million km are covered annually by ambulance vehicles. This figure excludes air-miles and transport by vehicles of mission hospitals.

The South African Institute for Medical Research provides all medical laboratory services for South West Africa. There is a large Central Laboratory at Windhoek and six branch laboratories at Rundu (Kavango), Ashakati and Ashikuku (Owambo), Keetmanshoop, Otjiwarongo, and Walvis Bay. The main laboratory service at Windhoek also provides a pathology reference service.

Training of staff in medical laboratory technology is an important function of the Medical Research Institute. National examinations in medical technology are held at different centers twice per year. Two of the laboratories have coloured and black trained personnel in charge of all technical work.

D. PREVENTIVE HEALTH SERVICES

The Health authorities are responsible for the application of public health legislation and regulations, which cover a wide field. These range from malaria control to the control of plague and rodents, the testing and prescription of water purification methods, prescription and supervision of milk supplies and other foodstuffs, the inspection of housing as regards overcrowding, ventilation, lighting and sanitation, the licensing of premises and hotels, and the supervision and control of preventive and promotive services rendered by local authorities. There are 70 health inspectors, including those appointed by urban local authorities and the South African Railways. Health education forms part of all school curricula.

Full-time control units, with a staff establishment of about 300, are employed to combat malaria. The disease was once one of the most serious health problems in the northern territories. The incidence of malaria in Owambo has dropped from 16.2% a few years ago to 0.29% in 1973. In the Caprivi it dropped from 45% in 1960 to 1.5% in 1973.

Tuberculosis is another of the major diseases against which a vigorous campaign has been waged by the authorities. A number of mobile and stationary miniature X-ray units are in use in both the northern and southern sectors, and efforts at control and immunization have produced good results.

In 1968, an outbreak of epidemic meningitis occurred in Owambo. The disease spread to several centers in the southern sector. Approximately 200 cases were reported in Owambo and 67 cases in the south. The epidemic was halted without any loss of life.

Immunization programs against smallpox, poliomyelitis, tuberculosis, diphtheria, tetanus and whooping cough are carried out at regular intervals. Epidemics of these diseases, therefore, seldom occur. Smallpox vaccination and immunization against poliomyelitis are compulsory. Cholera has so far not occurred in South West Africa; a few imported cases of yellow fever were detected in the past and were immediately isolated and treated; and in the past 10 years only one case of imported smallpox was reported in the Territory.

Together with malaria, trachoma, endemic goitre and human trypanosomiasis were once major health problems in the Caprivi. Some 64% of the total population of the Caprivi were suffering from trachoma, but it has now been controlled and has ceased to be a significant problem. In the early sixties human trypanosomiasis became a menace. Surveys identified the causal parasite and the vector, revealing that the entire population in a transmission area of approximately 1,800 sq. km was directly endangered. Speedy and intensive measures succeeded in reducing the incidence in both man and cattle to a very low level. At one stage, over 60% of children and adult females in the Caprivi were affected with endemic goitre. The routine free distribution of iodized salt has effectively brought this condition under control.

E. NUTRITION

There is no indication that the diet of the white population is inadequate. The diet of the salaried laborers is controlled by the employer in that meals are provided for the workers. In general, the diet includes vegetables, milk, cornmeal, and meat which is purchased by the company for worker consumption. There are no controlled nutrition surveys for salaried laborers, but the data collected by May and McLellan in 1971 indicates that the calorie intake averages between 3,900 and 4,500 calories per day. This level is considerable higher than the minimum standard set by WHO. The average protein intake (134 gr.) which they reported also exceeds WHO's minimal safe level of protein intake.

The traditional African diet consists of wild fruit, roots, vegetables, wild animals, birds, fish and soured milk. Since the white occupation of the lower sixty percent (60%) of the country, the range of the black population has been restricted with a corresponding restriction in traditional food sources. As a result of the coming of the white settlers and increasing problems with drought, the inhabitants of the African reserves have become dependent on cereals and processed foods to supplement their diet. This supplemental food is provided for the most part by the government of the Republic of South Africa.

There has been no survey of the diet of the black population in the reserve area since 1952 when Bronte-Stewart et al. made a study of the Kung division of the San people. This survey of approximately one thousand two hundred fifty (1,250) individuals found no protein-calorie malnutrition or vitamin deficiency. These findings must be evaluated in the light of the author's indication that the population studied was quite likely the most healthy subgroup of the Kung. No comparable information is available for the overall black population of which the San compose less than three percent (3%).

As a result of such inadequate and uncertain information, few firm conclusions can be drawn concerning the nutritional status of the population of Namibia. It may be assumed that the white population has an adequate nutritional intake for the most part. Salaried laborers appear to have an adequate intake of calories and protein, though their needs for vitamins A and C as well as calcium are not being met. Their diets in general are much more satisfactory from the point of view of nutrition than the diets of their counterparts in the reserve area. The level of nutrition in the reserve area is not known, but from knowledge of the terrain, weather conditions and the restrictions on African movement, it is assumed that the nutritional state is less than ideal. The country remains dependent on food import from the Republic of South Africa to supplement its food requirements which are not met by production.

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