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As a result of British rule, Botswana, Lesotho, and Swaziland all have British-modeled health and education systems. The countries also share similar patterns of health and disease. Climatic and geographic factors relieve this part of Africa from a number of tropical diseases, but nutritional deficiencies in all of the countries are the same, due to the common corn-based diet. Under-nutrition is known or suspected, and the threat of drought with its accompanying malnutrition are areas of concern. Rapid population growth constrains development; cultural attitudes toward family planning are identical in each country though the response to the population problem varies in each one. The single most pressing program in the three countries is that of manpower development. All three cooperate in training and have a joint nursing council, yet their health systems all are very different, due to varying inputs from private and missionary groups and to differences in governmental response to the needs of the health sector. Despite these similarities, there are major differences among these countries and so each is treated separately in this report. Each country is examined in terms of health environment, determinants of health and disease, and health delivery system. Appendices for each country cover a general review of the background and setting.

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SYNCRISIS:

THE DYNAMICS OF HEALTH

An Analytic Series on the Interactions of Health and Socioeconomic Development

XIII: BOTSWANA, LESOTHO AND SWAZILAND

U.S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE

OFFICE OF INTERNATIONAL HEALTH
DIVISION OF PROGRAM ANALYSIS

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South Atlantic
Indian Ocean
Africa
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E. Ger.
W. Ger.
Poland
U. S. S. R.
Caspian Sea
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Gaborone
Walvis Bay (S. Af.)
Lourenço Marques
Reunion (Fr.)
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SYNCRISIS

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Office of International Health
Division of Program Analysis

Syncrisis

The Dynamics of Health

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of Health and Socioeconomic Development

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Nancy R. Pielemeier, MHS

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PREFACE

This study was prepared within the Division of Program Analysis of the Office of International Health, Department of Health, Education, and Welfare, at the request and with the support of the United States Agency for International Development. It represents one of a series of profiles which describe and analyze health conditions of a country and their impact on socioeconomic development. The primary purpose of these studies is to provide a concise, organized, and up-to-date introduction to the health situation in a country for use by AID, as well as by the international health community as a whole. While these studies do not include recommendations for action, they provide a useful background for further analysis and program development.

Specifically, Syncrisis studies are intended to acquaint the generalist in development administration with (1) interventions in the health system of the country which will contribute to socioeconomic development, and (2) the effects of other developmental activities on health. To the specialist in comprehensive health planning, they will provide both a preliminary document for his work, and an indication of the sources of information available for health planning in that country. For the specialist in a specific aspect of health care, Syncrisis studies are intended to provide insight into the relationship of the subsystem with which he is concerned to the comprehensive health system and the larger society. For each of these professionals, Syncrisis studies are intended not as a final definitive document, but rather as a point of departure from which their own professional skills can be applied to develop activities that will benefit the country.

In addition to the principal target audience, which will probably include a few dozen persons for a specific country, it has been demonstrated that Syncrisis studies are useful to others. For this reason the studies are published and made available for sale to the public. Some consideration is given in the preparation of the documents to their possible use in health science education in the subject country, in international health education, and by scholars concerned with more general aspects of the country or with closely related sectors.

Syncrisis studies form an unusual resource for the student of comparative health systems. They present, in a uniform format, parallel descriptions of health systems in countries with widely varying cultural, social, economic, and government systems. It is hoped that in the future this aspect of the Syncrisis series can be of increasing value.

This three-country study on Botswana, Lesotho, and Swaziland was prepared at the request of AID. The countries are grouped together more for administrative convenience than because of commonalities among the three countries. As the reader will note, the contrasts between these nations are more striking than are the similarities. The differences are further accentuated by the contrasts in content of the separate studies. This is due in part to differences in the variables influencing national socioeconomic development, in part to varying government and private response to problems and to the resulting program emphases, and in large part to the dissimilarity of available information and sources of data.

Research and analysis were based on existing information obtained from published reports and documents referred to in the bibliographies, from information contained in unpublished or as yet unreleased reports and files of U.S. government and international agencies, and from information gathered through personal interviews with individuals in-country. The reader should keep in mind both the data limitations and the quality of the existing data. Finally, the length and detail of various chapters result from data availability and not from any conscious effort to weight the importance of the issues discussed.

Acknowledgements

My thanks to the Ministries of Health and individuals interviewed in all three countries for their cordial and helpful response to yet another foreign visitor. I hope this report can be of use to them. I appreciate the support of AID officials both in-country and in Washington, as well as the assistance of my colleagues at the Office of International Health. Special thanks go to individuals who shared with me their knowledge and understanding of Botswana, Lesotho, and Swaziland: Mr. Oscar Gish, Ms. Patricia Goodale, Ms. Ann Lewis, Ms. Betsy Stephens, and Mr. John Swift. Ms. Jessica Auerbach deserves credit for the efficiency and accuracy with which the final draft was produced.

INTRODUCTION

Botswana (formerly Bechuanaland), Lesotho (formerly Basutoland), and Swaziland were created out of conflicts accompanying the settlement of southern Africa during the nineteenth century. The Swazi and the Basotho Kingdoms were established in response to the upheaval caused by the rise of Shaka and the Zulu Kingdom. Consolidation of Bantu tribes into larger groups which banded together in defensible locations opened up areas of Natal, the Orange Free State, and the Transvaal to the Africaner farmers on their "Great Trek" to the interior. Gradually Great Britain assumed the role of protector, of Basutoland (which became a Territory in 1884) in 1868, and of Bechuanaland in 1885. Britain guaranteed independence to Swaziland in 1881, and again in 1884 and assumed rule of the Territory in 1907.

Great Britain ruled the countries with benign neglect, leaving administration to the tribal chiefs. From 1910 when South Africa became an independent union until 1948, the British assumed that the three territories would be absorbed into the Union of South Africa. However, when the Nationalist Party was elected in 1948 on the platform of apartheid, or separate development of the races, the British were forced to take a second look. Lesotho and Botswana were granted independence in 1966, and Swaziland gained its independence in 1968. As a result of British rule the three countries share more than the cultural and linguistic similarities which they also share with other Bantu groups. The colonial administrative system determined the structure of the civil service and imposed the British model on the health and education systems. English is the official language of the three countries, and the nations share another bond through the University of Botswana, Lesotho, and Swaziland. The problem of manpower development remains the single most pressing problem confronting each of the countries.

The common relationship vis-a-vis South Africa is perhaps the strongest bond between Botswana, Lesotho and Swaziland. Their social policy of racial equality is directly opposed to the apartheid policy of the Republic of South Africa. Economically, however, the smaller countries remain dependent on cooperation with South Africa. In fact, since independence, the countries have succeeded in becoming independent of British budgetary support only by increasing their share of revenue from the Southern African Customs Union. This agreement originated in 1910 and was renegotiated in 1969. According to the terms of the agreement, all members receive a portion of the total customs, excise and sales tax pool, the amount of which is determined on the basis of actual imports and excisable local production. Lesotho receives 70 percent of total government income from Customs Union revenue; Swaziland, 37 percent, and Botswana, 40 percent. There is also a de facto monetary union covering the area. Botswana, Lesotho and Swaziland use the South African rand (equal to approximately US$1.50) but have no influence over monetary policy. Each country is dependent to some degree on South African transportation and communication links. Large numbers of the Batswana, Basotho and Swazi labor forces are employed in the Republic: 17 percent of the Swazi male labor force, 25.5 percent of the Batswana, and 60 percent of the Basotho.

Much of the information in this section was taken from African South of the Sahara (London: Europa Publications, 1973.)

In addition to similar past and present relationships with Great Britain and South Africa, and to common pastoral tradition and many common cultural characteristics, the countries also share similar patterns of health and disease. Climatic and geographic factors relieve the southern part of Africa from the burden imposed elsewhere in Africa by a number of tropical diseases. Malaria and sleeping sickness are problems only in one region of Botswana, and river blindness is unknown in the area. The extent of schistosomiasis and leprosy is largely unknown. The major disease problems are common to the three, including widespread respiratory, gastroenteric, infectious and skin diseases. Tuberculosis and venereal disease are problems of great concern. Nutritional deficiencies are similar, due to the common corn-based diet, and undernutrition is known or suspected, especially in the weanling age group. The threat of drought and accompanying malnutrition is also an areawide concern. Rapid population growth is recognized as a factor constraining development, and cultural attitudes toward family planning are similar. However, response to the population question has varied from country to country.

The health delivery systems are based on the British model, and the countries cooperate in training and through a joint nursing council. Yet the health systems are very different, due to varying inputs from private and missionary groups and to the differences in governmental response to the needs of the health sector.

Despite the similarities described in this introduction, differences varying from endowment of natural resources to level of political and economic development override the common characteristics. The countries are separated by a distance of at least 500 miles, and each country is a distinct political entity. Because of this distinction and the other major differences between the countries, this study is divided into three separate country-specific studies.

Table of Comparative Data

BOTSWANA/LESOTHO/SWAZILAND

Indicator	Botswana	Lesotho	Swaziland
Population (latest census)	630,379 (1971)	969,634 (1966)	475,000 (1966)
Area (square miles)	220,000	11,716	6,705
Density (pop/sq. mile) (pop/sq. kilometer)	3 1	82 31	68 28
POPULATION INDICATORS BASED ON LATEST CENSUS FIGURES			
Birth rate/1,000	44.5	36.7	50
Death rate/1,000	13.7	14.5	20-21
Crude rate of natural increase(%)	3.1%	2.2%	2.9-3%
Life expectancy female male	 59 years 52 years	 54 years 50 years	 { 44 years
Infant mortality/1,000 female male	 91 103	 108 104	 {125
Sex ratio (males/females)	.84 (de facto) .93 (de jure)	.92 (de jure)	.89 (estimate)
Percent of population under 15	46%	40%	50%
HEALTH SERVICE INDICATORS BASED ON MOST CURRENT INFORMATION			
Doctor/population ratio	1:12,500	1:22,000	1:8,200-9,000
Nurse/population ratio	1: 1,625	1: 3,341	1:1,150
Hospital bed/population ratio	1: 300	1: 500	1: 400
Percent of government budget allocated to health recurrent budget capital budget	 6% (1973-78) 2% (1973-78)	 9% (1972-73) 2.2% (1972-73)	 8.6% (1973-74) less than 3% (1973-74)
Percent of births supervised	38-43%	30%	25% (est.)
Percent of pregnant women receiving prenatal care	70-80%	80%	60% (est.)

Indicator	Botswana	Lesotho	Swaziland
ECONOMIC INDICATORS (LATEST AVAILABLE FIGURES)			
GNP/per capita	$160	less than $100	$240
Percent of GDP/GNP derived from agriculture	31% GDP	45% GNP	33% GDP
Percent of population dependent on subsistence agriculture	66%	85%	75%
Percent of land devoted to crops	5%	13% [only 8% of land is considered truly arable]	8.8%
Percent of government income derived from Southern African Customs Union	40%	70%	37%
Percent of labor force employed outside the country			
female	5.1%	10%	5.0%
male	25.5%	60%	17.5%
Literacy rate			
female	11.0%	58%	not available
male	14.0%	33%	

List of Abbreviations

AID (USAID)	(United States) Agency for International Development
AMMB	Association of Medical Missions for Botswana
ANP	Applied Nutrition Programme (Lesotho)
COMRUDEV	Department of Community and Rural Development (Lesotho)
CRS	Catholic Relief Services
CUSO	Canadian University Students Overseas
DANIDA	Danish Development Organization
FAO	United Nations Food and Agriculture Organization
FWE	Family Welfare Educator (Botswana)
GDP; GNP	Gross Domestic Product, Gross National Product
GOB	Government of Botswana
GOL	Government of Lesotho
GOS	Government of Swaziland
IBRD	International Bank for Reconstruction and Development
IPPF	International Planned Parenthood Federation
IUD	Intrauterine Device
KAP	Knowledge, Attitudes and Practice of Family Planning
LFDS	Lesotho Flying Doctor Service
LFPA	Lesotho Family Planning Association
MCH/CS	Maternal and Child Health and Child Spacing
MCH/FP	Maternal and Child Health and Family Planning
MOA	Ministry of Agriculture
MOH	Ministry of Health
NDP	National Development Plan
NORAD	Norwegian Development Organization

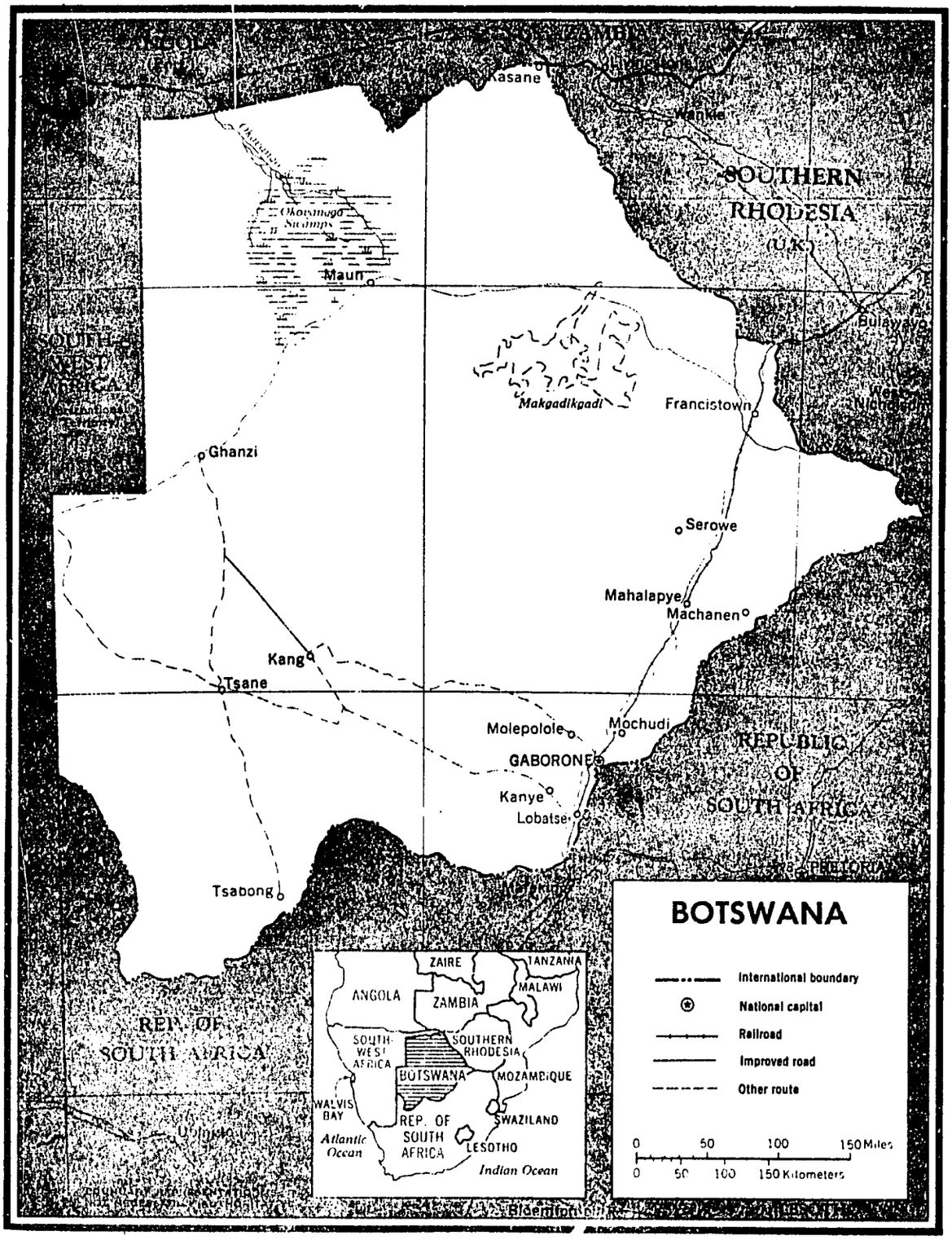
Oxfam	A British famine relief organization
PHAL	Private Health Association of Lesotho
PL-480	Public Law 480, which authorized the use of excess foreign currencies for food distribution programs
R = rand	Southern African currency = U.S.$1.50
RDA	Rural Development Area (Swaziland)
SCF	Save the Children Fund
SIA	Swedish development organization
SNC	Swazi National Council
UBLS	University of Botswana, Lesotho, and Swaziland
UCSC-MCH/CS	University of California at Santa Cruz Maternal and Child Health and Child Spacing Program
UNDP	United Nations Development Program
UNFPA	United Nations Fund for Population Activities
UNICEF	United Nations Children's Fund
WFP	World Food Program
WHO	World Health Organization

List of Terms

Abattoir	slaughterhouse
Antenatal	prenatal
Batswana (Motswana)	People (person) of Botswana
Basotho (Mosotho)	People (person) of Lesotho
Bilharzia, Bilharziasis, Schistosomiasis used interchangeably	
Sesotho	language of the Basotho
Setswana	language of the Batswana
Siswati	language of the Swazi
Tswana	pertaining to the Batswana
Weanling age group	recently weaned; used interchangeably here with weaning age group

In some cases British terms and spelling of words are retained when using the term to refer to the title of a program, or when quoting directly from another source.

BOTSWANA


BOTSWANA
International boundary
National capital
Railroad
Improved road
Other route
0 50 100 150 Miles
0 50 100 150 Kilometers
SOUTHERN RHODESIA (U.K.)
REPUBLIC OF SOUTH AFRICA
REP. OF SOUTH AFRICA
Kasane
Kanke
Maun
Okavango Swamps
Makgadikgadi
Francistown
Bulawayo
Ghanzi
Serowe
Mahalapye
Machanen
Kang
Tsane
Molepolole
Mochudi
GABORONE
Kanye
Lobatse
Tsabong
PRETORIA
ZAIRE
TANZANIA
ANGOLA
ZAMBIA
MALAWI
SOUTH-WEST AFRICA
SOUTHERN RHODESIA
BOTSWANA
MOZAMBIQUE
WALVIS BAY
REP. OF SOUTH AFRICA
SWAZILAND
LESOTHO
Atlantic Ocean
Indian Ocean

THE HEALTH ENVIRONMENT

The Setting

The economic and political potential of the Republic of Botswana* was largely unrecognized before independence in 1966. Since that time mineral deposits have been explored and several finds have begun to produce. The popularly-elected government and its President have encouraged judicious use of revenue generated and have emphasized planning for future development. Although landlocked and surrounded by white-dominated African states, Botswana has successfully maintained a policy of multiracialism and has contributed toward detente in southern Africa. Botswana is beginning to assert her economic independence from South Africa but is still bound by transportation and communication links. Approximately half of the Batswana who depend on wage employment work outside the country, most in South African mines.

Economic progress is only beginning to affect the majority of the population, 90 percent of which is rural and largely dependent on subsistence agriculture. The livestock-based agricultural sector is still the largest sector in the economy, contributing 31 percent of Gross Domestic Product in 1971-72. Although per capita Gross National Product has grown to U.S.$160, per capita rural income is estimated at less than $100. Wealth and income in the rural area is further unequally distributed. Lack of job opportunities and low educational level limit individual opportunity outside of agriculture. Levels of production of the traditional farmer are limited by shortage of water and rainfall and by the low level of technology employed in agriculture. Availability of arable land and land tenure practices do not inhibit agricultural development, as is the case in nearby Lesotho and Swaziland. However, much of the land is suitable only for grazing. Cattle raising is emphasized, often to the exclusion of crop production.

Population Characteristics and Health Issues

Population migration is characterized by traditional seasonal movements between tribal villages, agricultural land, and cattle posts. In addition, there is considerable temporary labor migration outside the country, and a recent phenomenon is internal rural-urban migration. Population growth is high,enhanced by declining infant mortality. The government is aware of the implications of a 3 percent rate of population growth and of the demands for education, jobs, and health and welfare services imposed by a population doubling within 23 years. Family planning has been a government priority since 1971, but individuals still value large families for social and cultural reasons. According to the 1971 census, a large proportion of the labor force -- 24 percent -- was inactive. Only 7 percent worked exclusively for wages, and 6 percent for wages and in family agriculture; 60 percent worked solely in family agriculture. Unemployment and underemployment is high despite growing demands for manpower and heavy dependence on expatriate personnel at all levels. However, while most current demand is for educated and trained manpower, 68 percent of Batswana have had no formal education.

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* Botswana - the country (formerly Bechuanaland)
Batswana - the people (singular: Motswana)
Setswana - the language
Tswana - root word used as an adjective or to refer to the group

See the Appendix for more detailed background information.

Health conditions in Botswana are favorable. The dry temperate climate of the most heavily populated areas restricts the incidence of malaria, trypanosomiasis (sleeping sickness), and leprosy to isolated regions and limits their impact to small population groups. However, these factors inhibit development and use of otherwise productive land area. Tuberculosis, venereal disease, gastroenteritis, and respiratory diseases are major disease problems. Incidence and severity of schistosomiasis is unknown. Nutritional levels are adequate except in times of drought, in vulnerable age groups and among certain population groups, such as recent migrants to the urban areas. Access to health services is limited by vast distances and by scattered population settlement. Case treatment and follow up are complicated by movements of the population. Although lack of access and resistance to modern medical practice would indicate a low effective demand for services, currently 70-80 percent of pregnant women receive some prenatal care and 38 percent of all births take place in hospitals or clinics.

Synthesis

Ample mineral resources and low population density are positive indications for economic development in Botswana. The government is popular and democratically chosen. Historical and cultural ties among the tribes that make up the Batswana group contribute to an atmosphere of racial tolerance supported by the official government policy of multiracialism. These positive features more than outweigh the problems faced by the Government of Botswana: maldistribution of wealth and income; vast distances and limited transportation links; limited agricultural resources and the related threat of overgrazing, erosion and drought; rapid population growth; and, a largely uneducated population.

Although health problems are not serious, the same factors limiting economic development act as constraints to improved health and to the development of the health sector. Services are unevenly distributed, particularly between the urban areas and the countryside. Limitations in agriculture affect nutrition as well as family income level. Rapid population growth places increased demand on health services and high fertility has direct impact on maternal and child health. Low educational level affects nutrition, health and family planning habits and behavior. These problems, however, are largely surmountable. Continuation of current policies of economic development, together with progress in social planning and service delivery, should allow Botswana to successfully overcome the constraints in the health sector.

DETERMINANTS OF HEALTH AND DISEASE

POPULATION CHARACTERISTICS

Distribution

The baTswana, or Batswana, are composed of 8 major tribes. Traditionally the Tswana lived in tribal villages around the chief. Population pressure and other factors modified this pattern, and the people began to live part of the year away from the village at the agricultural lands and cattle posts. Until the 1971 census, persons were enumerated according to the central villages to which they owed allegiance, although gradually people began to make permanent homes outside the villages and to form small villages.

The 1971 census was conducted on a de facto basis: people were counted according to where they were found, and not according to the village of allegiance. As a result, a large difference was discovered between the results of the 1964 and the 1971 censuses. In the case of Serowe, Kanye, Molepolole, and Mochudi, the major tribal villages, the differences between those owing allegiance to a village and the de facto population is greater than the de facto population itself, as illustrated below:

	Persons who said they belonged to the village	Persons actually enumerated in the village (de facto pop.)
Serowe	43,186	15,723
Kanye	39,220	10,664
Molepolole	31,986	9,448
Mochudi	21,382	6,945

Because many people do move between villages and lands and cattle posts, it is difficult to determine the true size of village population. Population movement is subject to irregular seasonal variation depending on rainfall, water supplies, crops, pasturage, and social inclinations. Many houses in the villages stand empty, because it is believed that the owners might return, hence no one else makes use of them.

The 1971 census revealed the following:

574,094 de facto population

45,735 absentees reported

10,550 estimated unenumerated nomads

630,379 total population (with an estimated 3-4 percent underenumeration)

The de facto population was distributed as follows:

In settlements over 1,000	37.12 percent
In settlements 500 - 1,000	10.45 percent
In settlements under 500	52.43 percent

Much of this section taken from the Report on the Population Census 1971.

Migration

Understanding of migration patterns, both internal and external, is crucial to the understanding of the country as a whole, and for sectoral planning. An indication of the rate of urbanization is the annual rate of growth of the major towns (over the intercensal period):

Francistown	10 percent per annum
Gaborone	25 percent per annum
Lobatse	7.5 percent per annum

Although absenteeism is consistently underreported, the census figures reveal that 25.5 percent of the male labor force (ages 15-54) and 5.1 percent of females 15-54 are temporarily absent from Botswana. Migration of laborers to South Africa also affects the sex distribution of the population.

	Percent of Population	Males/100 females (de facto population)*
Urban	8.4	90.1
Village	49.8	82.6
Lands	24.6	90.8
Cattle posts	12.9	107.4
Freehold Farms	3.1	
Mining townships	1.1	188.4
Other	.1	
	100.0	84.0 (countrywide)

* Including reported absentees, the ratio becomes 93.1 to 100. countrywide.

Employment and Education

The majority of Tswana are economically dependent upon agriculture. Sixty percent of the population depend solely on agriculture, and an additional 6 percent depend partly on agriculture for their livelihood; only 7 percent depend solely on wage employment, and 24 percent are not economically active (including women and juvenile males).* It is interesting to note that of those solely dependent on agriculture, 61 percent are women, and also that 60 percent of the urban population maintain some connection with traditional agriculture.

The lack of education is responsible for the high rate of migration of unskilled laborers, as well as for the slow rate of localization of middle and high level positions within the country. Prior to independence, very little emphasis was put on education, and as a result, overall literacy is estimated at only 14 percent for males and 11 percent for females. The severity of the lack of educated manpower is illustrated by the senior and middle-grade staff positions listed in the 1972-73 establishment registry: of 1,620 established positions, 682 (42 percent) were staffed by citizens, 538 (33 percent) by expatriates, 400 (25 percent) were vacant.[1]

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* NOTE: Gathering wild foods, subsistence hunting, and subsistence fishing were excluded from the 1971 census definition of economic activity.

[1] A.N. Andersen, K.F. Michaelson, A. Shapiro, "Report on Health and Nutrition Survey, Ghanzi District." (mimeo, June 1974: used with permission of the Ministry of Health.)

Major emphasis has been placed on education since independence. Ten percent of the estimated expenditure for the 1970-75 development plan period was allotted for education; 6 percent in the 1973-78 plan. Forty-one to fifty-one percent of 5-14 year olds are enrolled in primary school. New schools and a vocational training center have been opened, teachers trained, and syllabi revised. A new brigade training scheme has been developed and is expanding to train artesans in carpentry, bricklaying, farming, weaving, and mechanics, to prepare students for wage-earning careers and to provide manpower for essential services.

Fertility and Family Planning

The birth rate is estimated at 44.5 per 1,000; the death rate at 13.7; giving a growth rate of 3.08 percent per year, at which rate the population would double within 23 years. The mortality rate is thought to be the lowest in Africa and is due to low infant mortality, estimated at 103 per 1,000 male and 91 per 1,000 female births. Life expectancy at birth is 52.5 years for males, 58.6 years for females.

Total fertility is about 6.5 births per woman. In a survey in the Ghanzi District,[2] the average number of live births among mothers over 35 was 6.2; the average number of children wanted by all mothers was 5.8. Natural child spacing resulted from the custom that a woman should not conceive until her last child had been weaned -- at about 18 months. Male absenteeism seems to have altered traditional habits but not to have affected the birth rate. Simultaneous with the rise in the age of marriage, premarital sexual activity became accepted. Family planning is becoming accepted in the context of maternal and child health, although traditional values create resistance to widespread acceptance. At the World Population Conference in 1974, Botswana declared its population problem one of underdevelopment of human resources, not one of overpopulation. The government believes "social, economic, and political conditions and integration of women more important than availability of contraceptives for effective family planning."

The government does take a strong stand on the issue of family planning in the 1973-78 NDP.[3] Here it is recognized that development efforts are undermined by population increase and demand for services; that children must be spaced if women are to be free to participate in economic and development activities. For these reasons family planning advice will be made available through the health posts and clinics to those who seek it voluntarily.

Summary

Seasonal migration between villages, lands, and cattle posts, as well as tribal village allegiances make difficult the enumeration of the population, and therefore also the planning of health services and followup of patients (such as family planning clients and patients undergoing treatment for tuberculosis). Recent rural-urban migration has resulted in formation of squatter settlements and associated disruption of traditional food and child-rearing habits. Unsanitary conditions, poor housing and the absence of health and other services are also caused by unplanned urban growth. Migration of labor for wage employment outside the country has

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[2] A.N. Andersen, K.F. Michaelson, A. Shapiro, "Report on Health and Nutrition Survey, Ghanzi District." (mimeo, June 1974; used with permission of the Ministry of Health.)

[3] National Development Plan 1973-78. Ministry of Finance and Development Planning. (Government Printer: Gaborone, Botswana, September, 1973.)

resulted in disruption of the family and of cultural traditions. This in turn affects the health of the population in several ways: by changing attitudes and practices in family planning, nutrition, and health, and by creating stress factors which affect the mental health of the population.

HEALTH STATUS

Morbidity

The health problems of most of the population of Botswana who live along the eastern corridor are due to common, non-tropical diseases. Major causes of morbidity are respiratory and gastroenteric ailments, and a major problem seen in outpatient departments is venereal disease. A major cause of hospitalization -- and leading cause of mortality -- is tuberculosis. The National Development Plan estimates the incidence of venereal disease at 20-30 percent in the population over the age of 14 (believed to be an overestimate resulting from improper diagnosis), and the incidence of active tuberculosis is up to 5 percent. Skin and eye infections, genito-urinary diseases, burns and injuries are other major problems. An analysis of outpatient visits and hospital discharges in 1973 by major disease categories illustrates the structure and magnitude of disease problems:[1]

Outpatient visits reported through record keeping system - 1973 (total country but incomplete)			Outpatient visits reported in an outpatient survey April, 1974 (total country: all hospitals, 70% of health centers and clinics)		
	Cases	%		Cases	%
Respiratory diseases	63,557	18.8	Respiratory diseases	270	18.3
Venereal diseases	37,954	11.2	Genito-urinary diseases	168	11.4
Enteric diseases	30,354	9.0	Skin diseases	147	10.0
Ill-defined diseases	24,299	7.2	Ill-defined diseases	125	8.5
Skin diseases	24,009	7.1	Venereal diseases	117	7.9
Genito-urinary diseases	22,969	6.9	Injuries, burns	109	7.4
Injuries, burns	19,896	5.9	Pregnancy	52	3.5
Eye diseases	16,765	5.0	Malaria	52	3.5
Digestive diseases	15,758	4.7	Digestive diseases	49	3.0
Other reportable communicable	10,801	3.2	Enteric diseases	43	2.9
TOTAL CASES	338,669			1,478	

(Columns do not add to 100%.)

[1] Information obtained from statistics compiled by the Medical Statistics Unit and from "Survey of Out-Patients, April, 1974." (Department of Statistics: Gaborone, Botswana.)

Hospital Discharges 1973

	Cases	Percent
Normal deliveries	8,280	22.5
Injuries, burns	3,736	10.2
Respiratory diseases	3,167	8.6
Complications of childbirth/abortions	2,767	7.5
Enteric diseases	2,535	6.9
Tuberculosis	2,490	6.8
Genito-urinary diseases	2,033	5.5
Other reportable communicable diseases	1,924	5.2
Ill-defined diseases	1,018	2.8
Skin diseases	968	2.6
TOTAL CASES	36,760	

Regional Disease Problems

There are other diseases that are major problems in some regions of the country - and in some cases are likely to spread as the population grows and becomes more mobile. Some surveillance and control activities are directed toward these diseases: malaria, especially in the north and northeast where application of residual insecticides to houses is done; trypanosomiasis, with 67 cases reported in the Maun area in 1973; schistosomiasis (bilharzia), known to exist in many parts of the country, though little is known about the extent and distribution of the vector snail or incidence in the population; and, leprosy, believed to be largely undetected. Surveillance activities are carried out for cholera, plague, and smallpox. There has been a recent smallpox vaccination campaign and continued protection will be achieved through a recently organized BCG campaign, part of the program of tuberculosis control.

Malnutrition is not a problem except in times of drought, although undernutrition is now being recognized as existing in vulnerable groups (see Section II, C, on Nutritional Status). Overcrowding and poor sanitation are not major problems due to cultural and geographical conditions; however, concern about these problems is arising as cities grow and particularly as squatter villages spring up and multiply.

Little is known about the extent or etiology of mental illness in Botswana, and the health system has very little provision for dealing with psychiatric cases. The point of entry to the one mental hospital is often the prison, though some cases are handled at local health facilities.

Summary

Many of the diseas: problems of Botswana could be averted by health education and preventive measures. Two major diseases - tuberculosis and venereal disease - could be largely controlled through case-finding, treatment, and followup. Finally, improved environmental sanitation would reduce enteric disease and prevent the spread of schistosomiasis.

NUTRITIONAL STATUS

Diet

Analysis of historical accounts and studies reveals that the traditional Batswana diet was balanced in terms of nutritional content: it was varied and quality was maintained throughout the year through seasonal use of wild bush foods. In addition, there was a strong ethic of food sharing, which is believed to have declined as a result of the interaction of several factors. These include: exposure of migrant laborers to urban conditions, the shift from a subsistence to a cash economy, and the rise of individualism and subsequent decline of tribal authority, resulting in the chief's loss of power to enforce traditional methods of protecting the communal food supply.[1]

The Batswana diet is based on corn and sorghum, with meat and milk contributing animal protein in varied amounts in different regions and at different times of the year. A food consumption survey carried out in the Shoshong area of Eastern Botswana in 1970-71 revealed the seasonal nature of consumption patterns.[2] Sorghum (mabele) is eaten when it is available from home production. During the months when home-produced grain is not available, corn or mealie meal (Paleche) is purchased. Preference for mealie meal may be due to the lower purchase price, as well as to the fact that less work and cooking time (and thus less firewood) is required for preparation of mealie meal. (see graph, page 11)

Variation in dietary consumption by season is illustrated in the following chart:

Food Consumption, August 1970 - August 1974
Shoshong Area, Eastern Botswana

May (before grain harvest)	June (after grain harvest)	August-September (dry season)	Oct.-Nov. (end of dry season)	Jan.-Feb. (wet season)
beans, milk, melon consumed (very little grain)	increased sorghum consumption	peak in beer-making (from grain)	increased meat consumption (due to slaughter of animals dying)	peak in consumption of wild vegetables; increased corn consumption

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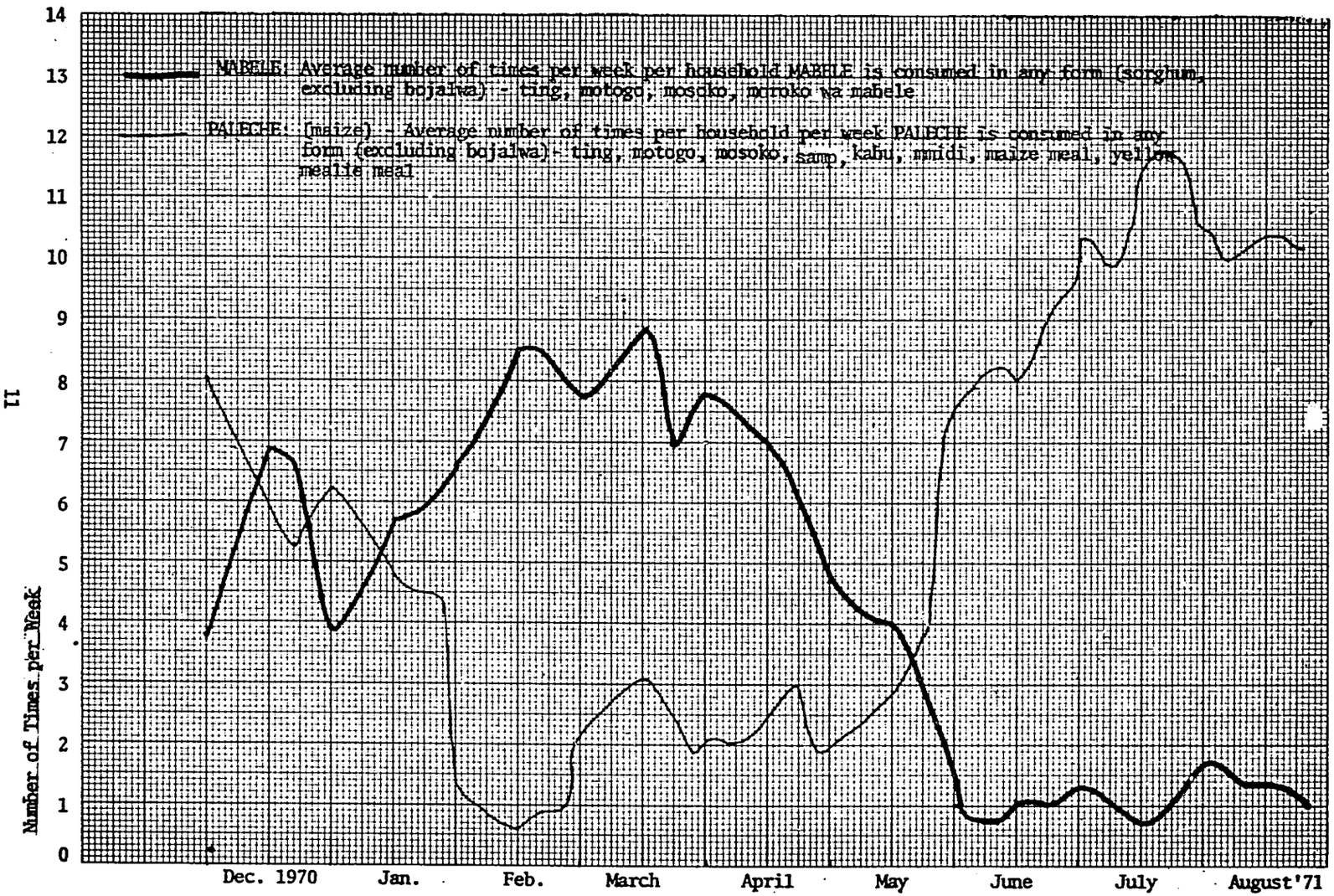
1 Information on Culture, Food, and Good Health; information sheets for Nurses and MCH/FP educators in the Republic of Botswana. (mimeo, Botswana/Meharry MCH/FP Project, Ministry of Health, 1973-74.)

2 Lucy Syson, "Food Consumption and Quak Stick Measurements: Report of a Survey in the Shoshung Area, 1970-71." Technical Note #24, Surveys and Training for the Development of Water Resources and Agricultural Production, Botswana. (UNDP/FAO and the Government of Botswana: September, 1971.)


MABELE: Average number of times per week per household MABELE is consumed in any form (sorghum, excluding bojalwa) - ting, motogo, mosoko, moroko wa mabele
PALECHE: (maize) - Average number of times per household per week PALECHE is consumed in any form (excluding bojalwa) - ting, motogo, mosoko, samp, kabu, mmidi, maize meal, yellow mealie meal
Number of Times per Week
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
Dec. 1970
Jan.
Feb.
March
April
May
June
July
August'71

Meat consumed in this area is mostly goat; milk is consumed in greater quantities by children than by adults. Chickens are rarely eaten, and there is still a strong taboo against girls eating eggs, which are said to cause pregnancy. Sugar and tea are the main groceries consumed. In a concurrent study of income, expenditure and wealth, it was found that cattle were the major source of income, and food the major item of expenditure, amounting to 41.8 percent, with an additional 5.3 percent being spent on drinks and tobacco.[3]

It was noted in the Shoshong report that although there was "considerable variation in the number of meals eaten per day by adults," no clear regular pattern appeared for most individual households, whether of one, two, or three meals a day; however, for children, "the proportion being given three meals a day hovers around 90 percent."

A health and nutrition survey undertaken in the Ghanzi District of northwestern Botswana in 1973[4] revealed that mealie meal, imported and bought at the General Dealers, is the dominant staple. Meat appears to be more often consumed than milk in this region, and at the time of the survey, the diet included very few vegetables. Coffee, tea and sugar were widely consumed and given more frequently than mealie meal during the weaning period.

A 1974 survey of food availability in the village of Tlokweng, near Gaborone, gives an indication of the sources of food in that area.[5] Eighty-one percent of respondents possessed agricultural lands, although only 63 percent of those with land actually plowed and sowed that year. Sorghum, maize, and sugarcane were most frequently planted. Many households produced food in the village itself:

72.5% respondents had household gardens
67.5% raised goats for food
64.5% raised chickens for food and for eggs
54.5% raised cattle for food.

In addition, many gathered wild plant foods (40.5 percent), and some hunted, fished, or gathered honey (14.5 percent). Finally, 90 percent shopped for food in shops. Foods shopped for most often included sugar, mealie meal, tea, bread, flour, beef, potatoes, tomatoes, sorghum, cabbage, and onions.

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[3] Lucy Syson, "Income, Expenditure and Wealth in the Shoshong Area," Technical Note #31, Surveys and Training for the Development of Water Resources and Agricultural Production, Botswana. (UNDP/FAO and Government of Botswana: April, 1972.)

[4] A.N. Andersen, K.F. Michaelson, A. Shapiro, "Report on Health and Nutrition Survey, Ghanzi District." (mimeo, June 1974; used with permission of the Ministry of Health.)

[5] Louis Grivetti and Frederick Mogome, "A Survey of Food Availability Among the baTlokwa-ba-Moshaweng of Tlokweng, Southeast District, Republic of Botswana." (mimeo, Ministry of Health: Gaborone, Botswana, 1974.)

Undernutrition

Several studies conducted recently reveal a pattern of undernutrition in the weaning age group in rural areas. It was previously believed that the under-five age group were among the better nourished groups, and this seemed to be borne out in the Shoshong study. The belief was expressed in a 1966 dissertation on "Possibilities of Improving Nutrition through Agriculture in Bechuanaland" (Doreen Galetshoge):[6]

> Children in their early ages are well looked after, because it is a scandal for a mother to be seen with a shriveled child, whatever the cause may be. So people try to feed their babies well during their first years of life, although after about the age of seven this care seems to diminish. People then think and believe that when a child grows it loses its weight and regains it again at puberty.

However, a WHO study conducted in three areas of southern Botswana in 1971 revealed that children under six months rated well in all growth measurements and then began to lag behind.[7] Seventeen percent of preschool children were classified as having some degree of protein-calorie malnutrition (PCM) with the peak prevalence at ages 12-29 months. A 12 percent prevalence persisted up to 5 years. No classical cases of marasmus or kwashiorkor were found. The school children tested showed good weight for height, as did mothers measured. Little vitamin deficiency or goiter was found, and only in babies under 18 months was a high incidence of anemia (22 percent) detected. (NOTE: After this age children consume more foods cooked in iron pots. It is thought that iron is thus absorbed into the cooked food and contributes to dietary intake, thus preventing anemia.)

The Ghanzi study (N.E. Botswana, 1973)[8] revealed a much lower percent of PCM of children under 5: just 2 percent. The study concluded that in that area there is no protein deficiency but there is a minor calorie deficiency in the 6-11 month age group, due to weaning foods being introduced too late or in insufficient quantity. The 18-23 months age group were seen as the most vulnerable group due to the dependence on coffee or tea,with sugar as a weaning food. School children and mothers were found to have satisfactory weight for height scores. A lack of vitamin C was found in all age groups, manifested by a high prevalence (17.7 percent) of gingivitis - spongy,bleeding gums.

Recommendations for Action

Although there have been no surveys carried out in the fast-growing urban areas, there is some concern about the nutritional status of urban dwellers, especially those living in squatter settlements, most notably those near Gaborone (Naledi) and Selibe-Pikwe and Francistown. Some investigations are being made in the Selibe-Pikwe area, but more complete information is needed.

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[6] Quoted in:
Lucy Syson, "Food Consumption and Quak Stick Measurements: Report of a Survey in the Shoshong Area, 1970-71." Technical Note #24, Surveys and Training for the Development of Water Resources and Agricultural Production, Botswana. (UNDP/FAO and the Government of Botswana: September, 1971.), p. 23.

[7] Dr. H.J.L. Burgess (WHO Medical Officer), "Nutrition Survey in Botswana, June-July 1971." WHO Regional Office for Africa: May 30, 1972.

[8] A.N. Andersen, et. al., op. cit.

Recommendations for action suggested in the studies discussed above outline the following needs:

- Research into agricultural production of foods to supplement the basic maize diet;
- Emphasis on teaching of home economics;
- Attention to vulnerable groups by the family welfare educator and the health team;
- Emphasis on nutrition and hygiene education.

Summary

Except during drought years, serious malnutrition does not exist in Botswana. However, seasonal variation in dietary intake and widespread dependence on locally-produced grain, mainly maize and sorghum, indicate a fairly tenuous balance between production, consumption, and maintenance of a balanced diet. Calorie deficiency in the weaning age group indicates ignorance of proper weaning practices. Vitamin intake appears to be sufficient with the exception of the vitamin C deficiency found in the northeast.

THE HEALTH DELIVERY SYSTEM

INFRASTRUCTURE AND HEALTH SERVICES

Facilities

Health services in Botswana are provided by both government and the private sector - largely by missions. Existing facilities include 7 government and 5 mission general hospitals, 2 industrial hospitals, and 8 health centers (6 government, 2 mission); some 37 clinics and 160 health posts. A detailed outline of facilities is given below:

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

Government Hospitals - 7 facilities with 1,106 beds:

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

Mission Hospitals - 4 facilities with 565 beds:

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

Mental Hospital - 1 facility with 135 beds:

-- Lobatse, Government Mental Hospital	135 beds

Information in this section was obtained largely from John L. Swift, et. al., "A Programme for Comprehensive Health Care Development." Republic of Botswana Hospital Improvements Consultancy, Geomet/Birch & Kroghoe, 1974.

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

Government - 6 existing facilities with 88 beds:

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

Mission - 2 facilities with 93 beds:

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

Special Facilities

Government

-- Gaborone, The National Health Institute (educational)

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

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

The health care institutions listed above (together with 4 other small Government health centers and 2 other Mission health centers, containing a total of about 32 beds) provide the inpatient services of Botswana to which health post and clinic staffs refer cases.

Distribution of Clinics and Health Posts, 1974*

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

The overall bed-population ratio in Botswana, 1:300, is high by African standards. Comparable ratios in other African countries include the following:

	Bed/Population Ratio
Nigeria	1:1,850
Kenya	1: 770
Zaire	1: 320
Botswana	1: 300

Utilization

Indicators of utilization in 1973 were calculated as outlined below:

Outpatient visits per 1,000:	885
Hospital discharges per 1,000:	57
Average length of stay:	11.8 days
Hospital bed days per 1,000:	670
Overall occupancy rate:	70 percent

It was also estimated that 38 percent of all births took place in hospitals or clinics, but less than 10 percent of infant deaths (and only 7 percent of total deaths). An analysis of distance traveled to obtain services was undertaken in the Survey of Outpatients taken by the government health statistics unit in April, 1974. The table on the following page outlines the results obtained.

* The listing of existing health posts includes places where regularly scheduled visits of a nurse or doctor occur. The definitions of clinics and health posts in Botswana are still fluid in current practice, although standardization is in progress. The numbers given here will not necessarily accord with tabulations elsewhere.

Hospitals

Distance Traveled

Percent of Patients by Distance Traveled

Miles	Gaborone	Francistown	Lobatse	Serowe	Maun Gen.	Mahalapye	Molepolole	Kanye	Mochudi	Ramotswa	Mmadinare	Maun. Mat.	TOTAL
0 - 4	87	53	69	73	77	87	62	82	69	68	88	90	74
0 - 9	92	55	74	81	80	88	94	85	78	70	96	91	81
0 - 24	97	72	81	86	81	89	96	88	85	84	100	100	87
0 - 49	99	85	99	97	87	94	97	88	93	95	100	100	94
0 -100	99	97	100	99	96	100	99	95	96	98	100	100	98
TOTAL	100	100	100	100	100	100	100	100	100	100	100	100	100

Overall, 26 percent of patients seen in hospital outpatient departments traveled over 5 miles; 6 percent traveled over 50 miles, and 2 percent traveled over 100 miles.

Regionalize

The 1973-78 National Development Plan recognizes that although development of health services in Botswana had been concentrated on hospitals in the past, "there is little evidence that the hospital expansion programme has had any effect on the incidence of disease in Botswana." Accordingly, the Plan proposes a new approach to the development of health services.

Under the new plan, the health system has been reorganized to emphasize integration of preventive, environmental, and curative services at the regional level. The seven regional health teams (see map) are composed of 3 members. A Regional Medical Officer acts as team leader and organizes all medical facilities in the district (government, mission and District Council), giving public health training to district staff, giving support to the field staff, and doing some clinical referral work. A public health nurse supervises immunizations, health education, school health, and other preventive activities in the region, and assists the third member of the team, the health inspector. Direct responsibilities of the health inspector include sanitation, inspection activities, spraying and surveillance. The inspector will also assist with immunizations and health education. This team will act as liaison between District Councils and Central Government.

District Councils are responsible for provision, maintenance and staffing of health posts and clinics and village water supplies. The Department of Health Services, within the Ministry of Health, is responsible for overall administration and for seeing that the goals of the National Development Plan are reached. The current development plan[1] determines the need for clinics and health posts in settled communities of 500 and in some smaller communities. District hospitals are to serve as referral points for the rural facilities, and the Ministry is responsible for implementation of a countrywide hospital improvement plan. Overall needs outlined by the Plan include the following:

-- 11 hospitals with lab facilities and operating theater, each with at least 1 resident doctor;

-- 8 health centers (1-30 beds), staffed by a public health nurse;

-- 90 clinics (1 observation, up to 6 maternity beds) staffed by an enrolled or staff nurse/midwife;

-- 178 health posts (not permanently staffed).

Coordination of mission with government activities is insured through the Association of Medical Missions of Botswana (AMMB), whose major function is to provide liaison between government and mission planning.

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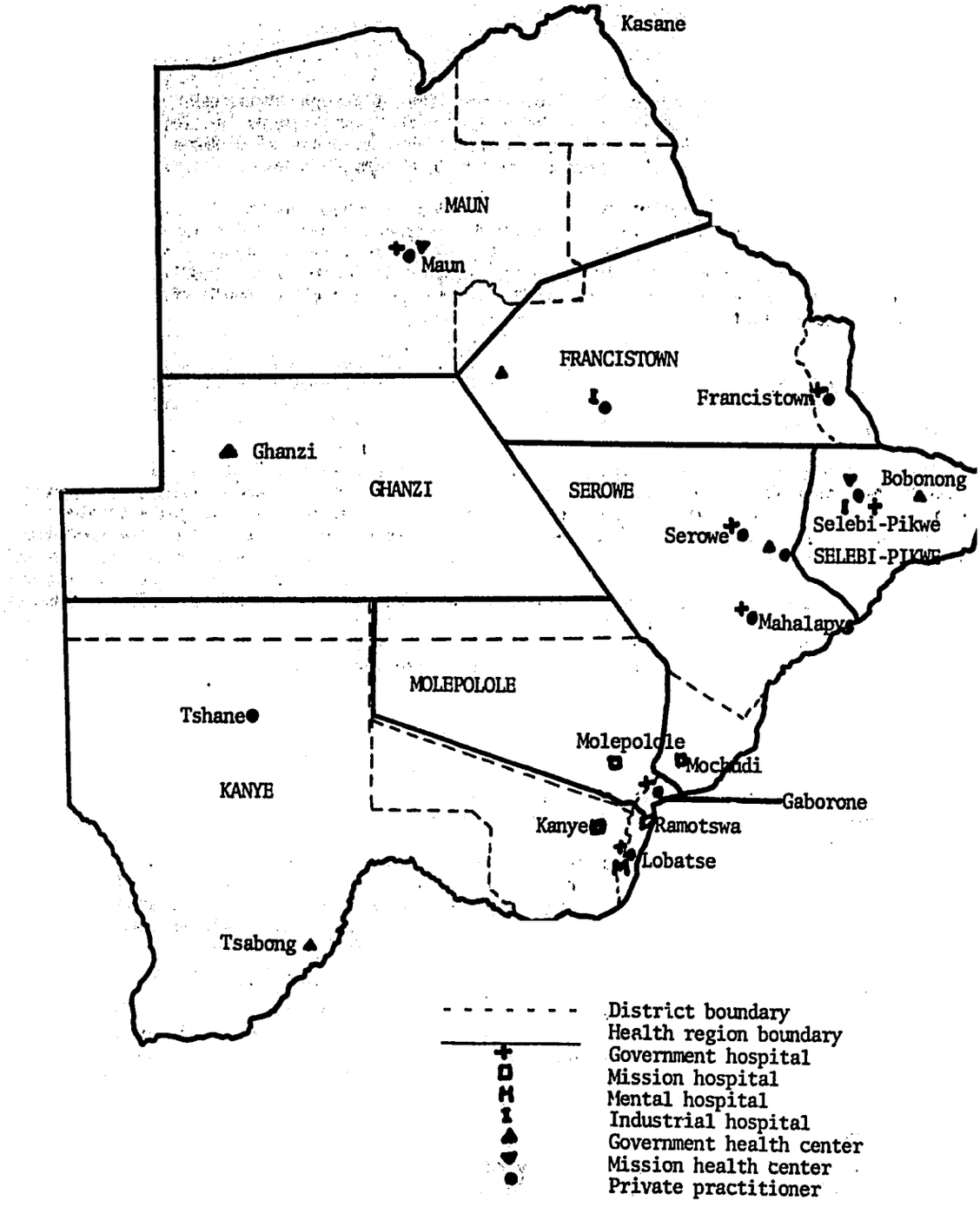
[1] National Development Plan 1973-78. Ministry of Finance and Development Planning. (Government Printer: Gaborone, Botswana, September, 1973.)

Health Regions and Major Health Facilities, 1974



Referral and Supervisory Services

A full-time surgeon and a dentist operate at Princess Marina, the country's referral hospital, and over the plan period, additional specialists will be recruited to teach and work at the hospital and to visit the district hospitals. Consideration is now being given to the development of a Flying Doctor Service to facilitate supervision of rural health care. Services of the South African specialist team operating in Lesotho and Swaziland have also been offered to Botswana, and this offer is currently being considered by the government.

The Princess Marina laboratory serves as a national referral laboratory. The Health Department's Central Medical Stores act as supplier to all government facilities, as well as to missions for such items as vaccines and treatment drugs for tuberculosis and venereal disease. The possibility of Central Medical Stores purchasing other drugs for the mission is being considered. The procurement system works well, but is somewhat hampered by inadequate administration, transportation and storage facilities.

Environmental Services

Local authorities have primary responsibility for the provision of water supplies in their areas, assisted by Central Government. The Ministry of Local Government and Lands administers water development grants to local authorities; the Ministry of Agriculture is responsible for the small-dam construction program; and, the Ministry of Mineral Resources and Water Affairs has major responsibility for water development. The Water Utilities Corporation is responsible for some urban water supplies, and the National Development Bank provides loans for water development related to farming.

The National Development Plan states that "Cleanliness and sanitation improvements will be encouraged by the Health Assistants and Inspectors...;" however, there are presently too few health assistants and inspectors in the field to make an impact in this area. An individual desiring assistance in building a latrine finds that plans and materials are not readily available.

Traditional Practice

A traditional health care system continues to operate concurrently with the modern services described above. The two major types of traditional healers in Botswana are the herbalists (dingaka tsa dichochwa) and the diviner-healers (dingaka tsa dinaka).[2] Herbalists consult and prescribe for a fee and sell medicinal plants; healers practice herbalism together with bone-throwing. There is a tendency on the part of both healers and their clientele to classify diseases as "European" and "Tswana" illnesses.

Diseases considered European by traditional practitioners include smallpox, upper respiratory diseases, and many skin lesions. Tswana diseases include venereal diseases, infertility and hallucinatory disorders. The classification, however, is subject to change based on empirical observation of the success of modern medicine in treating certain cases. On the other hand, observation of the failure of clinics and hospitals to successfully treat other individuals may also lead to reclassification by traditional healers.

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[2] Priscilla R. Ulin, "The Traditional Healer of Botswana in a Changing Society." A paper presented at African Studies Association Annual Meeting, Chicago, October 30, 1974.

A Survey of Health Practices in Rural Areas[3] suggests that parents' choices of healers for sick children are related to the nature of the illness. Traditional problems, i.e., tlhogwana, or gastroenteritis accompanied by dehydration; khujavana, or inflamed umbilicus; and, malwetsana, or malnutrition, are referred to traditional healers, while clinics and practitioners of "European" medicine are consulted most of the time for most other problems.

It is assumed that as the network of rural health care facilities planned under the 1973-78 National Development Plan will make access to modern care easier. As people become more educated to the concepts of health and nutrition, their attitudes will begin to change and their demand for modern health care will increase. Meanwhile, the two systems will continue to operate as parallel and complementary components of the health care service system.

Summary

New directions provided by the 1973-78 NDP include emphasis on integration of preventive, environmental, and curative health activities at the district level. A referral system has been instituted, beginning at the level of local health posts and clinics, and progressing to regional health centers and district hospitals. Specialist services are provided at the Princess Marina Hospital, the central government referral hospital in Gaborone. The Central Government provides planning and administrative functions and ensures that distribution goals are met. The Ministry of Health is currently considering a plan for hospital improvements and recommendations for future development of hospitals, clinics, and health posts. The traditional health care system continues to operate concurrently with the modern system. Traditional practices are essentially complementary to the services offered by the "official" medical system.

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[3] Priscilla R. Ulin, "Preliminary Report: Survey of Health Practices in Rural Areas." (mimeo prepared for the Department of Health Services, Ministry of Health: Botswana, May 28, 1974.)

HEALTH MANPOWER AND TRAINING

Manpower estimates for 1974 are outlined in the following table:[1]

Estimated Numbers of Health Workers, 1974

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

There is currently a ratio of one resident doctor to 12,500 people and one nurse to 1,625.* The National Development Plan outlines the program of localization of physicians: for Botswana to fill all medical officer posts by 1985, five Batswana students must be sent abroad each year for medical training. Unfortunately this target has not been attained.

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* Compare:

	Population per physician	Population per nurse
Botswana	12,500	1,625
Lesotho	22,000	3,341
Swaziland	9,000	1,160
Kenya	8,000	1,500
Nigeria	21,000	4,200
Zaire	34,000	8,000

1 John L. Swift, et. al., "A Programme for Comprehensive Health Care Development." Republic of Botswana Hospital Improvements Consultancy, Geomet/Birch & Kroghoe, 1974.

Nurse Training

Registered nurses are trained for three years at the National Health Institute Central Training Unit and at mission nursing schools at Molepolole and Kanye. An integrated training program was initiated in 1970 to prepare nurses to provide care in the home, clinics, and health centers, as well as in the hospital; however, the curriculum must prepare students for the examination prepared by the Examination Board of Botswana, Lesotho and Swaziland, and is therefore largely dictated by that syllabus, which is largely hospital-oriented. Projected output of registered nurses is 30 per year. Most nurses also receive midwifery training.

Enrolled nurses are trained for two years at Lobatse, Serowe, and Francistown government hospitals, and Kanye, Mochudi, and Molepolole mission hospitals. The minimum entrance requirement has recently been standardized. To enter the program all students must pass the Junior Certificate Examination, the junior high school leaving exam. Training for enrolled nurses is more practical than theoretical and is aimed at preparing the students to work on their own in the rural areas, and to perform simple diagnostic and therapeutic work. Output potential is estimated at 45 per year. Enrolled nursing students who receive a "good pass" are permitted to go into the second year of registered nurses training. It is hoped that all students will go directly into a two-year midwifery program.

It is somewhat difficult to recruit women for nurses training due to competition of careers which offer better salaries and working conditions. Early marriage and childbearing, and family obligations, are additional factors which cause dropout among nurses trained. The National Development Plan declares that an attempt will be made to attract male students to the nursing profession.

Auxiliary Workers

Health assistants are trained at the National Health Institute. Since 1973, training has been divided into groups to prepare both clinical and sanitary assistants. Both women and men are being trained for this occupation. Clinical assistants work under the supervision of the medical staff at hospitals, laboratories and health centers; sanitation assistants work under the supervision of health inspectors. Students receive two years of theoretical and practical training after passing the Junior Certificate Exam. However, low salary levels and lack of prospect for advancement have compounded the difficulty of recruiting and retaining qualified candidates. On the other hand, while the position of health inspector confers better status and career prospects, the absence of local training programs restricts output of trained inspectors.

Dental assistants are currently being trained in-country. Training for dispensing technicians and anaesthetic assistants will begin in 1975. Family welfare educators, basic health workers trained to motivate people to use health services, to give basic education in nutrition, health and family planning, and to provide basic first-aid are taught at the Denman Rural Training Centre. Course content and teachers are supplied by the Ministry of Health. Hospital and health administration is handled by medical staff, and while the need for specially trained administrators is well recognized, it is difficult to find appropriate training courses overseas. Courses in developed countries are not considered appropriate by the Ministry of Health, and there are few African schools offering health administration training. Other groups trained overseas include dentists, physiotherapists, and laboratory technicians.

Summary

Although it is widely recognized that auxiliaries must be employed to provide primary diagnosis and treatment, no health worker is presently being trained to provide this type of care. Insufficient numbers of Batswana are being trained as doctors to reach the targets for localization of physician posts. Finally, there is an acute shortage of health care administrators at all levels of the health system.

MATERNAL AND CHILD HEALTH/FAMILY PLANNING

Maternity Services

Supervised (hospital or clinic) deliveries were estimated at 38 percent in 1972 and 43 percent in 1973.[1] According to records from hospitals, health centers and clinics, in 1973, 70-80* percent of pregnant women received antenatal care, and those who came to clinics averaged 3.18 visits.

Antenatal attendance	
Total new visits	21,460
Total repeat visits	44,691

Family planning services	
Total new acceptors	2,545
Total repeat visits	7,427

Family planning service statistics were less completely reported. Notably absent from returns were statistics from Princess Marina Hospital and White City Family Welfare Clinic in Gaborone, and Francistown Council Clinic; however, it can be noted that services are offered and delivered at almost every clinic, health center, and hospital throughout the country.

Preliminary results of a Survey of Health Practices in Rural Areas undertaken in 1973 indicate that perhaps three-fourths of mothers of children under five had attended antenatal clinic, mostly for reasons of illness or discomfort and not for preventive reasons.[2] Preference for delivering at home is based on traditional beliefs concerning delivery and diet of the newly delivered mother. In addition, women object to nulliparous women (nurses) as attendants; and, probably most significantly, older women (mothers and grandmothers) see the delivery of children as a family matter and are traditionally responsible for attending the births in the household. This attitude was summed up by one respondent, "If my daughter delivers in the hospital, how will I learn to deliver babies?"

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* The accuracy of the returns is not known, but reporting to the Medical Statistics Unit is 70-80 percent complete.

1 Calculated from hospital and clinic reports returned to the Medical Statistics Unit.

2 Priscilla R. Ulin, "Preliminary Report: Survey of Health Practices in Rural Areas." (mimeo prepared for the Department of Health Services, Ministry of Health, Botswana, May 28, 1974.)

International Planned Parenthood Federation Program (IPPF)

IPPF has been supplying contraceptive supplies to Botswana since 1968, when the first six volunteer family welfare educators were trained in Serowe.[3] Since preventive health was the responsibility of the local government District Councils, IPPF began by assisting Councils in establishing MCH/FP clinics, in the hope that eventually cooperation would be established between government, mission, and Council clinics. In 1971 the government became an affiliate member of IPPF, and the decision was made to create a national family planning program. This program was administered by the IPPF physician, who became an officer of the Ministry of Health, Labor, and Home Affairs in 1973. IPPF grants have been increased each year to cover costs of training, conferences, education, administration, vehicles, and commodities - including all forms of contraceptives.

An evaluation of service statistics performed in 1973 covering the period 1968-1972 revealed that 10 percent of the eligible population of areas surveyed had been reached by family planning services but only an estimated 5.6 percent of the country's eligible population. The evaluation also revealed a number of statistics of interest to family planning personnel:

-- Acceptors per 1,000 population: 11

-- Mean age of acceptors (first time): 27.3 years
[declining from 29.8 years in 1968
to 25.8 years in 1972]

-- Mean number of living children/client: 2.90
[median = 2.43]

-- 37 percent of acceptors never returned
to clinic; 17 percent returned only once

-- 68 percent received pills on the first visit;
17 percent received IUD's.

It was observed that there is a steady increase in the number of new acceptors per annum, but that there is danger of emphasizing new acceptors at the expense of motivating acceptors to continue to practice. A follow up survey reveaaled that 45 percent were lost to follow up; of the 197 clients found, 65 percent were currently contracepting (clinic reports showed only 44 percent currently contracepting). Efforts are now being made to improve follow up and record-keeping procedures.

Family Welfare Educators: Training

A unique aspect of the Botswana/IPPF program is the creation of a new type of worker known as the Family Welfare Educator (FWE). These workers are chosen by the villagers or by the area District Council and given 11 weeks' training. After returning to their villages they work at motivating people to use health care services. Family welfare educators give basic first aid and basic education in child care, family planning, and nutrition. Eighty FWE's had been trained by the end of 1973 and 50 (60 percent) were working in the field. Training is given at

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[3] Information in this section was obtained largely from Sheila Cook, "A Report of an Evaluation of the International Planned Parenthood Federation Programme in Botswana, 1969-1973."

Denman Rural Training Center outside Gaborone. Subjects taught include nutrition, health education, first aid, some medical topics (including family planning), public health topics, home economics, gardening and poultry raising, community development and social problems. Training consists of 8 weeks' classroom work and 3 weeks in the clinics. The 1973 evaluation showed that the training given is appropriate to prepare the educator for performance on the job. The dropout rate (4 percent) indicates that candidate selection should be improved.[4] Youth (average age of 26) and marital status (73 percent unmarried) may detract from the workers' effectiveness because of the Batswana woman's preference for women who have previously borne children in matters regarding childbirth.[5] These factors may also influence the dropout rate among workers both directly and indirectly. Some may leave the village or drop out due to family responsibilities. Limited success in contacts with potential family planning and maternity clients may further discourage the workers.

Direct costs of training have been calculated.[6]

Cost per FWE Trainee per Annum

Year	Expenditure in US $	Number of FWE's trained	Cost per FWE trained (US$)
1970	1,800	18	100
1971	3,360	17	198
1972	3,730*	26	143**
1973	4,980*	36	138**

* These figures are the annual budgets and are not the actual expenditures.
** When calculating the costs for 1972 and 1973, no account has been taken of the costs of the in-service training courses for FWE's or nurses.

NOTE: These calculations do not take account of Council subsidies, the capital costs of buildings, depreciation of vehicles, equipment, salaries of teaching staff, etc.

Family Welfare Educators: Nature of the Job

In the field FWE's are supervised by the clinic staff and Regional Medical Teams, and are engaged in home visiting and follow up of malnourished children, TB cases, and family planning clients; they work in clinics and visit schools, hospitals, women's groups, prisons, and give talks and demonstrations. FWE's are taught to diagnose and treat simple ailments including diarrhea, sore eyes, scabies, burns, and minor cuts. Problems encountered in the field are administrative - especially relating to supply and transport.

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[4] Sheila Cook, "A Report of an Evaluation of the International Planned Parenthood Federation Programme in Botswana, 1969-1973."

[5] Priscilla R. Ulin, "Preliminary Report: Survey of Health Practices in Rural Areas." (mimeo prepared for the Department of Health Services, Ministry of Health, Botswana, May 28, 1974.)

[6] Sheila Cook, op. cit., p. 101.

Understandably the reaction of medical workers and Health Ministry officials to use of such a minimally trained paramedical worker is mixed. Some resistance is based on the fear that "a little knowledge is a dangerous thing." Although this could be overcome by adequate supervision, unfortunately, the ambivalence and lack of full commitment by the medical community results in less than adequate supervision. Despite these reservations, however, FWE's have already become an accepted cadre, and other types of rural extension workers are being developed on the same principle.

Other Programs

The U.N. Fund for Population Activities also funds family planning activities through WHO and UNICEF. WHO staff funded by UNFPA include a medical officer obstetrician-gynecologist, a Public Health Nurse Tutor, and a Midwife Tutor, who assist in nurse and midwife training. The WHO obstetrician also does referral clinical work (she is the only OB/GYN in the country), and assists in the in-service training courses in MCH/FP. UNICEF provides funds for vehicles, drugs and equipment, and for training. UNICEF funds refresher courses for Family Welfare Educators, meets the costs and salaries of nurse-midwife trainees while they are undergoing in-service training in MCH/FP, and provides audiovisual equipment for the Maternal Health Institute. A new MCH/FP project agreement is currently being negotiated by WHO and the Government of Botswana.

AID has financed a program (administered by Meharry Medical College) designed to "develop a cadre of health personnel capable of providing maternal and child health/family planning (MCH/FP) services through both urban and rural health facilities," by:

-- Assisting in the development of an integrated curriculum of public health, MCH and FP for nurses training;

-- Developing in-service training programs for enrolled and registered nurses and health assistants;

-- Selecting candidates for participant training;

-- Revising curricula for health assistants;

-- Assisting in the development of a national health education service;

-- Strengthening post-partum family planning service;

-- Evaluating the project; and,

-- Arranging for training of health educators at B.S. and M.P.H. degree levels.

The training component of this project has progressed according to schedule, with the ultimate objective being to have trained all nurse-midwives in MCH/FP. However, the health education component has been delayed. An evaluation of the project is currently in process, but it has already been recognized both by the AID evaluation team and by the Ministry of Health that the need for health education is great. Since this element is not included in other health, nutrition, or family planning projects, it is recommended that renewed emphasis be placed on the health education component of the AID project.

Coordination of MCH/FP projects has been the responsibility of the MCH/FP Officer in the Ministry of Health, who until recently was located in Francistown. With the reorganization of the Ministry after the November 1974 elections, it is hoped that this coordination will be strengthened.

Summary

Botswana in 1971 was among the first African countries to institute a national family planning program. The program has received widespread support and has instituted a unique Family Welfare Educator scheme to reach the target population. However, administrative difficulties have prevented adequate follow up activities needed to ensure that family planning acceptors continue to contracept. Family planning activities are also supported by U.N. organizations and USAID, but until recently mechanisms for coordination of the various programs have been lacking.

NUTRITION AND FOOD AID PROGRAMS

World Food Program

The World Food Program (WFP) is the only food aid agency in the country and has been operating since emergency food assistance was first approved in 1965. Botswana receives the highest per capita amount of food aid of all WFP recipients. The $2 million a year program will be evaluated in 1975. A school lunch program was launched in 1966 and will continue until 1977. Ninety-eight percent of primary school children receive a mid-morning meal of porridge made of corn-soy blend with vegetable oil cooked in iron pots over an open fire. Parents are assessed to pay the cook. Of the 270 (out of a total of 278) primary schools receiving WFP assistance in 1971, 143 also reported having school gardens.

A WFP vulnerable group feeding project operates to improve institutional nutrition and to attract mothers to clinics. Mothers and preschool children receive rations of instant corn-soy meal at health clinics and through distribution by women's voluntary groups - Red Cross, YWCA, the Botswana Council of Women. Tuberculosis outpatients receive rations through clinics and hospitals.

A WFP institutional feeding program provides food to secondary schools, hospitals, brigades, teacher training colleges, rural training centers, and agricultural colleges at the cheapest current wholesale prices. The total cost charged to each institution is then transferred into a development fund for specific projects of the institution.

Drought relief food-for-work projects have been carried out in the past. Agricultural demonstration projects have also been launched using WFP food as incentive, and as a form of minimum insurance, for farmers to undertake new agricultural techniques: fallowing and weeding, building of water catchment tanks, etc.

Nutrition Education

Nutrition education has not been emphasized until recently. Family welfare educators (FWE) were introduced in 1969-70 as auxiliary health workers trained to educate families on nutrition, as well as on family planning and welfare. Other efforts included various fragmented women's and home economics extension programs through Community Development Assistants, trained at the Agricultural College; through seven field workers of the home economics unit of the Botswana Training College, running courses for village women; through a small Women's Unit operating courses for women's club leaders through community development; and through adult literacy and continuing education programs.

Recently the Rural Extension Coordinating Committee, composed of members from the Ministries of Health, Agriculture, Education, Local Government, and Finance and Development Planning, became interested in establishing a unified home economics component in the rural extension effort. It has been suggested that a new group of home demonstrators be created, similar to the FWE to be supervised by the Ministry of Agriculture in rural areas, and by Social Welfare in towns. Both the FWE's and the home demonstrators would be responsible for some nutrition education and would be trained accordingly. In addition, primary school teachers, who will be given some home economics and nutrition training, would add another dimension to family education in this area. This proposed system is now being considered by each of the Ministries involved.

Some nutrition education is included in the school syllabus for the following subjects:

Course	Percent of Schools Offering Subject
Hygiene	95
Home economics	6
Agriculture	60

During the 1973-78 development plan period it is intended to introduce Home Economics and Agriculture into all schools in Standards VI and VII.

Nutrition and health education is also provided through health clinics and through communications media. Health demonstrations at agricultural fairs are thought to be very effective means of providing health education. Further efforts will also be made through Maternal and Child Health/Family Planning programs.

Summary

Food aid programs begun for drought relief have continued in operation (1965-1974) and are to be evaluated in 1975. These programs, all of which are run by WFP, include a school lunch program, vulnerable group feeding, institutional feeding, and food-for-work. Nutrition education has been emphasized only in recent years, and the effort has been fragmentary thus far.

PLANNING, ORGANIZATION AND FINANCING

National Development Plan

The Ministry of Finance and Development Planning, under the Vice-President, drafts the National Development Plan and annual budgets, and signs all external agreements. The MFDP is responsible for government stores, central statistics, and the Census Office; it also chairs interministerial committees, such as the Rural Development Council. The individual ministries are responsible for submitting first drafts of the sector programs and for implementation of sections of the plan turned over by the MFDP. An economist from the MFDP is usually assigned to each Ministry.

The major development priority of the 1973-78 National Development Plan is to "upgrade the standard of life in the rural areas." Stated country priorities in health (1973-78 National Development Plan) include the following goals:

1. To ensure that rural health services are improved and increased (through construction of clinics and health posts);

2. To ensure the provision of an adequate service by hospitals to the rural areas;

3. To accelerate training of auxiliaries and paramedical staff;

4. To place responsibility for specific and short-term campaigns within the Department of Health Services;

5. To expand staff of the Department of Health Services to oversee collection of data, planning, administration, supervision of rural medical facilities, in cooperation with District Councils.

District Councils bear a large part of the responsibility of expanding health care services in the rural areas, including part of the costs of construction of facilities. Approximately one-third of the clinics and health posts to be constructed under the 1973-78 development plan will have been completed by April 1975. Federal funds for these facilities were allotted under the 1974 Accelerated Rural Development Programme. Family welfare educators and enrolled nurses (to staff the health posts and clinics) are employed directly by the District Councils. The Regional Health Teams (described in Section II, A, "Infrastructure and Health Services") work with the Councils of the districts and towns falling within their health regions.

The National Development Plan explains the organization of rural development activities and the function of local government authorities as follows:

> District Councils, consisting of elected representatives, are responsible for the provision of district roads, health posts, and clinics, village water supplies, and primary education....Planning of District Council services is undertaken as a joint exercise between the Council's own planning committee and the District Development Committee (composed of Council and District Administration representatives, and key departmental officers stationed in the District).... At the national level, the Ministry of Local Government and Lands is responsible for local government authorities and their activities....District Development Plans must be finally approved by the Ministry of Local Government and Lands in consultation with the Ministry of Finance and Development Planning.

Town councils are responsible for refuse collection, primary education, local health clinics, and other local services, maintenance of roads and sewerage. With the exception of Francistown, town water and electricity services are provided by the Water Utilities Corporation and the Botswana Power Corporation.

A Ministry of Health was created after the 1974 elections, replacing the former Ministry of Health, Labor and Home Affairs, and further reorganization has since taken place within the Ministry. However, the basic structure and relationships with other ministries, notably Finance and Development Planning, and Local Government and Lands, remains the same.

The Association of Medical Missions for Botswana (AMMB)

Mission health activities are coordinated through the Association of Medical Missions for Botswana (AMMB), formed in 1973. The AMMB represents the missions in planning and administrative matters of joint interest with the Ministry of Health. This is particularly important in light of the large contribution made by missions in the health sector. Missions are estimated to provide approximately 40 percent of the health care in Botswana.

The AMMB is involved in a number of different projects in addition to its ongoing coordination activities. One project funded through AMMB, with wide implications for health sector administration and management, is a study of the medical record-keeping system. This study is concerned with improving clinical outpatient records for patient management and follow up, as well as with streamlining data systems: tailoring reporting forms to include only such information as is needed for improving health care planning and services. The Medical Statistics Unit is hopeful that new methods will improve the completeness and accuracy of reporting.

Financing

The 1973-78 NDP allocates approximately 2 percent of the 5-year development budget to the health services sector. Estimates for 1974-75 expenditures include 1.1 percent of the development budget allotted to health; 6 percent of recurrent expenditure budget. [In 1973-74, it was estimated that 5.6 percent of the recurrent government budget and 2.2 percent of the development budget were spent on health. This amounts to a per capita expenditure of R5.69 (US$8.50)].

Planned Central Government Investment was outlined in the 1973-78 National Development Plan-Description of Government Projects, September, 1973:

Health Services		Capital Expenditure on Development Projects 5-year total	(Percent)	Recurrent expenditure arising from Development Projects - 5-year total	(Percent)
Central Training Unit	(Rand)	290,000	9%	10,600	1%
Medical Equipment		700,000	22	147,500	17
Improvements to Hospital		1,280,308	39	227,280	26
Improvements to Health Centers		419,038	13	69,300	8
Flying Health Service		400,000	12	350,000	41
Medical Research and Evaluation		50,000	2	--	-
Central Medical Stores		117,125	4	57,200	7
		3,256,471	(101)	861,880	(100)

This budget reflects the high cost of hospital and curative services. Budget allocations also appear to be inconsistent with the stated goals of the health sector as expressed in the National Development Plan. The Plan emphasizes rural services and auxiliary training, while expenditures by central government concentrate on hospitals and curative medicine. However, health sector expenditures also include contributions from the Accelerated Rural Development Program funds. In addition, District Councils are responsible for local construction, training of auxiliaries, and for recurrent operating expenses. Despite the apparent inconsistencies, progress toward the planned goals has been achieved during the first half of the 1973-78 development plan period because of the division of fiscal responsibility.

Seventy-nine percent of the 1974-75 development fund will be contributed by external donor agencies. Most government revenue (40 percent of which comes from the customs union) will be needed to meet recurrent expenditures for at least the next 5 years.

Donors

Major donor agencies and health sponsored projects are detailed below:

WHO: Provides technical advisors, including a medical officer, public health nurse tutor, midwife tutor, TB epidemiologist, a technical officer for smallpox and TB control. A new MCH/FP project is currently being finalized for the next five-year plan period.

UNICEF: Provides training, clinic equipment, drugs, vaccines, vehicles; half of the total $665,000 UNICEF commitment over the 5-year period, 1973-77, will be spent on health activities.

UNFPA: Funds family planning staff recruited by WHO.

UNDP: National Health Institute Project ($203,000/1973-76); financing technical assistance in trypanosomiasis epidemiology ($75,000/1973-76).

FAO-WFP: School lunch, institutional feeding, vulnerable groups feeding, food-for-work: $1,534,200 over 5 years [1971-75].

IPPF: Funds transport, staff salaries, health education materials: $236,500 in grants over 1969-73; also provides family planning commodities.

USAID: MCH/FP project (total estimated cost: $2,135,000 - 1973-78).

NORAD: Provides technical assistance for strengthening health services administration project.

DANIDA: National Health Institute Project
Ghanzi District Rural Health Project
Hospital Improvements Consultancy

SIDA, CUSO, DANCHURAID, Danish Volunteer Service, U.K. Government Volunteer Service, OXFAM, Church World Service, and other voluntary organizations provide other assistance in health.

Summary

Stated health priorities for the country reflect the needs of the largely rural populations. These priorities include improving and increasing rural health services and acceleration and training of auxiliaries and paramedical staff. Progress toward the improvement of rural health services has been made through construction of clinics and health posts under the Accelerated Rural Development Program. Less progress has been made toward the acceleration of auxiliary training.

Division of responsibilities between the Ministry of Health Division of Health Services, the District Councils and the Regional Health Teams has been effective in decentralizing planning, administrative, and supervisory functions. Judgment of the operational effectiveness of this health care delivery system can be made only after a longer period of operation.

APPENDIX

Geography and Climate

Botswana* is situated in the center of southern Africa, bounded by the Republic of South Africa to the south, Southwest Africa (Namibia) and the Caprivi Strip to the west and north, and Rhodesia to the east. There is a direct link with Zambia at a point on the Zambezi River. The country has an area of 220,000 square miles (or 570,000 square kilometers), comparable in size to France or the State of Texas. Climatically and geographically Botswana is also similar to Texas. The area, a vast tableland with a mean altitude of 3,300 feet, is divided into three regions. Rural population density varies from 0-60 persons per square mile (0-23 persons per square kilometer). Overall density is one person per square kilometer.

Eighty percent of the population lives in the east, where soil and rainfall are suitable for dryland farming. Here rainfall averages 19.7 inches in the southeast and 11.8 inches in the eastern central district. Rivers in this region flow into the Limpopo, which marks the border with South Africa.

The northwest and northern part of the country are covered by the Okavango River Delta. The water from the delta drains into the center of the country and the Makarikari Salt Pan, and into Lake Ngami. The Chobe River in the north marks the border between Botswana and Caprivi, and flows into the Zambezi above Victoria Falls.

The Kalahari (Kgalagadi) Desert covers much of the central and southern region of the country. This desert is a rolling sandy area covered in part with grass and bush. There is no surface water in the Kalahari, and rainfall averages less than 9 inches. Underground water is available from boreholes in the grazing areas on the edges of the desert.

The climate is tropical in the north and temperate in the rest of the country. Temperatures vary from a mean of 56-87°F. in January, the hottest month, to a mean of 41-74°F. in July. Ground frosts occur during the winter months, but the days are warm. Temperatures reach 100°F. in summer, but lack of humidity lessens the discomfort of the heat. Rains occur between October and April.

Historical and Political Development

Botswana, like Lesotho and Swaziland, owes its existence to historical events and colonization patterns of the nineteenth century. Following intertribal warfare during the early part of the century, the Botswana came into conflict with the Boer settlers from Transvaal. At the request of the three main chiefs, Khama III appealed to the British for assistance. Motivated

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* Information in this Appendix was obtained from bibliography entries: Amer and Halpern; Department of State Background Notes; May and McLellan; Republic of Botswana Fact Sheet; and, Swift, et. al.; and, from reports and files of the United States Agency for International Development and other government and international sources.

by the desire for a road to the interior in order to forestall German penetration from Southwest Africa, Britain agreed to adopt Bechuanaland as a protectorate in 1885. In 1894 Cecil Rhodes tried to incorporate Bechuanaland into his British South Africa Company, but Khama and two other chiefs went to England to appeal directly to Queen Victoria. Subsequently, Bechuanaland was formally declared a Protectorate. The southern part of the original Bechuanaland first became a crown colony, later to be Cape Colony, and eventually part of the Cape Province of the Republic of South Africa. The northern part, the Bechuanaland Protectorate, was administered by the British from Mafeteng, outside its borders, until independence of the nation of Botswana in 1966 and the creation of the new capital of Gaborone.

When the British first assumed the protection of the territory, there was no central local authority, as the Batswana are composed of eight different tribes. Local tribal government evolved over the years until in 1934 the powers of the chiefs and functions of the native courts were clarified and defined.

Under the Constitution, which became effective in 1965, the legislative branch of government is vested in a Unicameral National Assembly composed of 31 directly elected and 4 specially elected members. The executive powers are vested in the President (Chief of State and Head of Government) elected from and by the National Assembly for a 5-year period. Cabinet members are also chosen from the National Assembly. A House of Chiefs advises government on tribal affairs, and a code of fundamental human rights is enforced by the High Court of Botswana. The Botswana Democratic Party, formed in 1962 by President Seretse Khama won 24 of 31 elected seats in the 1969 elections and 27 of 32 seats in the 1974 elections. For local government there are nine districts which follow tribal boundaries and three township areas (Gaborone, Lobatse, and Francistown). District and Town Councils have responsibility for primary education, public health, water supply, and maintenance of district roads.

Housing and Settlement Patterns

Traditionally tribal villages were built around the home of the chief and the kgotla, or tribal meeting place. Residence in the villages was restricted to the time between harvesting and ploughing. During the rest of the year, most people divided their time between the agricultural lands, located up to 30 miles outside the village, and the cattle posts, located 60-100 miles from the village. Although it appears that more individuals are now residing permanently on the lands, often in small village groupings, the tribal villages remain among the largest in Africa. The major tribal villages are Serowe, Kanye, Molepolole, and Mochudi.

Housing consists mostly of round thatched huts called rondavels. These huts are constructed of local materials: sun-dried bricks or mud and wattle, with thatched roofs. Building techniques have been well perfected, and costs of construction are low.

Rapid urbanization has resulted in housing shortages in the modern towns - Francistown, Gaborone, and Lobatse. Housing in squatter areas is inferior, density is high, and services are absent. Some efforts have been made to provide low-cost housing in Gaborone but it is now recognized that provision of sites and services is a more feasible alternative.

Economic Development and the Agricultural Sector

Economic development since independence has been rapid. Gross National Product has grown at a rate of 15 percent per annum (1968-1972), resulting in a 1971-72 GNP of approximately $109 million, or $160 per capita. Export growth was due to increased cattle exports and to the start-up of a diamond mine. Prior to independence and up to 1972, the budget was supported by grants-in-aid from the United Kingdom. By 1973-74 Botswana was economically independent, and recurrent surplus had become equal to half of recurrent expenditure. Growth in government revenue resulted from the renegotiation of the customs agreement with South Africa, raising Botswana's share of the revenue from $1.7 million in 1968 to an estimated $15.6 million in 1972. Forty percent of government income is derived from receipt from the customs union. Taxes, royalties and dividends from the diamond mine account for another large share of revenue.

Since independence mining exploration has resulted in the discovery of nickel and copper deposits and diamonds. Exploitation of salt and soda ash and coal deposits has begun. Exploration for oil, gypsum, limestone, antimony sulphur, and minerals and gemstones continues.

Much of the industrial 8-9 percent of the Gross Domestic Product was crop and livestock related: meat processing and canning, tanning, brewing, bonemeal and cornmeal production; textile manufacturing and game-skin processing. Farmers are encouraged to sell their cattle to prevent overstocking. Cattle are sold to the Botswana Meat Commission at Lobatse, where they are processed at the abattoir. The Botswana Development Corporation works actively to attract foreign investment.

Agriculture remains the largest productive sector of the economy. Although the relative importance of agriculture has declined since independence, in 1971-72, 31 percent of GDP was derived from agriculture. At least 70 percent of the population depends on agriculture for a livelihood.

Livestock production accounts for 76 percent of traditional sector agricultural production and 86 percent of the value of farm marketings. Ninety percent of cattle are owned by Batswana, but ownership is skewed. Ten percent of the agricultural holders owned 57 percent of the cattle, while 67 percent owned less than 20 percent (1971-72). Goats and sheep are used as a source of milk and meat. Thirty percent of rural households do not possess any livestock and are dependent on crop production and other sources of income. While 50 percent of rural cash income was derived from sale of cattle, only 0.4 percent was derived from sale of crops. In light of these figures, it is understandable that 20 percent of rural households have incomes from crop and cattle of less than R20, while 15 percent have incomes of more than R436. Median rural household income is estimated at R110; the mean at R243. Real per capita income of the rural population was estimated at R50-55 in 1971-72.

Only 5 percent of the land area of Botswana is suitable for cultivation. Sorghum is the leading crop planted on 60 percent of the cultivated area. Maize is planted on 10-20 percent of cultivated acreage, beans and cowpeas on 7-15 percent, and millet on a lesser percentage. Production varies greatly, depending on rainfall. Even in good years, less than 10 percent of acreage available is cultivated and production is low, due to preference for livestock production and to limitations of traditional farming methods. The top 10 percent of agricultural holders planted 36 percent of cultivated area (1971-72); the bottom 31 percent planted only 6 percent.

Half of the land in Botswana is held by Tribal Land Boards, which have the power, formerly vested in the chief, to allocate land. Arable land is allocated to individuals, based on family needs. This land may be fenced, but communally held grazing land is shared, and fencing is prohibited. Forty-five percent of total land area is held by the Central Government, which has the power to lease the land or to make freehold grants. Most State land is suitable only for grazing and includes areas of the Kalahari inhabited by Bushmen and other tribes. Four percent of the country is held by freehold title owned by European immigrants.

Cattle raising is limited by water supplies. There are presently approximately 4,500 boreholes. Land around the boreholes is usually overstocked and overgrazed. Ad hoc drilling has increased the number of boreholes, but these privately-drilled water sources then become private property and are protected by fencing. This practice creates grazing monopolies which further contributes to the accumulation of wealth in the hands of a few. Storage, marketing and transportation facilities are inadequate for the needs of the agriculturally-based economy.

The 1971 census showed that of the population group solely dependent on agriculture as a source of income, 61 percent are women. Recent studies show that women undertake many of the time-consuming crop-related operations: planting, weeding, bird-scaring, harvesting, threshing, and storage. Women are also responsible for domestic chores, while men are responsible for livestock. Households headed by women tend to be less well-off due to their lack of livestock holdings. This also necessitates the extra expense of hiring draught animals and manual labor for land clearing, ploughing and planting.

Links with South Africa; Communications

Forty percent of government income is derived from revenue from the Southern African Customs Union. Although still dependent on South Africa for customs and excise revenue and in matters of monetary policy, Botswana has gone further to declare her fiscal independence than either Lesotho or Swaziland. Botswana has recently imposed a protective tariff to protect a new brewery. Recently the government announced its intention to establish a central bank and to introduce its own currency independent of the rand.

Some 50,000 Batswana are employed in South Africa, approximately equal to the number employed for wages within the country. The 1971 census revealed that 25.5 percent of males aged 15-54 and 5.1 percent of females in that age group were absent from the country. Because of the scarcity of wage employment and the relatively low income derived from agriculture, employment of Batswana outside the country relieves unemployment pressures and represents a significant source of income.

President Seretse Khama has played a role in detente attempts in Southern Africa. While Sir Seretse has spoken out openly against apartheid and has forbidden importation of arms to Rhodesia through Botswana, dependency for trade and communications on both South Africa and Rhodesia has prevented active sanctions against either neighbor. The railroad line through Botswana is owned and operated by Rhodesia Railways. With the exception of ferry and air links with Zambia, all other surface and air connections to markets and ports are through South Africa. Within the country there are some 4,700 miles of roads maintained by the central government and 8,000 miles of district roads. A 190-mile all-weather road, the so-called "Bot-Zam" highway, is nearing completion. It will connect Lobatse with Francistown and the Zambian border via Nata and Kagungula. The Francistown-Maun road has also been improved. Scheduled and chartered domestic air services are provided between Gaborone, Francistown, Selebi-Pikwe, Maun, Ghanzi, and Kasane.

The eastern part of the country is served by telephone lines. Maun and Ghanzi are connected to the capital by radio-link, and the police operate a radio net connecting larger villages and towns.

Education and Human Resources

Lack of trained manpower is a problem characteristic of many newly independent countries. Botswana, too, is still heavily dependent on expatriate personnel and many positions remain unfilled. Twenty-two percent of professional and technical jobs, and 26 percent of administrative positions were filled by non-citizens in 1971. The first secondary school was established only in 1944, and the first full five-year course was introduced in 1954. Since independence secondary school enrollment has more than quadrupled. Over half of 5-14 year olds are enrolled in primary school. Census figures from 1971 showed 13 percent of the Batswana population currently enrolled in school, 19 percent having left school, and 68 percent with no education.

At independence the country was faced with the need to provide mass education to a large proportion of the population: 46 percent of the population of Botswana is below the age of 15. In addition, it was necessary to devise an educational system appropriate to local needs. Innovations such as brigade training have been attempted. Brigades provide practical training in skills such as carpentry, brick-laying, farming, weaving, tanning, motor mechanics, and textile manufacture. New schools have been opened, including a Vocational Training Center, and emphasis is placed on teacher training.

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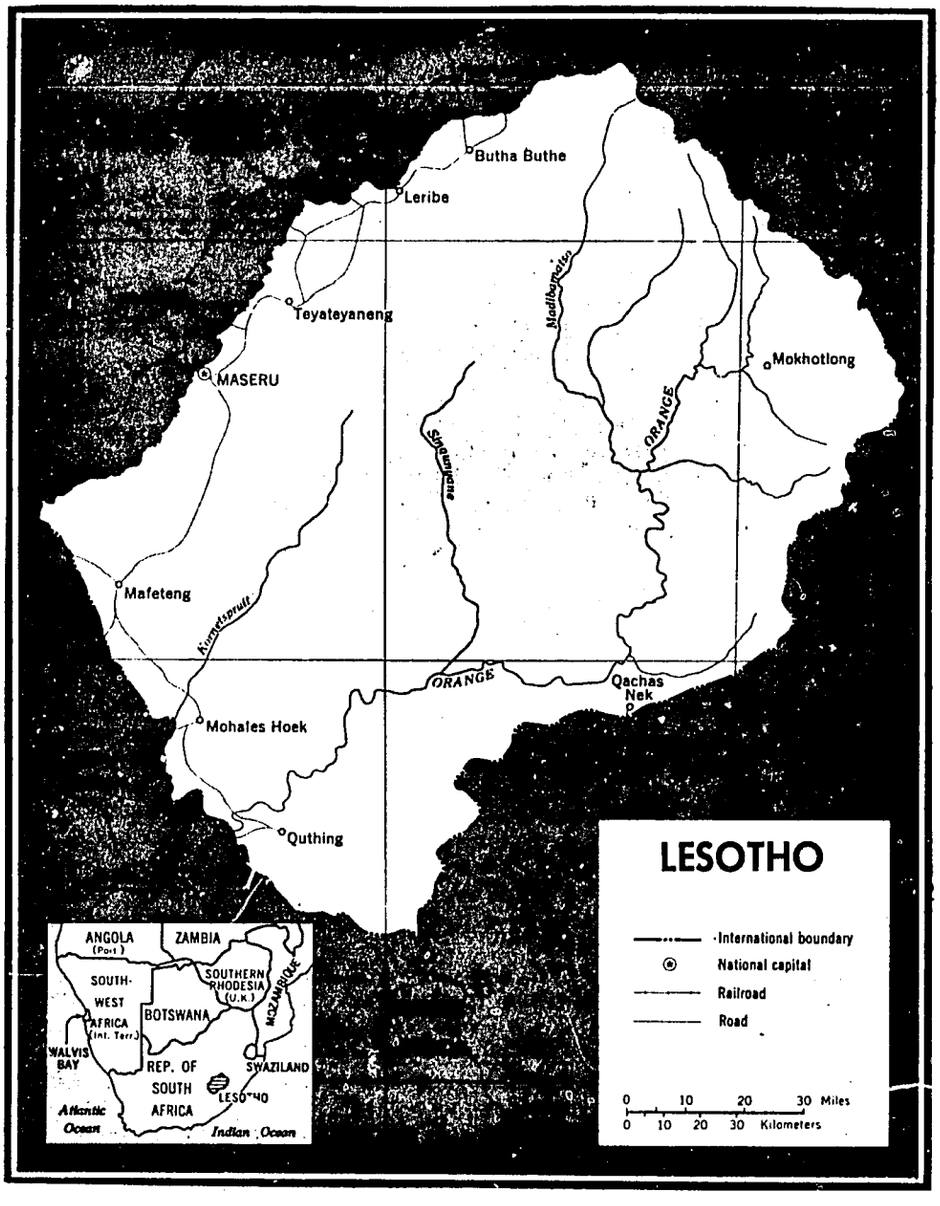
LESOTHO


LESOTHO
International boundary
National capital
Railroad
Road
0 10 20 30 Miles
0 10 20 30 Kilometers
Butha Buthe
Leribe
Teyateyaneng
MASERU
Mokhotlong
Mafeteng
Mohales Hoek
Quthing
Qachas Nek
ORANGE
ORANGE
Senqunyane
Mohlomatsu
Kimedsprutt
ANGOLA (Port.)
ZAMBIA
SOUTHERN RHODESIA (U.K.)
MOZAMBIQUE
SOUTH-WEST AFRICA (Int. Terr.)
BOTSWANA
WALVIS BAY
REP. OF SOUTH AFRICA
SWAZILAND
LESOTHO
Atlantic Ocean
Indian Ocean

THE HEALTH ENVIRONMENT

The Setting

The Kingdom of Lesotho exists in a precarious balance between dependence and autonomy. It is a small, poor country completely surrounded by a large and powerful nation whose social policy is antithetical to its own. This anomaly stems from the history of British involvement in the area, the factors leading to the formation of its neighbor, South Africa, and present-day international opposition to South Africa's social policy of apartheid, or separate development of the races. The continued survival of Lesotho depends first on South Africa's compliance and secondly on international economic support. The response of donor organizations is critical not only to the existence of Lesotho and to the condition of the Basotho* people, but serves also as a demonstration of potential reaction to the creation of additional enclaves, as planned by South Africa through its policy of granting independence to the tribal homelands within the Republic of South Africa.

Colonial history explains many of the attributes and problems which characterize the Basotho nation. (Further detail on history and background is provided in the Appendix[1].) The first outstanding characteristic is the density of the population. In a relatively sparsely populated area of the world (nine persons per square kilometer), Lesotho stands out as densely populated (31 persons per square kilometer), as illustrated below:

	Population per Square Kilometer (1971)[2]
Africa as a whole	12
Southern Africa Region	9
Namibia	1
South Africa	16
Botswana	1
Swaziland	24
Lesotho	31

Since only 13 percent of Lesotho's land is arable, the ratio of population to arable land becomes 237/square kilometer (1971). In a nation where 85 percent of the population depends largely on agriculture, there is now less than one acre of arable land per person. The population growth rate is estimated at 1.8 percent per year, fairly low for tropical Africa. However, even at this rate the population will double within 38 years. It must also be recognized that growth is artificially low because of a high rate of (temporary) labor migration. Natural increase is estimated at about 2.2 percent per year. An estimated 60 percent of the active male labor force is employed in South Africa; however, permanent settlement there is restricted by that country's immigration laws. The migration phenomenon has other direct and indirect effects on population dynamics in Lesotho. Since many men are absent for much of the year, forced abstinence acts as a form of birth control, but at the same time suspicions and jealousies raised by long separations reinforce pre-existing opposition to birth control and family

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* Lesotho - the country
Basotho - the people (plural)
Mosotho - an individual (singular)
Sesotho - the language

1 See Appendix I.

2 UNESCO Statistical Yearbook, 1972

planning based on cultural and religious beliefs. Absence of the male, who is still considered to be head of the household, disrupts family life in many other ways. One of the most obvious is the negative impact on agricultural decision-making and innovation.

pendency on South Africa goes far beyond the need for an employment outlet. Wages earned by Basotho laborers in South Africa are estimated to exceed Lesotho's GDP. Lesotho is also tied to South Africa through import-export trade and through monetary and customs agreements. An estimated 70 percent of Central Government Revenue consisted of customs and excise revenue in 1972-73. In addition, external transportation and communication links, internal power supplies, and commercial investment are all supplied almost exclusively by South Africa. Revenue and employment generated by the developing tourist industry also depend on South African tourism. Financial dependence on South Africa has replaced the former arrangements with Britain which lasted from 1868 to independence in 1966.

The status of Lesotho (formerly Basutoland) as a British Protectorate determined the level of economic and social development at independence. Since it was assumed that Lesotho would eventually be absorbed by South Africa, and since the land was a protectorate and not a colony, the British did not invest in capital or human development, but merely administered the territory. Although mission schools provided basic education to a large number (functional literacy is estimated at 40 percent), there were very few secondary school graduates, or university or technically trained Basotho to fill the jobs of the expatriates after independence. The education these graduates received was also inappropriate to prepare the Basotho for the tasks of self-government and development. The manpower pool is further reduced by elimination of members of political parties opposing the ruling party from civil service positions, and by political or self-imposed exile of some opposition members.

The Health Issues

While the health status of the Basotho is determined by ecological and cultural patterns, the health care system was largely shaped by the British. High altitudes and a temperate climate are largely responsible for the absence of tropical diseases such as malaria, schistosomiasis (bilharzia), trypanosomiasis (sleeping sickness), and onchocerciasis (river blindness)--diseases endemic in many parts of Africa. The harsh climate, especially in the mountains, is responsible, however, for much of the respiratory disease prevalent among the Basotho. Undernourishment and dietary deficiency diseases result from a life style based on subsistence agriculture, where lack of cash income and poor transportation prevent families from obtaining supplementary foods. The pattern of scattered settlements prevents effective environmental sanitation, and makes access to markets, schools, and health care facilities difficult if not impossible. Food habits and taboos, as well as traditional midwifery and child care practices, further complicate health problems.

The Western system of curative health care based on hospitals staffed by physicians is expensive and inappropriate to the needs of the Basotho. However, this system was imposed on the country during the colonial period. Health services and hospital care are provided by government and religious missions. Over half the health institutions are privately run and two-thirds of the doctors are expatriates. The nurses, however, are largely locally-trained Basotho.

New approaches to staffing and manpower training are currently being developed by the health sector in cooperation with various donor organizations. Financial constraints have increased awareness of the need for more cost-effective health programs; however, the hospital system continues to absorb the major portion of the government health budget.

Summary

Population density combined with a lack of natural resources force Lesotho to depend on South Africa to absorb its labor force. Lack of appropriately trained manpower further reinforces this dependence on South Africa and other expatriate technicians, administrators, and entrepreneurs. A precarious geographic and financial position makes economic and even political independence from South Africa impossible without large inputs of international aid.

In its favor, Lesotho has a fairly literate population and an equitable distribution of wealth, though natural resources are so scarce and per capita income so low as to make this "an equitable distribution of extreme poverty." Awareness of this dilemma has encouraged receptivity to new ideas and a willingness to modify traditional practices in aspiring to economic and social development. In the agricultural sector this has led to modification of land tenure practices. In the health sector it has perhaps accelerated acceptability of non-traditional systems of health care delivery and health manpower training.

DETERMINANTS OF HEALTH AND DISEASE

POPULATION CHARACTERISTICS

Population Growth and Distribution

The first canvassed census taken in Lesotho was carried out in 1966. Difficulty of access in the mountain regions makes the task of enumeration complex. The results of the census by administrative district are included in Appendix II.[1] The de jure population in 1966 was 969,634, including persons present in the country and enumerated on a de facto basis, as well as those who have been away from the country for less than five years. The apparent de facto growth rate between 1956 and 1966 was about 2.87 percent per year, de jure growth 2.02 percent per year.

The IBRD estimates that 60 percent of the male labor force and 10 percent of the female labor force are absent from Lesotho. Because of the large number of migrant workers, largely employed in South African mines, the de facto male and female sex ratio is very low, and even the de jure sex ratio for the whole country obtained from the census figures is 92 males to 100 females.

The sex ratios by district (based on the 1966 census) are illustrated below:*

	Butha Buthe	Leribe	Berea	Maseru	Mafeteng	Mohale's Hoek	Quthing	Qacha's Nek	Mokhotlong	LESOTHO
de facto	76.2	75.7	72.7	78.8	74.7	73.5	75.4	77.6	80.7	76.1
de jure	92.5	93.3	91.2	93.6	93.6	91.3	90.2	91.5	92.5	92.4

However, data from the sample survey 1967-69 yield an overall sex ratio of 96.48, and a sex-ratio at birth of 95.52. These figures are questioned in the light of fluctuations in this index by survey areas. Hence, the overall sex ratio from the 1966 census has been adjusted to 99.2, and it is on this basis that population projections have been made. Projected birth and death rates were also based on information obtained from this survey; a summary of the results of analysis of data gathered appears on the following page.

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[1] See Appendix II, Table 1. Information included in this section was obtained largely from the reports of the 1966 census and from the 1967-69 Sample Survey.

* Sex ratio = number of males per 100 females.

	Male	Female	Persons*
Crude Birth Rate (per 1,000)	37.18	36.27	36.72
Crude Death Rate (per 1,000)	15.18	13.87	14.52
Rate of Natural Increase (% p.a.)	2.20	2.24	2.22
Expectation of Life at Birth (years)	49.6	53.6	51.60
Infant Mortality (per 1,000)	104.0	108.0	106.00
Early Childhood Mortality (per 1,000)	81.4	70.0	75.7
Survivors to Age 2 (from 10,000)	8601	8598	8600
Survivors to Age 45 (from 10,000)	6382	6792	6587
Survivors to Age 65 (from 10,000)	4268	5040	4654
Gross Reproduction Rate (GRR)	--	2.5129	--
Net Reproduction Rate (NRR)	--	1.8750	--
Proportion under 15 Years (%)	40.0	39.0	39.50
Proportion over 44 Years (%)	16.5	18.0	17.3
Child-Adult Ratio (P_{0-14}/P_{15-44})	.9178	.9170	.9179

* Entries in the "Persons" column were obtained simply as the mean between corresponding entries for the respective sexes.

A.M. Monyake, "Report on the Demographic Component of the Rural Household Consumption and Expenditure Survey, 1967-68." (The Bureau of Statistics: Maseru, Lesotho, May, 1973.), p. 12.

According to the resulting population projections, in 1975 the total population will equal approximately 1,181,300.[2]

Determination of age distribution of the population is made difficult, since most people do not know their ages, and in the 1966 census the 0-1 year age group was apparently considerably underenumerated. However, reasonably accurate estimates have been made.[3] From these calculations it can be seen that approximately 40 percent of the population is under the age of 15; 15 percent under the age of 5.

Density

All land is owned by the nation and administered by the king and chieftains; therefore, individual initiative to improve the land is limited. The Basotho live in villages averaging 30-35 families, headed by a chief. In terms of arable land, the analysis of data from the sample survey indicates that "the lowlands and foothills together sustain about 70 percent (68.6 percent) of the total population and contribute roughly 75 percent of arable land. Between 1966 and 1976 the density for arable land in the two zones will increase from an estimated 203 de facto persons to approximately 253 persons per square kilometer."[4]

The ethnic composition of the population is homogeneous, being about 98 percent African, most of whom are classified as Basotho. Eighty-one percent of the population were classified as Christian: 39 percent Roman Catholics, 24 percent Evangelical, 10 percent Anglican, 8 percent other denominations.

Education and Employment

Literacy, defined as the ability to read and write Sesotho and having completed grade B (the first two years of primary school), is estimated at 33 percent for males and 58 percent for females, giving an overall literacy rate of 47.5 percent for the combined sexes. The reason for low literacy among males is that young boys are employed in herding livestock and therefore cannot attend school; many of them are later recruited for work in the South African mines. Fifty-five percent of children 6-15 years of age (41 percent of males and 68 percent of females) were found to be attending school in 1966.[5]

Eighty-seven percent of the resident population is largely dependent on agriculture. Of the absentee population, 93 percent of males and 55 percent of females were employed for wages or self-employed.[6] Since employment is usually correlated with educational level, it is interesting to note that 93.5 percent of absentee males and 90.4 percent of absentee females had less than a primary school education.

Attitude Toward Population Growth

Cultural and religious values influence the attitude toward population growth and family planning. Large families are favored by the Basuto, but it is considered disgraceful to have children too closely spaced. Women are encouraged to breast-feed until becoming pregnant again, and intercourse is believed to affect the mother's milk. In addition to the cultural

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[2] See Appendix II, Table 2.

[3] See Appendix II, Table 3.

[4] See Appendix II, Table 4.

[5] See Appendix II, Tables 5, 6.

[6] See Appendix II, Tables 8, 9.

preference for child-spacing, the sociological phenomenon of absence of migrant workers makes abstinence a form of birth control. On the other hand, as pointed out in a GOL proposal for UNFPA assistance in family planning,

> The fact and size of migrant labour, mostly men absent for periods averaging a year are responsible for many social problems in Lesotho and generate intense suspicion of marital infidelity.

This factor works against acceptance of non-traditional methods of family planning, such as the use of the pill or IUD.

No surveys have yet been performed to establish base line data on knowledge, attitudes, and practice (KAP) of family planning. However, conclusions of the recent National Population Symposium may lead to new initiatives in this area.

The Symposium served as a national forum at which cabinet ministers and representatives of local government and voluntary organizations discussed the relationship between population growth and development. The summary of recommendations on population resulting from the Symposium began:

> Having noted the existence of the problem of population versus known available resources, and noting further that regulation of the population growth rate simultaneously as socio-economic development efforts are stepped up will produce the best combination for realising the national aspirations within the quickest time possible, the Conference recommends ...

The recommendations advocated collaboration between the church and the state in mounting a population awareness campaign and in informing couples of their basic right to space their children by presenting the positive aspects of fertility regulation (better health, nutrition, and educational opportunities) and by informing couples of the means available. Further, these means should be provided by the Ministry of Health to those who request them. Therapeutic abortion was discussed but, "the Conference could not be convinced that abortion laws should be liberalized ... The majority view ... is that unwanted pregnancies should be prevented..." Finally, recognition was taken of the prevalence of extramarital sex, and the conference recommended that sex education be given by family, church, and state through the schools.[7]

In addition, the conference recommended formulation of a government population policy:

> The Government should draw up a comprehensive, bold, and courageous population policy embracing, inter alia, the foregoing recommendations in a manner that will be consonant with our socio-economic development aspirations, our cultural ideals, human dignity, inalienable human rights, and the Law of God.

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7 See A.M. Monyake, ed. "Report on the National Population Symposium, Maseru, June 11-13, 1974" (The Lesotho Government and the U.N. Fund for Population Activities; July, 1974) - Section entitled, "On Population."

> Once framed, the said policy should be given the widest publicity in order to smooth the way for its successful implementation.
>
> For its implementation no effort should be spared to get the cooperation of all the national socio-cultural leadership to be fully committed to its success in the national interest.[8]

The level of agreement that was reached by the various participants in the Symposium and the concreteness of the proposals resulting suggests that the government approach to the population question may change significantly. Heretofore the government has been unwilling to take a stand "for religious and social reasons."

Summary

An outstanding characteristic of the Basotho population is the large proportion of the labor force engaged in wage employment outside the country; while 87 percent of the resident population remains largely dependent on agriculture. A low level of education, especially among males, forces Basotho to accept low wage employment outside the country. This phenomenon affects agricultural practice within the country and has many sociological implications, one of which is the suspicious attitude toward use of contraceptives.

Recommendations of the recent population symposium indicate that the GOL will develop an official population policy. The symposium recommended that government and private organizations provide child spacing education (in the context of MCH), as well as means for fertility regulation, and that sex education should be given in schools.

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[8] Ibid., Section entitled, "Population Policy."

HEALTH STATUS

Disease Problems

The Ministry of Health has identified Lesotho's major health problems as tuberculosis, venereal diseases, gastroenteritis, and typhoid fever. All are effects of low incomes, poor housing, inadequate potable water supplies and sanitary facilities, and lack of effective health education. Further, the major causes of infant and child mortality are respiratory and intestinal diseases (often associated with protein-calorie malnutrition).[1]

The most recent available health statistics are from the 1972 annual report, in which returns are broken down by Government and Mission Hospital inpatient and outpatient departments and by Health Centers.[2] Because of wide differences between Government and Mission Hospital returns, illustrated on the table on the following page, it is difficult to draw more than very general conclusions based on available data.

Differences in diagnosis, classification of diseases, record keeping and reporting account for discrepancies illustrated by this data. Generalizations that may be drawn based on the data are that infective, parasitic, and respiratory diseases account for the bulk of cases seen, followed by diseases of the skin, genito-urinary and digestive systems.

The Ministry of Health recently released the following information compiled from hospital and field reports for 1973. This breakdown gives more detail than allowed by the 1972 classification. For example, the frequency and severity of pulmonary tuberculosis, malnutrition and venereal diseases show up in this classification.

Ten Most Frequent Causes of Hospitalization

1. Trauma
2. Acute respiratory diseases
3. Genito-urinary disease
4. Complications of pregnancy/childbirth/puerperium
5. Pulmonary tuberculosis
6. Gastrointestinal diseases
7. Chronic respiratory diseases
8. Heart diseases and hypertension
9. Typhoid fever
10. Malnutrition

Main Causes of Death (From Hospital Returns)

1. Pulmonary tuberculosis
2. Heart diseases and hypertension
3. Acute respiratory infections
4. Typhoid fever
5. Gastrointestinal diseases

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1 Memoranda of the Health Planning Committee, Ministry of Health, Maseru, Lesotho. (Loose leaf mimeo, 1973-74.) Section entitled, "Health Situation."

2 "Annual Report by the Director of Health Services on the State of Health, 1972." Ministry of Health, Education and Social Welfare, Maseru, Lesotho.

Hospital Admissions and Outpatients Treated: Lesotho, 1972

Cause Groups	Government Hospital	Mission Hospital	Facilities: Gov't. Hospital Outpatient	Facilities: Mission Hosp. Outpatient	Facilities: Health Centers
Infective/parasitic	22	18	20	24	25
Endocrine, Nutritional, and Metabolic					8
Mental	6				
Circulatory	6				
Respiratory system	20	14	22	19	27
Digestive system			8	11	6
Genito-urinary system	10	7	10	11	7
Complications of pregnancy childbirth and puerperium		22			
Skin and sub-cutaneous tissue			8	7	9
Symptoms and ill-defined			9		
Accidents, poisoning violence	12	10			
Percent of total cases	76%	71%	77%	72%	72%
Magnitude of cases reported	11,479	11,116	186,614	56,922	324,607

Main Causes of Death (cont'd.)

6. Nutritional Diseases
7. Chronic respiratory diseases
8. Malignant neoplasms
9. Psychoses
10. Trauma

Ten Most Frequently Diagnosed Diseases: Outpatient Attendances in Health Centers and Clinics

1. Acute respiratory diseases
2. Diseases of the skin
3. Gastrointestinal diseases
4. Chronic respiratory diseases
5. Venereal diseases
6. Nutritional diseases
7. Tuberculosis (all forms)
8. Influenza
9. Measles
10. Heart diseases and hypertension[3]

According to a report of the Health Planning Committee of the MOH, typhoid outbreaks are serious, due to the high case fatality rate; tuberculosis and leprosy are greatly underreported; and, communicable diseases of concern include high rates of gonorrhea and syphilis, measles (due to underlying malnutrition) and whooping cough. Diptheria has largely been controlled in the lowlands, and tetanus is rarely reported. Malaria, bilharzia, trypanosomiasis (or sleeping sickness) and onchocerciasis (or river blindness) do not occur in Lesotho. Nutritional diseases include protein-calorie malnutrition, pellagra, and goiter. (These ailments are further discussed under the section on Nutritional Status.)

There is some research being carried out at the University of Botswana, Lesotho, and Swaziland on the epidemiology of cervical cancer, as it appears that there is an exceptionally high incidence of this form of cancer. There also appears to be a high incidence of breast and liver cancer.

According to an analysis made by the Medical Officer of Mental Health of psychiatric patients seen at the Mohlomi National Mental Hospital in 1972, "patients appear to be grouped in disease categories which correspond to figures from other parts of the world." Etiological factors influencing incidence of psychoses are alcoholism and pellagra; and the stresses of the migrant labor system may account for a significant amount of mental illness, as well as of sociological stress in the community.

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[3] Memoranda of the Health Planning Committee, Ministry of Health, Maseru, Lesotho. (Loose leaf mimeo, 1973-74.)

Environmental Problems Contributing to Disease

Unsanitary conditions which contribute to morbidity are largely due to lack of latrine facilities for most homes and schools, and to contamination of water supply by animals allowed to roam freely. Definition of the problems of water supply and waste disposal are given by the Health Inspection Unit of the Ministry of Health:

> Water Supply:
> As the situation stands, a relatively high percentage of the population is not served with adequate and safe supplies of water. There are a number of factors contributing to this situation. The capital costs of installing water supplies are high ... There is a shortage of skilled manpower in the country to construct, operate, and maintain protected supplies. The poor economic condition of the country would prohibit the employment and training of the skilled manpower needed. Lastly, there are several agencies involved in the development of protected supplies that do not coordinate their efforts or consult with each other.
>
> Waste Disposal:
> In the rural areas there is little or no control [over the disposal of human and solid wastes]. Approximately 10-15 percent of the population only, have some sort of safe means for the disposal of their body wastes. As a result of this condition gastrointestinal diseases such as typhoid and parasites are released into the environment for transmission to the healthy sector of the population. It is estimated that about 12 percent of the population are typhoid carriers. Evidence of the severity of the situation can be found in hospital records. For example, in one District alone over a period of four months, 267 cases were hospitalized for typhoid and typhoid-like diseases.[4]

The United Nations Development Fund has approved a latrine-building project for primary schools. Of the 1,088 primary schools in the country, only 102 have latrines. In the first two-year phase of the primary school project, 660 schools are to be provided with latrines. The objectives of the project are not only to reduce disease directly, but also to encourage villagers to build their own latrines based on the model. One of the major impediments to implementation of environmental sanitation programs is the shortage of qualified workers.

Traditional Attitudes and Practice

There is some interest both from outside and within the country in studying traditional practice in Lesotho to bring together those aspects of traditional health care practice that are compatible with scientific practice. According to anthropologists, the Sesotho verb "to be ill" refers to physical and mental breakdown or vague depression. Much of the physical malaise experienced by Basotho is attributable to malnutrition, alcohol, and hypochrondria. Cash is

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[4] Memoranda of the Health Planning Committee, Ministry of Health, Maseru, Lesotho. (loose leaf mimeo, 1973-74.) Section entitled, "Identification of Health Problems: The Environmental Factors..."

squandered on all types of remedies -- patent and herbal medicines, witch doctors, and "white" or European-trained doctors. Important to health care planning is that although white doctors charge lower fees, native doctors divide their fee into two parts and demand the second part only if cure is achieved.[5]

Summary

Disease in Lesotho is most often caused by unsanitary conditions -- lack of protected water supplies and latrine facilities; by extreme weather conditions of a mountain climate combined with poor housing; by ignorance of proper hygiene and nutrition practices; and, by low incomes and lack of purchasing power resulting in inability to purchase nutritious foods and to travel to clinics and schools to obtain health services and education.

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5 Sandra Wallman. Take-out Hunger - Two Case Studies of Rural Development in Basutoland. London School of Economics Monographs on Social Anthropology #39. (University of London: The Athlone Press, 1969).

NUTRITIONAL STATUS

Malnutrition

Chronic under- and malnutrition has long been recognized as a serious problem, and many efforts have been directed at solving it. A WHO nutritional survey, 1956-60, indicated that 72-85 percent of children under age 8 were physically retarded due to poor nourishment.[1] A study in seven villages near Roma found that 16 percent of 1-4 year olds were malnourished; 29 percent of 4-7 year olds; and, 53 percent of 7-10 year olds.[2] Two-thirds of school children are retarded two to three years in growth. A 1968 report by the Medical Department of the MOH showed that seven percent of total cases presented in hospitals and clinics were cases of malnutrition. A 1969 study shows the seasonal incidence of malnutrition in a sample of 15 clinics: in the month of February, nine percent of the total cases were due to malnutrition; while in August, five percent of presenting illnesses were classified as malnutrition.[3] It is estimated that only five percent of cases of malnutrition are severe.

The WHO report revealed that the diet of the Basotho is deficient in animal protein, calories, riboflavin, nicotinic acid, iodine and vitamin A. The following activities were recommended:

1. Formation of a national nutrition council;
2. Improvement of agricultural practices;
3. Iodization of salt;
4. Strengthening of public health services;
5. The implementation of an intensive educational program in nutrition (and suggested that this program should be carried out by the Lesotho Government, WHO, FAO, and UNICEF.)

Most of these activities have been wholly or partially implemented.

Dietary Habits

Dietary habits were described by the Nutrition Officer in her Final Report on Nutritional Problems in Lesotho: She reports that major food crops are maize and sorghum, while wheat, peas, beans and some sorghum are grown as cash crops. Sorghum is made into a soft sweet or sour porridge, cooked in large quantities and stored in earthenware pots. The porridge is eaten for breakfast and snacks, and is also thinned to be drunk as a thirst-quenching beverage. Mealie-meal porridge made from maize flour is eaten with relishes made from wild or cultivated vegetables. This is sometimes accompanied by a bean or pea-based stew.

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[1] Quoted elsewhere from: J.A. Munoz and M.M. Anderson, "Basutoland Nutrition Survey," WHO (1960).

[2] Quoted elsewhere from: G.F. Rohrman, et. al., "Child Health in Lesotho, March 31. 1971." Department of Biology, University of Botswana. Lesotho and Swaziland.

[3] Quoted elsewhere from a 1969 study by Margaret Cameron.

> Meat, milk, and offal are taken whenever available. Eggs are becoming available in the nutrition pilot areas in large numbers, and the supply is transporte to some of the urban areas for sale. The taboo whic forbids girls to eat eggs is fast dying out. As a result of the mountainous nature of the country, distribution is very uneven. There are, however, food items which are easy to transport and which would stand the hard conditions of mule and donkey transportation, such as tinned stuff, oranges, cabbages, carrots, potatoes which often find their way into the hinterland.

Marked deviation from the traditional methods of cooking and eating [are seen], particularly in the urban areas, as a result of exposure of returned migrants to practices observed and habits formed in South Africa.[4]

Nutritional Disease

In the WHO survey (1956-60) pellagra was recognized as the most common nutritional disease. Beer made from sorghum is consumed in great quantities; this aggravates the nutritional problem both through the increased consumption of empty calories and thus decreased consumption of more nutritious foods, and by the reduction of sorghum available for consumption.

Protein-calorie malnutrition (Kwashiorkor) was found to affect two percent of children 2-6 years of age, and to be a major cause of child deaths. Goiter is endemic, and 71 percent of school children were found to be goitrous. Anemia and other associated nutritional deficiencies were found in pregnant women. It is thought that although outpatient attendances due to deficiency diseases have increased since food aid was instituted (see chapter on Nutrition and Food Aid Programs), the incidence and severity of nutritional deficiencies have diminished.

[4] A.M. Hlalele, "Final Report on Nutritional Problems in Lesotho and Means of Combatting Them." (mimeo, Fellowship Course on Food Science and Applied Nutrition: University of Ibadan, 1970)

THE HEALTH DELIVERY SYSTEM

HEALTH SERVICES

Distribution[1]

There are 17 general hospitals in Lesotho -- 9 Government and 8 Mission -- with a total of 1,356 beds (creating a bed-population ratio of 1:500). Government publications point out that no one is more than 30 miles from one of the Government hospitals, but due to transportation difficulties discussed earlier, access is still difficult. Analysis of distance traveled by outpatients to reach the Qacha's Nek Government Hospital showed that two-thirds of the patients walked to the clinic. Further, the average patient walks over seven hours on the return trip, and over 15 percent walk 14 hours or more.[2]

The following figures illustrate the uneven distribution of manpower and the beds by district, with most services concentrated in the lowlands and more urban areas.

Ratios to Population
(estimated 1974)*

District	Hospital Medical Officer per 100,000 Persons	Hospital Nurses per 100,000 Persons	Hospital Beds per 1,000 Persons
Butha-Buthe	1.5	18.5	3.0
Leribe	1.2	6.7	0.9
Berea	3.4	17.9	2.2
Maseru	8.6	45.1	3.1
Mafeteng	2.5	7.6	1.0
Mohale's Hoek	1.7	5.0	0.6
Quthing	2.5	10.1	1.1
Qacha's Nek	3.0	16.8	1.5
Mokhotlong	1.5	9.1	0.8
LESOTHO	3.5	18.0	1.7

(Population figures are projections of the de facto population to 1974.)

* Note: Comparable ratios for all doctors, nurses and hospital beds in the country were calculated at five doctors/100,000 population; 33 nurses/100,000; 1.8 beds/100,000.

Further analysis reveals that allocation of beds between wards does not take into account the type of admissions; i.e., in Government hospitals an equal number of beds is allocated to male and female wards, while in 1972, 26 percent of admissions were males, 37 percent females (excluding maternity); children, who make up 37 percent of admissions, have 13 percent of beds reserved for them. A breakdown of length of stay by age and sex was not available to the author of this report.

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[1] Information in this section was largely obtained from Memoranda of the Health Planning Committee of the Ministry of Health (1973-74).

[2] Andrew Macrai, "Qacha's Nek Government Hospital Lesotho: Annual Report, 1973-74." (mimeo. July 1974.) pp. 6-7.

There are 63 clinics and 25 dispensaries run by voluntary agencies, and 25 Government clinics, but facilities in the rural mountain areas are unevenly distributed and poorly supported. Patient expenditure of time and effort to get to the clinic, as well as monetary costs and waiting time are high. For these reasons, the clinic is often considered the last resort for curative treatment. Demand for curative medicine thus places time constraints on clinic personnel despite their intentions to provide more preventive treatment and health education.

An analysis of catchment populations of health facilities was carried out by the Health Planning Unit. Results showed that some 100,000 people -- mostly in the foothills and in parts of the mountains are poorly served, in that they are not within reasonable access (i.e., within 10 kilometers) of a health facility. In addition, this study points out that although "catchment populations in the mountains are generally smaller than in the lowlands, reflecting lower population densities, some clinics in the southern mountain areas have large catchment populations." Finally, it was noted that hospitals in the urban areas act as clinics for many people.

The communications difficulties resulting in lack of support, supplies, and supervision also contribute to a schism between the Ministry of Health and the outlying units.

Hospital Utilization

A proxy indication of efficiency of the Government Hospitals is that the overall average length of stay is calculated at 11.6 days, with 77 percent occupancy. The high average length of stay would seem to indicate a lack of pressure to empty the beds. The breakdown by hospital as calculated by the health planning unit of the Ministry of Health is as follows:

Hospitalization
Government District Hospitals

Year	Admissions	Patient Days	Stay	Occupancy
1971	15,286	154,330	10.1 days	76%
1972	15,638	179,936	11.5 days	77%
1973	15,686	183,259	11.6 days	77%

Detail in 1973

Hospital	Admissions	Patient Days	Stay	Occupancy
Butha-Buthe	2,280	27,152	12.0 days	92%
Leribe	2,215	31,033	13.0 days	83%
Teyateyaneng	2,175	25,578	12.0 days	95%
Mafeteng	3,025	27,812	9.0 days	61%
Mohale's Hoek	2,111	15,818	7.5 days	66%
Quthing	1,664	24,855	15.0 days	76%
Qacha's Nek	977	16,182	16.0 days	69%
Mokhotlong	1,239	14,829	12.0 days	104%

The above figures should not include admissions for normal deliveries,* but probably do include days spent in the hospital by maternity cases.

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* According to instructions from the Ministry of Health

Queen Elizabeth II Hospital

Year	Admissions	Patient Days	Stay
1971	7,000	110,056	
1972	7,500	116,417	15 days
1973	6,886		
1974 (half)	4,200	54,000	13 days

The figures for admissions include Maternity. In 1973 admissions to the Maternity Ward accounted for 2,296 of the 3,920 females admitted to the main part of the hospital, and up to June 1974 about 1,100 of the 2,700 females admitted. Some admissions to the hospital are not registered; such under-registration was severe in 1971 when only 5,000 admissions were recorded.

Preventive Services

An arbitrary and uneven division between curative and preventive services within the MOH, with most of the budget [about 90 percent] going to curative - especially hospital - services, does nothing to help encourage local emphasis on preventive services. The Environmental Health Division of the Ministry of Health is organized as follows:

- -- A Chief Health Inspector under the supervision of the Senior Medical Officer of Health
- -- 1 Senior Health Inspector who serves a dual role of head of health assistant training as well as District Health Inspector for Maseru District
- -- 6 District Health Inspectors, most of whom are responsible for two or more districts
- -- 21 Health Assistants, Sanitary Laborers, and Junior Health Inspectors.

Less than 30 individuals are responsible for carrying out the environmental health program for the entire country. In addition to financial and manpower constraints, the preventive health program has been hampered by an irregular vaccine supply; hence, immunization schedules and programs vary between districts and from time to time, within a district or region.

Mental Health

Lesotho's mental health services are considered to be among the best in Africa. Each district hospital has a mental observation unit of 16-20 beds, which are supervised from the Mohlomi Mental Hospital. Mohlomi was completed in 1965 and has 120 beds. The average of 100 inpatients plus outpatients in Maseru, as well as inpatients and outpatients in the district observation units, are cared for by the one government health psychiatrist, one psychiatric social worker, a chief mental health nurse, 7 trained nurses (3 trained in psychiatric nursing), 2 occupational therapists, and auxiliary personnel trained on the job at Mohlomi; and, a staff nurse - when the position is filled - at each observation unit, and auxiliary personnel. The professional staff is concerned with the need to adapt the treatment of mental illness to the social structure of Lesotho. There is an awareness of the involvement of traditional practitioners in the area of treatment of mental illness and a concern that although herbalists are now being licensed, it is more difficult to determine which practitioners are qualified in the area of mental therapy. Often traditional practitioners themselves go through a psychotic phase in their training and may in fact be chosen partly on the basis of their psychoses.

Leprosy

The treatment of leprosy has come under attack as a leprosy hospital, Botsabelo, is maintained in Maseru for inpatient treatment of the disease, despite WHO advice that 80 percent of those confined were there for no medical reason, and 70 percent for no social reason. Yet there is no emphasis on early detection and follow up of contacts of cases detected.

Flying Doctor Service

A flying doctor service was organized in 1968, staffed by an International Voluntary Service volunteer sponsored by OXFAM. Air strips were improved by Food for Work projects and scheduled and charter flights made through Lesotho Airways. Eleven mountain clinics are visited on a regular schedule by the medical officer of the Lesotho Flying Doctor Service (LFDS). The clinics, which serve an estimated 70,000 people, are staffed by staff nurses, and services provided are like those of other clinics: preschool programs run in conjunction with Catholic Relief Services, antenatal clinics, some family planning, and preventive health services.

Specialist Services

A specialist service sponsored by Dr. Anton Rupert of South Africa was begun about 1969. Teams of specialist surgeons visit periodically. These include orthopedic surgeons, gynecologists, plastic surgeons, eye-nose-throat surgeons, and dermatologists. These doctors operate at Queen Elizabeth II Hospital, which provides pre- and post-operative care. South African medical students have also volunteered services in Maseru and rural areas during their vacations. It has been pointed out that Lesotho, along with Botswana, Malawi, and Swaziland provide "inexhaustible research potential for medical research."[3] Some cases are referred to the Republic of South Africa for specialist treatment, such as for radiotherapy of cancer patients.

Another voluntary specialist service has recently been instituted by an American dentist operating under a program called "Dental Health International," providing dental service in rural areas on a short-term voluntary basis using portable equipment. This equipment has been purchased by the Private Health Association of Lesotho (PHAL), in order to continue the project on an ongoing basis.

Drug Stockpile

A Drug Stockpile Project was begun in 1973-74 in order to bring stocks of the Central Medical Stores up to a satisfactory level after depletion due to lack of funds. In reference to the drug situation, the Ministry of Health stated:

> Even the meagre resources of the country are badly utilized by reasons of lack of organization and management. Large stocks of drugs are stored in some district institutions, while others may be in urgent need of them. Requests for drugs by the responsible staff are never accompanied by any kind of justification. Drugs and vaccines sent by international organizations or by friendly governments remain in ordinary stores, or perish for lack of correct storage.[4]

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3 "Medical Aid to Lesotho," Africa-Institute Bulletin. (Pretoria, March, 1969.)

4 Memoranda of the Health Planning Committee, Ministry of Health, Maseru, Lesotho. (Loose leaf mimeo, 1973-74.)

Summary

Curative health services are emphasized at the expense of preventive services. Hospitals and clinics are unevenly distributed throughout the country, the mountain areas being largely underserved. However, further building construction is unwise since funds are lacking to operate and maintain even the existing facilities.

HEALTH MANPOWER AND TRAINING

Doctors[1]

In 1974 a total of 52 doctors were working in Lesotho in the following categories,

	Basotho	Expatriate	Total
Government	11	20	31
Mission		12	12
Private	6	3	9
TOTAL	17	35	52

The overall doctor-population ratio is thus 1:22,000, a low ratio by international standards.* However, it has been noted that doctors are not only expensive to train but also to maintain. Although some Basotho doctors leave for social and political reasons, the inability - of government especially - to pay sufficient wages, along with the prohibition against maintaining a private practice to supplement government salary, dictates a low doctor-patient ratio and necessitates a dependence on expatriate personnel, whose salaries are "topped up" by the donor agency.

Nurses and Auxiliary Personnel

There are over 400 nurse/midwives registered in Lesotho, 346 of whom are practicing the profession; eleven of these are Public Health Nurses.

Nurses Employed in Lesotho, 1974

Government employed:

Hospital institutions	121
Clinics	25
Public Health	11
Training, administration	8
	165

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* Compare to ratios of other African countries:

	Doctor/Population	Nurse/Population
Lesotho	1:22,000	1:3,341
Swaziland	1: 9,000	1:1,160
Botswana	1:12,500	1:1,625
Kenya	1: 8,000	1:1,500
Nigeria	1:21,000	1:4,200
Zaire	1:34,000	1:8,000

1 Information in this section was largely obtained from Memoranda of the Health Planning Committee, Ministry of Health. Maseru, Lesotho. (Loose leaf mimeo, 1973-74.) Section entitled, "Health Staff."

Nurses Employed in Lesotho, 1974 (cont'd.)

Mission and Private:

Mission hospitals	73
Mission clinics	57
Red Cross	15
Private practice, community clinics	12
CRS and LFPA	14
Other	10
	180
TOTAL	346

Nurse-population ratio = 1:3,341

Other medical and paramedical personnel include the following:

Dentists	3	
Pharmacists	4	
Sanitarian	1	(WHO)
Health Inspectors	7	
Laboratory Techs	3	(expatriate)
Laboratory Assistants	8	(government)
Physiotherapist	1	
Radiographers	3	
Psychiatric Social Worker	1	
Health Educator	1	(tech. assistant)
Auxiliaries:	61	
dispensers	35	
health assistants	22	
dental aides	4	

Training

It is believed that the current rate of award of government scholarships for overseas medical training is sufficient for the "localization" of medical officer posts by the mid-1980's, by training Basotho doctors to take over these positions. Projections have been made of the other outside training that will be required during the plan period for physician specialists and technicians in otolaryngology, ophthalmology, pediatrics, and pathology; in administration, statistics, and public health; in nursing specialties, dental surgery, radiology, physiotherapy, laboratory technology, pharmacy, health education, and technical areas. Health inspectors are expected to be trained on WHO scholarships, possibly in Swaziland.

Nurses are trained at one government and three Mission hospitals, at a level sufficient to meet projected needs. Most staff nurses are doubly qualified as nurse/midwives. The difficulty in recruiting nurses for work in isolated clinics presents a problem, and as more nursing school candidates enter with higher qualifications, it may be necessary to increase salaries to attract

well qualified students. Nurses are currently undergoing in-service training in Maternal and Child Health/Child Spacing Services and in Public Health orientation; this training has now been integrated into the basic curriculum.

A plea for recognition and training of paramedical personnel is made in the 1973-74 Annual Report by the Medical Officer of Qacha's Nek Government Hospital located in the mountain district by the same name:

> Far too much time is spent seeing outpatients. It should be added that this is a much quieter hospital than most in Lesotho and probably in these an even greater percentage of the time is spent seeing outpatients. It is now generally recognized throughout Africa that with the shortage of doctors, and their expense, outpatients should initially be screened by a nurse or medical auxiliary. When the doctor, as in this case, cannot speak Sesotho, it is far more sensible for a Mosotho nurse to deal with the minor medical problems which usually require explanation rather than medication. Unfortunately it is the policy that patients are all seen by a doctor and the Basotho are now so used to this that they resent being seen in the hospital by anyone other than the doctor. Freed from seeing outpatients for much of the day, the doctor should spend more of his time in teaching and in general coordination of local medical services especially those related to preventive health.
>
> In 1954 there were 28 doctors in Lesotho and 45 in 1972. This 61 percent increase over an 18-year period may seem impressive but the population has increased by approximately 48 percent over this period. This losing battle with doctor-production is being fought all over the developing world. The only solution would seem to be to replace doctors in many of their roles by nurses or auxiliaries. In many countries the medical profession has been the first to object to these "mini-doctors" but this attitude is unreasonable. It was shown earlier that Lesotho at present spends more on health per capita than many other developing countries. It is conceivable that it may not be possible to support this relative affluence for long and then priority will have to fall on cheaper paramedical staff who can reach a much larger section of the population.[2]

There is a great deal of interest by all parties in Lesotho: organized medicine - both doctors and nurses; the university; government officials and private sector personnel; and, donor agencies,in training nurse practitioners to fill the middle level manpower gap. The suggestion that the MEDEX model be employed as a method of upgrading nurse-midwives into a new cadre was greeted with positive response. Such a cadre would be trained in psychosocial and longitudinal care, as well as in diagnosis and treatment of acute and preventible disease. WHO has already committed $24,000 in 1976 and $68,300 in 1977 for a nurse practitioner training program (and an additional $59,000 per year for 5 years 1978-1983 has been requested). These funds could be applied to MEDEX training.

Local on-the-job training is provided for health assistants (under the Senior Health Inspector), dispensers, dental aides, laboratory assistants, and administrative personnel.

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[2] Andrew Macrai, "Qacha's Nek Government Hospital Annual Report, 1973-74." Pp. 21-22.

Nurses' aides have also been given only minimal on-the-job training; currently, an aides course is being developed by the Private Health Association of Lesotho (PHAL). Nutrition education is an important part of the job of the Home Economics Assistants who are trained at the Lesotho Agricultural College. The following subjects are included in the home economics syllabus:

-- Health (including health and food),

-- Housewifery (including first aid and home nursing),

-- Human Nutrition (nutrition and food science, feeding, malnutrition, cookery)

- Crafts.

The Lesotho Nursing Association was established in 1967, with the objectives of providing an efficient and adequate nursing and midwifery profession, raising the status, maintaining the integrity, and promoting the interests of the profession. The Lesotho Medical Association (LMA) was inaugurated in 1973 to promote the art of healing, the alleviation of suffering, and the prevention of disease; to cooperate with allied professions in the promotion and maintenance of high medical standards; and, to establish relations with other medical associations. In 1974, 38 out of 45 practicing doctors belong to the Association. The LMA publishes a journal and sponsors meetings and lectures for its members.

Summary

While Lesotho has a relatively large number of citizens trained in medicine and nursing, government cannot compete with the private sector in salary level. Hence, many doctors go into private practice or leave the country, while trained nurses accept positions in non-nursing fields. Government and Mission doctors are overworked, due to lack of auxiliary support, and nurse training is hospital-oriented and does not adequately prepare nurses for the primary care delivery they are expected to perform in the clinic setting.

Recently a general consensus has been reached regarding the necessity of developing new cadres of medical manpower. The PHAL has developed a training program for nurse assistants, while WHO and the MEDEX program have offered support and technical assistance for training middle level health providers.

MATERNAL AND CHILD HEALTH/CHILD SPACING PROGRAMS

Maternal Care

According to the Health Planning Committee, 36,000 women attended ante-natal clinics in 1972 (dubious, as this would mean 80 percent of pregnancies); 68,000 repeat attendances were encouraged by the provision of dried skimmed milk. Eight thousand, five hundred and seventy-five deliveries were performed in hospitals in 1972; about 90 percent of these were normal deliveries and 5 percent Ceasarean sections. The stillbirth rate was over 3 percent. Maternity problems seemed to be due to poor general health, poor ante-natal care, abortions (spontaneous and induced) and clumsy delivery operation.[1]

Other births supervised by health center staff included some 1,950 at health centers and 319 at home, making the total of supervised births 10,844 in 1972. Based on the figure of 40,620 births projected for 1972,[2] it would appear that slightly more than one-fourth of all births were supervised in that year. Statistics from the Mohale's Hoek District reveal that one-third of all deliveries took place in a hospital or clinic in 1973.[3] Although this district is very mountainous, maternity coverage appears tobbe higher than the national average. On the other hand, a survey in the Ts'akholo area (in the rural lowlands) indicated that only 0.5 percent of deliveries took place in a clinic or hospital. The birth attendant is usually a woman who has borne a child and is related to the woman giving birth.[4] No explanation was provided to account for the large difference between this figure and overall national findings, especially since it would seem that better access in the lowlands should be positively correlated with attendance.

Child Care

Attendance at child-care clinics was much lower than at maternal clinics:

Under 1 year

1st attendance	21,224
re-attendance	14,527

1-5 years

1st attendance	79,190
re-attendance	116,032.

At child-care clinics children are weighed and examined, and their progress recorded on the "Road to Good Health" chart. Immunizations are given, food supplements distributed, and health and nutrition education talks and demonstrations are presented.

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[1] Memoranda of the Health Planning Committee, Ministry of Health, Maseru, Lesotho. (loose leaf mimeo, 1973-74.) Section entitled, "The Health Wants of the People."

[2] A.M. Monyake, "Report on the Demographic Component of the Rural Household Consumption and Expenditure Survey, 1967-68." (The Bureau of Statistics: Maseru, Lesotho, May, 1973.) "Presentation and Analysis of the Data," Table 10.0, p. 82.

[3] Andrew Macrai, "Qacha's Nek Government Hospital Lesotho: Annual Report, 1973-74." (mimeo, July 1974.), p. 9.

[4] Communication from the University of California/Santa Cruz - Maternal and Child Health/Child Spacing, "Ts'akholo Project."

A study in the town of Roma showed that 70 percent of child deaths are due to pneumonia, gastroenteritis, and malnutrition; other studies show respiratory infection and TB to be major killers, with malnutrition as a complication in 67 percent of deaths under one year.[5] Infant mortality rate (IMR) is reported by some sources to be between 114-181/1,000; the 0-4 mortality rate 250/1,000; but, according to the demographic component of the Rural Household Consumption and Expenditure Survey in 1967-69, IMR was 106; child mortality 75/1,000.

Child Spacing

The Lesotho Family Association (LFPA), set up in 1966, was closed 6 times by the MOH, and was reinstituted in August 1971. The LFPA runs clinics in each district, and family planning services are also available at other facilities -- Red Cross (9 clinics), Seventh Day Adventist hospitals, and from private physicians, as well as at the USAID/UCSC clinic at Ts'akholo (also the training institute for the country), and now at government facilities. The LFPA has also begun to do some training, research and evaluation, and to disseminate information and provide family planning education.

A full-time doctor was employed at the LFPA Central Maseru Clinic in August, 1974, and an increase in clients has already been noted. In several districts mobile MCH teams, including a Public Health Nurse (part-time), LFPA worker or nurse, an MCH/CS practitioner trained nurse, and a doctor, have begun providing extension services, working out of the District Hospital. Plans are to include Ministry of Agriculture Home Economics Assistants on the team to provide nutrition education as well.

Family planning is becoming better accepted all the time, particularly as a means of child spacing for the health of the mother and child, as illustrated by the recommendations of the National Population Symposium. The GOL is requesting assistance from UNFPA for upgrading and expension of the rural clinics network.

The Ts'akholo Project

Much of the momentum of the Ministry of Health activity in the area of family planning is due to the success of the University of California/Santa Cruz-Maternal and Child Health/Child Spacing Project (UCSC-MCH/CS) begun March 1, 1972 under funding from the United States Agency for International Development. The project includes a demonstration center at Ts'akholo in Mafeteng District, a counterpart training component, and a health education component. Goals of the first phase of the project also included participation in the development of record systems and the collection of health statistics and demographic data, as well as assisting in the development of the supply system insofar as it affects MCH programs. With the exception of the last two goals, the project has superceded its objectives. In respect to record-keeping, a maternal record has been developed and is being used throughout the country; however, collection of baseline data on knowledge, attitudes, and practice toward family planning, and development of demographic and health statistics collection systems remain to be done. The development of supply systems is largely out of the hands of the MCH/CS section of the Ministry, but is an area in urgent need of development.

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[5] According to the WHO Medical Officer in 1966.

Illustrative of the initial acceptance of the project is the fact that the demonstration unit has become a training center for the country. Plans for a second phase (1974-79) include service extension: expansion of service centers to include one MCH/CS demonstration service in each district, as well as expansion of services in the Ts'akholo demonstration area, development of mobile extension of health education activities; development of record-keeping for patient referral, feedback and follow up; integration of private, voluntary and government services in Maseru. Training extension is aimed at all levels: community health aides or village visitors, granny midwives, in-service training for all health personnel, specialized training for counterparts; community education through adult education, village health committees, youth groups, voluntary organizations, and through the curriculum of organized youth groups, teachers' workshops, and agriculture training schools. Research will be concentrated in the area of data collection and record-keeping as well as development of education materials and programs.

Summary

A great deal of progress has been made in the past few years in changing attitudes toward family planning in Lesotho. Much of the change in official attitude is due to the successful AID/UCSC-MCH/CS program. However, in order to change individual attitudes and to provide services to the population, additional effort will be necessary to expand capacity of clinics, outreach services, and clinic personnel.

NUTRITION AND FOOD AID PROGRAMS

It is interesting to note the GOL has long been interested in the role of women in development. The role of women is especially important in view of the large proportion of absentee men. The Nutrition Officer of the MOA has outlined efforts to reach women with nutrition education and community development efforts:

> The Government of Lesotho recognizes the important role played by women in the socio-economic development of the country; hence, the Ministry of Agriculture has been entrusted with the task of encouraging as many women as possible to continue to play an effective role in all programmes directed at improving home community living and also their own individual welfare. Contact is effected through the A.N.P. (Applied Nutrition Programme) and Women's Voluntary Organizations. Besides the A.N.P. there are many extensive programmes in soil conservation, agricultural extension, animal husbandry, community development, and other self-help schemes engaged in road construction and the protection of springs.[1]

Applied Nutrition Program

Nutrition education is provided through the Ministry of Agriculture's "Applied Nutrition Programme" (A.N.P.). Following up the recommendations of the WHO nutrition survey 1956-60, the Nutrition Education Scheme (which later became the Applied Nutrition Programme) was launched in 1962 as a joint effort of the government, FAO, and UNICEF. Three original pilot areas were expanded to four additional districts in 1964 and 1965. By 1974, programs were extended to the remaining two mountain districts. The objectives of the program are to raise the level of nutrition, to increase local production, and to encourage proper food utilization; and, to train teachers and other personnel in nutrition and food production. This program is independent of the food distribution programs and promotes the use of local foods. Activities include adult education through campaigns and courses, youth programs through Young Farmer Clubs, vegetable and poultry production, and school feeding. In 1973 field workers known as Home Economics Assistants (numbering 36 in May 1974), held 878 group meetings (21,166 attending); 1,201 demonstrations (14,347 attending); 1,036 family visits; 29 village level courses (1,435 attending); and 107 campaigns (village meetings--3,347 attending). Meetings are held in schools, churches, and nutrition centers and farmer training centers where available. Home Economics Assistants are trained at Lesotho Agricultural College (see Manpower and Training) and refresher courses provided by the staff of the Nutrition Home Economics Section of the Ministry of Agriculture. The latter administers the Applied Nutrition Programme.

In 1962, when the A.N.P. was launched, a policy-making body composed of representatives from the Ministries of Agriculture, Education, Health, and Local Government, and voluntary agencies: Red Cross, Save the Children Fund, Catholic Relief Services, was formed as the Permanent Bureau of Nutrition. This body is currently undergoing some reorganization in order to improve its operation.

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[1] A.M. Hlalele, "Final Report on Nutritional Problems in Lesotho and Means of Combatting Them." (mimeo, Fellowship Course on Food Science and Applied Nutrition: University of Ibadan, 1970), p, 7.

Feeding Programs

The World Food Program (WFP) began giving aid to Lesotho in 1963. Current projects using WFP foods include primary school feeding, which is run by the Save the Children Fund, and food assistance to post-primary educational and training institutions and hospitals with the dual objective of improving the diet of the recipients and releasing funds previously spent on food-for-development projects. Finally, WFP sponsors a food-for-work scheme in which individuals ar employed for a three-week period, five hours a day, five days a week, and receive the daily rations for themselves and four dependents. The projects sponsored are labor intensive infrastructure development projects - road building and maintenance, improvement of landing strips; and, directly productive - soil and water conservation in coordination with the Ministry of Agriculture, tree-planting, and grazing control. Allocation, distribution, storage, and utilization of food within the country is the responsibility of the Lesotho government Department of Community and Rural Development (COMRUDEV), formerly Food Aid Programme. AID PL-480 foods used in conservation programs are transported to the country by CRS and administered by COMRUDEV in-country.

The Save the Children Fund school feeding scheme under COMRUDEV provides 110,000 children at 957 schools with food every quarter. Children pay $.80 (U.S.) per year for transportation costs. Other SCF activities include building of school kitchens, storage facilities and water schemes, supplying cooking equipment, laying out school gardens, and supplying seeds and garden tools.

Catholic Relief Services pre-school program, begun in 1966, distributes WFP milk and blended foods and PL-480 soy oil and bulgar wheat to 70 health facilities in Lesotho. The monthly attendance at clinics at which food is distributed averages 50,000 children and 42,000 mothers. At each monthly clinic session, the child is weighed and the weight recorded on a growth chart and interpreted to the mother; lessons and demonstrations are given; children are immunized and minor ailments treated. The operation of the program is carried out by local medical and paramedical personnel in private and government clinics. Participants contribute some portion of the cost of local transportation and distribution (an average of $.30) to cover most of the local operational costs. CRS nurse educators teach record-keeping, health education, and communication at in-service workshops for nurses; they organize the health education talks to be given at the clinics and supervise the distribution of food as well as the running of the preschool clinics. Other CRS activities include the importation of drugs and medical supplies on excess currency (PL-480) shipping funds, promotion of low-cost commercial blended and fortified food products, and developing recipes based on the use of local and distributed, as well as commercially available, nutritious foods.

Evaluation of the program was carried out in 1974 and showed that children participating in the program were within the "road to good health," and progressed steadily, and they showed slight but significant improvement relative to non-attenders. Mothers' understanding of the weight chart was shown to improve with attendance at the clinic. It was noted in the evaluation that only 1-2 percent of children attending clinics were affected by obvious kwashiorkor, while others varied from adequate to underweight.[2] (NOTE: The WHO nutrition survey 1956-60 found frank protein calorie malnutrition in only 2 percent of children 2-6 years of age.)

Nutrition Education

Some nutrition education is included in the school curriculum. Although the curriculum of the 5th through 7th years of primary school includes some nutrition education, it is up to the

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[2] "A Program of Nutrition and Health for the Preschool Age Child." Catholic Relief Services-U.S.C.C., New York (prepared by CRS Africa Regional Office, Nairobi, Kenya).

teachers whether or not to teach and examine the subject, as it is not examined on the nation-wide examination at the end of primary school (after the 7th year). Some nutrition is taught in academic junior high schools (Junior Certificate Level) and senior high schools (Cambridge Level), and domestic science is offered in vocational high schools (16 in the country). However, the domestic science syllabus is still based on the European model. The Rural Domestic Economy course taught at the Lesotho Agricultural College (whose syllabus was originally designed by FAO) is being adapted more and more for application to the Lesotho setting.

Development studies is being added to the Junior Certificate Syllabus (to be examined beginning 1975) and will include some aspects of health and nutrition needs. The Division of Extramural Studies (DEMS) of the UBLS is contributing to adult education through health content of newspaper supplements and radio broadcasts.

Summary

A great deal of effort has been made to combat malnutrition in Lesotho since 1960. Although no full evaluation or recent countrywide nutrition studies have been made, it is widely believed that nutrition and food programs have been extremely effective in their efforts to improve the nutritional status of the population.

PLANNING AND FINANCING

Lack of planning in the past has resulted in construction without geographical planning, contributing to the maldistribution of services. Curative and preventive services have grown independently and thus are difficult to coordinate. In general, lack of coordination seems to be the most commonly expressed problem of the health sector in Lesotho. In fact, several recent efforts have been made to overcome some of this lack of planning and coordination: a health planning unit has been established in the MOH, attempts have been made to reorganize and revitalize the Permanent Bureau of Nutrition, and a Mission coordinating body, the Private Health Association of Lesotho (PHAL), has been created.

Government Planning and Financing

The Health Planning unit of the MOH was staffed by a fellow of the Overseas Development Institute (until his departure in 1974) and a Mosotho economist (from July 1973). The Unit prepared analyses and projections for inclusion in the new 1975-80 NDP. Recommendations included upgrading and integration of services at the clinic level without further building of clinics. The following excerpt from the Health Planning Unit Report for 1973 summarizes the nature and magnitude of construction projects during the year:

> Planning in Lesotho is on a project-by-project basis. The Unit helps prepare projects which are submitted through the Central Planning Office to the donors. For construction of Projects, the Unit liaises with the Ministry of Works. During the year the new Quthing Hospital was formally opened. Other projects were as follows:
>
> | | |
> |---|---|
> | Mohotlong Mental Observation Ward | 30,000* |
> | Boiketsiso and Linakeng Clinics (Butha-Buthe) | 30,000 |
> | Outpatient Shelter, Queen Elizabeth II Hospital | 10,000 |
> | Ts'akholo Self-Help Project | 9,000 |
> | Electrification, Mafeteng Hospital | 3,600 |
> | Drug Stockpile (Phase I) | 100,000 |
>
> In addition, the West German Government donated a large quantity of hospital and clinic equipment. However much aid there may be, the development of the health services depends and will continue to depend on the Basotho people.

In 1973-74 the recurrent health budget of Rand 1,098,330 represented 7.8 percent of total government expenditures; the proposed budget for 1974-75 represents 7.5 percent of the total. Only 8-12 percent of the total budget is allotted for preventive services, as the following breakdown indicates:

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* In Rand. One Rand equals approximately U.S.$1.50.

BREAKDOWN OF ESTIMATED GOVERNMENT
HEALTH BUDGET (In Rand)

	1973-74	1974-75
Administration	120,740	134,840
Hospital Services	772,620	922,670
Mental Health Services	65,770	85,820
Public Health Services	98,650	110,250
Leprosy Control	40,440	46,420
TOTAL	1,098,420	1,300,000

The Ministry of Health estimated the extent of current contributions in cash and in kind from the international and voluntary agencies as follows:

Agency	Contribution (in Rand)
WHO	95,000
WFP	83,000
UNICEF	105,000
Lesotho Red Cross	27,500
Lesotho Family Planning Association	42,000
CRS	775,000
USAID/UCSC	125,000
PHAL	25,000
Catholic Church facilities	190,000
Anglican Church facilities	35,000
Lesotho Evangelical	110,000
Seventh Day Adventist	72,000
TOTAL	1,984,500

The Health Section of the new National Development Plan, which will cover the period 1975-1979 is currently being drafted. Preliminary information indicates that the Plan recommendations include suggestions for a major reorganization of the government health services, with the objective of providing comprehensive health care within a regionalized system. The emphasis will be placed on coordination; integration of preventive, curative and promotive health care; team-work among health professionals; referral between levels of care; and, on community participation through such means as hospital advisory boards and village health committees. Manpower training and collection of statistics will also be emphasized. Another recommendation concerns the appointment of a coordinating advisory committee by the Ministry of Health which would include senior staff of the Ministry, and representatives of the Central Planning and Development Office of the Ministry of Finance; of the World Health Organization; and, of the Private Health Association of Lesotho, to advise on health policy, planning and programming.

Private Health Association of Lesotho

PHAL was organized as a coordination body for non-governmental organizations -- mostly missions -- to work together and with the MOH. The organization was formed in 1974 and plans to employ a full-time executive secretary in the near future.

Because a large proportion of the health sector is comprised of missions and other voluntary organizations, the PHAL performs an essential role in providing input in governmental planning for the health sector. In addition, PHAL plans to provide a number of services to its members and to provide some direct services to the people of Lesotho. Among the objectives are the following:

- -- to provide a clearinghouse for information for members;
- -- to coordinate work of members;
- -- to procure drugs and medical supplies on a cooperative basis;
- -- to provide a job and employment registry;
- -- to establish a provident fund for employees;
- -- to survey non-governmental health inputs;
- -- to establish a nurse aide training program;
- -- to support the mobile dental service using equipment purchased by the Association from Dental Health International.

International Organizations

The WHO/UNICEF Development of Health Services Agreement with the Government of Lesotho includes a number of stated goals. By providing technical assistance, the goals of the team composed of a statistician, a Public Health Nurse, a Sanitarian, a laboratory technician, a Public Health Advisor and tuberculosis specialists, are to:

- -- develop a National Health Plan;
- -- assist in the development of statistical services, including the analysis and dissemination of information concerning health manpower, health establishments and training institutions, as well as the epidemiological situation; and, the training of statistics personnel;
- -- develop health education programs to secure community participation in health improvement;
- -- develop family health programs (MCH, family planning and nutrition);
- -- conduct courses in public health nursing;
- -- develop communicable diseases surveillance, treatment and prevention;
- -- strengthen health laboratory services, in particular the establishment of a central laboratory and peripheral laboratories for clinical and public health examinations;
- -- develop an environmental health program.

This program is ambitious for a small team operating without extensive project funds.

Additional U.N. funding is being sought from UNFPA for an MCH project, including capital expenditure for reconstruction and upgrading of 8 clinics, equipment and supplies for health education, training support costs and replacement salaries. A new simplified TB program is awaiting approval for funding from UNICEF. Contributions of voluntary organizations and USAID were discussed in previous sections. As has been noted, there are large donor inputs into the health sector. There is no shortage of funds available for capital investment if the government is able to absorb the recurrent operating expenses of facilities created and salaries for manpower trained.

APPENDIX I

Geographical Setting

The country of Lesotho is roughly the size of the State of Maryland, covering 11,716 square miles. The country is largely mountainous and is completely surrounded by the Republic of South Africa. Its boundaries were determined politically and militarily without regard to its potential viability as an independent political entity. Three-fourths of the country is covered by foothills and mountains of the Drakensberg Range, rising to 11,000 feet above sea level. The remaining one-fourth is lowland, 5,000-6,000 feet in altitude. The lowlands support about 50 percent of the population and produce most of the agricultural crops. Mixed farming is practiced in the foothills, which cover 16 percent of the total land area and support some 30 percent of the population. The remaining 20 percent of the population is largely engaged in herding in the mountains, which extend over 57 percent of the nation's land.

The climate is temperate, varying from 20 degrees to 90 degrees F. in the lowlands. In the mountains, the winter temperature reaches below zero. Rainfall averages 28 inches per year in most of the country, and most of the rain falls between October and April. Drought is a periodic problem.

Historical and Political Development

The Basuto, the people of Lesotho, are more a political and cultural entity than an ethnic group, patched together after a series of wars between African tribes and between the British and Boer settlers. The unification process took place under Moshesh (Moshoeshoe) I during the 50-year period from 1820-1870. In 1868 Moshesh requested British protection. Basutoland was annexed to the Cape Colony in 1871 and was administered from the British colony of Natal. A British High Commissioner was appointed in 1884 and assumed legislative and executive authority under the proviso that no land could be acquired by a non-Basotho. Although the system of indirect rule continued until 1959, democracy at the local level was practiced through the institution of the local or national pitso, or tribal meeting; this body was responsible for establishing the Basutoland National Council in 1903, to advise on domestic affairs. Unfortunately the British reluctance to make any investment in the country resulted in poor administration, due the caliber of recruits hired to carry out the necessary duties. In addition, until the South African nationalist party with its apartheid platform was elected in 1948, it was always assumed that Lesotho would be absorbed into the Union.

As a result of British indifference Basotho chiefs, who are responsible for allocation of land and for administration of tribal laws, assumed the function of governing. When the Basutoland National Council was established in 1903, 94 out of 100 members were nominated by the Paramount Chief. Gradually the Council obtained the rights of internal self-government and was transformed into an elected body in 1960. A number of modern political parties were founded in the 1950's. The platform of the Basutoland Congress Party,which won the first elections in 1960 and was largely responsible for obtaining a pre-independence constitution in 1964, was influenced by the African National Congress (now banned in South Africa) and the Pan-Africanism movement of

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NOTE: Information in this Appendix was obtained from Bibliography entries by Amer, et. al., Department of State Background Notes, and Jacques May, et. al., and from reports and communications from U.S. and international agencies concerned with Lesotho.

the 1950's. A second party, the Marema Tlou Party, supported by the present King Moshoeshoe II, came in second in the 1950 elections; in 1965, allied with the radical Freedom Party, the Marema Tlou Freedom Party came in a poor third in the pre-independence elections. The winner of the 1965 elections was the Basutoland National Party led by Chief Leabua Jonathan and supported by the Catholic Church. Jonathan, seen as the candidate most willing to deal with South Africa, was allowed to campaign among migrant workers; at home his bread-and-butter issues were popular with the Basotho women, who comprise the majority of voters.

The first post-independence elections of 1970 were nullified due to alleged irregularities and the Constitution and Parliament were suspended. The country has since been ruled by Jonathan and the Basotho National Party.

The Agricultural Sector

The population of Lesotho is dependent on two basic sources of livelihood and income: subsistence agriculture and stock raising; and, exportation of migrant labor to South Africa. Traditionally the Basuto were stock farmers, hunters, and warriors, but as early as 1845 Moshesh wrote:

> My people are not entirely a pastoral people. They depend a great measure on the cultivation of the soil. We cultivate millet or kaffir corn, maise, sweet reed, pumpkins, melons, beans and tobacco. The missionaries have introduced among us European corn, potatoes and fruit trees we begin to appreciate greatly. Our staple product is kaffir corn, which we cultivate to a great extent.

Today agriculture is an important source of income for about 85 percent of the people and contributes 45 percent of GNP. Since only about 13 percent of the countryside (900,000 acres) is truly arable, rapid population growth has resulted in cultivation of steeper slopes and overuse of infertile land. Maize and sorghum are the principal food crops grown on about 60 percent of the cultivated area, and wheat, grown on 30 percent of the land; beans and peas are the principal export crops.

Information from the Agricultural Censuses of 1950, 1960 and 1970 reveals a steady decrease in production and crop yields:

Production (1000's of metric tons)	1950	1960	1970
Maize	114	121	67
Sorghum	49	54	57
Wheat	50	28	58
Peas	8	12	5
Beans	1	1	4

Crop Yields (200-lb. bag per acre)	1950	1960	1970
Maize	5.3	3.7	2.3
Sorghum	4.0	3.8	3.1
Wheat	4.5	3.8	2.4
Peas	4.5	3.3	1.8
Beans	1.5	1.6	1.0

In 1960 it was estimated that 62 percent of cultivated land was truly arable and that 43 percent of the cultivated area had eroded to some degree. In the same year the agricultural census showed that 95 percent of the population owned stock or arable land. From 1950 to 1970, average land holdings decreased from 6.2 acres to 4.9 acres, while the percent of landless rural households increased from 4 percent to 13 percent. Cereal imports increased from 12,000 to 45,000 tons, and the country became increasingly dependent on food aid programs.

Large numbers of livestock - 5 million cattle, 1.6 million sheep and 1 million goats - yield little cash income. Studies in the lowlands reveal that cattle are held for traction, to meet social obligations, and as a store of wealth and prestige. Sheep and goats are raised for domestic slaughter and only secondarily for wool and mohair. In the mountains more animals are kept and more income is derived from them. Uncontrolled grazing has led to deterioration of the land, while overstocking and uncontrolled breeding has lowered the quality of the animals.

Land Tenure

Traditional land tenure practices impose additional constraints to agricultural development. The land is owned by the nation and administered by the king and chieftains, who allot the arable land to a household for the lifetime of the head. Since the land is not owned there is little incentive to improve individually-held land. There are no fences, and the agricultural lands are used for communal grazing after harvesting. Attempts to plant trees, delimit erosion ditches, terrace hillsides and build dams have been made but have largely failed to enlist popular support. The communal land tenure system also prevents individuals from using a negotiable title as security to obtain agricultural credit. Officials are encouraged by the results of pilot agricultural schemes and are hopeful that in future projects, if the chiefs and the people are involved from the beginning and if increased agricultural productivity can be demonstrated, the Basotho people will be convinced that participation is to their benefit. The government is also drafting legislation to make possible fencing of mountain pasture. The use of garden plots and the fencing of farm land for winter crops are non-traditional approaches which have already been largely accepted.

Labor Migration

The flow of migrant workers into South Africa has increased at a rate of 6-7 percent over the last decade, due largely to the increasing competition for agricultural land. An estimated 60 percent of the male labor force and 10 percent of the female labor force are absent from the country. In 1965 total earnings of Basuto migrant workers in South Africa (amounting to 43 million Rand) exceeded the GDP (of R36 million) by 20 percent. Recent disturbances among Basotho workers in the South African mines has aroused the specter of the consequences - economic, social and political - of repartriation of the majority of the Basotho labor force.

Economic analyses have demonstrated that the primary motivation behind migration is the belief that earning prospects are substantially better in South African migrant industries (mining, agriculture, and other industries) than for agricultural labor at home, given the existing subsistence techniques. Thus a vicious circle is created: Basuto men migrate because they cannot support themselves on the land; but, the men cannot become educated and assume leadership roles particularly important to agricultural innovation when they are absent from the country during most of the year. When the household head is nominally male, the woman is not considered to be the decision maker. This factor, along with the fact that the women are also responsible for time-consuming household tasks and childrearing, makes it unlikely that agricultural improvements can be carried out in the absence of the male head of the household.

Links With South Africa

Lesotho, like Botswana and Swaziland, belongs to the South African Rand monetary area and to the Southern Africa Customs Union. South Africa determines exchange rates, monetary policies and levels of customs, excise and sales tax. In return the smaller partners have duty-free access to the South African market and receive a portion of the customs and excise revenue of the Union area. This revenue accounted for some 70 percent of recurrent revenues in 1972-73. South African companies dominate foreign trade and investment in Lesotho.

Lesotho is also dependent on South Africa for its supply of electricity, as well as for external transportation links. The most direct connection between some parts of Lesotho is by way of South African roads encircling the country. Both roads and rail lines run close to the Lesotho boundary in South Africa, and Maseru is linked with South Africa by rail. All international air traffic goes through Johannesburg.

Internal Transportation and Communication

There are approximately 2,000 miles of roads and tracks in Lesotho. The road system is relatively well-developed in the lowlands, while earth roads and vehicle tracks as well as 31 airstrips connect many points within the country. Some 1,600 miles of bridle paths and 200,000 horses and donkeys are essential for transportation of people and goods in the mountain areas.

The delivery of health and other services to the mountain areas is naturally affected by the lack of roads in remote areas. The Ministry of Health must maintain jeeps -- of which there is an apparent chronic shortage. In addition, few of the jeeps have two-way radios. There are some 300 privately operated radio transmitters and receivers belonging to missions, traders, and to the Flying Doctor Service. A telephone system in the lowlands is quite highly developed but does not extend into the mountains.

The Educational System

The first French missionaries arrived in Lesotho in 1833. Today 35 percent of the population is Roman Catholic; 22 percent are French Protestants; 10 percent belong to the Church of England; and, 6 percent are of other Christian denominations. The missions are responsible for the growth of the educational system, which extends throughout the country. At independence, missions ran 1,075 of the 1,088 schools. By 1970 the government still controlled only a few schools, although it now controls the curriculum taught throughout the country, in exchange for government financial support to the mission schools in the form of grants-in-aid. Of 168,000

pupils enrolled in 1966, 105,000 were enrolled in primary school, 2,700 in secondary school, and 76 at the University of Botswana, Lesotho and Swaziland. Overall literacy rate, as defined as having completed two years of primary school, was found to be 47.5 percent at the time of the 1966 census: 32.9 for men and 50.1 for women. A more rigorous definition would probably place the rate at closer to 40 percent. By 1972, primary school enrollment had increased to 177,000 while secondary school enrollment had reached 12,575 in 1973.

The educational system suffers from a shortage of teachers and a high drop-out rate. Twelve percent of those entering primary school complete Grade 7. Thirty percent of students completing primary school continue on to secondary school, although 70 percent pass the examination at the 7th grade level. Only 15 percent of those entering complete five years of secondary school. Teachers' salaries are low, and as a result, the turnover rate is high: over 30 percent a year. The average student-teacher ratio is 1:45 at the primary level.

Although curriculum reform is discussed, emphasis continues to be on academic rather than on practical training. Little vocational guidance is provided, and few agricultural, vocational or commercial training programs are available. Government, mission and donor interest and expenditure in the education sector is high. Government expenditure on education has averaged 19 percent of total recurrent expenditure over the last five years. Capital expenditure averaged 7 percent (R0.2 million per year); this figure was nearly equalled by mission capital expenditure in 1970. Missions also contribute approximately 10 percent of total operating costs.

APPENDIX II

Tables

Table

De Jure Population by Residential Status, by Sex, by District (all races) - 1966

District	Present Male	Present Female	Present Total	Absent Male	Absent Female	Absent Total	Total Male	Total Female	Total Total
Butha-Buthe	23,626	30,990	54,616	6,730	1,833	8,563	30,356	32,823	63,179
Leribe	59,806	79,014	138,820	18,120	4,553	22,673	77,926	88,567	161,493
Berea	41,971	57,754	99,725	14,436	4,078	18,523	56,407	61,841	118,248
Maseru	80,364	101,974	182,338	17,211	2,283	19,494	97,575	104,257	201,832
Mafeteng	43,931	58,802	102,733	13,641	2,713	16,354	57,572	61,515	119,087
Mohale's Hoek	40,973	55,759	93,732	11,481	1,714	13,195	52,454	57,473	109,927
Quthing	28,118	37,308	65,426	6,385	935	7,320	34,503	38,243	72,746
Qacha's Nek	24,698	31,814	56,512	5,381	1,062	6,443	30,079	32,876	62,955
Mokhotlong	24,768	30,691	55,459	4,144	564	4,708	28,912	31,255	60,167
LESOTHO	368,255	484,106	852,361	97,529	19,744	117,273	465,784	503,850	969,634

Population Census Report, Kingdom of Lesotho, 1966. (The Bureau of Statistics: Maseru. Lesotho), Table 1, p. 98

Table 2

Projected Estimates of the De Jure Population Classified by Status of Residence; Administrative Division 1974 - 76
(Base Period April 1966)

Division	1974 Present	1974 Absent	1975 Present	1975 Absent	1976 Present	1976 Absent
LESOTHO	1016.0	139.7	1038.5	142.8	1061.6	146.0
Butha-Buthe	65.1	10.3	66.5	10.5	68.0	10.7
Leribe	164.9	26.9	168.6	27.5	172.3	28.1
Berea	116.8	21.7	119.4	22.2	122.1	22.7
Maseru	219.6	23.5	224.5	24.0	229.4	24.5
Mafeteng	118.7	19.0	121.3	19.4	124.0	19.8
Mohale's Hoek	118.9	16.7	121.6	16.7	124.3	17.0
Quthing	79.6	8.9	81.4	9.1	83.2	9.3
Qacha's Nek	66.3	7.6	7.8	7.8	69.3	8.0
Mokhotlong	66.0	5.5	67.3	5.7	70.0	5.8

A.M. Monyake, "Report on the Demographic Component of the Rural Household Consumption and Expenditure Survey, 1967-68." (The Bureau of Statistics: Maseru, Lesotho, May, 1973.) Section entitled, "Presentation and Analysis of the Data," Table 10.2, p.83.

Table 3

Age-Sex Distribution of the Projected De Jure Population
Estimates 1974-1975

Age Groups	1974 Male	1974 Female	1974 Persons	1975 Male	1975 Female	1975 Persons
Under 1 year	20.09	19.67	39.76	20.55	20.10	40.63
1 - 4	69.35	67.64	136.99	70.89	69.15	140.04
0 - 4	89.44	87.31	176.75	91.42	89.25	180.67
5 - 9	75.11	74.09	149.20	76.77	75.76	152.50
10 - 14	65.67	64.86	130.53	67.12	66.30	133.42
15 - 19	57.78	57.09	114.87	59.07	58.35	117.42
20 - 24	50.36	49.89	100.25	51.46	51.00	102.48
25 - 29	43.68	43.45	87.13	44.65	44.42	89.07
30 - 34	37.87	37.83	75.70	38.67	38.71	77.38
35 - 39	32.75	32.84	65.59	33.47	33.57	67.04
40 - 44	28.14	28.43	56.57	28.77	29.06	57.83
45 - 49	23.88	24.42	48.30	24.41	24.97	49.38
50 - 54	19.97	20.77	40.74	20.41	21.23	41.64
55 - 59	16.29	17.35	33.64	16.65	17.73	34.38
60 - 64	12.78	14.10	26.88	13.06	14.41	27.47
65 - 69	9.38	10.96	20.34	9.59	11.21	20.80
70 - 74	6.33	7.89	14.22	6.47	8.07	14.54
75+	6.10	8.88	14.98	6.24	9.07	15.31
TOTAL	575.53	580.16	1155.69	588.29	593.04	181.33

A.M. Monyake, "Report on the Demographic Component of the Rural Household Consumption and Expenditure Survey, 1967-68." (The Bureau of Statistics: Maseru, Lesotho, May, 1973.), Section entitled, "Presentation and Analysis of the Data," Table 10.3, p. 84.

Table 4

De Facto Population Densities on Arable Land, Classified by Administrative Division Selected Years

Division	Arable Land (km^2)*	Population (in '000) 1966	1971	1976	Densities on Arable Land 1966	1971	1976
LESOTHO	3862	852.3	951.2	061.6	220.69	246.0	274.62
Butha-Buthe	108	54.6	60.9	68.0	505.56	563.89	629.63
Leribe	606	138.3	154.4	172.3	228.22	254.79	284.32
Berea	451	98.0	109.4	122.1	217.29	242.57	270.73
Maseru	691	184.2	205.6	229.4	266.57	297.54	331.98
Mafeteng	804	99.6	111.1	124.0	123.88	138.18	154.23
Mohale's Hoek	454	99.8	111.3	124.3	219.82	245.15	273.79
Quthing	211	66.8	74.6	83.2	216.59	353.55	394.31
Qacha's Nek	181	55.6	62.1	69.3	307.18	343.09	382.87
Mokhotlong	176	55.4	61.8	70.0	314.77	351.14	357.73

* Estimated in the 1970 Agricultural Census

A.M. Monyake, "Report on the Demographic Component of the Rural Household Consumption and Expenditure Survey, 1967-68." (The Bureau of Statistics: Maseru, Lesotho, May, 1973.) Section entitled, "Presentation and Analysis of the Data," Table 11.5, p. 91.

Table 5

De Facto African Population Aged 0-24 by School Attendance, by Sex, by Single Years of Age

Age	MALE At School	MALE Not at School	FEMALE At School	FEMALE Not at School	TOTAL At School	TOTAL Not at School	Total
0	-	11,085	-	11,366	-	22,451	22,451
1	-	12,511	-	12,771	-	25,282	25,282
2	-	11,733	-	11,811	-	23,544	23,544
3	28	12,689	42	13,031	70	25,720	25,790
4	151	12,232	228	12,333	379	24,565	24,944
0-4	179	60,250	270	61,312	449	121,562	122,011
5	722	12,879	1,207	12,424	1,929	25,303	27,232
6	2,116	11,089	3,551	9,547	5,667	20,636	26,303
7	3,358	8,551	5,493	6,205	8,851	14,756	23,607
8	4,629	8,083	7,764	4,786	12,393	12,869	25,262
9	4,965	6,835	8,253	3,427	13,218	10,262	23,480
5-9	15,790	47,437	26,268	36,389	42,058	83,826	125,884
10	6,374	7,596	10,151	3,072	16,525	10,668	27,193
11	4,971	4,869	8,110	1,774	13,081	6,643	19,724
12	6,927	7,265	11,085	2,432	18,012	9,697	27,709
13	5,940	5,693	9,995	2,074	15,935	7,767	23,702
14	5,720	5,707	9,793	2,295	15,513	8,002	23,515
10-14	29,932	31,130	49,134	11,647	79,066	42,777	121,843
15	5,095	5,870	8,484	3,095	13,579	8,965	22,544
16	4,197	5,042	6,472	4,184	10,669	9,226	19,895
17	2,831	4,104	3,816	4,404	6,647	8,508	15,155
18	2,436	4,876	2,968	6,788	5,404	11,662	17,068
19	1,721	3,616	1,469	6,864	3,190	10,480	13,670
15-19	16,280	23,508	23,209	25,335	38,489	48,843	88,332
20	1,050	3,652	786	8,377	1,836	12,029	13,865
21	618	2,470	399	6,231	1,017	8,701	9,718
22	424	2,574	168	6,685	592	9,259	9,851
23	256	2,243	110	6,243	366	8,496	8,852
24	212	2,952	67	8,171	279	11,123	11,402
20-24	2,560	13,891	1,530	35,707	4,090	49,598	53,688
Total 0-24	64,741	176,216	10,041	170.390	165.152	346.606	511.758

Source: 1966 Census Report, Table 4, p. 102.

Table 6

De Facto African Population by Religion, by Level of Education, by Sex

Education	Roman Catholic		Lesotho Evangelical Church		Anglican Church	
	Male	Female	Male	Female	Male	Female
Never attended	73,936	67,321	39,252	35,605	18,107	17,072
Attended to Grade A	20,017	25,317	12,748	14,059	5,261	6,394
Grade B, Standards 1 and 2	21,335	55,020	16,034	31,693	6,471	14,428
Standards 3-5	9,892	14,644	10,098	31,915	3,543	13,015
Standards 6-8	3,154	4,609	4,756	5,998	1,307	1,776
Primary Teacher's Certificate	258	390	484	471	100	119
Junior Certificate	726	411	1,086	559	336	211
Primary Higher Teacher's Certificate	107	93	170	58	35	13
College Qualifying Exam	251	70	326	76	95	38
College Degree	54	5	58	8	21	7
Not Stated	445	708	376	510	116	166
TOTAL	130,185	198,608	85,388	120,952	35,392	53,239

Source: 1966 Census Report, Table 8, p. 105.

Table 6
(cont'd.

Education	Other Churches Male	Other Churches Female	Non-Christian Male	Non-Christian Female	Total Male	Total Female	Total
Never attended	15,477	15,148	67,915	42,922	214,687	178,068	392,755
Attended to Grade A	4.446	5.381	7.998	8.078	50.470	59.229	109.699
Grade B, Standards 1 and 2	5,015	11,472	7,783	12,533	56,638	125,146	181,784
Standards 3-5	2,678	8,307	2,459	4,265	28,670	102,166	130,836
Standards 6-8	956	1.205	337	159	10.510	13.747	24.257
Primary Teacher's Certificate	61	46	13	4	916	1,030	1,946
Junior Certificate	243	151	43	8	2.434	1.340	3.774
Primary Higher Teacher's Certificate	17	6	2	3	331	173	504
Qualifying Exam	142	44	33	1	847	229	1,076
Degree	16	4	5	2	154	26	180
Not Stated	232	191	251	197	1.430	1.772	3.202
TOTAL	29,283	41,955	86,839	68,172	367,087	482,926	850,013

Source: 1966 Census Report, Table 8, p. 105.

Table 7

Absentee Population by Level of Education by Employment Status

Female

Education	At School	Self-Employed	Employed	Family Worker	Other	TOTAL FEMALE
Never	-	86	1,819	409	3,077	5,391
Attended to Grade A	510	25	798	132	300	1,765
Grade B, Standards 1-2	657	115	330	496	704	5,280
Standards 3-5	315	120	3,528	651	799	5,417
Standards 6-8	85	21	688	126	216	1,136
Primary Teacher's Certificate	2	2	28	4	9	45
Junior Certificate	25	3	88	25	38	179
Primary Higher Teacher's Certificate	-	-	13	1	1	15
Qualifying Exam	17	-	32	1	21	71
Degree	-	-	-	-	3	3
Not Stated	8	4	228	50	152	442
TOTAL	1,623	376	10,530	1,895	5,320	19,744

Male

						TOTAL MALE
Never	-	485	36,411	581	3,184	40,661
To Grade A	517	109	8,547	72	256	9,501
Grade B, Std. 1-2	495	265	24,293	200	290	25,543
Std. 3-5	239	178	14,752	134	177	15,480
Std. 6-8	95	47	4,362	23	52	4,579
P.T.C.	-	-	72	-	2	74
Junior Certificate	32	13	524	6	27	602
Primary H.T.C.	-	-	32	-	2	34
Qualifying Exam	21	6	129	2	27	185
Degree	1	1	12	1	6	21
Not Stated	4	8	736	19	82	849
TOTAL	1,404	1,112	89,870	1,038	4,105	97,529

Source: 1966 Census Report, Table 10, p. 109.

Table 8

De Facto African* Population by Dependence on Agriculture, by Employment Status, by Sex

	At School	Self-Employed	Employed	Family Worker	Other	TOTAL
Dependent on Agriculture						
Male	54,819	74,810	21,807	52,557	113,038	317,031
Female	87,530	87,214	4,601	123,884	122,822	426,051
Total	142,349	162,024	26,408	176,441	235,860	743,082
Not Dependent on Agriculture						
Male	9,922	3,402	17,273	2,424	17,035	50,056
Female	12,881	3,799	6,989	8,390	24,316	56,875
Total	22,803	7,201	24,262	10,814	41,851	106,931
Total						
Male	64,741	78,212	39,080	54,981	130,073	367,087
Female	100,411	91,013	11,590	132,274	147,637	482,926
Total	165,152	169,225	50,670	187,255	277,711	850,013

* All Ages

Source: 1966 Census Report, Table 7, p. 105.

Table 9

De Facto African Population Aged 15 Years and Over by Employment Status,* by Sex, by 5 Year Age Groups

Age Groups	Self-Employed Male	Self-Employed Female	Self-Employed Total	Employed Male	Employed Female	Employed Total	Family Worker Male	Family Worker Female	Family Worker Total
15 - 19	282	1,253	1,535	6,162	827	6,989	11,005	14,600	25,605
20 - 24	1,330	6,119	7,449	3,455	1,912	5,367	6,286	20,732	27,018
25 - 29	4,025	8,991	13,016	3,638	1,818	5,456	4,428	15,795	20,223
30 - 34	7,107	10,303	17,410	3,640	1,723	5,363	2,863	15,278	18,141
35 - 39	7,903	8,453	16,356	3,122	1,301	4,423	1,808	11,241	13,049
40 - 44	8,088	7,235	15,323	2,727	1,067	3,794	1,329	9,857	11,186
45 - 49	11,686	9,053	20,739	3,107	1,042	4,149	1,453	10,915	12,368
50 - 54	9,422	8,399	17,821	2,146	677	2,823	1,058	8,314	9,372
55 - 59	7,601	6,344	13,945	1,354	362	1,716	753	5,285	6,038
60 - 64	6,137	6,138	12,275	864	235	1,099	597	4,236	4,833
65+	14,297	18,379	32,676	1,153	355	1,508	1,345	8,725	10,070
not stated	334	346	680	273	70	343	131	454	585
TOTAL	78,212	91,013	169,225	31,641	11,389	43,030	33,056	125,432	158,488

* Excludes population at school.

Source: 1966 Census Report, Table 11, p. 108.

Table 9 (cont'd.)

De Facto African Population Aged 15 Years and Over by Employment Status,* by Sex, by 5 Year Age Groups

Age Groups	Male	Other Female	Other	Male	Total Female	Other
15 - 19	6,059	8,655	14,714	23,508	25,335	48,843
20 - 24	2,820	6,944	9,764	13,891	35,707	49,598
25 - 29	2,163	4,800	6,963	14,254	31,404	45,658
30 - 34	1,577	3,896	5,433	15,187	31,200	46,387
35 - 39	1,216	2,716	3,932	14,049	23,711	37,760
40 - 44	900	2,190	3,090	13,044	20,349	33,393
45 - 49	1,078	2,406	3,434	17,274	23,416	40,690
50 - 54	804	2,019	2,833	13,430	19,409	32,839
55 - 59	634	1,489	2,123	10,342	13,480	23,822
60 - 64	566	1,452	2,013	8,164	12,061	20,225
65+	2,220	8,008	10,228	19,015	35,467	54,482
not stated	633	758	1,391	1,371	1,628	2,999
TOTAL	20.620	45,333	65,953	163.529	273.167	436,696

* Excludes population at school

Source: 1966 Census Report, Table 11, p. 108.

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SWAZILAND

MOZAMBIQUE
Piggs Peak
Komati
HHOHHO
Kadake
Black Umbuluzi
MBABANE
White Umbuluzi
Matsapa
Manzini
Stegi
LUBOMBO
MANZINI
Great
Usutu
Nuwempisi
Big Bend
Hlatikulu
SHISELWENI
Nsoko
Goedegun
Gollel
SWAZILAND
International boundary
National capital
District boundary
District capital
Railroad
Road
0 10 20 Miles
0 10 20 Kilometers

THE HEALTH ENVIRONMENT

The Setting

In 1968 Swaziland was the last of the former British territories to gain independence. Since Swaziland had come under British rule as late as 1903, Western rule imposed only a superficial veneer over the pervasive traditional system of Swazi* laws and customs. In fact, the colonial administration left much of the governing in the hands of the local chieftains. Further, the administration failed to improve the lot of the average Swazi citizen by its failure to restore land held by expatriates to the Swazi nation, and through its neglect of social services. Nevertheless, a Parliamentary system was imposed on the country as a precondition to independence.[1]

These are among the accidents of history which account for the economic and political dualities apparent in Swaziland in 1975. Forty-seven percent of the nation's land is still owned by expatriates, while the remainder is held by the King, in trust for the nation. Nearly all of the commercial agricultural output and 85 percent of the Gross National Product is produced by the modern sector on freehold land. This sector absorbs only 27 percent of the labor force. While GNP has grown to a level of $240 per capita (in 1974), per capita income in the traditional sector amounts to only $45 a year. The modern government continues to function when its actions are approved by the King and the Swazi National Council (SNC). Revenue from mineral royalties accrue to the SNC, not to the "modern" government. The King suspended the Constitution as inappropriate and requested formulation of another more in keeping with Swazi laws and customs. In the interim, the King continues to reign according to tradition.

The acute shortage of trained Swazis at all levels is largely the result of the lack of manpower development in the past. During the colonial period, the educational system remained undeveloped while expatriates ran the civil service and filled the professional positions. Today two-thirds of the secondary school teachers and 87 percent of all doctors are expatriates. All nurses are trained at a single institution run by expatriates of a religious mission. Many primary and secondary school teachers lack appropriate training and qualifications. The school curriculum is still heavily based on the colonial academic model.

The geographic setting of the Kingdom of Swaziland has placed the country in a position of dependency on South Africa. However, the presence of a border with Mozambique reduces reliance on South Africa for transportation and communication links. A favorable endowment of natural resources has further released Swaziland from dependency in trade relationships. [Farming and grazing conditions allow the traditional Swazi farmer to support his family on subsistence agriculture, supplemented by the sale of a small portion of the crops.] Mining, agriculture and small industry within the country have absorbed many laborers, lessening the need for workers to seek wage employment outside the country.

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* Swazi - the people (also used as an adjective)
Swaziland - the country
Siswati - the language

1 Further background information is given in the Appendix

The Health Issues

Swaziland is not plagued by tropical diseases. The major diseases are gastroenteritis, respiratory ailments, venereal disease, tuberculosis, tapeworm and other intestinal parasites, and malnutrition. Schistosomiasis is a problem of growing concern. These disease problems are a result of low income, poor sanitation, poor health practices, and a low level of education. Nevertheless, the health care system is heavily curatively oriented and its services are poorly distributed. The 17 percent of the population living in the urban areas receive most services, both preventive and curative. Sixty percent of hospital beds, 62 percent of doctors, and 55 percent of nurses are concentrated in this area. Nurses provide most of the primary care in the clinics, but their training is based on the traditional model of hospital-based care under direct supervision. Lack of trained manpower inhibits effective coordination and management, as well as constraining improvements in the delivery of health services.

Settlement patterns make delivery of both preventive and curative health care difficult. Protection of water supplies and provision of sewage disposal systems must be effected on a settlement-by-settlement basis. The recent establishment of Rural Development Areas may offer opportunities to provide sanitation services on an area-wide basis, but lack of action on the part of the Ministry of Health and poor coordination with the Ministry of Agriculture and other participating agencies has prevented implementation of a vigorous sanitation program. Because the Swazi do not live in villages but in widely-dispersed homesteads, services such as health education that could ordinarily be provided in a community setting, must be substituted by outreach and extension programs.

Yet the present approach to health care delivery is a traditional one employing static health care units and highly trained, high-salaried personnel. The existence of a relatively well-developed system of roads throughout the small geographical area makes the provision of outreach services feasible.

Tradition and culture influence attitudes toward family planning and nutrition, such as the distribution of food within the home. Education in these matters is usually directed toward the women, while the traditional role of the male makes him the decision-maker in matters regarding family life. Agricultural policy has concentrated exclusively on development of key food and cash crops, and few attempts have been made to encourage production of nutritious foods for market and home consumption. While nutrition education might successfully influence consumption habits, in the absence of supportive agricultural policy to make nutritious food available, this education is wasted.

Summary

The factors responsible for the creation of the dual political and economic systems in Swaziland are also responsible for contradictions within the health sector. The static, curative nature of the health delivery system is a Western model, superimposed on a country which requires rural sanitation and outreach programs. The maldistribution of services in favor of the urban (European) area is yet another illustration of the inappropriateness of an imported system. Swazi customs and traditions impede progress in the areas of family planning and nutrition. Agricultural policy is not designed to meet national nutrition and health needs. Finally, manpower problems are acute at all levels.

Despite the contradictions and problems inherent in the system, the outlook for development is bright. The Swazis are a homogenous group. The resources of the nation are diverse and sufficient to support the population without forcing the nation into a position of complete dependency on South Africa. The transportation network permits good communication and access to services. In time it is likely that the Swazi, building on these assets, will develop a socio-economic-political system in keeping with the Swazi tradition and appropriate to the needs of the Swazi nation.

POPULATION CHARACTERISTICS

Distribution

The population of Swaziland was estimated at 475,000 in 1974 (based on projections from the 1966 census). The inhabitants are fairly evenly distributed throughout the four administrative districts. Overall density in 1966 was equal to 71 per square mile (or 21.6 per square kilometer). The Swazi do not live in villages but in individual homesteads limited to members of the extended family. Analysis of distribution of population by land tenure reveals that density on Swazi Nation Land far exceeds the density on individually-owned freehold (Title Deed) land. Density on freehold farms (largely European, or white-owned land comprising 47 percent of the land area in 1966) was only 10.5 per square kilometer, compared to "rural areas" (Swazi Nation Land, comprising 52 percent of total land), where density rises to 28.8 per square kilometer.[1] (See Table on following page.)

In 1966, 97 percent of the population were Africans, and of that group, 94 percent were classified as Swazi. According to Oscar Gish,[2]

> About 85 percent of the population live outside designate urban areas. (Agriculture represents the means of liveli hood for about three-quarters of the total population of Swaziland.) The only significant urban/peri-urban concer tion, of around 73,000 people, is made up of the two towr of Mbabane and Manzini, which are about 25 miles apart, a the 'corridor' which connects them. Mbabane, the capital city, has an estimated population of 26,000, as does Man: (including Kwaluseni and Matsapa).

The age distribution of the African population, as shown by the 1966 census, was as follows:

Population. Age Distribution. 1966

Age	Male (%)	Female (%)
Under age 5	17.5	16.9
5 - 14	31.0	28.6
15 - 49	41.1	43.1
50 - 64	6.9	6.2
65 and over	3.5	5.2
	100.0	100.0

[1] Annual Statistical Bulletin 1973. (Central Statistical Office: Mbabane, Swaziland)

[2] Oscar Gish. "Planning the Health Services of Swaziland." Consultancy Report, September, 1974.

Swaziland

Population Distribution by Tenure, 1966

	Area (sq. km.)	% of total land area	Population	Density/ sq. km.	% African	% European
Rural area or Swazi Nation Land (SNL)	9096.9	47	262,151	28.8	99	1
Freehold farm or Individual Tenure Land (ITL)	8174.3	52*	85,743	10.5	93	7
Urban area	93.2	1	26,677	286.1	82	18
Swaziland	17364.4	100	374,571	21.6	97	3

* By 1972 this figure was reduced to 47.3 percent of total area

From the above table it can be seen that over one-sixth of the population is under the age of five and almost one-half under 15. There are now around 20,000 infants under the age of one. Females comprised 53% of the total 1966 population and males only 47%. This inbalance is primarily the result of the absence from the country of males employe in South African mines. In 1973 the female population was estimated to contain roughly 46,000 women aged 15 to 24, 32,000 aged 25 to 34 and 22,000 between 35 and 44.

An estimated 17.5 percent of the male labor force (age 15-54) was absent from the country in 1973. (Five percent of females 15-54 were absent.) Most of the absentees are employed in South Africa as miners, farm laborers and domestics.

Population Growth

There is general agreement that the rate of population growth in Swaziland is about 3 percent per year. The Population Reference Bureau estimated the crude death rate at 24/1,000; the infant mortality rate at 168/1,000; life expectancy at 41 years. The 1966 census estimated the birth rate at 50/1,000; death rate at 20-21/1,000; infant mortality at 125/1,000; and, life expectancy at 44 years. The average number of children ever born to a woman is seven, two of whom will die before they reach the age of 15.

Attitudes toward population growth are influenced by tradition, by the polygamous nature of society, and by the small size of the population. Traditional restraints on population growth (in addition to high infant mortality) include voluntary spacing until the previous child is able to run, and restrictions on child-bearing after the oldest child reaches adolescence. On the other hand, in a polygamous society, birth is the essential element of the marital union and is therefore highly desired. The modern segment of the population is also aware of the small size of the population, and the absence of population pressure on the available land may contribute to an expansionist point of view.

The National Development Plan points out the need to slow population growth in order to maintain the current level of health services, and to improve the health and nutritional status of mothers and children. Figures from 1972 indicate that approximately one-fourth of all births took place in hospitals,[accounting for 80 percent of total supervised deliveries] or clinics [20 percent]. Only mission clinics have delivery facilities at the present. About 60 percent of pregnant women were examined before delivery.

There is an apparent demand for information about family planning and for contraceptives among women, but lack of knowledge and access to birth control devices is a major obstacle to obtaining contraceptives. Resistance on the part of the man, who desires children for both social and economic reasons, also hinders acceptance on the part of women.

Although the Swazi woman married or unmarried, in a monogamous or polygamous household, is primarily and often exclusively responsible for the care, upbringing and education of the children; she must bear a child or children in order to gain the favor of the man and society. A woman also defers to the man's dictate in such important decisions, since the man is traditionally the ultimate decision-maker.

Fear may also play a role in the woman's reluctance to accept contraceptives against the wishes of her husband, and the threat of violence and the bias in favor of the man in Swazi tribal law would appear to support the basis of such fear. Attitudes described are based only on appearances, as there have been no studies on knowledge, attitudes, and practice of family planning in Swaziland, as none has been permitted. However, the King recently came out with a strong statement in favor of family planning (October, 1974). It is hoped that this support will encourage new initiatives in the family planning field.

Vital Registration

The United Nations Fund for Population Activities (UNFPA) is supporting a project in demography and vital registration in order to provide some information (based on sample surveys) on population growth and characteristics. This information will serve as a basis for planning until the next census is taken in 1976. The project will also form the basis for a reorganization of the vital registration system (registration of births and deaths, and marriages), beginning in the towns and in the sample survey areas. The information obtained will assist in planning for all types of services, including health and family planning programs.

Summary

An outstanding characteristic of the Swazi population is the high rate of migration of the working age population -- 17.5 percent of the male labor force (although this rate is low compared to that of Botswana [25.5 percent of the male labor force] and Lesotho [60 percent]). The second outstanding feature is the striking difference in settlement patterns, resulting in uneven distribution of population, between the half of the nation belonging to the Swazi and the half held by individual owners. Finally, the population growth rate is high, even by African standards, as illustrated in the table on the following page.

Population Indicators in Select African Countries+

	Crude Birth Rate per 1000	Crude Death Rate/1000	Rate of Natural Increase	IMF/ 1000	Pop. under (15%)	Life ex. (years)
Botswana	45	14	3.1	97	43	55
Lesotho	39	19	2.0	148	39	46
Kenya	49	17	3.2	135	47	49
Nigeria	49	25	2.4	180	45	39
Zambia	50	21	2.9	157	44	45
Swaziland	48 (50)	19 (20-24)	2.9 (2.6-3%)	149 (125-168)	49 (49)	45 (44)
AFRICA	47	21	2.6	158	44	45

+ Source: World Population: 1973, International Statistical Programs Center, U.S. Department of Commerce (Bureau of the Census).

(Figures in parentheses are based on estimates from the 1966 census)

HEALTH STATUS

Causes of Disease and Death

The major causes of morbidity and mortality are gastroenteritis, respiratory tract infections, accidents, nutritional and parasitic disorders, venereal disease, and tuberculosis. The following table illustrates the frequency of cases presented at governmental and mission hospitals:[1]

Cases Treated at Government and Mission Hospitals 1971

Disease Category	Cases	Deaths
Medical examination, etc.	16,600	-
Dental caries	9,000	-
Normal deliveries	4,600	-
Accidents, poisoning and violence	10,200	73
Upper respiratory tract	14,100	49
Gastroenteric	11,900	98
Obstetrical/Gynecological	5,200	21
Venereal	4,700	1
Eyes and Ears/Nose/Throat	4,000	-
Parasitic and helminthic	3,300	11
Skin	3,000	-
Whooping cough, measles and mumps	2,900	7
Nutritional	2,600	84
Cardiovascular	1,600	60
Tuberculosis	1,100	109
Asthma	1,100	-
Rheumatism	1,000	-
Malignant neoplasms	300	23
Other diseases	39,300	341
	136,500	877

According to the National Development Plan (NDP), 1973-74, up to 90 percent of the population in the low and middle-velds are effected by bilharzia -- both urinary and intestinal. Tapeworm is a serious problem since it infects the rural dwellers who eat the meat of infected animals. The disease also has an indirect effect, since a high incidence of tapeworm reduces the value of cattle sold on the market.

Malaria was endemic until 1945, when an official was appointed to carry out an eradication program. Known cases diminished from 6,850 in 1946 to 73 indigenous cases detected in 1971. The cases were discovered by testing one-fourth of the population; therefore, some 300 total cases are suspected. Constant vigilance is necessary, especially after wet seasons, due to importation of the disease from neighboring areas.

[1] As grouped by Gish, "Planning the Health Services of Swaziland." Consultancy Report. September, 1974.

Environmental Sanitation

It is evident that the principal causes of sickness and premature death are aggravated by poor nutrition, unsanitary conditions, and poor housing and general living conditions. The rural areas, particularly, are lacking in water and sewage disposal systems. The Health Inspectorate Program run to respond to requests from rural areas is small, and under-funded. In contrast, the urban areas are quite well-serviced; 8 percent of the public investment program 1973-74 has been allotted to urban area water and sewerage development.

Mental Illness

Very little is known about the incidence of mental illness in Swaziland. It is believed that one of the major causes results from stress of transition between the (traditional) rural way of life to modern urban practices. Alcoholism and pellagra are frequently observed. Birth trauma, epilepsy, schizophrenia, and other conditions occur with a frequency comparable with that observed in other parts of the world.

Treatment of mental illness is done mostly on an outpatient basis, partly due to lack of facilities for inpatient treatment. There is some interest in making use of indigenous practitioners in a formal way recognized by the modern medical sector.

Responsibility for assistance to the mentally retarded as well as to the physically handicapped is delegated to the Social Welfare Department, which has recently initiated a campaign to identify individuals in need of assistance.

Summary of Disease Problems

The following disease problems are considered the major concern of the nations of the African region (listed in order):*

Malaria
Tuberculosis
Leprosy
Helminthiasis (parasites)
Schistosomiasis (bilharzia)
Diarrhea and dysentery
Trypanosomiasis (sleeping sickness)
Onchocerciasis (river blindness)
Venereal diseases
Malnutrition.

Although malaria, trypanosomiasis, and onchocerciasis are not problems in Swaziland, gastroenteritis, venereal disease, parasites (particularly tapeworm), nutritional deficiencies and tuberculosis all appear as leading causes of hospitalization and death. The incidence of schistosomiasis is unknown, but health professionals are aware that the disease is common in many parts of the country and likely to spread if precautions are not taken.

* Third Report on the World Health Situation, 1961-64, no. 155 (Geneva, 1967), pp. 28-35.

NUTRITIONAL STATUS[1]

Background

The maize diet of the Swazi is of fairly recent origin and has been traced back to the end of the eighteenth century. Prior to the 1897 outbreak of rinderpest, which destroyed the cattle herds, and to the introduction of maize and gardening by the early missionaries, the Swazi diet was based on milk and meat. Today although the Swazi have become used to a "semi-permanent, semi-subsistence" life, the pastoral tradition is still strong, as witnessed by the importance of cattle as symbols of wealth and status, as well as by the relatively lower status of the practice of agriculture. In addition, agriculture is not regarded as a source of income, and much of the labor involved in production is left to the women. While the men were at war in former times, they are now involved in mine work or other wage-employment. Sample surveys have shown that neither subsistence agriculture nor wage employment is sufficient to provide for family needs.

Food Production and Expenditures

Results from a sample household survey carried out in 1972-73 illustrate the contribution to family income that is made by wage employment and that made by agricultural production (see Table on following page).

While over the 13-month period sale of agricultural and livestock products comprised 31 percent of average weekly income and wage earnings 40 percent, food produced by the household represented 75 percent of the value of food consumed. Since food is by far the largest consumption item, results of this study refute the belief that agriculture is a negligible source of income.

The land tenure system is a major obstacle to efficient food production. All Swazi Nation Land is held in trust by the King, who allocates land to the chiefs on a temporary basis. The chiefs in turn grant permission for use of their land to the local headmen. There is still little incentive for the individual to improve the land, since it can be taken away at any time. Absence of fencing and communal grazing after harvesting make farming and gardening difficult and denude the land. The soil is further depleted by burning before plowing, and erosion is caused by cutting of trees without replanting. The Swazis do not plant trees near their homesteads because of the custom of having huts in the open and also because they fear the trees will absorb available surface water.

In traditional households, each wife is given her own plot to cultivate, and although the wife is left without responsibility and decision-making powers, she must cultivate and feed her children with only irregular support from her husband. Unmarried women often receive no support from their children's father (s).

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[1] Much of the information in this section was obtained from "A Study of Swazi Nutrition," by Sonya M. Jones, 1963. Report of the Swaziland Nutrition Survey 1961-62 for the Swaziland Administration. (Institute for Social Research: University of Natal, Durban (South Africa). 1963.)

[2] For methodology, pricing, etc., see the Flaxen Report, 1972, 1973. "Sample Household Surveys, November, 1972." Final Report: Central Statistical Office: Mbabane, Swaziland.
1 Rand = approximately $1.50.

Household Income and Expenditures, Swaziland, Feb. 1972 - March 1972 (in Rand)

Table I	Feb. 72/March 73	Feb.-Sept. 72	Oct. 72/March 73
Average weekly income	R4.42	R4.40	R4.45
-- From wage earnings	1.77 (40%)	1.57 (36%)	2.03 (46%)
-- From sale of produce (Agriculture and livestock)	1.39 (31%)	1.91 (44%)	1.02 (23%)
Table II			
Average value of food consumed (per week)	R4.08	R4.31	R3.80
-- Home produced	3.05 (75%)	3.42 (79%)	2.58 (68%)
Table III			
Average weekly expenditures	R2.36	R3.01	R1.85
-- Food expenditures	0.90 (38%)	1.24 (41%)	0.64 (35%)

Diet

According to Jacques May,[3] the basis of the Swazi diet is cereal made of cornmeal or sorghum eaten with a relish or sauce and meat when available. Maize is consumed in many forms, including fresh roasted or boiled; fresh steamed (inhlama); dried toasted (imbasha); dried toasted and ground (lukhotse); samp or mealie rice from dried grain; mealie meal from dried, finely ground grains made into porridge - thick or thin; or amahewu, thin soured porridge mixed with pumpkin, wild vegetables, pumpkin leaves, beans, or nuts.

Wheat and rice are considered food for the rich; tubers, legumes and vegetables are popular but in short supply (and are considered food for women and children). Milk in soured form (emasi) is a prestigious food, but is largely consumed by children. Traditionally women are not allowed to drink milk from the husband's cows until after the birth of the first child. There are also other periods during which women are forbidden to drink milk. Eggs are rarely consumed and are taboo for women.

There is no tradition of fishing in the Swazi culture, although the people do eat pilchards, or sardines, from tins. Locusts, grasshoppers, flying ants, and caterpillars are captured and consumed after roasting. Little fruit is consumed and consists mainly of wild green guavas and oranges in season. A 1962 survey found that nowhere were caloric requirements satisfied, that although protein intake was adequate in the high and middle-veld, that it is burned for energy; and, that low fat intake results in a deficiency of Vitamin A. Other elements missing in the largely maize diet are calcium, niacin, and riboflavin. Even in areas where protein requirements were met, due to maldistribution of food within the home, children were found suffering from kwashiorkor. Food distribution is biased in favor of the adult male; the head of the household is first to be served (by each wife in a polygamous household), followed by his mother, then the older boys, the other children, and finally the women and toddlers.

Vulnerable Groups

Pregnant and lactating women and children from 1-5 are the groups at high risk to malnutrition. Their increased need for nutrients are not met because of taboos and customs limiting consumption by women and because of a lack of understanding of a child's dietary needs. Other groups susceptible to nutritional deficiencies and diseases are the herdboys and school children who are away from the homestead at meal times. Migrants to peri-urban areas are also vulnerable since they are cut off from means of food production, their wages are low, and they are far from the central market; in addition, they are uneducated in wise purchasing habits. In the rural areas inhabitants are subject to seasonal nutritional deficiencies, as in summer when the highest energy output is required, food supplies are at their lowest.

Nutritional Disease

The main nutritional disease problems in Swaziland are multiple deficiency conditions, kwashiorkor (protein deficiency especially in weanlings) and pellagra. Pellagra is caused by a niacin deficiency due to the low niacin content in maize. The corn diet is usually supplemented by vegetables and legumes to make up the vitamin deficiency. However, in the peri-urban areas wild vegetables are not available, and lack of money restricts the number of supplementary foods purchased. The disease is seasonal, and occurs at the end of the winter when maize

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[3] Jacques May and Donna L. McLellan. Studies in Medical Geography, vol. 10: The Ecology of Malnutrition in Seven Countries of Southern Africa and in Portuguese Guinea. (New York: Hafner Publishing Company, 1971.)

stocks are low and wild vegetables scarce; increasing sunlight brings out the photosensitive dermatosis associated with pellagra. Alcoholism is becoming a problem in itself, and in addition, niacin deficiency is aggravated by excessive beer drinking. Endemic goiter occurs where soil and drinking water are low in iodine. In a 1955 study of school children, the incidence of goiter averaged 26 percent, ranging from 3-71 percent, in proportion to the degree of iodine deficiency.

A high incidence of intestinal parasites indicates an inadequate level of dietary protein available for anti-body formation; continued acquisition of new parasites and malabsorption of food consumed further lowers resistance. In Swaziland the lack of environmental sanitation in rural areas also contributes to the high incidence of parasitic diseases.

Summary

There has been no study of Swazi nutrition since 1960-63. That study revealed a deficienc of calories in the diet. In light of the caloric deficiency, the otherwise adequate protein intake is insufficient to satisfy growth requirements as well as energy demands. The presence of kwashiorkor is evidence of the maldistribution of protein within food consumption groups. Niacin and iodine deficiencies exist, but vitamin A deficiency is not severe enough to cause vision impairment. The Jones study concluded that the basic causes of malnutrition included the following:

- -- inadequate food supplies
- -- absence of nourishing foods
- -- ignorance of consumers in the practice of infant feeding and food purchasing
- -- a generally low standard of living and lack of purchasing power.

THE HEALTH DELIVERY SYSTEM

INFRASTRUCTURE AND HEALTH SERVICES

Organization

According to Gish[1], there were no modern health services in Swaziland until early in this century. A government hospital was built in Mbabane in 1909. Mission hospitals and clinics were established in the 1920's. A second government hospital was constructed in 1927, and the present clinic system introduced in 1934. By 1952 there were still only 200 hospital beds in the country.

The number of hospitals in the country has risen from 9 to 11 over the last ten years. Government general hospital beds increased between 1964 and 1973 by almost two-thirds (from 375 to 608 beds) and mission beds by a quarter (342 to 422). All hospitals in the country showed an increase of around 25 percent in their bed numbers between 1964 and 1973 (50 percent in the case of Siteki), except for Mbabane which almost doubled in size.

Specialist hospital facilities comprise the mental and tuberculosis hospitals located on the site of an old barracks. These are primarily holding institutions rated at 200 beds each; although the T.B. beds are only one-quarter utilized, the mental side is full.* Specialist curative services include regular monthly visits by a team of specialists from South Africa.

Health delivery is performed by government, mission, occupational, and private practitioners at clinics and hospitals run by the Ministry of Health, Nazarene and Catholic missions, and private companies, as illustrated on the following page. Comparable figures for other African countries are illustrated below:**

	Population/ Physician	Population/ Bed
Botswana	12,500	300
Kenya	7,830	770
Nigeria	20,000	1,850
Zaire	30,000	320

Government clinics do not have beds and therefore are limited in the services they can perform. Each clinic is staffed by a staff nurse and supervised by area hospital and public health center medical staff. However, since doctors must see every hospital outpatient, they do not have time to adequately supervise the clinic nurses. Similarly, Public Health Nurses are overworked and do not have time to travel frequently to all the outlying clinics. The government hospitals at Mbabane, Pigg's Peak, and Mankayane supervise 3-6 clinics each; the Hlatikulu Hospital has responsibility for 17 clinics. The clinics of the Nazarene Raleigh Fitkin Memorial Hospital group average 4 beds each, and all are supervised from the hospital in Manzini. The Good Shepherd Catholic Hospital in Siteki is responsible for 4 (non-bedded) clinics.

Deliveries are routinely performed only at the bedded (Raleigh Fitkin) clinics. As has been noted, only 25 percent of deliveries in Swaziland occur in hospitals and clinics. However, some 60 percent of pregnant women receive prenatal (also called ante-natal) and postnatal care, although they may or may not have access to supervised delivery. As a result, it is difficult for the health sector to intervene to reduce infant mortality rates and to care for

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[1] Much of the information in this section was taken from Oscar Gish, "Planning the Health Services of Swaziland." Consultancy Report, September, 1974.

* It is believed that the mental hospital has been reconverted into barracks since the recent creation of a Swazi army. Patients are being treated on an outpatient basis.

** Source: WHO, World Health Statistics Report, 26, 3, 1973.

Health Services

Swaziland - 1974

Provider	Number of Medical Doctors	General Hospitals/Beds	Bedded Clinic/Beds	Non-bedded Clinics
Private practitioners	11			
Private industry	12	1 : 70	3 : 6	6
Missions	10	2 : 422	14 : 60	4
Government (General)	20	5 : 608	- -	30
(Specialized)	—	(2 : 400)		—
TOTAL	53	8 :1,100	17 : 66	40

[Total general beds, hospital and clinic: 1,166]

Overall population/physician ratio: 9,000/1

Overall population/bed ratio: 400/1

Source: Oscar Gish, "Planning the Health Services of Swaziland." Consultancy Report, September, 1974.

mothers and children in the event of birth complications, and simply to ensure that deliveries are made under proper sanitary conditions.

Utilization and Distribution

The urban and periurban Mbabane-Manzini corridor contains one-sixth of the population of Swaziland, yet this area produces more than one-third of the inpatients. Sixty percent of general hospital beds are located in the corridor. Outside the corridor the annual hospitalization rate is 50/1,000 while the rate in the corridor is 150/1,000. It can be noted from the Table on page 117 that average length of stay in the corridor hospitals is high (12 days). Gish notes that, "As must be expected because of fee differentials the average bed state was much lower at mission than government hospitals." However, according to his calculations (page 118) this fee differential did not seem to affect the average length of stay. Over 60 percent of doctors (and a high percentage of other health workers) are located in the Mbabane and Manzini corridor.

In 1966, 60 percent of the population lived within five miles of a health facility. Approximately 85-90 percent live within 7 or 8 miles of a facility. Six new government clinics are planned and funded at a construction cost estimated at Rand 23,000 (US$34,500) each.

Preventive Services

There are four government-run Public Health Centres located at or near the hospitals at Mbabane, Manzini, Hlatikulu and Siteki. Another center is planned for Pigg's Peak, and Public Health Nurses are stationed at the government hospitals in Mankayane and Nhlangano. Services offered at the centers include immunization of children, ante- and post-natal examinations, well-baby clinics and some family planning services. Rural clinics perform these functions outside the immediate hospital areas; however, health education and followup activities are limited since most clinics are staffed by a single nurse. She must be available for routine clinics as well as for emergencies and is not equipped with a vehicle. Of the 25 nurses employed at the Public Health Centres, about half are located in the Mbabane Centre, from which the other centers are administered. The public health nurses do travel to the outlying clinics, but only infrequently. The Public Health Centres and rural clinics combined reach only 15 percent of the under-five population with preventive care. There are special control units directed against malaria, bilharzia, and tuberculosis. The malaria unit now undertakes mainly surveillance activities, and bilharzia control is in the experimental phase. Tuberculosis control appears to have declined in effectiveness since 1968-70 when 42 percent of individuals under treatment successfully completed; in 1970-72 only 30 percent had successfully completed treatment.

Environmental sanitation programs suffer from a lack of funds and a shortage of manpower. The need to protect water supplies in the new Rural Development Areas (RDA's) under development by the Ministry of Agriculture has been largely ignored by that Ministry. The WHO Sanitarian has attempted to mobilize resources and manpower of the Ministry of Health to rebuild and protect the existing water supplies on the RDA's. However, lack of vehicles held up the project. Division of responsibility for environmental health compounds the difficulty of carrying out an effective program in the rural areas. Although the first priority in health for the 1973-74 development period is to "expand preventive services (including rural sanitation and water protection) in rural areas," the level of official commitment and expenditure does not correspond to the level intended by development planners.

Hospital	Beds[1]	Admissions[1]	Hospital Efficiency* Annual Admissions per Bed (No.)	(Reported) Average Bed State (%)	Calculated Average Bed State: Average x Average Stay/365
Government					
Mbabane	341	8,663	28 ($\frac{8663}{341}$ = 25)	83[2]	(89)
Hlatikulu	180	7,217**	40**	156[3]**	(61)
Pigg's Peak	50	1,339	27	n.a.	
Mankayane	41	2,138	52	n.a.	
Nhlangano	15	1,076	72	n.a	
Mission					
RFM	322	5,496	17	60[4]	
Good Shepherd	100	2,960	13 ($\frac{2960}{100}$ = 30)	61[3]	(32)

1 1971.
2 April 1973.
3 January 1974.
4 1972.

* All figures taken from Gish, "Planning the Health Services of Swaziland." Calculations in parentheses ( ) added.
** Gish notes that there may be an error in the admissions statistics for Hlatikulu, as admissions increased by 2/3 in one year from 1970 to 1971.

Hospital Efficiency (cont'd.)

Hospital	Estimated Cost per Inpatient Day	Cost per Inpatient Stay	Average Length of stay (days)
Government			
Mbabane	R.6	R.70	11.6
Hlatikulu	R.4	R.22	5.6
Pigg's Peak	n.a.		n.a.
Mankayane	n.a.		n.a.
Nhlangano	n.a.		n.a.
Mission			
RFM	R.5.30	R.64	12.0
Good Shepherd	R.2	R.18	9.1

[5] These are estimates only, except in the case of RFM.

Traditional Practitioners

There are several types of traditional practitioners known as "specialists," including herbalists and diviners, ranging from the lowest grade of specialist who collects medicine recipes, to the inyanga, who is ancestrally qualified as an herbal practitioner, to the powerful and respected diviner. The herbalists give enemas, purges, poultices, steam baths; set limbs and let blood; chant spells and suck objects from the body. Diviners hold seances to discover evildoers; the ultimate mode being the umbondvo ordeal, where a poison mixture is administered and believed to be harmless if the recipient is innocent.[2]

No systematic studies have been done concerning health attitudes and practices of the Swazi, but it is believed that people tend to consult the closest practitioners, whether modern or traditional. There is also a distinction made between a "local" disease and one requiring consultation with a "white" doctor. Fear, trust, and cost of services are also important elements in the decision on whom to consult. Government and mission clinics charge set fees, while traditional practitioners receive payment according to the nature and success of treatment and the status of the patient.

Mothers usually take their children to the clinic, but adults are more reluctant to go for their own treatment.

Summary

Health service indicators, such as population per physician and population per hospital bed are on the high side for Swaziland, as compared with other African countries. However, distribution is skewed in favor of the urban population. This factor, combined with higher urban incomes and generally higher living standards in the towns, increases utilization of health services by town dwellers. Similarly, public health and environmental sanitation services are available to urban residents but are practically nonexistent in rural areas. As in many countries, the apparent lack of doctors and hospital beds in Swaziland is not in fact a true shortage but is due to maldistribution of medical services - both preventive and curative.

[2] Hilda Kuper. An African Aristocracy. (Oxford University Press: New York, 1961. First published 1947.)

HEALTH MANPOWER AND TRAINING

Current Situation

The health manpower training target adopted by the 1973-77 National Development Plan is to "allow the overall doctor/population ratio to fall slightly (from 1:8,200 at the time the plan was written) to 1:10,000 by 1980; and localize all posts in government by 1986."

The following table outlines the current (mid-1974) health manpower situation in Swaziland (see Medical and Nursing Register, mid-1974, page 121). Nurses are not only the largest group of health workers (one nurse for every 1,150 people), but they are also highly localized; 90 percent are Swazi citizens. Sixty-three percent of the doctors practicing in Swaziland are located in Mbabane or Manzini, while 55 percent of nurses are employed in the two largest towns The total of 410 nurses is composed of 3 main categories of nurses: registered, enrolled, and auxiliary.

Nurses in Swaziland, mid-1974

Category	Number	Years of Schooling
Registered Nurse-Midwives	210-230	15-16
Enrolled Nurses and Enrolled Nurse-Midwives	140-150	14 or less
Auxiliary Nurses	40- 50	13 or less (no longer being trained)
All Nurses	410	

Training

All registered and enrolled nurses are trained at the Ainsworth Dixon Training College operated by the Church of the Nazarene at the Raleigh Fitkin Memorial Hospital. Training is hospital-oriented as in Botswana and Lesotho. Registered nurses in the three countries must pass the same examination, which is set by the joint nursing council. About 15 nurses are trained each year. All nurses are currently undergoing in-service training in Maternal and Child Health/Family Planning.

A one-year nurse aide training program was begun in 1972 at the Good Shepherd Catholic Hospital in Seteki. There are currently 27 students enrolled, most of whom failed the junior high school (Junior Certificate) leaving examinations. Originally the course was to have been a two-year course emphasizing public health, but it was shortened and the public health emphasis was dropped. The Nazarene nursing college has also proposed a two-year auxiliary nurse training course with public health emphasis, but it has not received encouragement or approval from the Ministry of Health. The government appears to be concerned about how a less highly trained nurse would fit into the government salary structure, but there is also a general feeling that training and employment of such a cadre would lower the standards of medical care.

A health assistant training course was organized in 1974 by the WHO team sanitarian. Twenty-one young men were accepted in the first year of the program from applicants who had passed both the science and math sections of the Junior Certificate Examination. Plans are to train four classes (each class given 12 months' training) in order to produce about 80 trained health assistants. These workers will assist health inspectors in carrying out the environ-

MEDICAL AND NURSING REGISTER: MID-1974*

	Total (active)	Citizens[5]	Non-citizens	Employer				Location	
				Govt.	Mission	Ind.	Priv.	Mbabane/ Manzini	Other
Doctors	53[2]	7	46	20	10	12	11	33	20
Dentists	5	1	4	1	0	0	4	5	0
Pharmacists	8[3]	1	8	2	0	1	5	6	2
Laboratory Technicians	8	3	5	5	3	0	0	5	3
Radiographers	8	2	6	6	1	1	0	4	4
Physiotherapists	3[3]	1	3	2	0	0	1	3	0
Public Health Inspectors	6	4	2	6	0	0	0	4	2
Other paramedicals	7[4]	0	7	3	0	1	3	6	1
Nurses[1]	410	375	35	310	80	-20-		225	185

1. Includes all matrons, sisters and staff nurses, who may be either 'registered' or 'enrolled', as well as 18 auxiliary nurses.
2. There are another 6 registered doctors who are inactive and 11 others who are not based in Swaziland.
3. Plus 1 other inactive practitioner.
4. Two occupational therapists and 1 optometrist, sanitarian, chiropodist, toxicologist and dental mechanic
5. Of the 19 citizen doctors and paramedicals, 15 were employed by government, 2 doctors and 1 dentist were in private practice, and 1 doctor was not active in medicine.

* From Gish, "Planning the Health Services of Swaziland"

mental sanitation program in rural areas, through spring and well protection, latrine construction, vector control, food and meat inspection and general sanitation.

A home economics diploma course (which includes a nutrition element) has recently been initiated. Dispensers and laboratory assistants are trained on the job. At present health inspectors are trained outside the country for three years following high school (completion of the O Level Examination). Nurse-Midwives are sent overseas (to India or elsewhere) for Public Health Nursing. Recommendations have been made by outside consultants and government officials that training for health inspectors and public health nurses be offered at the Swaziland campus of the University of Botswana, Lesotho, and Swaziland. All doctors, as well as dentists, pharmacists, laboratory technicians, physiotherapists, and radiographers are trained outside the country. There are currently 29 Swazis enrolled in premedicine (12) and medical school (17).

Summary

Since the government of Swaziland intends to allow the doctor/population ratio to fall, it is evident that it will be necessary to provide most health services through other types of personnel. The Ministry of Health is currently considering proposed manpower training recommendations. The major issue under consideration is how to assign responsibilities and to which categories of health workers; and, further, how to adapt training programs to prepare the health professional to deliver care and services, especially in the rural areas.

MATERNAL AND CHILD HEALTH AND FAMILY PLANNING SERVICES

Government Policy

One of the three policy objectives of the 1973-77 National Development Plan is "to create a situation within which a substantial moderation in the rate of population growth can be achieved within a reasonable period." In order to accomplish this objective, health education programs will be "increasingly geared toward education in family planning."

Services

Some family planning activities had begun before the arrival at the Ministry of Health in 1973 of the WHO team leader in the Strengthening of Health Services program. There are now three health centers providing family planning services (including IUD insertion), and some 30 health clinics distributing pills. The emphasis of the family planning program is to integrate family planning ("child spacing" is the preferred term) into maternal and child health services. The program is run by the Ministry of Health, with the support and technical assistance of WHO, UNICEF and UNFPA. Some contraceptives and supplies are furnished by USAID.

It must be noted that even when family planning services become available at all hospitals, health centers and clinics, only those who have access and use health facilities will be reached (perhaps less than half of all women of child-bearing age). This group does not include the important target group of nulliparous women. Finally, limitations on the nurses' time make it unlikely that many of those who get to health facilities will receive any education in family planning.

A post-partum approach to family planning has just been initiated (October, 1974), in order to inform women who have just delivered of the benefits of child-spacing, of the methods available, and where and when services can be obtained. This program will be carried out by Public Health Nurses several times each week and has already begun at Mbabane Government Hospital. (Note: Twenty-five percent of deliveries are performed in hospitals and clinics.)

Training

Training is another aspect of the MCH/family planning program of the Ministry of Health. Nurses are being given in-service training by the Health Education Unit, with emphasis on MCH and family planning. Ten nurses have been sent outside the country for special courses in MCH/family planning, sponsored by USAID and the International Planned Parenthood Federation (IPPF). Some education in family planning is being given informally in some schools, but the Ministry of Education is just in the process of developing a policy toward sex education. A questionnaire has been sent out to all schools in order to determine the magnitude of school dropouts due to pregnancy. It is hoped that once evidence of the problem is available, concrete steps can be taken to introduce education in contraception in the school curriculum without arousing a protest that this will lead to promiscuity.

Summary

Official commitment to family planning in the context of maternal and child health is strong. Donor response has been good; yet, there is need for considerable increase in effort in order to reach the target population. As noted, only 60 percent of pregnant women receive antenatal care and 15 percent of children under five are seen in clinics. It is evident that the majority of women of childbearing age are not now being reached through the health care system. If an MCH/FP program is to be effective, the health delivery system must be strengthened and its outreach expanded.

NUTRITION AND FOOD AID PROGRAMS

History

In 1938 a systematic study was carried out investigating nutritional needs of school children. Results showed that most children had no food until 5 p.m. A report from a 1940 committee composed of the heads of medical, educational, agricultural and veterinary departments recognized the need for cooperation between departments and the need for educating the people to better standards of living and production. A Nutrition Council Act of May 18, 1945, created a council to consist of the chief agricultural, medical, and education officers, a district officer and others. The function of the council was, "... to investigate and report ... upon all matters relating directly and indirectly to the prevention of malnutrition and the improvement of the diet of all the inhabitants of Swaziland ..." The Council was allowed to lapse but was revived again in 1972.

In 1961 a nutritional study was conducted by S.M. Jones. A summary of recommendations based on the results of this survey follows:[1]

1. To continue research into the development of high protein strains of maize and of the palatable, bird-resistant sorghum.
2. To discourage the cultivation of starchy roots and tubers.
3. To encourage legume planting, and to review the methods, preparation and cooking of sprouting beans and non-sprouting beans.
4. To bring into prominence the indigenous wild vegetables, and encourage the cultivation of vegetables containing large amounts of carotene.
5. To inquire into simple methods of vegetable preservation.
6. To encourage the consumption of wild fruits and to advocate the planting of guava and paw-paw trees near homesteads.
7. To improve milk production, without increase in the numbers of cattle.
8. To encourage the consumption of eggs, particularly as an item of food for the young child.
9. To develop fish farming.
10. To investigate the facilities for the transport and marketing of foods, and to seek methods whereby surplus food in one physiographic region is sold cheaply in another.
11. To concentrate energies on the cultivation of a high protein crop in the lowveld.

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1 Sonya M. Jones. A Study of Swazi Nutrition. Report of the Swaziland Nutrition Survey 1961-62 for the Swaziland Administration. (Institute for Social Research: University of Natal. Durban [South Africa]. 1963.)

12. To plan agricultural policy to include needs of the wife of the migrant worker cultivating the homestead lands.

+13. To provide a simple, nutritious food supplement at maternal and child health clinics for the pregnant and lactating woman and the preschool child, and at schools for all school children.

+14. To organize nutrition education for teachers, nurses and agricultural workers during training. To encourage it in schools, hospital clubs and community centers, in both rural and urban areas.

15. To send suitable Swazi candidates for training in Public Health Nutrition, Community Development and Home Economics.

16. To iodize table and cooking salt.

+17. To instigate family budget surveys in urban and peri-urban areas.

+18. To develop and expand mother and child health services in the Territory.

+19. To institute registration of births and deaths of the Swazi population.

20. To organize school medical and dental services.

+21. To expand existing services for the eradication of communicable disease and intestinal parasites.

+22. To expand laboratory facilities.

23. To appoint a nutritionist to the Territory with the object of coordinating all nutrition endeavors within the Territory.

School Feeding

In 1964 steps were taken to put some of these recommendations into effect in certain "Betterment Areas." These projects included aid to farmers, teaching of cooking to women, and provision of school meals. A UNICEF/FAO project designed to encourage vegetable and poultry production by farmers and at schools and to develop a program of nutrition education was phased out in 1971. A school feeding scheme was established in 1965 by Save the Children Fund (SCF). By 1971, 30,000 children at 230 schools were being fed for 1 cent/day, with 10 percent being fed free. (Over 50,000 children are being fed in 1974.) The SCF (called "Zondle," the siSwazi word for food) operates on a bulk commercial basis, handling the ordering of cereals which are

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+ Note: Many of these suggestions have already been wholly or partially implemented, but there are a number still awaiting action. Very little has been done to promote production of nutritional foods for home consumption (Suggestions 1-12). Iodization of salt, a process quite easily implemented, has not yet been accomplished.

milled and distributed to the schools by the local milling firm. Milk is provided free by the World Food Program and distributed through the SCF program.

As an outgrowth of the school feeding scheme, a school gardens program was begun again in 1970 with the dual aim of providing a demonstrable educational experience and of supplying vegetables to supplement the soup in the school feeding program. Excess vegetables may be sold and the proceeds applied toward the purchasing of supplies and for improving the program. The school garden program is considered to be one of the more successful small-scale nutrition/education programs.

In order to establish a school feeding or a school garden program the local community must request the program and supply the bricks for the kitchen and the labor for building and to cook the food. SCF then provides the other kitchen supplies (door, stoves, etc.) and the school gardens program (previously located in the Ministry of Agriculture but soon to be transferred to the Ministry of Education) supplies tools. The children then pay for the lunch, and the schools purchase the seed and fertilizer.

In responding to a questionnaire, headmasters from schools without a school feeding or gardens program declared lack of community support, lack of funds, and lack of water as reasons for not having a school feeding program. The possibility of beginning a water conservation project as an extension of the school gardens program is now being investigated by the school gardens coordinator.

Vulnerable Groups

The U.N. World Food Program supplies dried skim milk to some 18,000 preschool children, 5,000 expectant mothers, and 2,000 TB outpatients through government, mission and Red Cross clinics, in addition to providing milk to the school feeding scheme. WFP also provides foods to hospitals, boarding schools, and training and welfare institutions.

Nutrition Education and Training

The 1973-77 National Development Plan places primary emphasis on nutrition education through extension programs of the Public Health section of the Ministry of Health and the Home Economics section of the Ministry of Agriculture. A Food and Agriculture Organization nutrition advisor was recruited in 1973 to advise on nutrition education and training; to advise the Ministry of Agriculture on training of home economics extensionists (Domestic Science Demonstrators) and on revising teaching material for village teaching; and, to advise the Ministry of Education on nutrition components of the curriculum of primary and secondary school agricultural syllabi. The FAO expert assisted in designing new nutrition syllabi for primary and secondary agricultural schools and teacher training colleges and for Domestic Science Demonstrators, helped to design posters to be used in teaching sound weaning practices and gave suggestions for a booklet on nutrition to be used in the adult literacy program.[2] (Both of the latter have been produced by the Sebenta National Institute, a government-supported voluntary agency which developed the adult literacy program and is now providing learning aids, such as posters, and printed materials, and is developing photographic and broadcasting materials. Out of the 30 core words chosen for linguistic reasons and for content, 5 refer directly to health and nutrition subjects; others deal with education, agriculture, culture and development.)

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[2] B.E. VanDan (FAO Advisor in Nutrition, Education, and Training), "Report on an Assignment in Swaziland, March-August 1973." (mimeo)

A new Domestic Science Advisor has recently arrived in country. She is based at the UBLS agriculture branch, where the first diploma course in Home Economics will begin in 1974. She will also advise the Nutrition Council and the Ministry of Agriculture, and it is planned that a second Nutrition Advisor will be recruited. A number of Swazis have also been sent to Zambia for a degree course in Nutrition.

Very little nutrition is taught at the primary school level; a minimal amount is included in the teaching of health and in the home economics course taught in the last year. Twelve out of the 64 secondary schools offer home economics to Junior Certificate level; three to Cambridg Level. The syllabus for domestic science has recently been revised but is still overly sophisticated for the practical needs of Swaziland. Nutrition will be an important component of the agricultural syllabi recently introduced in ten rural secondary schools. A two-year course for secondary school teachers is taught at the Teacher Training college, and the new diploma course at UBLS Swaziland campus.

Suggested Initiatives

Other initiatives for further nutrition-related activities were suggested by a World Food Program project officer. These include:

1. Promotion of legumes for consumption and sale (by MUA);
2. Organization of a national seminar on nutrition for government officials;
3. Development of a local protein food;
4. Fortification of mealie meal with lysine;
5. Making use of bones from the Matsapha abattoir to produce dehydrated soup locally;
6. Launching an educational campaign aimed toward the men in the family.

Finally, it is important that we consider those recommendations suggested in the Jones report (outlined above) which have not yet been implemented. The nutritional impact on the population of agricultural policy must be borne in mind by agricultural and development planners. The 1973-1977 National Development Plan outlines five basic agricultural sector goals: consolidation of land holdings, strengthening of basic services (extension, marketing, credit, cooperatives), increasing marketed production of key food and cash crops (maize, cotton, tobacco), improving animal husbandry, and raising the annual offtake from the national herd to 15 percent. Nowhere is improving nutritional status of the population referred to, nor will any of the stated goals affect the nutrition of the population, except possibly through the long-range indirect effect of improving standard of living and purchasing power.

PLANNING AND FINANCING

Planning

Responsibility for the organization and planning of the health services in Swaziland rests with the Ministry of Health. However, coordination between government and mission health services is minimal, considering the large role played by mission hospitals and clinics in the delivery of health care. National health planning is done by the Ministry of Health together with the Ministry of Economic Planning and Statistics. Planning efforts are handicapped by the lack of reliable data on morbidity and utilization; further, there are few or no trained Swazi health statisticians, planners, or administrators.

National Health Priorities

The national health priorities outlined in the 1973-77 National Development Plan are based on the premise that "Health services should contribute to overall improvement in the level of living and quality of life of the mass." The objectives of the plan areas follows:

I. To improve overall standards of public health;

II. To maintain present levels of curative services;

III. To create a situation where moderation of rate of population growth can be achieved.

Priority areas for development include:

1. Expansion of preventive services in rural areas (rural sanitation, water protection, CDC);

2. Improvements in quality and distribution of basic institutional facilities -- clinics, urban health centers;

3. Development of health education - personal hygiene, nutrition, child care;

4. Expansion of training programs - particularly for paramedical staff.

Capital Investment

The 1973-77 capital investment program will be 75 percent financed by bilateral and international donors. An estimated 2.8-4 percent of that program will be spent on health services; an additional 8-10 percent is allocated to urban water and sewerage projects. Projected development expenditures for 1973-77 are outlined on the following page.

Central Government Investment

Projected Development Expenditures	1973/74 - 1975/6 (%)		1976/77 (%)	
Hospital development	(Rand) 665,000	(55)	360,000	(77)
Rural clinics	184,000	(16)	106,000	(23)
Public (Urban) Health Centres	73,000	(6)		
Other	279,000	(23)	-	
	1,201,000		466,000	

Relation of Health Expenditures to Stated Health Priorities

Oscar Gish notes in "Planning the Health Services of Swaziland":[1]

> As with the first plan, the second allocates 55% of total health sector expenditure to hospital development. (In the end, the first plan actually spent 75% on the hospitals.) If 1976/77 is included in the calculation the percentage rises to 62%, of which 3/4 at Mbabane Hospital (the capital) ... The second plan document notes that in spite of changed health development priorities the much greater capital intensity of the curative service means that some 2/3 of the investment programme over 1973/76 will be devoted to hospital developments ... In summary the second plan does not appear to be much more consistent in matching its health expenditures to its stated priorities than was the first.

Recurrent Expenditure

In 1973-74, 8.6 percent of the total government recurrent budget was allocated to the Ministry of Health. The planned recurrent expenditure was equal to $3,412,500, or approximately $7.20 per capita. Total per capita expenditure on health (including capital expenditure, mission, industrial, and private expenditure) comes to at least $10 per person per year, a very high rate of expenditure compared to other African countries.

Mission hospitals receive about one-third of their operating costs from Ministry of Health grants and an additional third each from patient fees and from donations. Hospital services absorb 70 percent of MOH expenditure, compared to 20 percent for preventive services and 10 percent for clinics and headquarter expenses combined. Less than 5 percent of operating costs of government medical services are paid by patient fees.

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[1] Oscar Gish, "Planning the Health Services of Swaziland." Consultancy Report, September, 1974.

Donor Assistance in Health

Bilateral donor assistance includes British loan funds for hospital development and construction of five rural clinics. (The U.K., the largest bilateral donor, will contribute a total of 6.8 million for all sectors over the three-year development period.) Funds from Danish export credits will be used to purchase equipment. USAID has contributed to clinic renovation and to the construction of a Public Health Centre, has financed technical assistance of a health planner and has contributed family planning commodities and sponsored participant trainees in MCH/FP.

The UNDP coordinates U.N. programs in Swaziland and administers funds-in-trust from the Swedish and Norwegian development organizations. Programs for 1972-76 include the following:

	Amount in US$
UNICEF Health, nutrition, education, and training: with participation by FAO, UNESCO and WHO	$ 375,000
UNFPA MCH program executed by WHO and UNICEF	280,000
WFP Feeding of vulnerable groups, assistance for institutional feeding	1,200,000

Summary

In order to improve coordination and planning within the health sector, it will be necessary to improve the health data information system, to train Swazi statisticians, planners, and administrators, and to set up a mechanism to facilitate government-private (mainly mission) coordination. Improved planning should help to reconcile health priorities with health expenditures.

APPENDIX I

Geographical Setting

Swaziland is a small landlocked country surrounded on three sides by the Republic of South Africa and sharing a 70-mile border with Mozambique. The area of the country is 6,705 square miles. It is roughly the size of the State of New Jersey.

The land is divided geographically into four distinct parallel north/south regions. The westernmost region is mountainous highveld (900-1,800 meters above sea level). Here the climate is temperate and rainfall adequate to support pine forests, diversified agriculture, dairy farming, and sheep grazing (with 49.5 inches mean annual rainfall). The middleveld (300-1,000 meters) is subtropical and drier, with 36.7 inches of rainfall, and supports cattle grazing and irrigated farming of corn, cotton, citrus, pineapple, rice, and tobacco. The lowveld (60-700 meters) is a subtropical and semi-arid savanna with 25.75 inches of rainfall. Crops grown in this region include sugarcane, rice, citrus, and cotton, with irrigation. The eastern region, the Lubombo Plateau, is similar in altitude to the middleveld and averages 30.7 inches of rainfall. Cattle ranching and some mixed farming is practiced in this area. Mean average temperatures vary from 60°F. in the highveld to 72°F. in the lowveld. Timing of the rainfall is critical to agricultural production. Critical periods for rainfall are at the time of planting and at the tasseling stage of maize.

Although there is no great population pressure on the land, since Europeans (2.3 percent of the population) own 47 percent of the land and settlement is sparse, the density in the Swazi nation lands is three times greater than on European-held land. Most of the white landowners are absentee South Africans who have not effectively utilized and developed their property. Forty-two percent of the Swazis live in middleveld, where the largest share of crops are produced. Croplands comprise only 8.8 percent of the total area and permanent grazing lands 73 percent of total area (5 percent of which is improved grazing land).

Population characteristics are discussed in Section II, A, of the report.

Historical and Political Development

The name of the Swazi is derived from the nineteenth century leader Mswati, who was largely responsible for the creation of the nation. During the period of negotiations between the Swazi, the British, and the Transvaal governments establishing Swaziland as an independent nation, concessions for farming, mining, and commerce and industry were granted by the Swazi ruler, Mbandzeni. These monopoly grants, according to anthropologist Hilda Kuper, "covered every conceivable activity of an agricultural and industrial country ... the period of use varied from 50 years to 'as long as grass grows and water runs' ..." A convention of 1894 granted the powers of protection and administration of Swaziland to the Republic of South Africa. However, after the Anglo-Boer War, the British government assumed these powers in 1903, ostensibly to prevent the Transvaal from gaining access to the sea through Mozambique.

Information in the section was obtained largely from Bibliography entries : Amer, et. al,, Annual Statistical Bulletin 1973, "Capital Funds Estimates," Department of State Background Notes, Hilda Kuper, G.M.E. Leistner and P. Smit, Jacques May and D. McLellan, and Richard Stevens.

Commercial and philanthropic interests in Britain exerted pressure against the incorporation of Swaziland into the South African Republic. Yet the British administration of the territory was negligent, and low literacy and poor health conditions persist to the present. The functions of government were left almost entirely in the hands of the chieftainships. The present Swazi king, Sobhuza II, became Ngwenyama (the Lion) in 1921. Throughout his reign Sobhuza has labored consistently to regain control of the concessions.

An Advisory Council of elected white representatives established in 1921 was officially recognized in 1944. At this time the Paramount Chief was recognized as Native Authority. The King (Paramount Chief) is advised by the Libandla (national gathering), recognized by the British through the Swazi National Council composed of Swazi chiefs. The Swazi treasury and Swazi courts were established later, in 1950. The major political party, the Imbokodvo (Grindstone) was established in the early 1960's and allied with the white United Swaziland Association in the 1964 elections. In this election, the Imbokodvo won all 24 elective seats, while the Ngwane National Liberatory Congress, the major opposition party, won 10 percent of the vote, mostly in the urban areas - but no seats. Following the elections, the Imbokodvo abandoned its white allies and pressured for immediate independence on the one-man-one-vote principle. Independence was granted in 1968 by the British Labour Government under a Constitution which established a bicameral legislature (following the British model). The Ngwenyama became head of state and a Prime Minister appointed by the King from Parliament became head of government. The Swazi National Council continues to advise the King on matters affecting traditional law and custom and mineral resources. The Council has control of a separate budget derived from mineral royalties. The result is a dual government system: the traditional government operates almost independently from the modern government and is united only because the King and a few ministers belong to both groups. In 1973 the Ngwenyama suspended the Constitution in order to allow a commission to draft a new Constitution more in keeping with Swazi custom and tradition, and therefore more suitable for Swaziland.

Local government is administered through four districts: Hhohho, Manzini, Shiselweni and Lubombo, each with a commissioner appointed by the Central Government. The towns of Mbabane and Manzini have municipal governments. There is virtually no modern local government in the rural areas, which are still controlled by some 172 chiefs.

Life Style

According to Hilda Kuper, the chief to whom a territory is granted has power to accept subjects and grant them land, as well as to evict them from the land. Homesteads (umuti) are the major social units under the control of the Umnumzana or headman. The homestead is made up of kinsmen and unrelated dependents - single men, widows and "borrowed" children. Polygamy is achieved by aristocrats and the wealthy.

Beehive huts of dried grass are usually built on hills and mountain slopes. In a traditional homestead there are three key structures: the cattle byre (grain pits controlled by the men); the great hut, controlled by the chief woman; and the bachelors' quarters at the entrance. A married woman receives her own huts and yard after being apprenticed for a year to the headman's "mother." The homesteads are not permanent, and are usually moved when the headman dies, if there is an epidemic, if the lands become exhausted, or if quarrels or disputes break out in the neighborhood.

Daily life is based on a cyclical agrarian calendar, beginning in spring (August-October) with planting of maize and millet along the riverbanks and planting of inland fields (groundnuts, sugar cane and pumpkins in addition to maize and millet), after the rains begin. During summer, the rainy season (November-January), weeding is the major occupation. The Incwala

harvest festival is celebrated at the end of the season. In fall (February-March) maize is cut; and, in winter (April-July) the millet is gleaned, threshing and winnowing are done. Winter is also hunting season and the time to build and repair the huts and to do entertaining and visiting. An increasing trend towards urbanization, with a shift of the population from rural areas to the Mbabane-Manzini Corridor, has disrupted traditional life styles. This had led to an urban housing shortage and to the creation of slums lacking sanitation facilities, garbage removal, street lighting, and other urban services.

The Economy

The economy of Swaziland is relatively diversified, based on modern sector mining, commercial agriculture, and small industries. Major exports are sugar, iron ore, and woodpulp. Other important services of export earnings include pineapple and citrus fruits, asbestos, wood and wood products, and meat and meat products. Export earnings are equivalent to 80 percent of GDP (1972). Tourism is a growing source of revenue. Most exports go to Europe, mainly the U.K. (33 percent); Australasia, mainly Japan (25 percent); South Africa (20 percent); and, other African countries (6 percent). Although Swaziland is not primarily dependent on South Africa for exports, more than half of goods imported come from South Africa.

Agriculture and forestry accounted for 57 percent of export earnings in 1972 and provide wage employment for 50 percent of the modern sector labor force. In the traditional sector agriculture, based on maize production and cattle holding, supports three-fourths of the total Swazi population. Together agriculture provides wage or subsistence employment for 90 percent of the population. In addition, agriculture accounts for 33 percent of GDP; 12 percent of total imports consisted of food and drink, one-sixth of which was maize, the basic subsistence crop (1972).

The modern sector produces about 85 percent of GNP (while absorbing 27 percent of the labor force). Nearly all the commercial agricultural output is produced on freehold land. For these reasons, disparities in income are great. Although per capita income reached $240 in 1974, per capita cash income in the traditional sector amounts to only $45 a year.

In 1970-71, 37 percent of government revenue was derived from customs and excise taxes and 26 percent from income taxes. The largest expenditure (20 percent of total) was for Finance, Commerce, and Industry, followed by Education (14 percent), Works, Power and Communications (11 percent), Agriculture (9 percent), and Health (7 percent). The 1973-77 Capital Investment Plan totals $61 million, of which 29 percent is allocated to power, transport and communications 19 percent to agriculture, 10 percent to education, and 2.5 percent to health. In the 1974-75 capital funds estimates, 2.4 percent was allotted to health; 10 percent to water and sewerage.

Note: Figures are based on 1971 statistics unless otherwise noted.

The Agricultural Sector

Although nearly half of the land is owned by expatriates, the remaining land is sufficient to support the present Swazi population based on traditional land allocation and the use of traditional methods of farming. Swazi nation land is communally held and distributed for community and individual use by the local chief. The chief also decides when planting and harvesting should be done and at what times cattle should be rotated, based on pasture conditions and time and amount of rainfall.

Freehold land produces nearly all the commercial agricultural output. In 1971-72 only 11 percent of Swazi Nation Land was used for crops. Three-fourths of this area was planted with maize. Other food crops include small amounts of ground-nuts, jugo beans, and sorghum. Five percent of the cropped land is devoted to cash crops: cotton, sugarcane and tobacco.

For the Swazi cattle represent both wealth and prestige. A combination of increased population and an increase in average cattle holdings has created a national average of 34 heads per kilometer, representing the highest cattle density in Africa. Since Swazi Nation Land carries 83 percent of the total, the average rises to 51 per square kilometer. The problem of overgrazing and resulting soil erosion is acute. However, since privately held livestock is grazed on public land, individuals have no incentive to reduce herd size, to improve pasture, or to improve breeding stock. The importance of health measures, however, is recognized, and owners willingly cooperate with the Ministry of Agriculture Veterinary Department. The major animal disease problem is tapeworm (Cysticercus Bovis), which affected 14 percent of the cattle slaughtered in 1970.

The marketing and transportation system is well established. There are 2,500 kilometers of good roads in Swaziland, and 40 percent of the population is within 4 kilometers of a main road, while only 35 percent is more than 8 kilometers from a main road. There are 220 kilometers of railway running from the western border across the country to the Mozambique capital and port at Lourenco Marques.

There is little small farmer credit extended in Swaziland because of lack of collateral. Communal land cannot be used by the individual, and the traditional farmer dislikes encumbering cattle. Studies are being made on the use of crops as security to obtain an agricultural loan.

The major emphasis of the agricultural sector for the 1973-77 plan period is the Rural Development Area (RDA) program (which accounts for 25 percent of the investment program). The RDA is a comprehensive agricultural project including consolidation of arable land, separation of livestock by fencing, road building and improvement, and soil and water conservation. Some thought has been given to the need for social services on the RDA's. However, provision of environmental sanitation -- water protection and sewage disposal -- has not yet been addressed. A number of bilateral and international agencies are involved in various aspects of the RDA program. The U.K. is financing land purchases of underutilized Individual Tenure Land for grazing in the RDA's.

Links with South Africa

Swaziland forms part of the southern African customs and monetary area. In 1974 Swaziland issued its own currency, the lilangeni (plural: emalangeni), which is tied to the South African rand. Although Swaziland is less dependent on South Africa than Lesotho for export of goods and labor, most imports are produced or processed in South Africa. Most external transportation

routes and access to markets and harbors are located in South Africa. The exceptions are the railway and roads connecting Swaziland with Mozambique.

South Africa does employ 20,000 Swazi laborers. This accounts (1966) for some 17.5 percent of the male labor force; a significant proportion. Twenty percent of total exports are purchased by South Africa.

Education and Manpower

The education system in Swaziland is based on the British model. Primary students begin their education in Siswati in Grades I and II, and English is introduced in Standard I. An examination follows Standard V, and those who pass continue into Form I. After Form III those who pass the Junior Certificate Exam continue into Form IV and sit for the Cambridge Overseas Examination after Form V. The school curriculum is academically oriented.

Seventy percent of the adult population is illiterate, and only 50 percent of the 5-19 age group is enrolled in school. The largest concentration of enrollment is found at the lower primary level, yet one-third of the children enrolled leave school without achieving literacy in Siswati. Statistics from 1972 indicate that less than one-fourth of entrants into primary and secondary school will complete the course without repeating or dropping out. Two-thirds of secondary school teachers are expatriates.

Since independence both primary and secondary school enrollments have increased significantly. In addition, a number of technical and vocational training programs have been established: the Swaziland College of Technology, with an enrollment of 300; the William Pitcher Teacher Training College, which enrolls 250; the Swaziland campus of UBLS, which provides diploma-level courses in various fields (agriculture, nutrition, etc.); and, a Staff Training Institute which provides introductory and in-service training in public administration for civil servants. An adult literacy program has graduated some 900 classes.

The lack of trained manpower acts as a constraint to development in all sectors, weakening absorptive capacity and reinforcing dependence on expatriate personnel. Government priorities for development of the educational system are reflected in budget allocations: 10 percent of planned capital investment of $61 million over the years 1973-77 is allocated to education. About 14 percent of the recurrent budget was spent on education (1970-71). Sixteen percent of the estimated 1974-75 capital funds were allocated to the educational sector.

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