

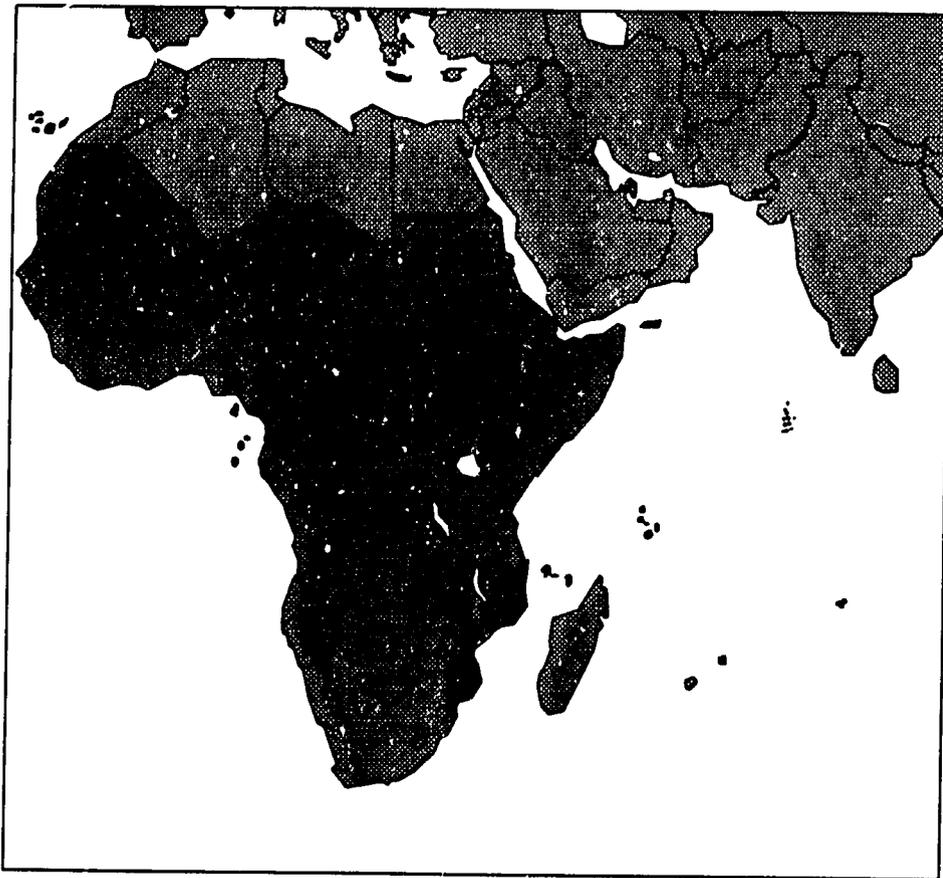
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CIHI Country Health Profile Series

MOZAMBIQUE

**Country Health Profile
1995**



Center for International Health Information
1601 N. Kent Street, Suite 1014
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MOZAMBIQUE

Country Health Profile

This is one of a series of Country Health Profiles produced by the Center for International Health Information (CIHI). Each profile provides quantitative and qualitative data on current health and demographic conditions and the health care system in a developing country. Profile information is compiled from CIHI's databases and reference library and through research and analysis of other data sources.

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In order to enable CIHI to report the most current health and demographic data, readers are encouraged to provide any more recent or more accurate information by contacting the center directly or through USAID's Office of Health and Nutrition.



CURRENT DEMOGRAPHIC AND HEALTH INDICATORS

Demographic Indicators			
INDICATOR	VALUE	YEAR	SOURCE
Total Population	15,495,400	1993	UNP9200
Urban Population	4,881,400	1993	UNP9200
Women Ages 15-49	3,514,600	1993	UNP9200
Infant Mortality	164	1993	WBK9302
Under 5 Mortality	280	1993	WBK9302
Maternal Mortality	300	1981	WHM9148
Life Expectancy At Birth	47	1993	UNP9200
Number of Births	695,124	1993	UNP9200
Annual Infant Deaths	114,000	1993	CALXX01
Total Fertility Rate	6.5	1993	UNP9200

Child Survival Indicators			
INDICATOR	PERCENT	YEAR	SOURCE
Vaccination Coverage			
BCG	64	1992	WHE9301
DPT 3	50	1992	WHE9301
Measles	56	1992	WHE9301
Polio 3	50	1992	WHE9301
Tetanus 2	30	1992	WHE9301
DPT Drop Out	NA		
Oral Rehydration Therapy			
ORS Access Rate	70	1993	WHD9401
ORS and/or RHF Use	60	1993	WHD9401
Contraceptive Prevalence			
Modern Methods (15-44)	NA		
All Methods (15-44)	NA		
Nutrition			
Adequate Nutritional Status	NA		
Appropriate Infant Feeding	NA		
A) Exclusive Breastfeeding	NA		
B) Complementary Feeding	NA		
Continued Breastfeeding	NA		

Other Health Indicators			
INDICATOR	PERCENT	YEAR	SOURCE
HIV-1 Seroprevalence			
Urban	1	1994	BUC9408
Rural	1	1991	BUC9408
Access to Safe Water			
Urban	44	1988	WHO9101
Rural	17	1988	WHO9101
Access to Sanitation			
Urban	61	1988	WHO9101
Rural	11	1988	WHO9101
Deliveries/Trained Attendants	28	1983	WHM9115

NA = Data not available.

For definitions of indicators, see data notes in Appendix B. For full citations of sources, see Appendix C.



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Acronyms/Abbreviations

AIDS	acquired immune deficiency syndrome
ARI	acute respiratory infection
BCG	Bacillus of Calmette and Guérin vaccine (to prevent tuberculosis)
DPT3	diphtheria, pertussis, tetanus vaccine (three shots)
CIHI	Center for International Health Information
EPI	Expanded Programme of Immunization
HFS	Health Financing and Sustainability Project (USAID)
HIV	human immunodeficiency virus
IMR	infant mortality rate
MOH	Ministry of Health
GDP	gross domestic product
GNP	gross national product
NGO	non-governmental organization
NHS	National Health Services
ORS	oral rehydration salts
ORT	oral rehydration therapy
PHC	primary health care
RHF	recommended home fluid (for ORT)
TT2+	tetanus toxoid vaccine (two or more shots)
STD	sexually-transmitted disease
UN	United Nations
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
U5MR	under-five mortality rate
WHO	World Health Organization
ZPCSP	Zambezia Pilot Child Survival Project (USAID)



EDITOR'S NOTES

*1. **References & Sources.** Sources in this profile are referred to by a seven-digit code. Generally, the first three letters refer to a source institution, the following two numbers refer to the year of publication or transmittal, and the final two numbers uniquely identify the individual source. A complete list of sources appears in Appendix C.*

*2. **Statistical Appendix.** Much of the quantitative data presented in graph form in this profile also appears in tabular form with specific references in Appendix A.*

*3. **Data Notes.** For definitions of indicators and commentary regarding their derivation, the reader is referred to Appendix B.*

*4. **Comparative Graphs.** Unless specified otherwise, indicator values for country groupings are median values for groups of available country-level values. Where no date is specified, values used refer to most recent available data. The groups are composed as follows: "Sub-Saharan Africa" includes available data for 47 countries comprising USAID's Africa Region, which does not include Egypt, Libya, Tunisia, Algeria, Morocco and Western Sahara. "Low-income Countries" includes available data for 54 countries classified as such in the World Bank's World Development Report 1993 (WDR 1993). "Developing Countries" indicators are drawn from available data for the 152 nations not classified as "Established Market Economies" in the WDR 1993.*



I. COUNTRY OVERVIEW

Geography

Mozambique is a country of roughly 16-18 million inhabitants located in southeastern Africa. It is bordered by Tanzania to the north, Malawi, Zambia, and Zimbabwe to the west, and South Africa and Swaziland to the southwest. To the east, across the Indian Ocean's Mozambique Channel, is Madagascar. The country can be divided into four distinct geographical regions: the lowlands, which comprise nearly half of the total of 802,000 square kilometers, the central uplands, the high plateaus, and a mountain range along the western border (see map inside back cover) (JHU9201).

History

Mozambique is a former colony of Portugal that became a socialist client state of the Soviet Union not long after independence in 1975. Violent civil war throughout the 1980s led to massive population displacement, a devastated economy, and the practical disappearance of government services in many areas. Although improved public health care was a central priority of Mozambique's socialist government, the health sector was a major victim of the war and continues to struggle even as the nation enjoys its first period of peace in decades. Due to Mozambique's legacy of instability, war, and poverty, data on social conditions tend to be based on best estimates or outright speculation rather than more reliable, scientific methods, limiting the possibilities for deeper analysis. In October 1994, Mozambique held its first democratic elections, choosing incumbent President Joaquim Chissano of the Mozambique Liberation Front (Frelimo) by a wide margin over Afonso Dhlakama of the Mozambique National Resistance (Renamo), the former rebel group which only recently had transformed itself into a political party.

Social and Economic Conditions

By most measures, Mozambique is among the world's poorest nations. Agriculture employs about 85 percent of the total population and accounted for 62 percent of Gross National Product (GNP) in 1988 (JHU9201). Daily caloric intake is among the world's lowest, estimated by UNICEF to total only 77 percent of requirements in 1988-90. According to the World Bank, Mozambique's level of \$80 GNP per person in 1990 was the world's lowest by a margin of twenty percent (see figure 1.1). Predictably, health conditions in this impoverished nation—as measured by infant and child mortality rates—are among the worst in the world, as the next section of this document shall detail. In other categories of social development, however, Mozambique does not fare quite as poorly: indicators of adult literacy (33 percent), life expectancy (47 years), and primary school enrollment (58 percent), for example, while not particularly impressive, exceed those of most of the world's poorest nations (UNI9401).

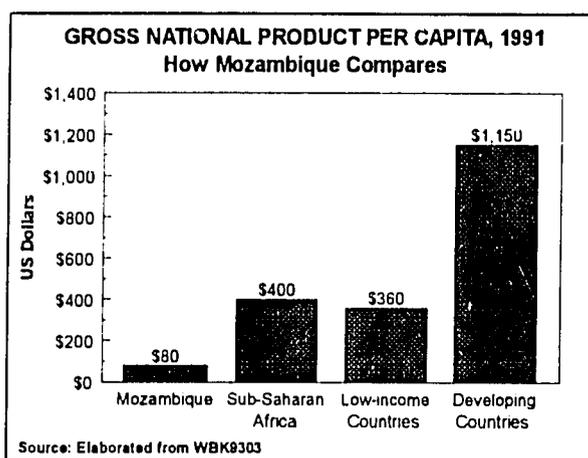


Figure 1.1

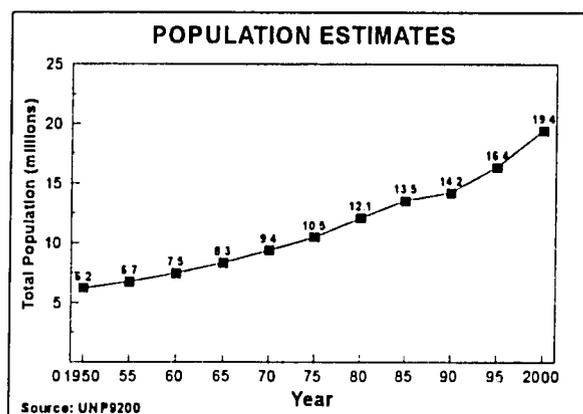


Figure 1.2



Population Dynamics

Estimates of the current size of Mozambique's population vary widely due to lack of data as well as some confusion caused by massive population movements. For 1995, the United Nations (UN) has projected a figure of about 16.4 million inhabitants (see figure 1.2), but other sources calculate that the population will have exceeded 18 million by this year (WHO9403). Estimates used by USAID/Mozambique for October, 1994, when nearly all refugees had returned from neighboring countries, place the total population at about 16 million inhabitants (AID9504).

Nearly one-fifth (18 percent) of the population is under the age of five and nearly half (45 percent) is under fifteen years old (see figure 3). The nation's total fertility rate is thought to have plateaued at about 6.5 children per woman since 1970 (UNP9200). While Mozambique's current estimated annual growth rate of 2.9 percent is on par with the regional rate for sub-Saharan Africa, this signifies a doubling time of only about 24 years (BUC9405). Estimates and projections by the UN on the decline of birth and death rates are presented in figure 1.4.

In the late 1980s and early 1990s, war and drought forced millions of inhabitants of affected areas to flee into larger cities within Mozambique as "internally-displaced persons" or into neighboring countries, particularly Malawi, as refugees. In 1990, the total number of displaced persons within Mozambique was estimated at nearly four million (over one-quarter of the national population) and refugees in neighboring countries were estimated to number another 1.5 million (WHO9305). As the war came to an end in October 1992, one million Mozambicans had fled to Malawi alone (UNH9301).

Since then, Mozambique has seen a remarkable and generally spontaneous return of displaced persons to their original homes (see figure 1.5). By the end of 1994, the last remaining refugees had returned from most neighboring nations and all but about 100,000 had returned from Malawi, according to the United Nations High Commissioner on Refugees (UNHCR) (UNH9401). Internally-displaced Mozambicans were estimated at just 684,000 in October 1994, under five percent of the national population (AID9504).

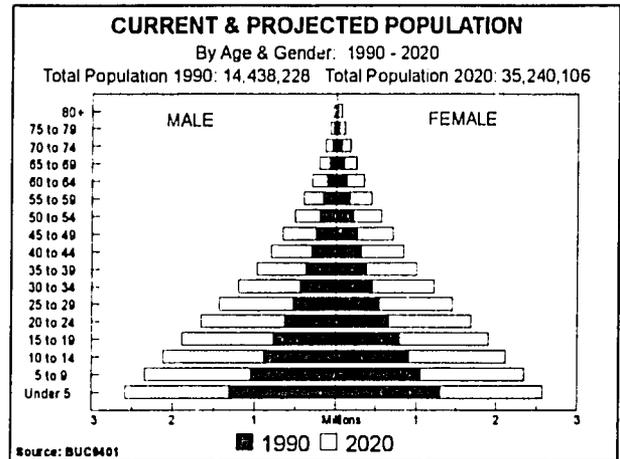


Figure 1.3

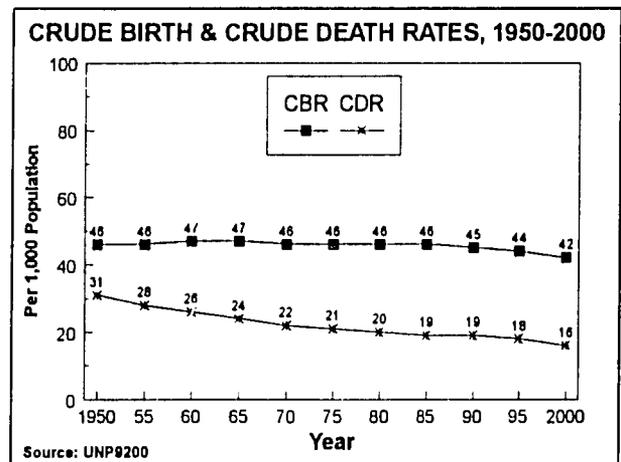


Figure 1.4

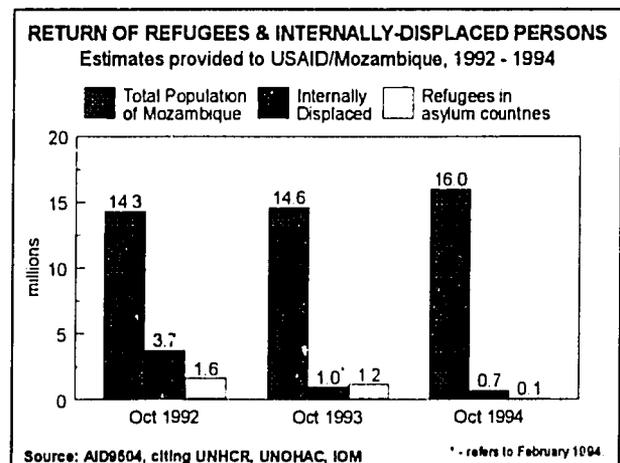


Figure 1.5



Due in part to this population displacement, Mozambique's urban population is thought to be the world's fastest-growing at an alarming rate of 8.7 percent per year, according to estimates by the United Nations (UNP9200). Urban residents are now thought to comprise over thirty percent of the total population (UNI9401). An official figure of just 20 percent for 1990 does not include sizable groups in periurban areas, which served as receptacles for the internally displaced during the civil war (WHO9305). Periurban communities were expected to continue growing with the influx of returning refugees, leaving inhabitants vulnerable to increased incidence of diarrhea and other conditions associated with inadequate water and sanitation measures.

Estimates for 1990 of the population of Maputo, Mozambique's capital and largest city, range from 900,000, according to a WHO report (WHO9305), to 1.5 million inhabitants, according to the UN Population Division. The latter source projected that the total will double by the year 2000, making Maputo Africa's fastest-growing major city (UNP9401). Each of the three next-largest cities, Nampula, Beira, and Quelimane, was thought to have about 400,000 residents in 1990 (WHO9305), though official estimates from 1986 are considerably lower (UND9401).

Nutritional Status

Limited food supplies in Mozambique have had an enormous impact on the population's health and productivity. Per-capita calorie supply, according to estimates by UNICEF, was fourth-worst in the world in the late 1980s, after Afghanistan, Chad, and Ethiopia (UNI9401). Malnutrition among Mozambican children has been rampant, a situation exacerbated by war, drought, poverty, and economic instability. Spot surveys in 1985-6 found prevalences of 34-40 percent for stunting (long-term malnutrition) and 3-7 percent for wasting (short-term malnutrition). Surveys in the Zambezi Valley in 1990 also found high prevalence for stunting (61 percent in rural areas, 29 percent in periurban) as well as a nine percent prevalence for wasting (JHU9201).

In 1992, the combined effects of drought and war contributed to similarly high levels of malnutrition among children. According to USAID's mission in Mozambique, widespread famine was averted only through a massive mobilization of food aid. Improved mobility, increased commercial activity, and two normal agricultural cycles led to much improved food security in 1993, a trend illustrated by data for the Zambezi Valley provided by World Vision International (see figure 1.6). While these figures provide a convenient time-series, it is important to realize that population movements can have great impact on rises and falls in nutritional or health status in a particular location. A rise to 7.1 percent malnutrition reported by Medecins-sans-Frontieres for Mutarara District in 1994 is believed to reflect the return of many families to isolated rural villages where they remained at extremely high risk of hunger (AID9504).

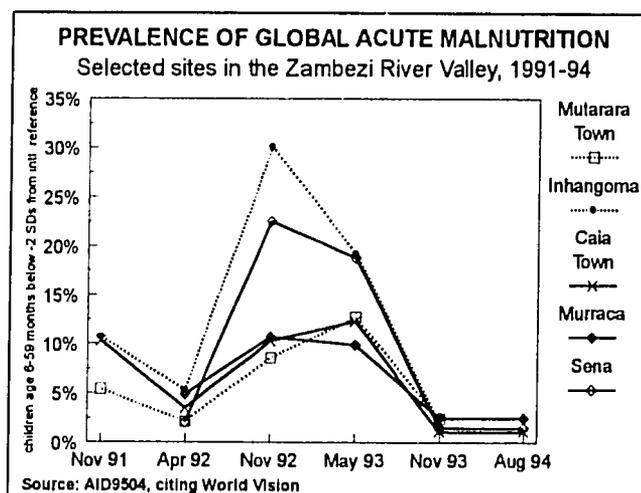


Figure 1.6

About fifteen to twenty percent of infants are estimated to have low birth weight, a major contributor to infant mortality (WHO9305, UNI9401). In war-affected areas, this figure was reported to be 25 percent in 1990 (WHO9305). In 1991, clinical surveys in Zambezia and nationwide reported 20 percent of infants with low birth weight (<2.5kg). These surveys also found that eight percent of women of reproductive age suffered wasting (body mass index < 18.0), which was found to be highly correlated between mother and child (MOZ9201).

II. HEALTH SITUATION ANALYSIS

Basic Health Indicators

Estimates of infant mortality, under-five mortality, and overall life expectancy in Mozambique are among the worst in all of Africa. Figures 2.1 and 2.2 compare these indicators for Mozambique with median values for sub-Saharan African nations, low-income nations, and all developing nations. While infant mortality rates (IMR) and under-five mortality rates (U5MR) have been improving elsewhere in Africa, they are not thought to have changed since 1950 in Mozambique (see figures 2.3 and 2.4). At 164 and 280 deaths per thousand live births, respectively, Mozambique's rates are thought to be the third-highest in the world, exceeded only in Niger and Angola (WBK9302). During the civil war, they were considerably higher. For example, in 1985, the U5MR was estimated at 325-375 deaths per thousand live births (JHU9201). A WHO report for 1992 estimated the IMR at 144 nationwide but over 200 in some parts of the country and just 90 in urban areas (WHO9305). It is doubtful that the latter estimate encompasses periurban populations, which are certain to have a much higher IMR.

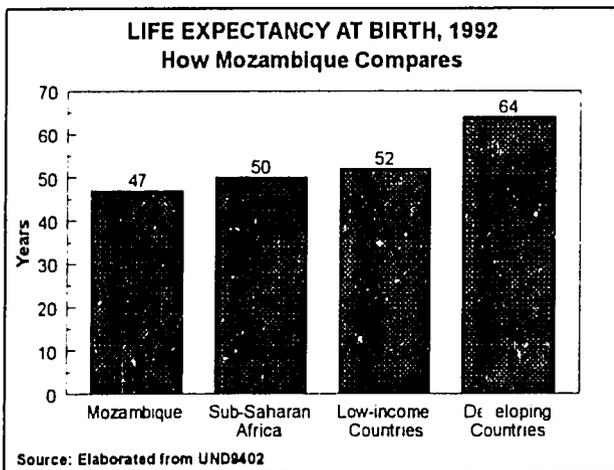


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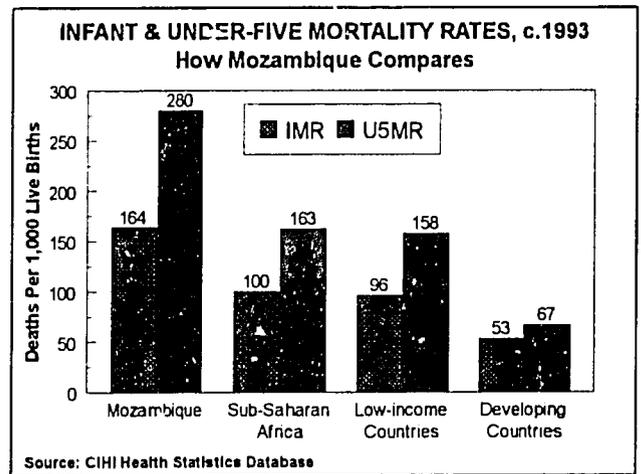


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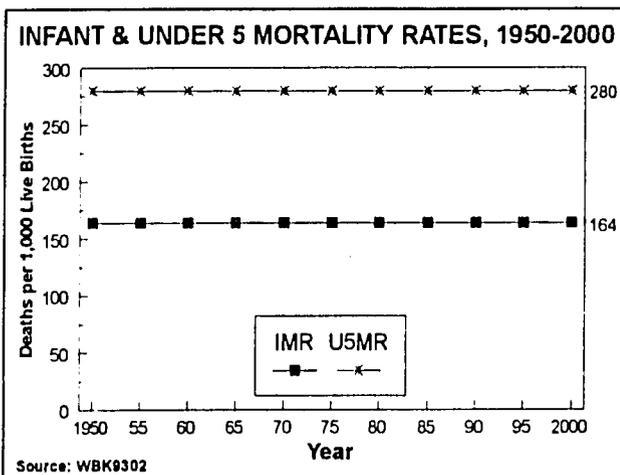


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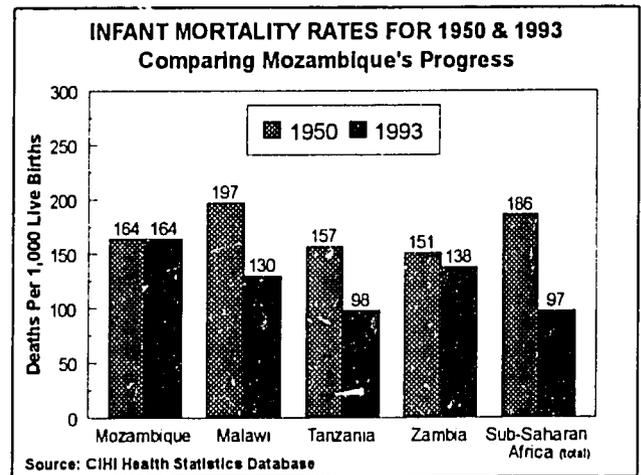


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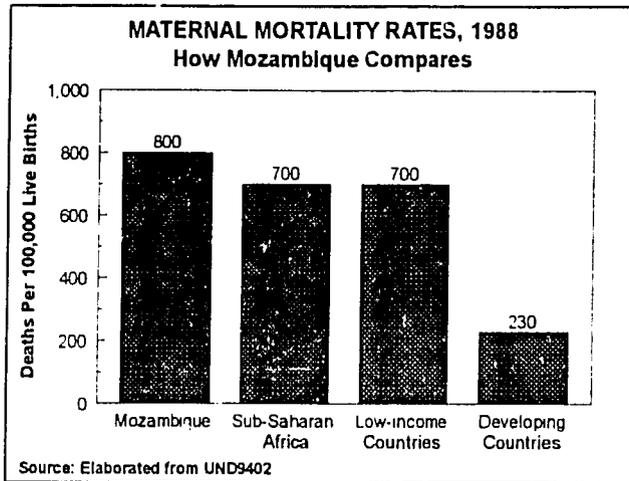


Figure 2.5

Estimates of maternal mortality (maternal deaths per 100,000 live births) vary widely, reflecting the difficulty of measuring this rate (see data notes). While the MOH estimates the rate at just 182 for 1990 (QUE9201), the UNDP's Human Development Report cites a figure of 800 from WHO for 1988, slightly above the median among sub-Saharan nations (see figure 2.5). Other estimates compare more favorably: the maternal mortality rate in 1980 was estimated at between three and four hundred maternal deaths per 100,000 live births, which appears to be the basis for UNICEF's estimate of 300 (also citing WHO)(UNI9401). More recently, the rate is thought to have lowered to between 260 and 300 (JHU9201).

Causes of Mortality and Morbidity

The most common illnesses in Mozambique are communicable diseases, most of which relate to poor environmental conditions and/or inadequate nutrition. Detailing causes of hospital admissions and hospital deaths, figures 2.6 and 2.7 provide some indication of the relative importance of various diseases, but the limited scope of hospital-based reporting in general and the large proportions attributed here to "other causes" both underscore the limited reliability of these data.

Among children, the most common causes of death are diarrheal diseases, acute respiratory infections (ARIs, particularly pneumonia and whooping cough), measles, and malaria, all of which are commonly exacerbated by malnourishment. Major contributors to morbidity among children also include malaria-induced anemia, helminthic infections, and nutritional deficiency syndromes (JHU9201, MOZ9201).

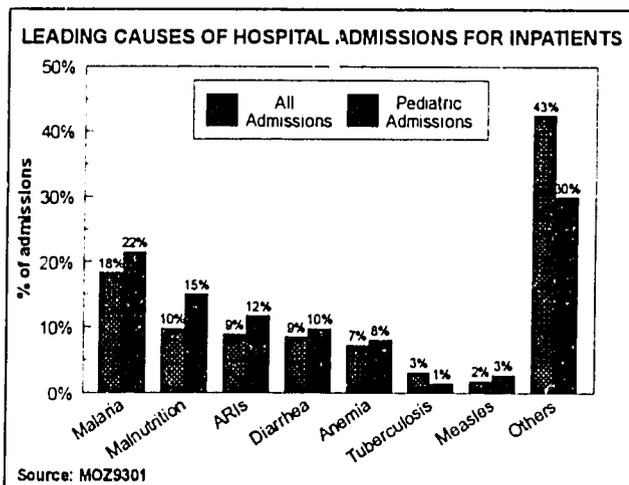


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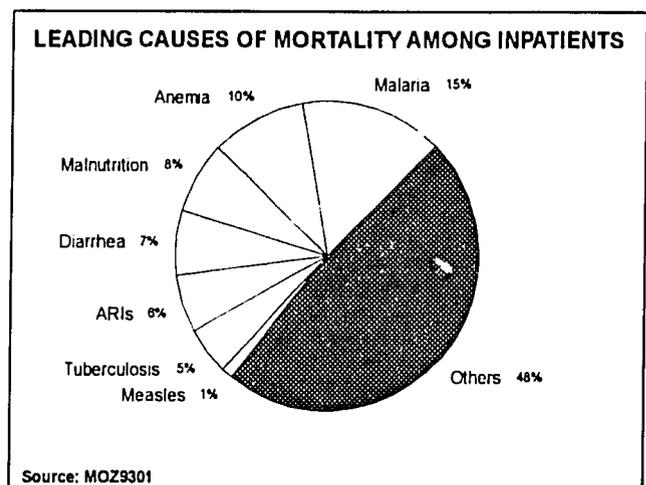


Figure 2.7



Among adults, the most commonly reported diseases are malaria, ARIs, diarrhea, tuberculosis, and measles. Women of reproductive age most commonly suffer from malaria, anemia, sexually-transmitted diseases (STDs), and birth complications (JHU9201, MOZ9201). Although estimates of total fertility are rather high, surveys in the early 1990s produced evidence of infertility among nearly 60 percent of women in Cabo Delgado province and 30 percent of women in Zambezia province. The MOH cites poor medical care in previous pregnancies, STDs, and malnutrition as the major contributors to barrenness (JHU9201).

Specific Health Problems

Diseases Related to Water and Sanitation

Limited access to safe water and inadequate sanitation measures lie at the heart of many common illnesses in Mozambique, particularly diarrheal diseases. Although some improvements in levels of access were reported in the mid-1980s, current levels estimated for Mozambique lag far behind estimates for other developing nations (see figure 2.8). According to the World Health Organization (WHO), only about one-quarter of Mozambicans had adequate access to safe water in 1988, among the lowest reported levels in the world, including 44 percent in urban areas and only 17 percent in rural areas. Access to adequate sanitation measures is also among the lowest in the world, reported at 61 percent in urban areas and just 11 percent in rural areas (see figures 2.9 and 2.10) (UNI9401).

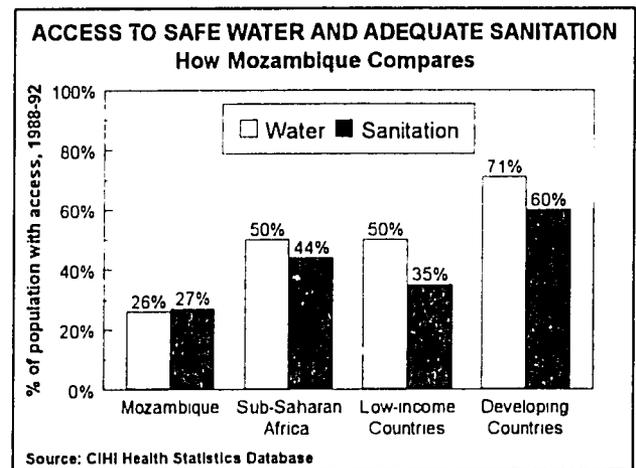


Figure 2.8

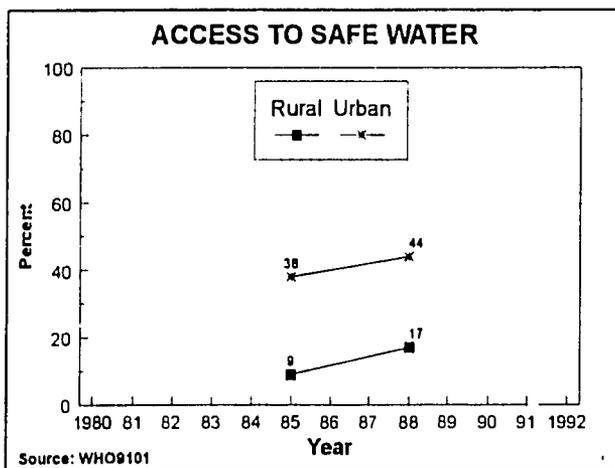


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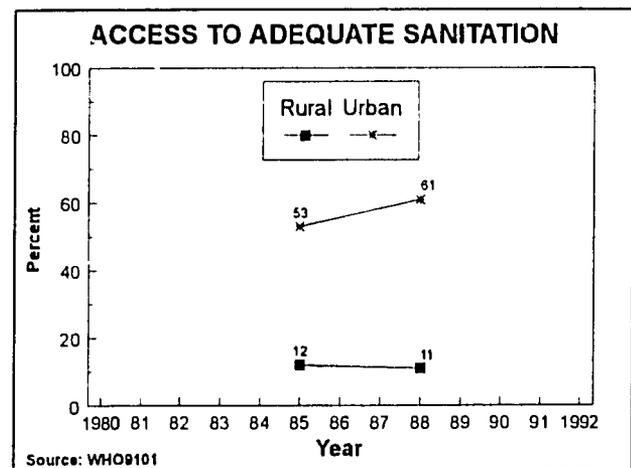


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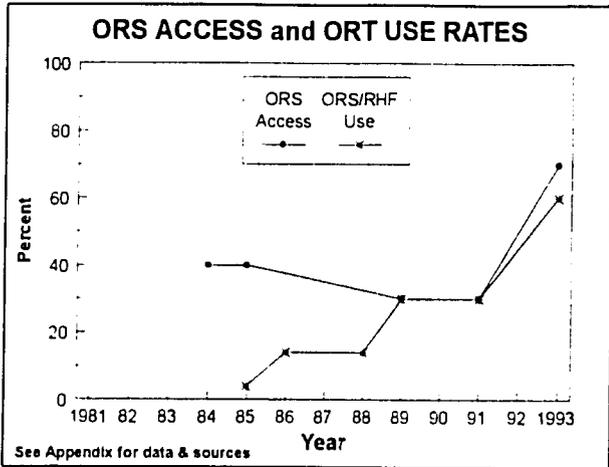


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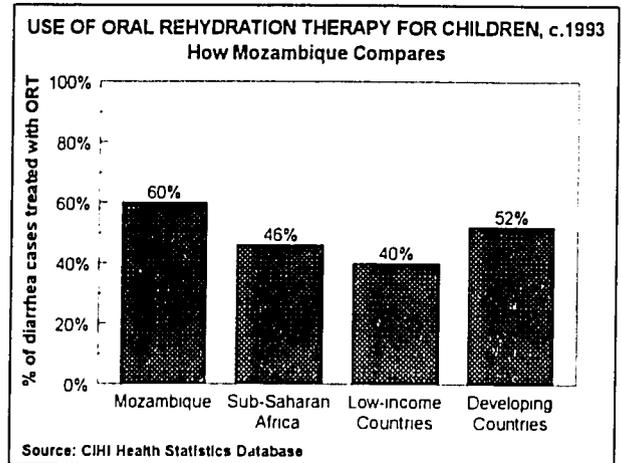


Figure 2.12

Diarrheal Diseases. As in most developing nations, diarrheal diseases are a major contributor to morbidity and mortality among children in Mozambique. A 1985 household survey found that children suffer an annual average of 4.7 episodes of diarrheal disease (WHD8900), just above the mean among national surveys cited by WHO. Access to oral rehydration salts (ORS) and use of oral rehydration therapy (ORT) to treat children with diarrhea have been very low historically but have reportedly risen to 70 and 60 percent, respectively, in 1993 (see figure 2.11). As shown in figure 2.12, this level of ORT use compares quite favorably with those reported for other nations.

Cholera. Among diarrheal diseases, cholera has become endemic to Mozambique with massive outbreaks reported in Zambezia, Nampula, and Sofala provinces in 1990-91. This epidemic claimed hundreds of lives in Zambezia Province and was directly related to fecal coliform counts in public water supplies (AID9408). In 1991, a total of 7,847 cases of cholera were reported with a case fatality rate of 4.7 percent. The actual fatality rate was thought to be higher, based on MOH reports that rates in various provinces ranged from 3 to 14.9 percent in 1990. Increases in reported cholera cases are suspected to directly relate to population increases in periurban areas which already lack adequate water supply and sanitation measures (WHO9305). For 1993, Mozambique's number of reported cases (19,803) and deaths (507) due to cholera were Africa's second-highest, after neighboring Malawi (WHO9504).

Other Diseases related to Water & Sanitation. Schistosomiasis is anecdotally reported by local health authorities to be widespread. Other parasitic diseases commonly reported from urban areas point to the special needs to be anticipated among populations lacking adequate water and sanitation measures. For example, a 1984 scabies epidemic spread to over half of Maputo's children, many of whom suffered infected lesions. Surveys conducted under the Zambezia Pilot Child Survival Project (ZPCSP) found particularly high prevalences of hookworm infection in periurban areas of Quelimane (48.3 percent of women, 30.9 percent of children). Other helminthic infections were found in 63.1 percent of women and 48.7 percent of children (JHU9201). Giardia and ascariis are also common in all age groups (MOZ8801). In 1994, there were reports of outbreaks of bubonic plague, which is preventable through improvements in hygiene (CAB9411).

Malaria and Anemia

Chloriquine-resistant *falciparum* malaria (resistant at R3 levels) is hyperendemic in most of the country with the exception of highland fringes bordering Zimbabwe and Malawi (AID9408). Malaria commonly leads to chronic and severe anemia among children and women of reproductive age and is thus often overlooked as an indirect contributor to morbidity (MOZ9201). Figures 2.13 and 2.14 present prevalence levels found by the ZPCSP for malaria and

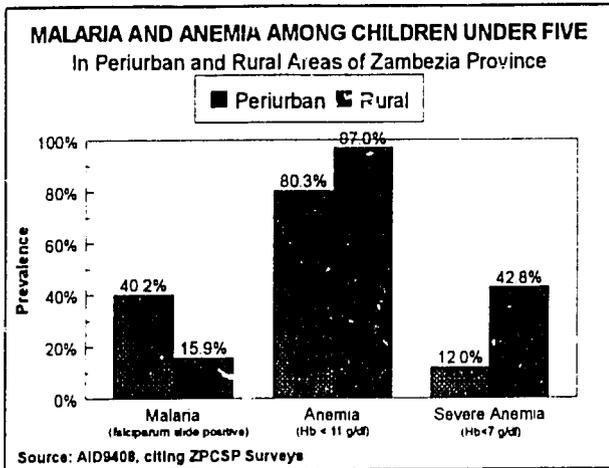


Figure 2.13

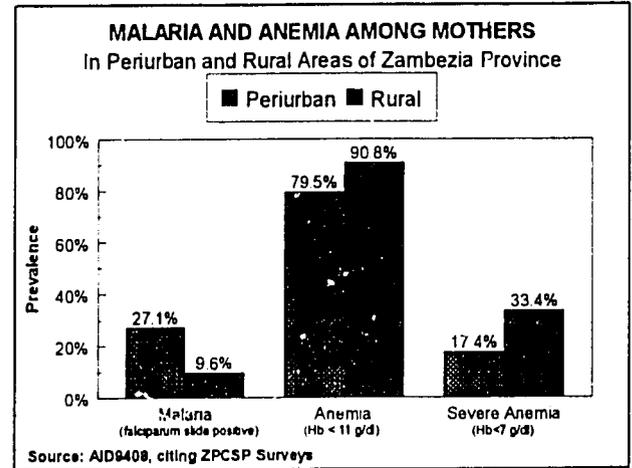


Figure 2.14

anemia among children and mothers in periurban and rural areas (JHU9201, AID9408). Figure 2.15 indicates that the estimated prevalence of anemia among pregnant women in Mozambique only moderately exceeds the median of prevalence levels reported for low-income nations.

Acute Respiratory Infections (ARIs) and other Airborne Diseases

ARIs—*S. pneumonia* and *H. influenzae*—are commonly reported in Mozambique, but facilities for laboratory confirmation via blood culture are scarce outside of the capital (MOZ9201). Periodic outbreaks of meningitis occur during the dry season. Like measles and tuberculosis, meningitis has historically spread most readily in periurban areas (MOZ8801).

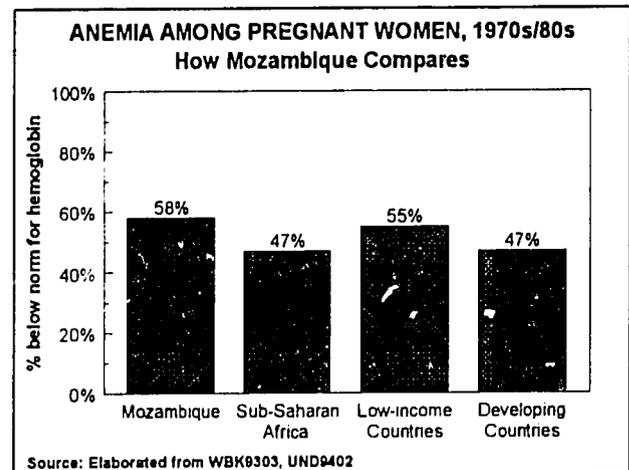


Figure 2.15

Vaccine-preventable Diseases

Crude incidence levels reported to WHO's Expanded Programme for Immunization (EPI) for various vaccine-preventable diseases appear in table 2.1. Actual incidence levels are certain to be considerably higher. Vaccination coverage rates in Mozambique indicated in figure 2.16 are far lower than those reported for other countries in the region, as illustrated in figure 2.17 for the case of DPT vaccination. Coverage rates for major vaccines have only improved slightly since dropping considerably in the early 1980s (see figures 2.18-2.22). Within Mozambique, rates are significantly higher in Maputo than in less accessible provincial towns and rural areas (MOZ9201). One may speculate that these differences will diminish following the establishment of peace in the countryside.

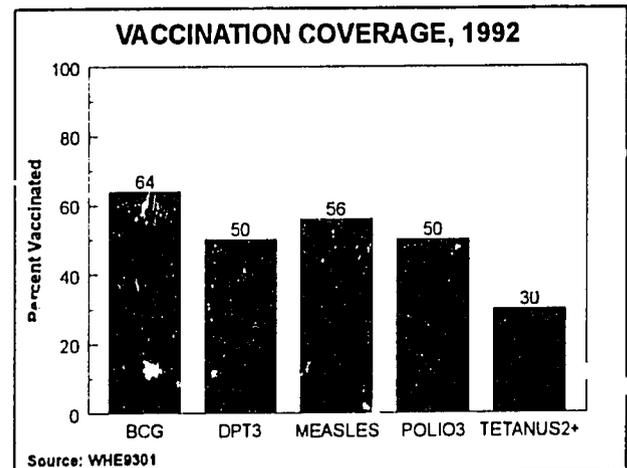


Figure 2.16

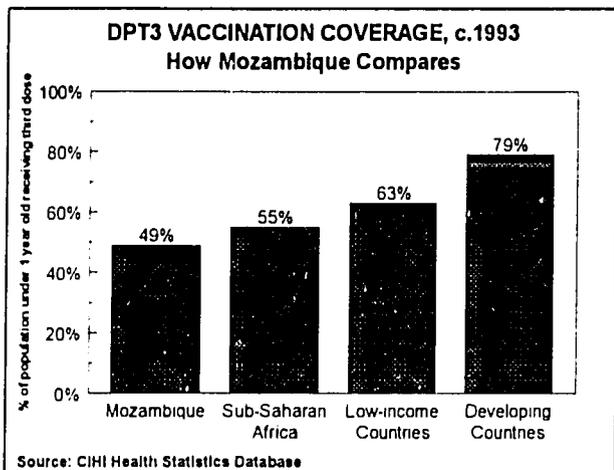


Figure 2.17

MOZAMBIQUE: REPORTED ANNUAL INCIDENCE OF EPI DISEASES, 1989 - 1993

Disease	1989	1990	1991	1992	1993
Tuberculosis	15,958	15,899	16,521	15,085	n.a.
Measles	23,036	18,296	4,983	3,148	5,506
Pertussis	726	451	240	564	n.a.
Total Tetanus	152	102	132	101	n.a.
Neonatal Tetanus	69	34	59	45	37
Polio	0	1	3	3	2
Diphtheria	1	0	2	2	0

Source: WHO9404, Reported Cases as of Aug. 29, 1994

Table 2.1

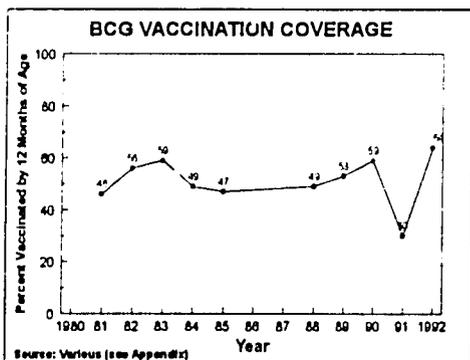


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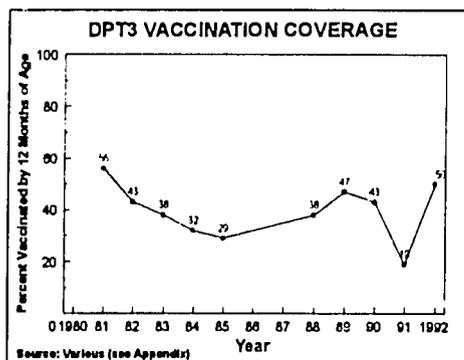


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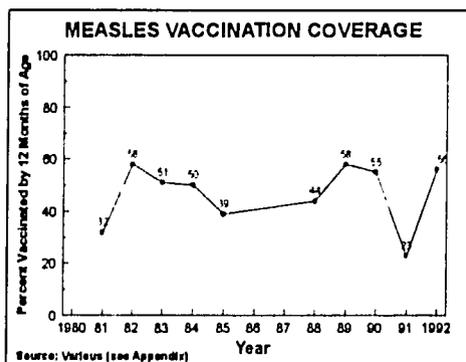


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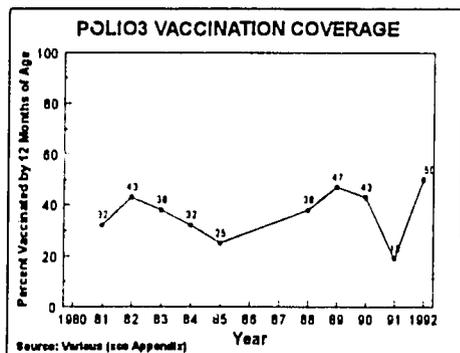


Figure 2.21

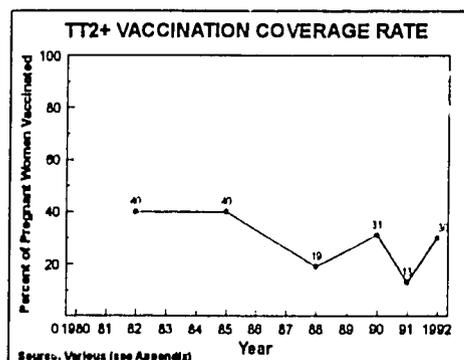


Figure 2.22



Measles. The interruption of immunization programs due to war has resulted in severe measles epidemics in the past, particularly in Tete and Zambezia provinces. In 1982, the annual incidence rate of measles in Maputo province was reported at 243 cases per 100,000 population. In 1990, the World Bank reported that about 3.5 deaths are recorded for each 100 measles cases (JHU9201).

Tuberculosis. The MOH reports 15,000 to 16,000 new cases of tuberculosis per year (WHO9404). The reported annual incidence rate of 189 cases per 100,000 population is high but compares favorably to many other sub-Saharan nations (see figure 2.23). While tuberculosis in AIDS and other patients may account for the majority of hospitalized patients in neighboring countries, this still did not appear to be the case in Mozambique in 1993, according to a study under the WHO (WHO9305). The anticipated rise of HIV/AIDS in Mozambique will probably be accompanied by a rise in tuberculosis rates as well. In 1990, the World Bank reported a fatality rate of about 3.5 deaths for each 100 tuberculosis cases each year (JHU9201).

Sexually-transmitted diseases (STDs)

Gonorrhea, syphilis, and pelvic inflammatory disease are major contributors to morbidity among women of reproductive age. Seroprevalence levels detected for HIV/AIDS are still relatively low but are expected to rise quickly with borders opening to neighboring countries to the north and west (AID9408). Rising levels of HIV seroprevalence would have major impact on infant and child mortality rates and would likely contribute to the resurgence of associated opportunistic diseases such as tuberculosis.

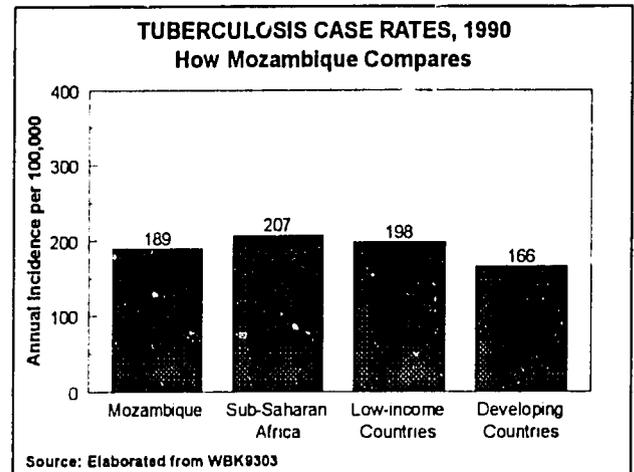


Figure 2.23

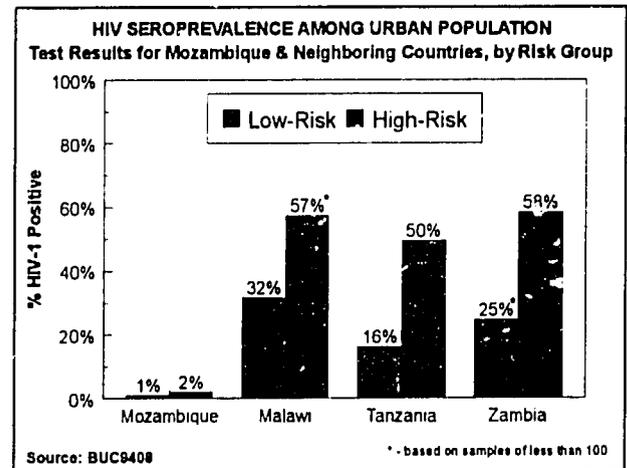


Figure 2.24

Figure 2.24, presenting HIV seroprevalence test results for Mozambique and neighboring countries, is based on data for various years gathered by the U.S. Bureau of the Census. The most reliable data for Mozambique date back to 1987 and 1991 and certainly do not adequately reflect the current situation. More recent data indicate that seropositivity has risen significantly but remains well under ten percent for low-risk groups. The epidemiology of HIV/AIDS in Mozambique and efforts to combat it are treated in more detail in Section IV.

Other Health Problems

Years of violent civil conflict have resulted in a large number of deaths and injuries both among the military and civilians. A great need still exists to rehabilitate handicaps remaining from the war and to remove millions of landmines which continue to pose a major health hazard. After a marked increase in deaths due to automobile accidents, reports of overall accidental fatalities rose to 4,000 in 1989 (WHO9305).



III. HEALTH SECTOR ASSESSMENT

Health Care Services

Access and Utilization of Services

According to UNICEF, just 39 percent of Mozambique's total population lives within one hour's travelling time to modern health services (see figure 3.1), one of the lowest estimated levels of access in the world (UNI9401). Since 1975, when less than ten percent of the population was thought to have access to modern health care, the government has strived to make primary health care (PHC) universally accessible. By 1985, preventive services were reportedly reaching about half of the population (WHO9403). Further progress was blocked by Mozambique's civil war, which not only diverted public resources away from the health care system, but also increased demand for health care services, inflicted direct violence against health care personnel and infrastructure, and disrupted other systems vital to health care delivery (JHU9201).

Mozambique's civil war also served to encourage the further concentration of resources in more accessible, urban areas. UNICEF estimates access to health services in rural areas at only thirty percent. The figure reported for urban areas—100 percent—reflects the urban bias in the distribution of services but also highlights the difficulty of defining access strictly in terms of travelling time, without considering the true availability of adequate health care services. It is doubtful, for example, that the health care delivery needs of low-income periurban residents are as fully satisfied as UNICEF's figures may imply. Focussing on utilization rather than access, figure 3.2 indicates that the percentage of pregnant women receiving prenatal care in Mozambique is not far below the medians for sub-Saharan Africa and developing countries in general. However, WHO's estimates indicate that the share of births attended by trained personnel in Mozambique lags significantly behind levels reported for other nations in the region (see figure 3.3).

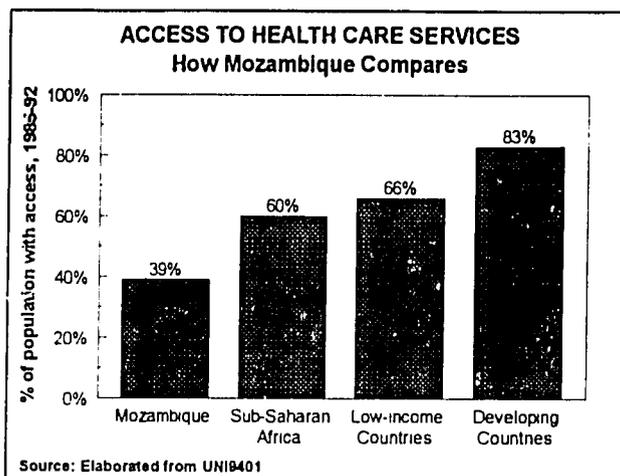


Figure 3.1

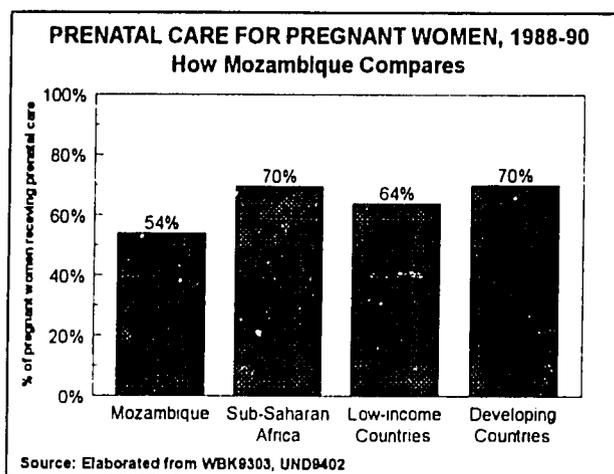


Figure 3.2

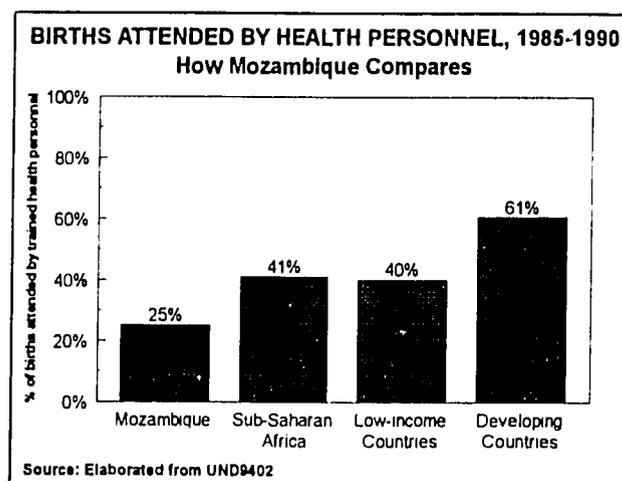


Figure 3.3

Health Care Personnel and Facilities

The World Bank estimates that in 1990 Mozambique had one physician for each 50,000 inhabitants (see figure 3.4), among the lowest such ratios in the world, and one hospital bed for each 1,280 inhabitants (WBK9303). The Ministry of Health calculates a similar ratio of population per doctor (about 65,000:1) but a much lower ratio of 614 persons per hospital bed (AID9408). The overall dearth of physicians is only partially offset by a high ratio of nursing personnel per doctor, estimated by the bank at 13:1 for 1990 (WBK9303).

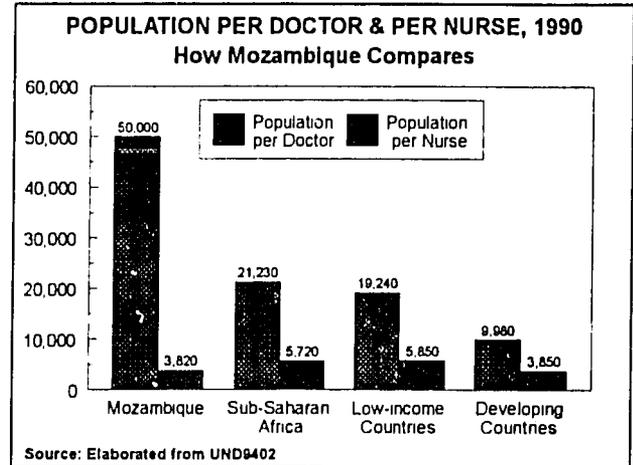


Figure 3.4

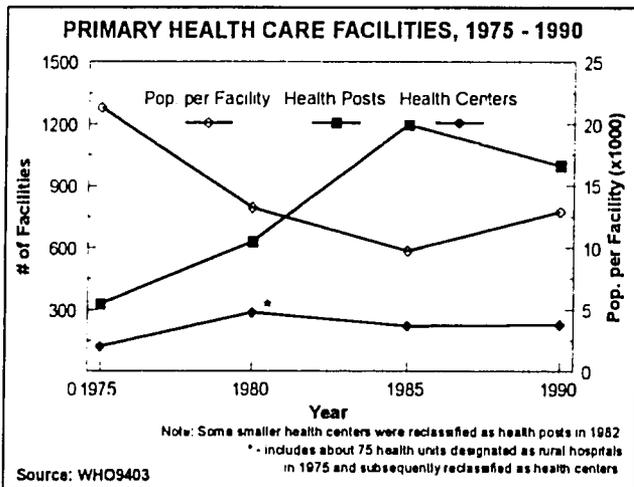


Figure 3.5

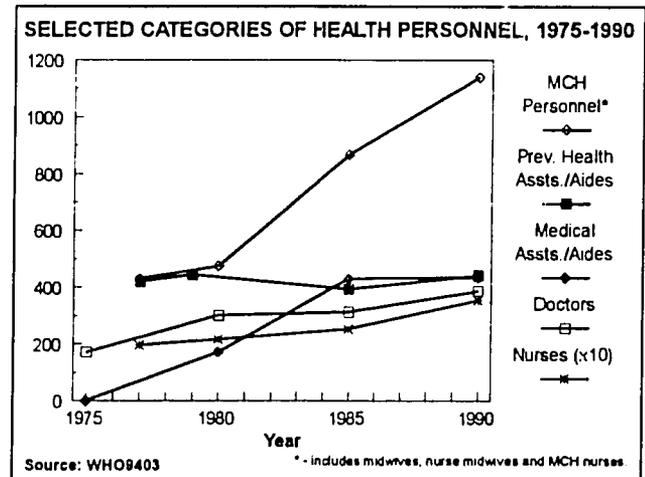


Figure 3.6

Figures 3.5 and 3.6 chart the evolution of Mozambique's primary health care system and growth in ranks of health care personnel since 1975 (also see table A.5 in appendix). Since independence in 1975, Mozambique has endeavored to recruit foreign expertise for its health care system while simultaneously building up local skills through improved medical training programs. While political and economic instability have limited the attractiveness of practice in Mozambique, today still more than half of the country's physicians are expatriates, many of whom are supported through public or private foreign aid (WHO9403).

Public Sector Services

Health services in the public sector are almost exclusively the domain of the Ministry of Health (MOH). Some health activities also take place under the Ministry of Defense. Water supply and sanitation services are the responsibility of the Ministry of Construction (WHO9403). The parastatal Medimoc has a monopoly on pharmaceutical imports (with special exceptions for UNICEF and certain non-governmental organizations (NGOs) and is responsible for distribution to the MOH's provincial supply centers (WHO9305). Another parastatal organization, FARMAC, distributes pharmaceuticals to consumers through a network of 45 retail outlets (AID9351).



Ministry of Health. As the primary body responsible for Mozambique's National Health Services (NHS), the MOH can be characterized by vertical, centrally-controlled units which commonly lack sufficient integration with other units and activities. Health planning and budgeting are primarily carried out at the provincial level, where health care activities are typically broken down into the following units: maternal and child health, biostatistics and planning, administration, nutrition, expanded program on immunization (EPI), tuberculosis, and leprosy. Provincial offices are responsible for supervising district-level health centers and health posts and compiling health statistics, but typically lack the personnel necessary for these tasks (JHU9201).

In the 1970s and 1980s, the MOH worked to increase access to PHC through intensive construction and renovation of health centers and posts. By 1987, total facilities reportedly numbered 1118 health centers and posts, 26 rural (district) or general hospitals, 7 provincial hospitals, and 5 central hospitals located in the major cities—Maputo, Beira, and Nampula (JHU9201). Since the late 1980s, emphasis has been placed on rehabilitation rather than construction of new health care facilities. Particularly noteworthy has been the rehabilitation of rural hospitals with assistance from the European Community (WHO9403).

Rural health posts and health centers comprise the first level of services in the NHS system, providing preventive and basic curative care and maternity services. Health centers staffed by nurses and paramedical personnel (and visiting doctors in urban areas) are designed to serve 25,000 people each and to supervise health posts in rural areas. The second level includes rural (district) and general hospitals, which are designed to provide curative services for 50,000 people with about 200 beds each. At the third level, provincial hospitals provide emergency services, some specialty care, and laboratory and blood bank services, and supervise and train personnel at lower-level facilities within the province. Finally, at the fourth level, central hospitals oversee regional services and operate specialty outpatient services and wards, laboratories, and blood banks (WHO9305).

New categories of PHC personnel were created to support the MOH's initiatives in the 1970s and 1980s, including medical assistants (*técnicos*) and aides (*agentes*), maternal and child health (MCH) nurses, and village health workers (*agentes polivalentes elementares*). Unfortunately, due to financial difficulties, the MOH has experienced great difficulty in retaining skilled health personnel and management (WHO9403).

The quality of care available at MOH facilities is likewise compromised by limited resources. With recurrent spending concentrated on salaries, health centers often have staff but few or no drugs, and mobile outreach teams commonly lack gasoline (WBK9303). Unsatisfied demand for government services is indicated by outpatients' inability to obtain prescribed drugs at MOH facilities in nearly half of all cases, waiting times of two or three hours at MOH facilities, and evacuation by the MOH of approximately 500 people each year to South Africa for medical care (AID9351).

USAID's Health Financing and Sustainability (HFS) project found the placement of physicians and overall public funding to favor urban over rural areas, certain provinces such as Maputo, Sofala, Niassa, and Inhambane, and higher-level facilities in general. Other personnel and facility expenditures were found to be much more equitably distributed across the health care system. However, considerable biases still stand out: the project reported preventive coverage to be highly disparate between urban and rural areas, which respectively had 14,000 and 59,000 residents per preventive health worker (AID9324).



Private Sector Services

After independence in 1975, the socialist government nationalized all health institutions, banning NGO and all other formal private activities in favor of government services (JHU9201). Despite the ban, the private sector maintained a position within the health sector and is now beginning to slowly expand. Private health care includes traditional medicine, religious and other non-governmental organizations, semi-private practice in "special clinics" within public facilities, clandestine practitioners, and commercial enterprises providing care for their employees. Drugs are distributed through 12 highly-regulated private pharmacies (in addition to parastatal outlets) and countless black market drug sellers, who commonly hawk merchandise stolen from formal health facilities (AID9351).

Traditional healers (*curandeiros*) and traditional birth attendants (*parteiras tradicionais*) were unaffected by the nationalization of health services and practice throughout the country, particularly in rural areas. *Curandeiros* have an association in Maputo. Exit interviews at a periurban clinic in Maputo found that roughly one in six respondents had previously consulted with a traditional healer before turning to the public health care system (AID9351).

Some NGOs were permitted to continue operations after 1975, including the Mozambican Red Cross, which has been particularly active in refugee centers (*Centros de Acomodação*), and the Organization of Mozambican Women (OMM), whose members receive training from the MOH to work as community health volunteers (JHU9201). The government has now established formal working agreements with some NGOs, recognizing the role that NGOs can play in health care delivery. Local organizations such as the Roman Catholic Church, the United Methodist Church of Mozambique (UMCM), the Grace Mission, and *Acção Cristã Interdenominacional para Saúde* (ACRIS) have returned to the health care arena by providing government facilities with personnel, supplies, and other support. Some have expressed interest in taking over management of non-functional or ailing public facilities. Another local NGO, the Mozambican Association for Family Development (AMODEFA), receives support from USAID to help the MOH improve PHC services. International NGOs primarily serve the health care needs of refugees and displaced populations and include Doctors Without Borders (MSF), World Vision International, Save the Children Federation (SCF), and the International Committee for the Red Cross (ICRC) (AID9351, QUE9200).

The government's ban on private health care forced many doctors and nurses to practice medicine in a clandestine setting in order to augment their incomes. Since 1991, the government has cautiously liberalized its stand on for-profit medicine. Recent legislation has acknowledged the existence of private health care and permits private practice by public sector doctors and nurses. Another change since 1991 has allowed a number of urban private companies to treat workers in on-site health facilities. According to the HFS project, for-profit providers are now preparing to open clinics in Maputo and Nampula (AID9351). Although recent developments have opened up opportunities, many important steps remain if the private sector is to significantly absorb demand for health services. In a recent report on expanding the private health sector in Mozambique, the HFS project noted that the government has maintained its monopoly on drug importation and has failed to create necessary incentives for NGOs and for-profit providers to establish and expand services.



Health Care Financing

According to estimates by the World Bank, per-capita spending on health in Mozambique was among the world's lowest at roughly \$5 per person in 1990. However, total estimated health spending of \$85 million amounted to 5.9 percent of gross domestic product (GDP), one of sub-Saharan Africa's highest levels (see figure 3.7). Over half of total health expenditure was derived from official foreign aid flows (see figures 3.8 and 3.9), a level approached only by neighboring Tanzania and Uganda among all nations cited in the bank's World Development Report 1993. Measured per-capita, however, these aid flows are actually below the median for sub-Saharan nations, as indicated in figure 3.10 (WBK9303).

Public Sector

Sources of Funding. Two recent assessments help to shed light upon the state of public health care financing in Mozambique: a 1993 report produced by USAID's Health Financing and Sustainability (HFS) Project (AID9324) and a 1994 country paper by the World Health Organization (WHO9403). As in other formerly socialist nations, overall expenditure has been heavily concentrated in the public sector, which accounts for roughly three-quarters of total spending on health, according to the World Bank's figures. In the case of Mozambique, nearly two-thirds of public sector funding is now attributable to foreign aid, which financed 62 percent of recurrent expenditures and 80 percent of investment in 1990 (AID9324). Domestic government expenditure thus accounts for only about one-third of overall public sector funding and just over one-fifth of total health expenditure (WBK9303)(see figures 3.8 and 3.11). Figure 3.12 illustrates the growing significance of foreign aid for recurrent costs since 1983.

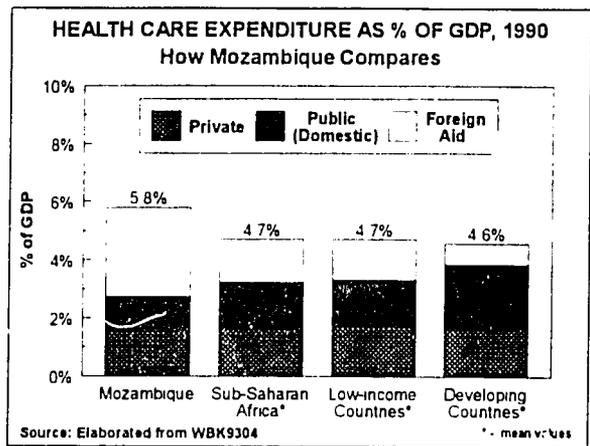


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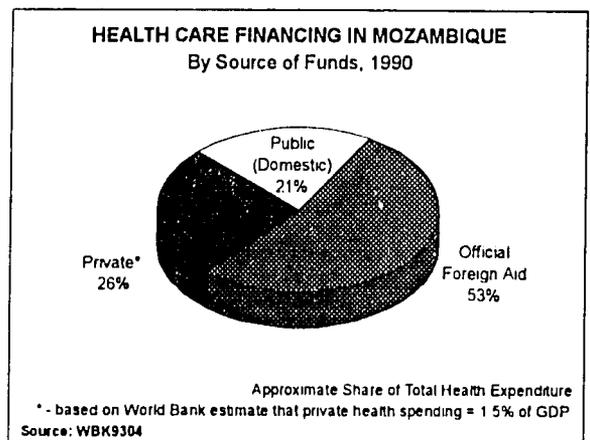


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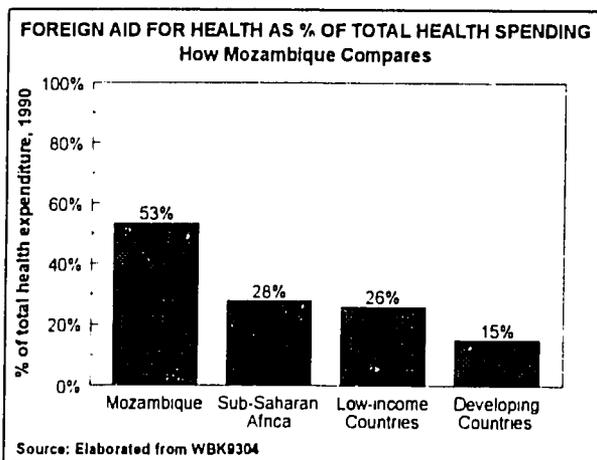


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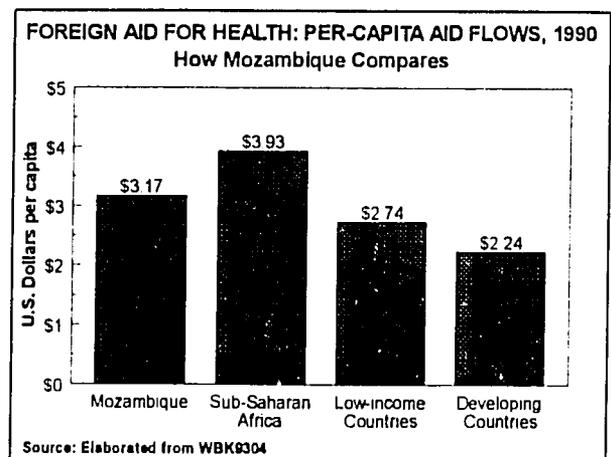


Figure 3.10

Mozambique's civil war was devastating both for the national economy and the health care system. In the 1980s, as millions of dollars worth of medical facilities and equipment were destroyed, government funds were increasingly deferred to the defense budget and unavailable for the health care system. By 1986, 42 percent of the government budget funded recurrent defense costs while the share spent on health had declined from 11.2 percent in 1982 to 8.1 percent in 1985 (JHU9201). According to the HFS Project, expenditure on health by the government of Mozambique amounted to just 4.4 percent of its total spending in 1990 (see table A6 in the appendix). Recurrent spending on health has consumed between 5 and 6 percent of the government's recurrent budget since 1988 (see figure 3.13). Figure 3.14, relating public health spending levels since 1980 to GDP, illustrates the gradual recovery of domestic spending as well as the enormous role played by external funding for the public health sector since 1986.

Per-capita health expenditure by the government (including foreign aid) amounted to \$4.03 per inhabitant in 1990, according to the HFS project. Figure 3.15 illustrates the gradual rise in per-capita public health expenditure since 1987. The World Bank has recommended that government spending on health increase by no more than 4.5 percent (AID9324). To improve services without increasing dependency on foreign aid, the MOH must utilize existing resources more efficiently and recover costs where appropriate.

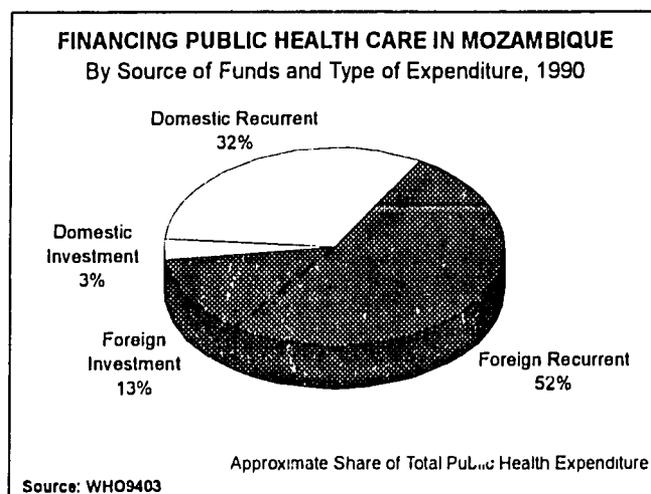


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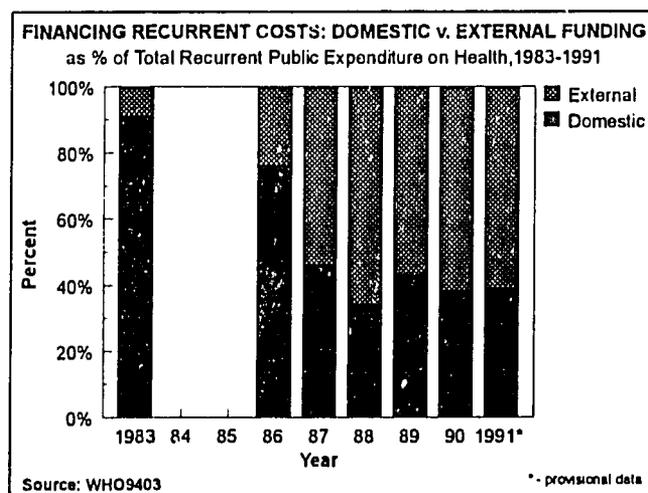


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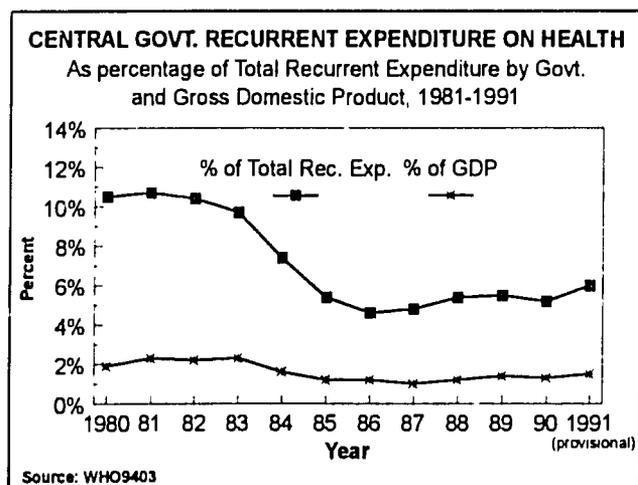


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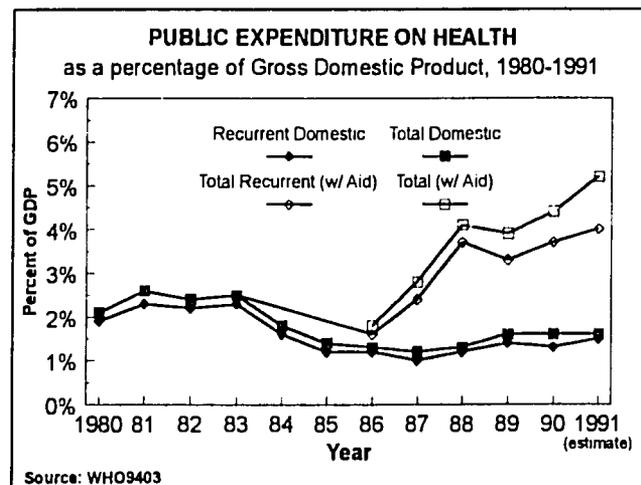


Figure 3.14



Cost Recovery. User fees have an established tradition in the MOH health care system, but revenues have dropped as prices have not been adjusted since 1987. The WHO assessment estimated that fees offset just over three percent of total recurrent costs in 1991 (see figure 3.16) (WHO9403). No charges apply for civil servants, persons with certain communicable diseases, users of pediatric and maternity services, and those deemed unable to pay (WHO9305). According to the HFS Project, normal user fees (*cobranças normais*) represented only 10 percent of total cost recovery in 1991 with the remaining 90 percent raised through drug fees (33 percent) and special clinics (57 percent)(AID9324). Special clinics have been established in three central hospitals in Maputo, Beira, and Nampula. The HFS project calculated that, on average, special clinic patients pay 22,500 meticaís (\$7.30) per visit, not including tests and medications. Tests can typically raise the fee to roughly \$27.00, or more than double the level of per-capita monthly expenditure in Maputo (\$12.00). Hard currency special clinics charge considerably higher prices (AID9351).

Social Insurance. A 1987 law requires private employers to cover employees' hospital fees with a stipulation exempting hospitalization fees due to accidents. A social security law of 1989 specified workers' rights to pension, sickness, and survivors' benefits but did not establish a basis for health insurance coverage. In 1993, the Social Security Institute drafted preliminary proposals for the creation of a Health and Social Fund based on mandatory contributions (WHO9305). Working with the institute, an ongoing study under WHO is currently examining the feasibility of establishing private or national health insurance in Mozambique (see reference WHO9305).

Allocation of Public Expenditure. In 1990, 84 percent of total public sector funding was applied to recurrent costs while investments accounted for just 16 percent (see figure 3.11). According to estimates displayed in figure 3.17, the lion's share of overall recurrent expenditure goes to paying salaries (AID9324). Other sources calculate that drugs and medical supplies financed through foreign aid account for roughly 50 percent of total recurrent costs (WHO9305). Domestic funding is more radically skewed toward payment of salaries, leaving funding for drugs almost completely in the hands of external donors (see figure 3.18) (WHO9403). Programmatic expenditure is highly subject to donor priorities, which in some ways may distort the distribution of funding away from the true needs of the Mozambican population. For example, according to the HFS project, the HIV/AIDS pro-

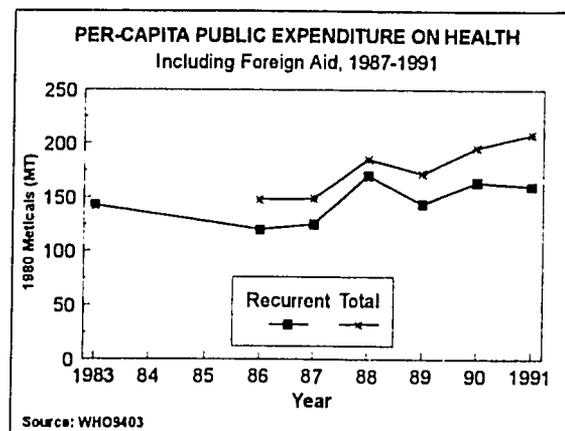


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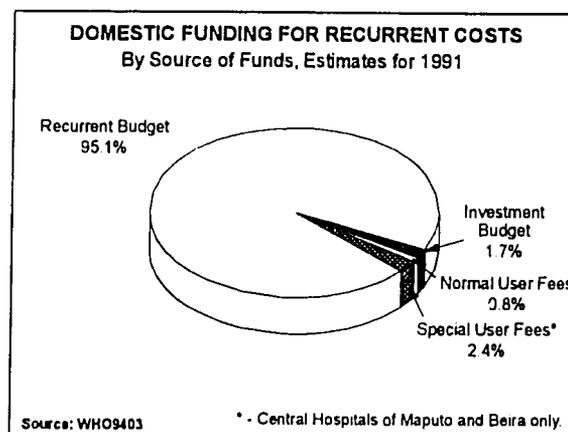


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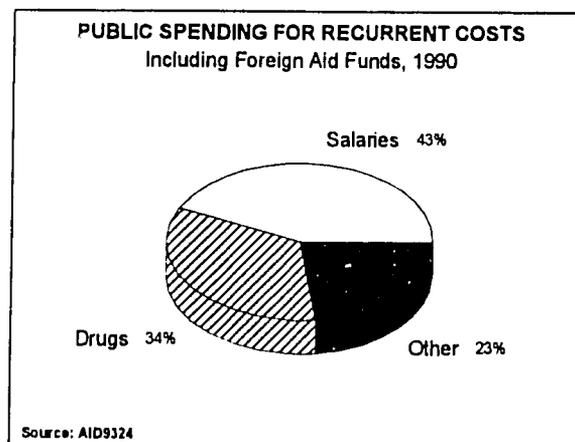


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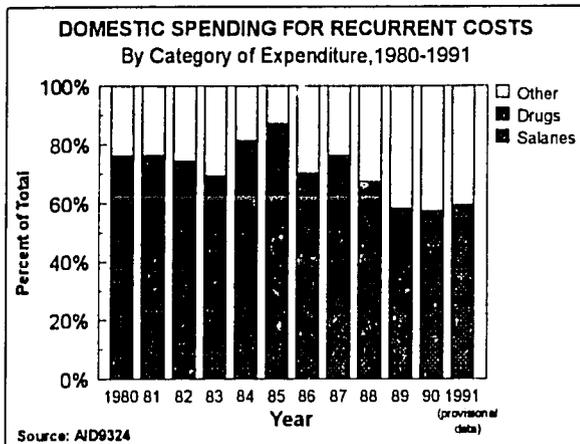


Figure 3.18

only about 40 percent of total funds for facilities. Per-capita recurrent expenditure varies widely between urban areas (\$6.90) and rural areas (\$0.90). According to the HFS project, the MOH has created a plan which will decrease dependency on donors and reallocate existing resources to further develop primary and secondary care services (AID9324).

Planning and budgeting within the public health system occur primarily at the provincial level, where expenditures are financed through block allocations from the Ministry of Finance combined with local revenues. Unfortunately, according to a recent review of health care in Mozambique, the MOH does not receive a complete accounting of how the provinces are spending their allocations, posing serious limitations to the overall health budgeting and planning process (JHU9201).

Private Sector

Private provision of health care occurs almost entirely on a fee-for-service basis. According to the HFS project, health insurance schemes are likely to be developed soon to serve the needs of large urban factories. Household surveys in Maputo in 1991 and 1992 found private expenditures on health to comprise less than one percent of overall consumer spending, amounting to roughly \$1.36 per year per capita (AID9351). The HFS project estimated private family expenditures on health in Maputo at roughly 58 percent of the government's spending on health (AID9324).

The Maputo household survey data indicate that drugs accounted for 67 percent of private health expenditures while out-patient visits and in-patient care respectively comprised 17 and 16 percent. Ambulatory patients pay for drugs either at government health facilities (where drug prices are lower due to a 75 percent subsidy) or at one of 57 retail pharmacies, where prices are marked up to cover transportation and other operating costs. Forty-five of these pharmacies are run by the parastatal enterprise FARMAC; the remaining twelve are private pharmacies which must adhere to FARMAC's regulated price structure (AID9351).

Traditional healers are commonly consulted and, at least in urban areas, fairly well-compensated, according to the HFS project. An association of traditional healers in Maputo has reported the average consultation fee at about 3,000 meticaís (\$1.00); a study of peri-urban areas by Ohio State University found traditional healers to be the highest-earning group among the self-employed, earning a monthly average of \$143.00 (AID9351).

gram had a 1991 budget six times the size of the malaria program and 3.7 times the size of the tuberculosis program (AID9324). Mozambique's National Planning Division anticipates a decrease in total foreign aid for health with a shift away from financing recurrent costs (WHO9305).

A 1992 study conducted by the HFS project with the MOH and USAID/Maputo found that public sector funding disproportionately favored secondary and tertiary care over primary health care programs, urban areas over rural areas, and certain provinces (topped by Maputo, Sofala, Inhambane, and Niassa) over others (particularly Cabo Delgado, Nampula, and Zambezia). Funding is concentrated on higher-level facilities such as central hospitals, leaving lower-level facilities such as rural hospitals with



IV. HIV INFECTION AND AIDS

Although Mozambique has reported far fewer AIDS cases and much lower HIV seroprevalence rates than found elsewhere in Africa, the HIV/AIDS pandemic is making swift inroads. A 1993 study by the World Health Organization (WHO) with Mozambique's Ministry of Health (M.OH) found that AIDS cases are doubling every eight months. The total of 322 cases reported in 1992 produces an incidence rate of 1.9 per 100,000 population, a jump from 1991's rate of 1.1 but still just a fraction of rates in neighboring countries to the north and west. Through July 27 1993, the country had reported just 826 cases of AIDS to WHO (see figure 4.1), 44 percent of which were women. Reported cases inevitably understate the true scope of HIV/AIDS in any country. Recent estimates of the actual number of cases reach as high as 200,000 (as of late 1994) (CAB9411). Efforts to improve detection of AIDS cases and conduct HIV seroprevalence tests have been hampered in the past by Mozambique's civil war, particularly in rural areas, where over 85 percent of the population lives.

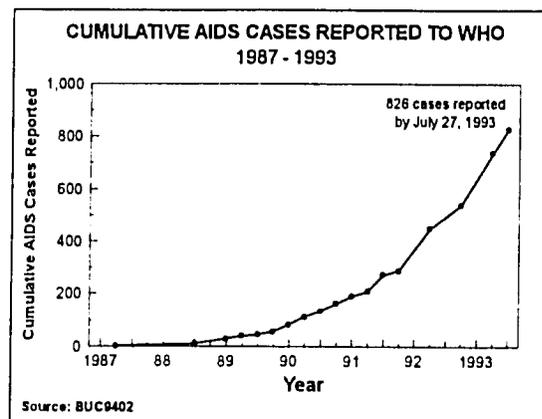


Figure 4.1

Figures 4.2-4.7 summarize the results of various HIV seroprevalence tests since 1987. The Panos Institute reported in 1992 that a series of small studies throughout the country indicated seroprevalence rates between three and five percent, suggesting a total HIV-positive population of about 750,000 (PAN9202). A recent report from the Tenth International Conference on AIDS in Yokohama cited national sentinel surveillance data indicating that seroprevalence levels among blood donors are much higher and rising (see figure 4.3). However, the same source reported more moderate test results among pregnant women (1.2 percent) and patients at sexually-transmitted disease (STD) clinics (2.0 percent) (BUC9407).

While HIV/AIDS is a nationwide problem in Mozambique, incidence rates are reported to be highest in provinces near Malawi and along the Beira corridor to Zimbabwe (WHO9301). In 1987, HIV testing among "healthy persons" in urban areas found the highest seroprevalence rates for HIV-1 in Nampula (2.2 percent) and Quelimane (2.1 percent). Even higher rates were found for HIV-2 in Nampula, Luchingo, and Maputo,

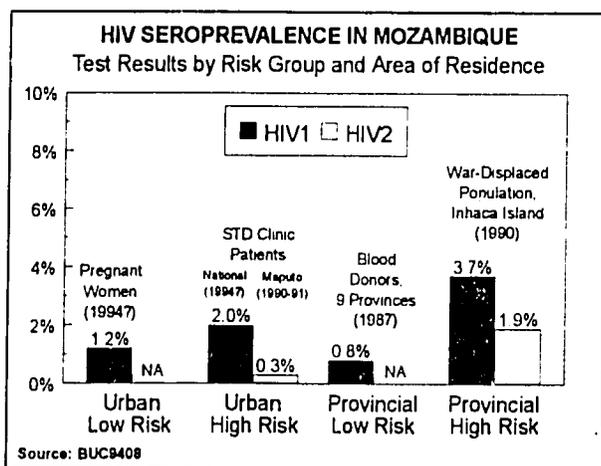


Figure 4.2

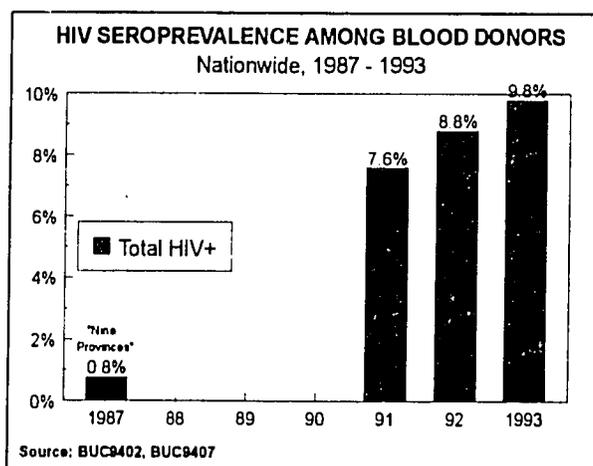


Figure 4.3

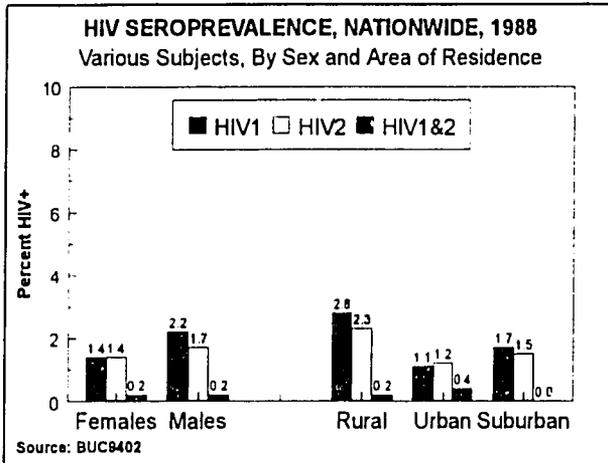


Figure 4.4

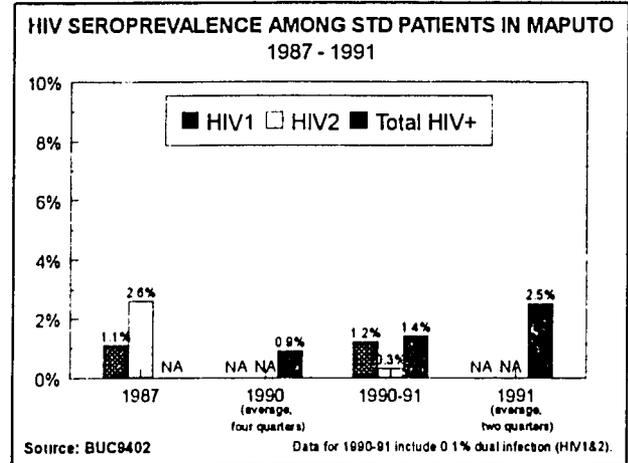


Figure 4.5

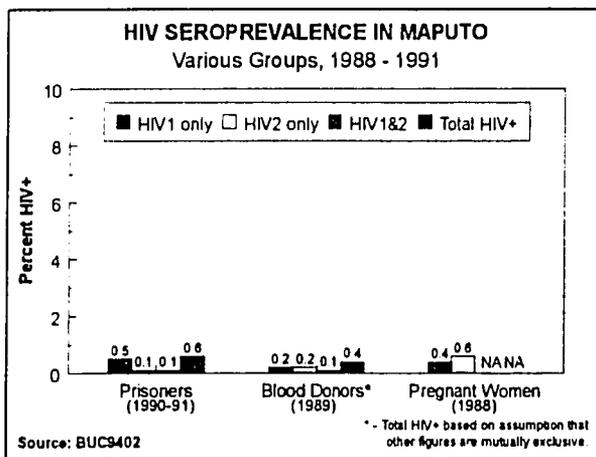


Figure 4.6

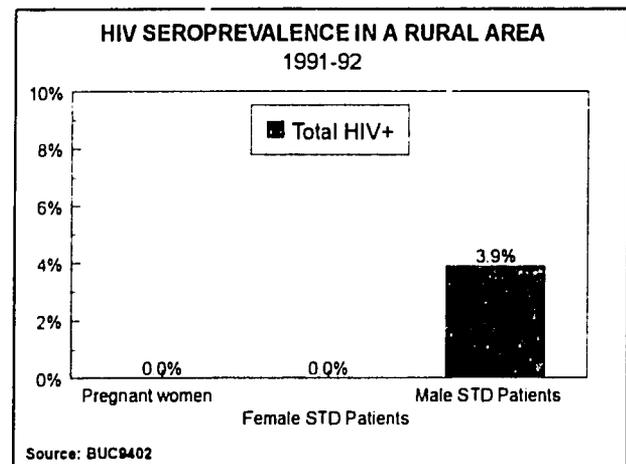


Figure 4.7

but this strain appears to have subsequently declined in relative significance. Tests among blood donors the same year indicated higher seroprevalence levels in Quelimane (2.8 percent). Tests in 1989 among blood donors in four cities also found the highest HIV-1 rates in Quelimane and Nampula (BUC9402). Most recently, tests in 1994 among adult tuberculosis patients in 31 districts found the highest HIV-1 seroprevalence — over fifty percent—in Manica province, which is bisected by the Beira corridor (BUC9407). Manica currently ranks second only to the city of Maputo in its number of confirmed AIDS cases (CAB9411).

Factors promoting the spread of HIV/AIDS in Mozambique include widespread dislocation and extreme poverty, which pushes increasing numbers of young women into prostitution in the cities. In the countryside, the civil war helped preserve ignorance about AIDS, incapacitated local health care systems, and directly spread HIV infection through sexual abuses by soldiers (PAN9202). Those currently considered at highest risk for HIV/AIDS include soldiers, STD patients, sexually-active youths and returning refugees (CAB9411). For more information on HIV/AIDS and other STDs in Mozambique, the reader is advised to consult Edward Green's *AIDS and STDs in Africa*, which features a chapter focussing on STDs and traditional medicine in Manica province (WVP9401).



National AIDS Control Program

National STD/AIDS Control Program. Separate STD and AIDS programs were in existence for five years before combining to facilitate adequate coordination and to share facilities and capabilities (WHO9301). The primary aim of Mozambique's program has been prevention through education among groups considered most at risk: young people, the war-displaced, and soldiers. According to the Panos Institute, the program has made particularly strong efforts to recruit traditional healers into the fight against AIDS. Resources for surveillance and condom promotion activities, however, have been extremely limited (PAN9202). Representatives of the program recommended in December 1993 that Mozambique's Second Medium-Term Plan to Control AIDS include efforts to expand STD surveillance and services within the health care system, assign priority to regions with higher HIV and AIDS incidence levels, and facilitate community participation to allow for better counselling and partner tracing (WHO9301).

Local Non-Governmental Organizations with AIDS Activities

Mozambique Health Committee. of Seattle, Washington, implements AIDS education, training, research, and blood testing through field offices in Maputo, Beira, and Manica, Mozambique, and in Mutare, Zimbabwe (NCI9201).

Mozambique Red Cross, through delegations in each province, promotes HIV/AIDS awareness among youth and displaced persons. Funded by the Swedish Red Cross (WHO9102).

MULEIDE (Women, Law, and Development) is a community-based NGO promoting legal, educational, and economic empowerment of women, has implemented HIV/AIDS awareness activities in and around Maputo (WHO9301).

International NGOs with AIDS activities in Mozambique

(WHO9102,WHO9301,QUE9200)

Africa Groups of Sweden, Recruitment Organization (ARO)
 Appropriate Health Resources and Technologies Action Group (AHRTAG)
 Botswana Red Cross Society
 Canadian Public Health Association
 CARE Britain
 Danish Association for International Cooperation / Danish Volunteer Service
 Mozambique Health Committee
 Norwegian Church Aid
 South African AIDS Training
 Swedish Red Cross
 Terre des Hommes Deutschland
 World Vision Relief and Development

International Donors supporting AIDS activities in Mozambique

(GAP9200,UNF9200,CAB9411)

Canadian International Development Agency (CIDA)
 Danish International Development Agency (DANIDA)
 The Government of France
 Norwegian International Development Agency (NORAD)
 Swedish International Development Agency (SIDA)
 United Nations Population Fund (UNFPA)
 United States Agency for International Development (USAID)
 World Health Organization, Global Programme on AIDS (WHO/GPA)



APPENDIX A: STATISTICAL APPENDIX

Trends in Selected Demographic and Health Indicators

INDICATOR	1950	1955	1960	1965	1970	1975	1980	1985	1990	1995	2000	SOURCE
Total Population (000s)	6,198	6,744	7,461	8,338	9,395	10,498	12,095	13,547	14,200	16,359	19,436	UNP9200
Infant Mortality	164	164	164	164	164	164	164	164	164	164	164	WBK8302
Under Five Mortality	280	280	280	280	280	280	280	280	280	280	280	WBK8302
Crude Birth Rate	48	46	47	47	46	46	48	46	45	44	42	UNP9200
Crude Death Rate	31	28	26	24	22	21	20	19	19	18	16	UNP9200
Avg. Annual Growth Rate	1.5	1.9	2.1	2.3	2.3	2.5	2.6	1.6	1.9	3.1	3.2	UNP9200
Total Fertility Rate	6.1	6.2	6.3	6.4	6.5	6.5	6.5	6.5	6.5	6.3	5.8	UNP9200

Table A1. Population and Mortality Trends, 1950-2000

YEAR	ACCESS TO SAFE WATER		ADEQUATE SANITATION		SOURCE
	Rural	Urban	Rural	Urban	
1985	9	38	12	53	WHO9101
1986	NA	NA	NA	NA	
1987	NA	NA	NA	NA	
1988	17	44	11	61	

Table A2. Access to Safe Water and Adequate Sanitation, 1985-1988

YEAR	ORS Access	ORS/RHF Use	SOURCE
1984	40	NA	WHD8700
1985	40	4	WHD8700
1986	NA	14	WHD8800
1987	NA	NA	
1988	NA	14	WHD9001
1989	30	30	WHD9100
1990	NA	NA	
1991	30	30	WHD9201, WHD9200
1992	NA	NA	
1993	70	60	WHD9401

Table A3. ORS Access and ORS/RHF Use, 1984-1993

YEAR	VACCINATION COVERAGE, 1980 - 1992					SOURCE
	BCG	DPT3	Measles	Polio 3	Tet. 2	
1980	NA	NA	NA	NA	NA	
1981	46	56	32	32	NA	WHE8701
1982	56	43	58	43	40	WHE8700, WHE8701
1983	59	38	51	38	NA	WHE8701
1984	49	32	50	32	NA	WHE8701
1985	47	29	39	25	40	WHE8701
1986	NA	NA	NA	NA	NA	
1987	NA	NA	NA	NA	NA	
1988	49	38	44	38	19	WHE8900
1989	53	47	58	47	NA	MRF9006
1990	59	43	55	43	31	WHE9200
1991	30	19	23	19	13	WHE9202
1992	64	50	56	50	30	WHE9301

Table A4. Vaccination Coverage, 1980-1992



Health Care Services

PRIMARY HEALTH CARE FACILITIES & SELECTED HEALTH PERSONNEL, 1975 - 1990								
Year	FACILITIES			PERSONNEL				
	Health Posts	Health Centers	Population per Facility	Doctors	Medical Assistants/Aides	Nurses	MCH Personnel*	Preventive Health Assts./Aides
1975	326	120	21300	171	0	1960**	430**	420**
1980	629	285#	13230	301	171	2156	475	444***
1985	1195	221	9730	313	430	2535	866	394
1990	996	226	12900	387	435	3547	1139	442

Some smaller centers were reclassified as posts in 1982. * - Midwives, nurse midwives & MCH nurses.
 # - includes about 75 units designated as rural hospitals in 1975 and subsequently reclassified as health centers. **1977
 ***1979.

Source: WHO9403

Table A5. Primary Health Care Facilities and Selected Health Personnel, 1975-1990

Health Care Financing

PUBLIC EXPENDITURE ON HEALTH CARE IN MOZAMBIQUE								
Year	% of total spending		% of G.D.P.				1980 MT per capita	
	Domestic, Recurrent only	Total, w/ Aid & Investment	Domestic, Recurrent only	Domestic, including Investment	Total Recurrent, with Aid	Total, including Investment	Total Recurrent, with Aid	Total, Including Investment
1980	10.5%	-	1.9%	2.1%	-	-	-	-
1981	10.7%	-	2.3%	2.6%	-	-	-	-
1982	10.4%	11.2%**	2.2%	2.4%	-	-	-	-
1983	9.7%	-	2.3%	2.5%	2.5%	-	143	-
1984	7.4%	-	1.6%	1.8%	-	-	-	-
1985	5.4%	8.1%**	1.2%	1.4%	-	-	-	-
1986	4.6%	-	1.2%	1.3%	1.6%	1.8%	120	148
1987	4.8%	2.8%	1.0%	1.2%	2.4%	2.8%	125	149
1988	5.4%	4.1%	1.2%	1.3%	3.7%	4.1%	170	185
1989	5.5%	3.9%	1.4%	1.6%	3.3%	3.9%	144	172
1990	5.2%	4.4%	1.3%	1.6%	3.7%	4.4%	164	198
1991*	6.0%	5.2%	1.5%	1.6%	4.0%	5.2%	160	208

Source: WHO9403 AID8323, **JHU8201 WHO9403 WHD9403

* - estimate / provisional data.

Table A6. Public Expenditure on Health Care in Mozambique, 1980-1991

APPENDIX B: DATA NOTES

Notes On Mortality Estimation

References to infant and under 5 mortality rates for individual countries or groups of countries are largely drawn from CIHI's Health Statistics Database. In past years, the primary source of data on infant mortality was the World Population Prospects, a set of estimates updated every two years by the Estimates and Projections Section of the Population Division of the Department of International Economic and Social Affairs, United Nations. The primary source of data on under 5 mortality was a special report published in 1988 by the same group. Where another source, such as a recent Demographic and Health Survey or a national census, was available for a given country, the reported values from that source were cited in place of the United Nations estimates if the technical staff of USAID in the Country Mission and/or the appropriate regional bureaus confirmed the validity of the alternative source.

United Nations estimates, known as indirect estimates, are generated from accepted demographic models which combine the results of all available surveys and censuses in a given country to produce a single time series of estimates and projections. When new empirical data become available for a given country, the entire time series of estimates and projections is updated. Thus, using conventional demographic approaches, a survey done in 1990 may generate a new estimate of a mortality rate for 1970 or 1980.

In 1993, a new set of estimates for mortality was generated for 82 countries for publication in the World Development Report 1993 and UNICEF's The Progress of Nations. Based on a curve-fitting model, the methodology applied to generate these new estimates purports to depict more accurately the trend derived

from all available data sources for a country. Like the estimates generated using conventional demographic models, the entire time series might change upon the addition of a new empirical source. These estimates were made available to USAID through the courtesy of the World Bank and UNICEF.

The selection of the mortality rates was done through a consultative process involving representatives of the Office of Health in USAID's Research and Development Bureau, USAID's Regional Bureaus and, in many cases, the USAID Country Missions. The source determined to best reflect the reality in a country for the current values of infant and under 5 mortality was identified and one of a number of a computation procedures, depending on the source selected for the current value, was applied to estimate the longitudinal rates. The consideration of the additional source of data developed for the World Development Report and UNICEF during the consultative process has prompted some changes in the reporting of mortality rates from those reported in recent years.

Definitions

Demographic Indicators:

Annual Infant Deaths: An estimate of the number of deaths occurring to children under age one in a given year.

Average Annual Rate of Population Growth: An estimate of the rate at which a population is increasing (or decreasing) in a given year.

Children Under Age 1: Mid-year estimate of the total number of children under age one.

Contraceptive Prevalence Rate: An estimate of the proportion of women, aged 15 through 44 (or, in some countries, 15 through 49), in union or married, currently using a modern method of contraception. Where sources fail to

distinguish modern and traditional methods, the combined rate is shown.

Crude Birth Rate: An estimate of the number of live births per 1,000 population in a given year.

Crude Death Rate: An estimate of the number of deaths per 1,000 population in a given year.

Infant Mortality Rate: The estimated number of deaths in infants (children under age one) in a given year per 1,000 live births in that same year. This rate may be calculated by direct methods (counting births and deaths) or by indirect methods (applying well-established demographic models).

Life Expectancy At Birth: An estimate of the average number of years a newborn can expect to live. Life expectancy is computed from age-specific death rates for a given year. It should be noted that low life expectancies in developing countries are, in large part, due to high infant mortality.

Maternal Mortality Ratio: The estimated number of maternal deaths per 100,000 live births where a maternal death is one which occurs when a woman is pregnant or within 42 days of termination of pregnancy from any cause related to or aggravated by the pregnancy or its management. Although sometimes referred to as a rate, this measure is actually a ratio because the unit of measurement of the numerator (maternal deaths) is different than that of the denominator (live births). The measure would be a rate if the units were the same. Extremely difficult to measure, maternal mortality can be derived from vital registration systems (usually underestimated), community studies and surveys (requires very large sample sizes) or hospital registration (usually overestimated).

Total Population: The mid-year estimate of the total number of individuals in a country.

Total Fertility Rate: An estimate of the average number of children a woman would bear during her lifetime given



current age-specific fertility rates.

Under 5 Mortality Rate: The estimated number of children born in a given year who will die before reaching age five per thousand live births in that same year. This rate may also be calculated by direct or indirect methods.

Urban Population: Population living in urban areas as defined according to the national definition used in the most recent population census.

Child Survival Indicators:

Adequate Nutritional Status: An individual child of a certain age is said to be adequately nourished if his/her weight is greater than the weight corresponding to "two Z-scores" (two standard deviations) below the median weight achieved by children of that age. The median weight and the distribution of weights around that median in a healthy population are taken from a standard established by the National Center for Health Statistics, endorsed by the World Health Organization (WHO). The indicator for the population as a whole is the proportion of children 12 through 23 months of age who are adequately nourished.

Appropriate Infant Feeding: A composite estimate of the proportion of infants (children under age one) being breastfed and receiving other foods at an appropriate age according to the following criteria: breastfed through infancy with no bottle-feeding, exclusively breastfed through four months (120 days) of age, and receiving other foods if over six months of age (181 days). Water is not acceptable in the first four months (120 days). ORS is considered acceptable at any age. Surveys are the only source of data to form this indicator. Surveys yield an estimate of how many infants are being fed correctly at the moment of the survey. They do not give an indication of the proportion of individual children fed appropriately throughout their first year of life. A number of sub-indicators may be calculated from the data used to form the composite, of which two are presented here.

Complementary Feeding: An estimate of the proportion of infants six to nine

months of age (181 days to 299 days) still breastfeeding but also receiving complementary weaning foods.

Continued Breastfeeding: An estimate of the proportion of children breastfed for at least one year. In this report, all values presented for this indicator are the proportion of children 12 to 15 months of age at the time of the survey still receiving breast milk.

DPT Drop-out Rate: An estimate of the proportion of living children between the ages of 12 and 23 months who received at least one DPT vaccination but who did not receive the entire series of three vaccinations before their first birthdays.

Exclusive Breastfeeding: An estimate of the proportion of infants less than four months (120 days) of age who receive no foods or liquids other than breast milk.

ORS Access Rate: An estimate of the proportion of the population under age five with reasonable access to a trained provider of oral rehydration salts who receives adequate supplies. This is a particularly difficult indicator to measure and, therefore, it may fluctuate dramatically from year to year as improved methods of estimation are devised.

ORT Use Rate (ORS and/or RHF Use Rate): An estimate of the proportion of all cases of diarrhea in children under age five treated with ORS and/or a recommended home fluid. ORT use may be determined using administrative means or surveys. In general, administrative estimates are based on estimates of the number of episodes of diarrhea in the target population for a given year and the quantity of ORS available. Thus, changes in the estimates of the frequency of diarrhea episodes can alter the ORT use rate as well as "real" changes in the pattern of use. Surveys are more precise in that they focus on the actual behavior of mothers in treating diarrhea in the two-week period prior to the survey.

Vaccination Coverage In Children: An estimate of the proportion of living children between the ages of 12 and 23 months who have been vaccinated before their first birthday -- three times in the cases of polio and DPT and once for both

measles and BCG. Vaccination coverage rates are calculated in two ways. Administrative estimates are based on reports of the number of inoculations of an antigen given during a year to children who have not yet reached their first birthday divided by an estimate of the pool of children under one year of age eligible for vaccination. Survey estimates are based on samples of children between the ages of 12 and 23 months.

Vaccination Coverage In Mothers: An estimate of the proportion of women in a given time period who have received two doses of tetanus toxoid during their pregnancies. This indicator is being changed in many countries to account for the cumulative effect of tetanus toxoid boosters. A woman and her baby are protected against tetanus when a mother has had only one or, perhaps, no boosters during a given pregnancy so long as the woman had received the appropriate number of boosters in the years preceding the pregnancy in question. (The appropriate number of boosters required during any given pregnancy varies with number received previously and the time elapsed.) The revised indicator is referred to as TT2+. Rates are computed using administrative methods or surveys.

Other Health and Health Sector Indicators:

Access to Adequate Sanitation: Definitions vary over time. In the past, this indicator has been an estimate of the proportion of the population with sanitation service provided through sewer systems or individual in-house or in-compound excreta disposal facilities (latrines). WHO changed its indicators and definitions in the late 1980s. Now this indicator is defined as the proportion of the population with reasonable access to sanitary means of excreta and waste disposal, including outdoor latrines and composting.

Access to Health Services: Usually an estimate of the proportion of the popu-



lation that can reach appropriate local health services by the local means of transport in no more than one hour. Recently WHO has revised its definition to the proportion of the population having treatment for common diseases and injuries and a regular supply of the essential drugs on the national list within one hour's walk or travel.

Access to Safe Water: The percentage of the population with reasonable access to safe water supply, including treated surface waters or untreated but uncontaminated water such as that from springs, sanitary wells and protected boreholes. Different definitions are used to define reasonable access in urban and in rural areas:

Access to Safe Water, Urban: An estimate of the proportion of all persons living in urban areas (defined roughly as population centers of 2,000 or more persons) who live within 200 meters of a standpipe or fountain source of water.

Access to Safe Water, Rural: An estimate of the proportion of all persons not living in urban areas with a source of water close enough to home that household members do not spend a disproportionate amount of time fetching water. Reporting on access to safe water, as well as adequate sanitation, can be highly subjective.

Anemia among Pregnant Women: Prevalence of anemia among pregnant women is the proportion of pregnant women whose blood hemoglobin level is below the WHO norm of 110 grams per liter.

Births Attended by Trained Personnel: An estimate of the proportion of births attended by at least one physician, nurse, midwife, trained primary health care worker, or trained traditional birth attendant.

Gross Domestic Product: Total output of goods and services for final use produced by residents and non-residents, regardless of the allocation to domestic and foreign claims.

Gross National Product: Total domestic and foreign value added claimed by residents.

Health Care Expenditure. Data from the World Development Report 1993 on health expenditure include "outlays for prevention, promotion, rehabilitation, and care; population activities; nutrition activities; program food aid; and emergency aid specifically for health." Spending on water and sanitation is not included. Expenditure is expressed in official exchange rate U.S. Dollars. **Public Expenditure** includes government and parastatal health expenditure and foreign aid. Domestic public expenditure does not include foreign aid. Where IMF data is used for time series, this definition may vary. **Private Expenditure** is an estimate of total household spending on health based on surveys or (where indicated) imputed from regressions based on GDP per capita. **Foreign Aid** represents total official aid flows, the sum of all assistance for health by bilateral and multilateral agencies and by major international NGOs.

HIV-1 Seroprevalence, Urban: An estimate of the proportion of the "low-risk" population living in urban areas infected with HIV-1, the most virulent and globally prevalent strain of the human immunodeficiency virus.

HIV-1 Seroprevalence, Rural: An estimate of the proportion of the "low-risk" population living in rural areas infected with HIV-1.

HIV Seroprevalence among High-Risk Population: An estimate of the proportion of all persons with known risk factors infected with HIV. These estimates are typically drawn from test results among commercial sex workers, their clients, or patients at sexually-transmitted disease clinics.

HIV Seroprevalence among Low-Risk Population: An estimate of the proportion of all persons with no known risk factors infected with HIV. These estimates are typically drawn from test results among pregnant women, the general population, or blood donors.

Population per Doctor & per Nurse: Estimates of the ratios of total population per doctor and total population per nursing person. Because definitions of doctors and nursing personnel vary, the data for these two indicators are not strictly comparable across countries. "Nursing persons" may include auxiliary nurses and paraprofessional personnel such as trained traditional birth attendants.

Prenatal Care for Pregnant Women: The percentage of pregnant women who attended prenatal care clinics in a given year.



Appendix C: Sources

- AID9324 McInnes, Kevin, Estrela Polonia and Francisco Ramos. Mozambique Public Sector Resource Needs and Allocations in Health. Health Financing and Sustainability Project. Technical Note No. 19. January, 1993.
- AID9351 McInnes, Keith, Antonio Jorge Cabral, and Jorge Almeida Simoes. The Expansion of Health Services outside the Public Sector in Mozambique. Health Financing and Sustainability Project. Technical Note No. 18. March, 1993.
- AID9408 Personnel Communication with Dr. Charles Oliver, Office of Health and Nutrition, Agency for International Development, November, 1994.
- AID9504 USAID/Mozambique. Assessment of Program Impact, FY 1993-1994.
- BUC9402 U.S. Bureau of the Census, Center for International Research. HIV/AIDS Surveillance Database. June, 1994.
- BUC9405 U.S. Bureau of the Census, U.S. Department of Commerce. World Population Profile: 1994. Washington, D.C.: U.S. Government Printing Office, 1994.
- BUC9407 U.S. Bureau of the Census, International Programs Center. HIV/AIDS Surveillance Database: Yokohama Conference Update, December, 1994.
- BUC9408 U.S. Bureau of the Census, International Programs Center. HIV/AIDS Surveillance Database. December, 1994.
- CAB9411 USAID/Maputo. Cable #006274. Prevalence of AIDS in Mozambique. November, 1994.
- CALXX01 Calculated from the values for total population, crude birth rate and infant mortality from designated sources for those variables.
- CALXX03 Time series estimates of Infant Mortality generated by applying the ratio of the DHS estimate for the most current 5 year period (or IMR from other current source) to the projected value from the World Population Prospects for the same year and applying that ratio to the projected time series in the WPP. Under 5 Mortality estimates are calculated by applying the appropriate Coale-Demeny model to the Infant Mortality time series.
- GAP9200 Mann, Jonathan, Daniel J.M. Tarantola, Thomas Netter, eds. AIDS in the World. Cambridge, MA: Harvard University Press, 1992.
- JHU9201 Kjolhede, Chris, and Charles Oliver. Health and Health Care Delivery in Mozambique. Johns Hopkins University Institute for International Programs, Occasional Paper No. 15. Dec., 1992.
- MOZ8801 Jelley, Diana, Adrienne Epstein and Paul Epstein. Mozambique. In Saltman, Richard B., ed., International handbook of health-care systems (Westport, CT: Greenview Press, 1988), 197-214.
- MOZ9201 Oliver, Charles. An epidemiological study of morbidity, mortality, and use of primary health care services among mothers and children in three demographic areas of Mozambique. Doctoral Dissertation, U. of Hawaii, 1992.



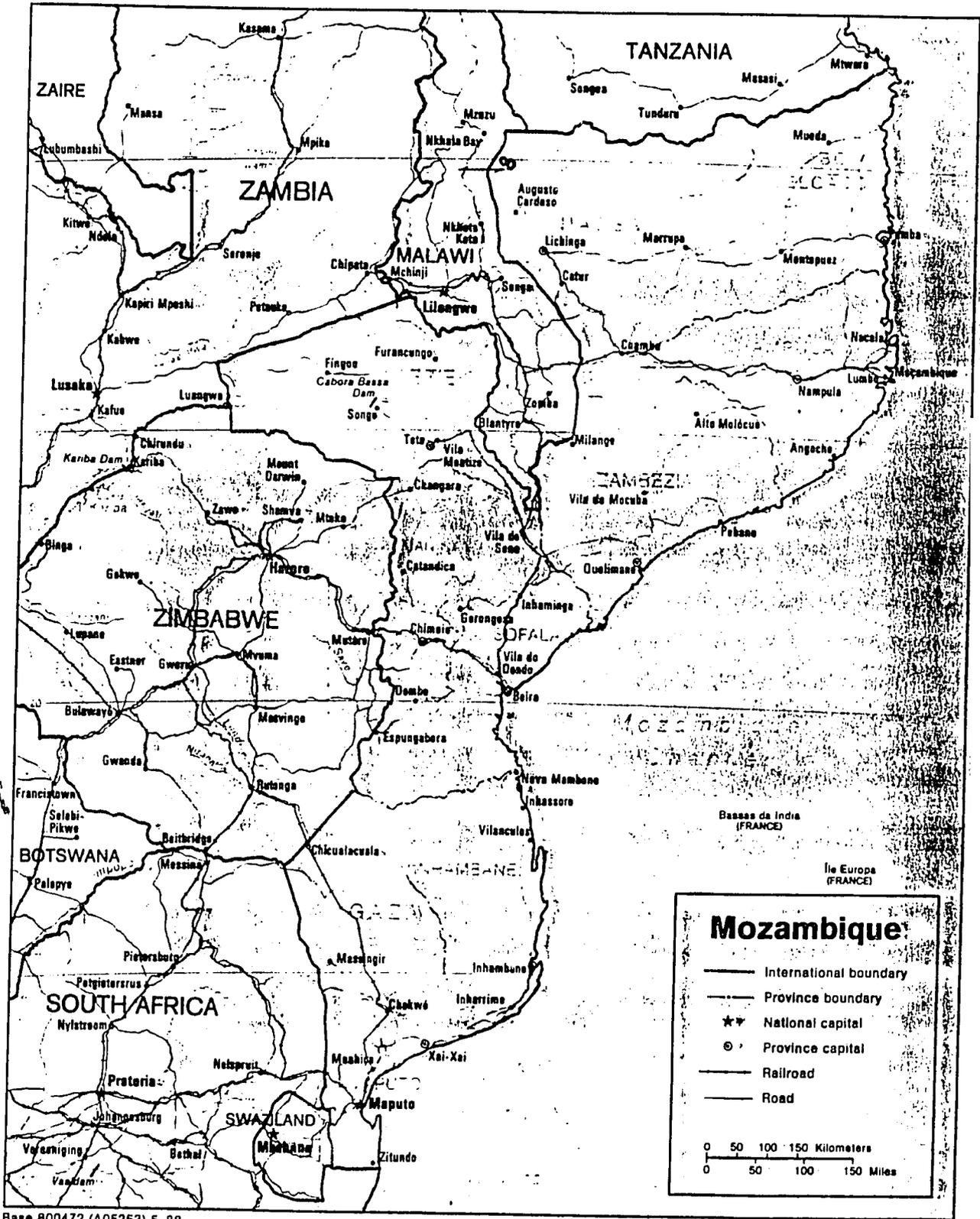
- MOZ9301 Government of Mozambique, Ministry of Health. Health Information System. 1993.
- MRF9006 World Health Organization. Mozambique, 1990 as cited in the FY 1990 Mission Response Form.
- NCI9201 The National Council for International Health. The U.S. Non-Governmental Response to the International AIDS Pandemic. Washington, DC: NCIH, 1992.
- PAN9202 Ansah Ayisi, Ruth. Mozambique: HIV Disaster Feared. *WorldAIDS* (Nov 92).
- QUE9200 Project Highlights, FY 92 Health and Child Survival Project Questionnaire.
- QUE9201 USAID/Maputo, citing Ministry of Health. Annual Statistics Information 1990 (July 1992). Mission Response Form, 1992 USAID Health and Child Survival Project Questionnaire (CIHI, 1992).
- UND9401 United Nations Dept. for Economic and Social Information and Policy Analysis. 1992 Demographic Yearbook.
- UND9402 United Nations Development Program (UNDP). Human Development Report. 1994.
- UNF9200 United Nations Population Fund (UNFPA). AIDS Update. 1992.
- UNH9301 Berthiaume, Christiane. Mozambique: Starting from Scratch. Refugees (UNHCR), August, 1993, pp. 28-29.
- UNH9401 Personal Communication with Barbara Francis, United Nations High Commissioner for Refugees, Dec. 19, 1994.
- UNI9401 United Nations Children's Fund (UNICEF). State of the World's Children 1994. New York: Oxford University Press, 1994.
- UNP9200 Department of International Economic and Social Affairs, United Nations. World Population Prospects 1992. (ST/ESA/SER.A/120) New York: UN, 1992.
- UNP9400 Department of International Economic and Social Affairs, United Nations. World Population Prospects 1994. (Tape) New York: UN, 1994.
- UNP9401 United Nations Population Division. Urban & Rural Places: Urban Agglomerations (1992 Revision).
- WBK9302 Mortality rate time series generated from Ken Hill equations provided in a personal communication, March, 1993. The equations were developed for the World Development Report, 1993 and a UNICEF publication, *The Progress of Nations*.
- WBK9303 World Bank. World Development Report, 1993. New York: Oxford University Press, 1993.
- WBK9304 Murray, Christopher J.L., Ramesh Govindaraj, G. Chellaraj. Global Domestic Expenditure on Health. Background Paper for the World Bank, World Development Report, 1993.



- WHD8900 World Health Organization. Programme for Control of Diarrhoeal Diseases: Programme Report (WHO/CDD/89.31) Geneva: WHO, 1989.
- WHD9000 World Health Organization. Programme for Control of Diarrhoeal Diseases facsimile, February 14, 1990.
- WHD9401 Advanced Copy of Annex 1 of the WHO/CDR Annual Report. Received by facsimile, March 29, 1994.
- WHE8700 World Health Organization. Expanded Programme on Immunization Information System Report, January 1987. Geneva: WHO, 1987.
- WHE8701 World Health Organization. Expanded Programme on Immunization Information System Report, July 1987. Geneva: WHO, 1987.
- WHE8900 World Health Organization. Expanded Programme on Immunization Information System Report, July 1989. (WHO/EPI/GEN/89.2) Geneva: WHO, 1989.
- WHE9200 World Health Organization. Expanded Programme on Immunization Information System Report. April 1992. (WHO/EPI/CEIS/92.1) Geneva: WHO, 1992.
- WHE9202 World Health Organization. Expanded Programme on Immunization Information System Report, October 1992. (WHO/EPI/CEIS/92.2) Geneva: WHO, 1992.
- WHE9301 Facsimile from WHO/EPI of the pages in the 9/93 report of the WHO EPI Information System containing the most current vaccination coverage rates. September 24, 1993.
- WHM9115 World Health Organization. World Health Statistics Annual - Vital Statistics and Causes of Death. Geneva: World Health Organization, various years as cited in Division of Family Health, World Health Organization. Maternal Mortality: A Global Factbook. (WHO/MCH/MSM/91.3) Geneva: World Health Organization, 1991.
- WHM9148 Liljestrand, J. Maternal mortality in Mozambique, University of Uppsala, 1985 as cited in Division of Family Health, World Health Organization. Maternal Mortality: A Global Factbook. (WHO/MCH/MSM/91.3) Geneva: World Health Organization, 1991.
- WHO9101 World Health Organization. World Health Organization Disk: Water Supply and Sanitation Service Coverage. Geneva: WHO, October 29, 1991.
- WHC9102 World Health Organization, Global Program on AIDS. Inventory of Nongovernmental Organizations Working on AIDS in Countries that Receive Development Cooperation or Assistance. Geneva: United Nations, 1991.
- WHO9301 World Health Organization, African Anti-AIDS Society. VIIIth International Conference on AIDS in Africa & VIIIth African Conference on Sexually Transmitted Diseases, Dec. 12-16, 1993. Abstract Book.
- WHO9305 Ron, Aviva. World Health Organization. Planning and Developing Health Insurance Developing Countries: Guidelines and Case Studies. Macroeconomics, Health and Development Series, Number 7. Geneva: World Health Organization, October, 1993.



- WHO9403 Noormahomed, Abdul Razak, and Malcolm Segall. The public health sector in Mozambique: a post-war strategy for rehabilitation and sustained development. Macroeconomics, Health and Development Series, Number 14. Geneva: World Health Organization, May, 1994.
- WHO9404 World Health Organization. Expanded Programme on Immunization. Reported Annual Incidences of EPI Diseases as of Aug. 29, 1994.
- WHO9504 World Health Organization. Weekly Epidemiological Record, No. 10, Mar. 10, 1995.
- WVP9401 Green, Edward C. AIDS and STDs in Africa: Bridging the Gap Between Traditional Healing and Modern Medicine. Boulder, CO: Westview Press, 1994.



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