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9. ABSTRACT

Ethiopia is a poor country; economic, physical and trained human resources are exceedingly scarce. Nonetheless the Ethiopian government has been implementing a health program which first will develop a number of instruments to improve health and then integrate them into a single, coherent health agency. A national service to combat malaria and other prevalent communicable diseases is probably the most cost-effective action available to the Ethiopian. Lack of adequate environmental sanitation and frequent malnutrition represent the most important areas in which new program initiatives would exert the greatest impact on Ethiopia's health status. The development of teams of health officers, sanitarians, and community nurses is a key element in the provincial health system. Encouraging as these programs are, they are growing only very slowly, and their administration and management are particularly weak. And although these programs are important, priority might well be given to more active programs to reduce population growth, to extend health services to the rural areas and to improve environmental sanitation and nutrition.

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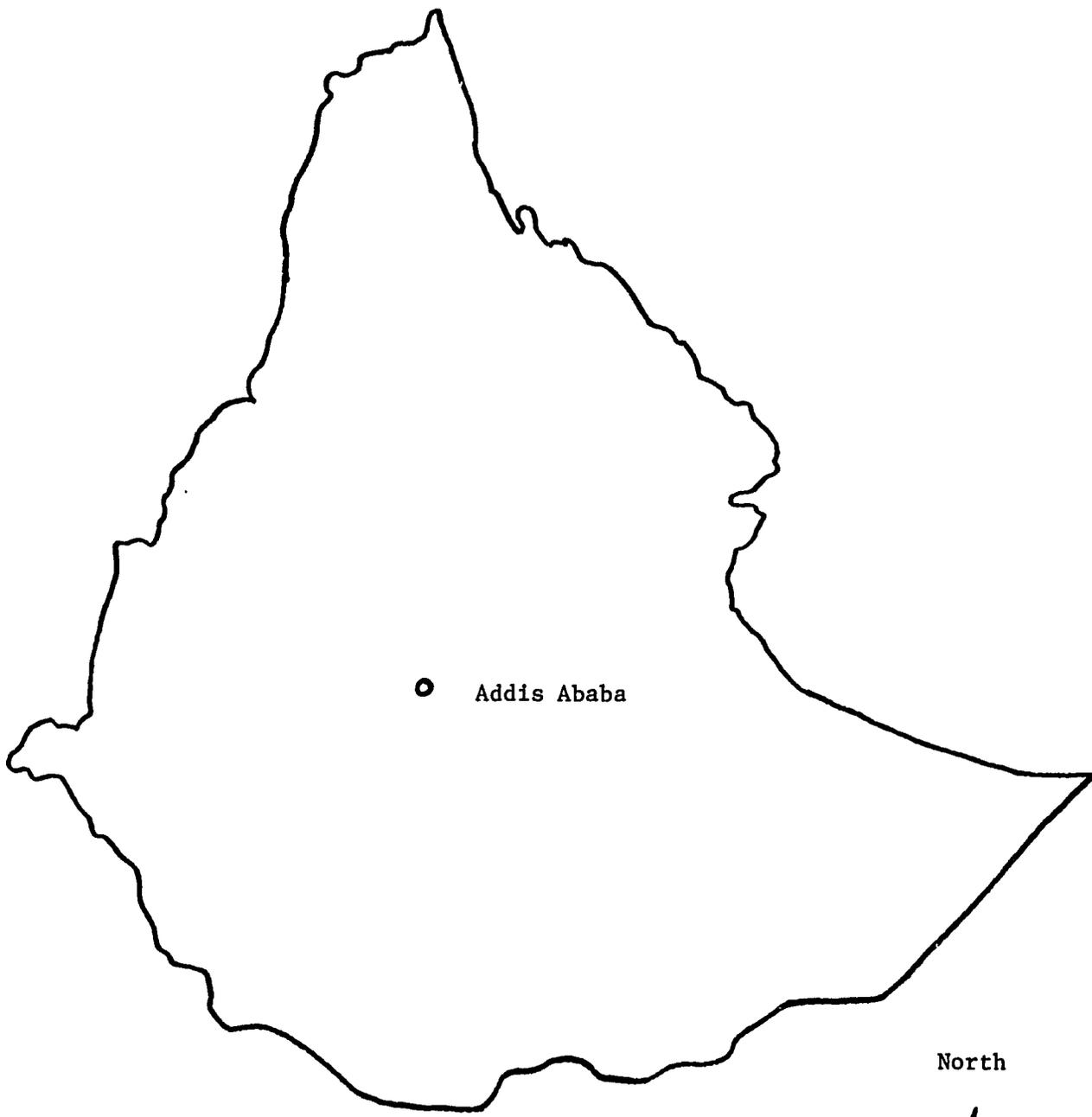
SYNCRISIS:
THE DYNAMICS OF HEALTH

*An Analytic Series on the Interactions
of Health and Socioeconomic Development*

VIII ETHIOPIA

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

**OFFICE OF INTERNATIONAL HEALTH
DIVISION OF PLANNING AND EVALUATION**



○ Addis Ababa

North



**SYNCRISIS:
THE DYNAMICS OF HEALTH**

**An Analytic Series on the Interactions
of Health and Socioeconomic Development**

ETHIOPIA

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The authors hope that this study will be of benefit and interest and will be the beginning of a more detailed effort toward assessing and analyzing the health problems of Ethiopia. It is in this spirit the study was concluded and the manner in which this report is written.

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SUMMARY AND CONCLUSIONS

Ethiopia is a poor country. The population is poorly fed, poorly housed, and lives in an unsanitary environment. A wide variety of communicable diseases are endemic to the country, and their vectors are widespread. The population is illiterate and the victim of a number of superstitions and unsanitary habits that work against good health. Not surprisingly, as a consequence the health status of the population is poor.

In its attempts to improve this situation, the country is confronted by a multitude of difficulties. Economic, physical, and trained human resources are exceedingly scarce. The population is geographically dispersed, and composed of a variety of ethnic subgroups which do not even share a common language. Both the administrative infrastructure and the communications systems of the country are weak. A wide variety of acute and chronic diseases exist. For some of them, no technically feasible interventions are available.

Nonetheless the government of Ethiopia has been implementing a program which attests to the existence of strategy to improve the health status of its citizens. The government is by far the largest provider of health services. It is embarked on a course that will first develop a number of instruments to improve health, and then to integrate these into a single coherent health agency.

The development of a national service to combat malaria, and the serious funding of this service, combined with the development of major campaigns to inoculate against prevalent communicable disease attest to a wise course. Control of the major communicable diseases is probably the most cost-effective action available to the Ethiopian.

The lack of adequate environmental sanitation and frequent malnutrition among a large portion of the population of infants and children make even the more common communicable and infectious diseases much more serious and life threatening. These two areas probably represent the most important areas in which new program initiatives would exert the greatest impact on the health status in Ethiopia. The general priority which should be placed on these two program areas is made more acute by the current drought conditions in some parts of the country. A high priority should be placed on new initiatives either singly or in concert with other programs.

In terms of individual medical attention, Ethiopia has proposed a system that appears well suited to its problems. The system is strongly based on outpatient rather than inpatient care, and places the great burden of care on low salaried dressers and paramedical personnel. The development of teams of health officers, sanitarians and community nurses as the key element in the provincial health system is an especially exciting concept for the organization of health care.

While strong in general concept, the Ethiopian health program is not exempt from problems. The urban areas and especially the capital, Addis Ababa, receives a disproportionate share of health resources and health services. While the situation is typical of most countries, it is probable that the resources so spent would render greater benefits if redirected away from physician based hospital care toward more efficient preventive programs.

Projections of availability of modern practitioners indicate that a large part of the Ethiopian population will have to rely on traditional medical care practitioners for a long time to come. However, available information indicates that little is being done to bring the traditional practitioner into the government system, nor to supplement his

skills so that he may provide higher quality services. Efforts to improve skills of dressers and traditional practitioners have to depend upon methods other than formal education since the majority of these personnel are illiterate.

A similar problem exists with dressers. The training of these workers is so short that considerable apprehension may be felt for the quality of their services if they do not receive regular supervision and in-service training. Reports have indicated that the teams working in health centers are overly preoccupied with curative services. Thus it may be suspected that the current system of training and supervising health officers and other members of the health center teams should be modified to assure greater emphasis on their roles in leading the provincial health system and in preventive medicine.

In terms of preventive actions, the correction of the direction of the malaria program is of great importance. Malaria eradication has proved an evanescent goal in a number of countries, and the concentration of resources on a small geographic area in order to attempt such eradication was probably an error. A more modest strategy of attempting to control malaria in key areas, and allowing malaria personnel to also participate in other public health activities seems more appropriate. This could be directed toward the provision of immunization and vaccination.

Encouraging as these programs are, one might wish that they be pursued with even more vigor. The major health program in the country, that of the Ministry of Health, represents only one percent of the GDP. It has been growing slowly. Moreover, the projected rates of manpower training (and implicitly of facility construction) suggest that public health services will expand only slowly for the next generation. The administration and management of public health programs is particularly weak. Improving administration, management and planning would be expected to result in more services of higher quality being made available within present budgetary constraints.

The fact that the population will increase by one-quarter to one-third in the next decade will make expansion of per capita health services (or any other services) particularly problematical. Yet the government appears not to have included an active population policy implementation program in its health program. A continuation of present policy will result in fewer resources available for investments in all sectors accompanied by increasing demands for services.

Foreign economic and technical assistance has been provided to Ethiopia in significant quantities, and it would appear to have been most useful in some areas. It is suggested, however, that there remains great opportunity to encourage important reforms through proper use of such foreign assistance. While specific programmatic reforms such as those identified in the previous paragraphs are important, it appears that priority should be given to encouragement of a more active program to reduce population growth, to encouragement of a more active program to extend health services to the currently disadvantaged rural population, and to environmental sanitation and nutrition programs.

CHAPTER ONE

BACKGROUND INFORMATION

Geography, Topography, Climate and Soil

Ethiopia is located in the northeast part of Africa with the Sudan on the west and northwest, the Red Sea on the north, Somalia and the French Territory of Afars and Issas on the east and southeast, and Kenya on the south. Its size is approximately 472,000 square miles.

Topography is rugged. Two-thirds is mountainous plateau, with elevations of 5-10,000 feet above sea level, divided into two parts by a volcanic cleft called the Great Rift Valley. The terrain is not as rugged in the south and southeast, from the Somali to the Kenyan borders, where the greatest portion of coffee is grown. This area has great undeveloped agricultural potential.

Rainfall and temperature patterns are diverse. There are three distinct temperature zones: (1) Hot zone (kolla): altitudes less than 6,000 feet, average annual temperature between 80-100°F, less than 20 inches of rain per year, located mainly in the Awash Valley and Somali Plateau; (2) Temperate zone (Woina Dega): elevations between 6-8,000 feet, average annual temperature about 72°F, annual rainfall varying from 20-60 inches, most densely populated and agriculturally productive, located in Central Highlands; (3) Cool zone (Dega): generally above 8,000 feet, annual average temperature about 61°F, with about 50-70 inches of rainfall. There are two seasons: wet (June to September) and predominantly dry the remainder of the year. Within the past two years, limited rainfall, especially in the northern provinces of Tigre and Wollo, has caused a drought of undetermined consequence.

Most soils are fertile. With only approximately 11% of the land cultivated, potential for increased agricultural production is great. Soil erosion is a major problem caused by grass fires, heavy rains, indiscriminate cutting of forests, and overgrazing. The government is encouraging efforts at terrace cultivation, irrigation, crop rotation and improved grazing practices.

The physical characteristics of the country determine a wide range of diseases and health problems and influence health service delivery patterns.

POPULATION

No national census has ever been taken. Estimated population in 1971 was 25.8 million and projected by USAID to be 29 million by 1978.

Population densities vary. The average density, about 21.1 persons per square kilometer, is expected to increase to about 28 by 1978. In 1971 the population growth rate was estimated at about 2.1 percent. Fertility rates are about 45 live births per 1,000 population and likely to be maintained in the near future. Rates of natural increase are expected to increase as health and sanitation conditions improve. USAID projects a 2.3 percent rate of increase by 1975 and 2.8 percent by 1982. Such increases could seriously affect social and economic progress.

The country's age structure typifies that found in other developing countries: a young population characterized by a large proportion of children and young adults and a small proportion of middle aged and elderly. Over one-half (55.7%) are nineteen years of

age or younger and 2.9% are in the 60+ age group. There are slightly more males than females in the total population, although this is reversed in the urban areas, which is an unusual pattern for African countries where males usually outnumber females in the towns. A high proportion of women in urban areas are divorced.

Urbanization is less extensive than in most other areas of Africa. The population is predominantly rural (90.4%). There is a small yearly net-migration of people from rural to urban areas. This is presumably determined in part by the richness of agricultural and pastoral land which provides adequate subsistence for its inhabitants. One-third of all urban residents live in Addis Ababa, the capital.

The urban population resides in 248 towns of various sizes. Only two cities have populations over 100,000 inhabitants: Asmara and Addis Ababa. Fifty-five cities and towns have populations exceeding 5,000 and there are about 34 settlements with less than 1,000 population. Most of the population is concentrated in the temperate highland areas where conditions favor an agricultural existence. With the eradication of malaria and the improvement of medical services, there is and will continue to be a gradual movement of the population to temperate zones. In the lowlands, the rural population consists of nomadic herders.

There is little information on migration, most of which is thought to be seasonal movements of the nomadic Somali and the Beni Amir, into and out of the Republic of Somalia and by the Beni Amir into and out of the Sudan. These movements facilitate transmission of disease and insect vectors.

There is a real paucity of other basic demographic data. There is no regular system of vital events registration. In 1967, the birth rate was estimated at 43.1 births per 1,000 population. In 1971 it was estimated at 46, over a 7% increase in four years, but this is probably due to improved reporting. Infant mortality in 1970 was high, exceeding 162 deaths per 1,000 live births. The crude death rate for 1971 was estimated at 24 per 1,000 population. Life expectancy at birth, estimated by the U.N. for East African countries and applicable to Ethiopia (1965 to 1970) was about 42 years.

Characteristics of the People and Their Culture

The Ethiopians are of three racial types: Semitic, Cushitic and Negroid. They comprise a number of ethnic groups who speak over 95 different tribal languages. The largest ethnic group in the country are the Galla (40% of the population).

The most important group politically and culturally are the Amhara, who represent about twenty-five percent of the population. Their language is the official language and is spoken by 40-50 percent of the people. They fill many top political and military positions.

Another important group are the Gurages who reside mostly in Shoa Province and account for the large migration into Addis Ababa. Other less important groups are the Somali, Sidamo and Shangalia. Ethiopia's society is very traditional and status ranking is dependent on ethnic group.

There are three basic religious divisions, Christian, Moslem and Animist or Pagan. About 50% of the population are Christians.

The national religion is that of the Ethiopian Orthodox Christian Church, independent of the Coptic Church and regulated from the throne. It owns 25-40% of the land and has both spiritual and political power. The people observe many fast days. The laws and

customs of Jewish and Moslem religions are incorporated and observed: circumcision is universally practiced, avoidance of some food such as pork, shell fish and birds with web-feet is practiced and a redemption ceremony, including the sacrifice of a goat or lamb, is sometimes performed for sick people. These tenets and beliefs are not only a major social problem but they also have a major effect on the health of the people. Fasting, added to the already unbalanced and low nutritional diet, mitigates against better health and higher levels of productivity. Religion also influences the philosophical outlook and the day-to-day life of the people. The typical peasant appears fatalistic and his view of life is otherworldly.

The social structure is composed of the Emperor and his immediate family at the top. Next in importance are the leading nobles: persons of wealthy families, leading churchmen of the Orthodox Church and high ranking military, followed by the provincial nobles. The elite take great pride in their race, religion and culture. Attitudes toward change within the society and toward modernization vary, being determined chiefly by social and educational status. The impulse for change is largely unfelt by the average peasant.

Ethiopia has its own calendar and time system. In the Ethiopian year, there are 12 months of 30 days and one month of 5 or 6 days at the end of the year. The Gregorian year of 1973 corresponds to the Ethiopian year of 1965.

Most rural inhabitants place little trust in modern medicine and prefer to rely on traditional remedies and traditional practitioners.

Folk medicine is practiced by the majority of the population. Although many local health beliefs and practices are harmless, others are harmful, such as uvulectomies, gum cutting, and pulling out of the back teeth of infants for the treatment of diarrhea.

Some of the most common beliefs are briefly summarized. Butter plays an important role and the older the butter the greater its therapeutic value. Infants are given butter - sometimes every day, either orally or through the nose, as early as the first month in the belief that it "greases the intestines helpfully." In addition, old butter is applied to the umbilical cord of newborns and is a frequent cause of usually fatal tetanus neonatorum. It is often said that much more old butter than chloroquine is used to treat malaria, as seen by the number of patients brought to the hospital with advanced malaria after having been treated at home with old butter for three or four days. Beliefs that sunlight is harmful for small babies contributes to the high incidence of rickets. In relation to venereal diseases, it is believed that the best cure for syphilis is to have as many sexual contacts as possible (so as to weaken the disease), obviously adverse consequences to disease control. In addition, a widely held belief is that gonorrhea is contracted through urination while facing the moon.

These beliefs can be expected to decrease in number and intensity as education is more widely disseminated and the literacy rate rises. There is a great need for integration of health education into the school curriculum at the earliest possible level. Increased health education should be part of the evolution of health services and should be given the highest priority.

One aspect of modern medicine, the use of injectable drugs, has made a great impression on the people. This is in part due to the favorable results obtained from penicillin in the treatment of syphilis. Such drugs are easily obtainable from local markets without prescription. They are then taken to a local dresser for administration.

It is not uncommon for a traditional curer to be consulted prior to going to a trained dresser or modern medical facility. It was reported in Wollo Province that traditional practitioners were used far more often than contemporary providers of preventive and curative services working in the government and the mission health facilities.

Education

The educational system is too small to supply the skill and manpower needed for economic development. Although considerable efforts have been expended on education, much is still needed.

During the 1960s, the country had one of the lowest literacy rates in Africa: 5-6% of the population over 10 years of age were literate; by 1970 this had risen to 9-10%.

The majority of literate people live within one mile of population centers. In 1969, the Ethiopian Government reported that about 37% of the urban population 10 years of age or older were literate, versus 3.5% of the rural population. The highest literacy rate is found in Eritrea Province. In the cities of Addis Ababa and Asmara, the literacy rate is 56%.

Literacy patterns reflect the traditional low status of women in the society. In 1969, approximately 17% of males 10 years of age or older were literate compared to 2% of females. The expected correlation between literacy and high socio-economic status is observed, at least among males. Literacy training is not highly developed. There are two major programs, one sponsored by the Ministry of Education and the other by the Ethiopian Evangelical Church. In 1968, there were approximately 917 literacy centers with an enrollment of about 73,000 students.

The formal educational pattern in Ethiopia consists of 6 years of primary education, 2 years junior secondary education and 4 years senior secondary education consisting of either academic, technical-vocational or teacher training programs. Primary education is designed to complete the educational experience of most students.

In 1971, the majority of students were enrolled in primary education (82%) and the fewest (0.6%) in schools of higher learning. Dropout rates are highest between grades one and two. In 1970-1971, approximately 3.1% of the total population were enrolled in schools but this varied from province to province. The provinces of Shoa and Eritrea show the highest concentration of students enrollments. Although Addis Ababa comprises about 3.0% of the country's total inhabitants, it accounts for more than 16.1% of the total primary and secondary enrollments in 1970-1971.

In 1973, there were estimated to be slightly over 1 million students enrolled in schools and student enrollment is projected to rise to over 2 million by 1978.

Facilities are not adequate for current student enrollment. In 1970-71, in the total 2,518 schools, there were 16,024 classrooms. USAID estimates that by 1978 over 45,000 classrooms staffed by over 52,000 teachers will be required to serve an enrollment of 5.7% of the population.

There is a teacher shortage and there are deficiencies in qualifications of teachers especially at the primary level. Teaching is not regarded as an attractive long-term career by the educated and few want to teach in rural areas, even though bonuses are offered. Teachers are predominantly men. In 1970-71, slightly over one thousand of over 18 thousand teachers were women. The rate of increased supply of teachers does not parallel student enrollment. In 1964-65 there were about 37.9 students per teacher; in 1970-71 the ratio had increased to 42:1. The highest ratio was at the primary level of about 54 students to one teacher. Many students who fail to qualify to enter senior academic secondary schools enter the primary teaching field.

There are two institutions of higher education, the Haile Sellassie I University and the University of Asmara. The Haile Sellassie I University graduated 1,017 students in 1969 and 1,391 in 1971.

Government expenditures on education have risen yearly with the expansion of the school system. In 1961-62, the government spent approximately Eth\$23 million and in 1967-68 this had risen to Eth\$52.8 million. Each year the major portion of expenditures goes for teachers' salaries and almost half of all funds are for primary education. It is estimated that in the 1967-69 fiscal years, approximately Eth\$48 were spent per pupil in primary schools and Eth\$173 per pupil in secondary schools.

Most of the cost of education is financed by provincial land tax receipts and foreign aid, grants and loans. Of the USAID grant funds to Ethiopia in 1952-68, almost 17% was for education (lower than agriculture but higher than health). In 1966-67, foreign aid amounted to about 32% of the total expenditure on education and the U.S. government was the principal donor.

In summary the major problems are:

1. Financing is inadequate for the educational system.
2. More well qualified personnel are needed immediately.
3. The educational system is being expanded faster than the teacher training institutions can provide teachers.
4. Education is not accepted as a respected profession and low salaries are a contributing factor.
5. Competent administrators and teachers gravitate from rural areas to Addis Ababa, the capital.
6. The total system needs to expand, with more schools and educational centers, on the basis of greater personnel resources.
7. Overcrowded classrooms necessitate the utilization of the lecture method with little or no opportunity for individualization of instruction and for student participation.

Government and Administration

Ethiopia was established as the only independent nation on the African continent in 1896. Haile Selassie I came into power in 1916 first as regent and heir apparent and subsequently as the 225th ruler in 1931. His reign was interrupted (1935-41) when he was forced into exile in England by the Italian occupation. He established a parliament in 1955 but with limited powers. Sovereignty is vested in the Emperor who has supreme authority and combines the powers and duties of Chief of State and Head of Government. The constitution provides for the succession to the throne by the Emperor's eldest male child, Haile Selassie's only surviving son, Asfa Woosen, who is Crown Prince and heir apparent.

The parliament consists of about 250 members of the Chamber of Deputies elected by the people and about 125 members of the Senate appointed by the Emperor. The Cabinet or Council of Ministers consists of a Prime Minister appointed by the Emperor and the heads of the ministries appointed by the Prime Minister with the approval of the Emperor. Any legislation passed by Parliament does not become law unless approved by the Emperor who has absolute veto powers and cannot be overridden.

There is a system of courts, the highest of which is the Supreme Imperial Court for which judges are appointed by the Emperor. There is no trial by jury.

Attempts have been made to improve the governmental structure including the establishment in 1961 of the Central Personnel Agency.

The Civil Service structure is small and weak. A universal feature of the bureaucracy is the fragmentation of functions and duties, the duplication of work, the concentration of multiple jobs in the hands of few individuals and a reluctance to assume responsibility. This results in the lack of cooperation and coordination necessary for the formulation and execution of government policy.

The country is divided into 14 provinces and each is governed by a Governor-General appointed by the Emperor and responsible to the Minister of Interior. A few lower officials are appointed by the Governor-Generals and locally elected councils function as the administrative units at the subprovince level. The provincial administrative framework appears to suffer from a grave shortage of trained manpower and financial resources. This situation limits the speed of execution of decisions as well as communication between the central government and the provinces, and vice versa. It also limits communication between the provincial administration and the many towns, villages and hamlets which, in many cases, are administered by traditional authorities. The nature of the existing administrative structure and the institutional gaps place serious limitations on the capacity and particularly in the sphere of economic development.

Economic Situation

As in other sectors, the information available about economic activity is inadequate. The situation is especially severe in that nearly half of the GDP is non-monetary, involved in home consumption and barter systems.

The gross domestic product was estimated at 3849.9 million Ethiopian dollars (U.S.\$ 1631 million) for 1969. This corresponded to a per capita GDP of roughly US\$76. The GDP grew at an average rate of 5.3% per year from 1960 through 1965 and at 4.5% per year from 1965 through 1969.

As of 1969 the distribution of economic production was as follows:

| | |
|-------------|-------|
| Agriculture | 57.0* |
| Industry | 14.2 |
| Services | 21.2 |
| Unallocated | 7.7 |

* % total value added

In the industrial sector, manufacturing (5.5% of GDP) is the fastest growing activity, and the largest (surpassing handicraft and cottage industry 1967). Thus while the economy is still agricultural, it is beginning to industrialize. Gross national savings were 11.3% of GDP in 1969. Governmental expenditures represent roughly 10% of GDP.

Ethiopia has a continuing balance of trade deficit. Exports did grow more rapidly than imports over the 1960s, although that trend was reversed in 1971 (the most recent year for which data were available). Exports are principally agricultural, with coffee accounting for 58% of total export value. The most significant imports are machinery, transportation equipment, petroleum and chemical products. Food represents only 10% of imports.

The agricultural sector product grew at the rate of 1.8 percent per year from 1961 to 1969. Rural population during the same period was growing at 2.1 percent per year, indicating that in all probability average rural per capita income decreased over the decade. Moreover, since 90-95 percent of all workers are in the rural or agricultural work force, while agriculture accounts for only 57 percent of economic production, the income disadvantage of rural workers is obvious. Moreover, although most land holdings are small, there appears to be significant concentration of lands in a few holdings. Thus, in one study in Harrarge province in 1964, it was found that 2 percent of the owners owned 74.6 percent of the land.

Thus, we find the following situation: the country is agricultural and agricultural exports are being used to provide foreign exchange. The foreign exchange in turn has been used for acquisition of capital equipment to fuel industrial and particularly manufacturing growth. The distribution of investment has been such that rural per capita production -- which is already much lower than urban per capita production -- is actually being reduced. Finally, concentration of agricultural holdings in the hands of a rural elite exacerbates the problem of low income for the rural poor.

In the cities there are also indications of great inequalities in the distribution of income. Thus, in Addis Ababa (in 1968) the lowest paid 50 percent of governmental employees receive only 13 percent of the emoluments, while the highest paid 15 percent received 50 percent. Moreover, there is a problem of urban unemployment. The situation may be somewhat ameliorated by the fact that while urban population has been growing at 6.5 percent per year, industrial production has been growing at a rate of 12-13 percent per year. Thus, average per capita urban income is probably increasing. It seems, therefore, that the urban areas, already privileged by much higher average income and receiving almost all government services, are growing economically at the expense of the rural areas.

Agriculture: Agricultural land is the country's major natural resource. Some 69 percent of the land is agricultural. Of this, 11 percent is crop land, 5 percent pasture land, and 7 percent forest land. The vast majority of all agricultural producers are subsistence farmers -- an estimated one-half of all farmers are tenant farmers. Grains are the most important field crops, occupying two-thirds of all crop land, followed in importance by pulses and oil seeds. Live-stock raising is the primary occupation of nomadic and seminomadic groups (living chiefly in the arid lowlands) who make up five to ten percent of the population.

Industry: Manufacturing contributed only 6 percent to the GNP, and appears to be developing almost entirely for import substitution. A major constraint to expansion of manufacturing will be the lack of adequate markets. Fifty to sixty percent of the total product of the manufacturing industry is attributed to the food, drink and tobacco group of industries, and another one-third to textiles. Most industrial establishments are grouped around Addis Ababa, with much smaller concentrations in Dire Dawa, Massawa and elsewhere in Eritrea. Some 70 percent of capital invested in trade and manufacturing is foreign, and foreign and government capital is responsible for almost all large scale industrial establishments.

Labor: The economically active population in the late 1960s was calculated at roughly seven million (persons 10-60 years of age, excluding the majority of rural women who are engaged primarily in household activities). The vast majority are engaged in traditional activities. Some three to six percent of the work force are employed in industry, construction and mining. Figures on unemployment are unavailable. Labor unions are weak (only legalized since 1962) and salaries are low.

During the 1950s the country began a series of economic plans that were "intended to raise agriculture and industrial production, eradicate illiteracy, improve the health of the population and generally raise the standard of living." A National Economic Council was established in 1954-55 and a Planning Board was developed.

The First Five-Year Plan (1957-1962) focused on the development of the country's infrastructure, chiefly roads, sea and air transportation, and textile plants. This plan did not include public health. During the implementation of this plan, the Ministry of Public Health began to reorganize and establish health services on a decentralized basis in rural areas. A health tax was legislated. There were many shortcomings to this plan, the major one being lack of adequately trained personnel in all aspects of planning. In addition, inexperience in interministerial and government agency coordination affected plan implementation.

The Second Five-Year Plan (1963-1967) attempted to channel investments directly into productive facilities and change the country's predominantly agricultural economy to an agro-industrial one. It was a detailed and comprehensive plan. Despite the fact that total government expenditures were 13 percent higher than planned, implementation of this plan was affected by some of the same factors that plagued the first plan. There was an inadequate administrative capacity, shortage of planning staff, and deficiencies in interministerial coordination.

A One-Year Plan for 1967-1968 was prepared and the start of the third Five-year Plan was delayed for a short period of time. The goal of the third Five-year Plan (1968-1973) was essentially to continue the policies already laid down in the previous plans. It sets a growth rate of 6 percent and expectations of per capita GDP rising at a rate of over 3 percent annually. In addition, a 3 percent growth rate of the agricultural sector was expected. The Health Plan was dominated by the Malaria Eradication Program. The development of basic health services was planned to complement the malaria program. Eventually all medical care and health control measures were to be applied through the basic health services. There are indications thus far that this plan will not meet all targeted goals.

Transportation and Communication Network

The lack of a comprehensive all-weather road system, limited rail network and shortage of navigable inland waterways have been major obstacles to national development. In addition, the natural environment of rugged terrain and long rainy seasons adds to surface transport difficulties.

The current public road system is estimated at between 14,000 and 15,000 miles, roughly a third of which are all-weather roads. Thus, the major part of the national road system is largely limited to dry weather use. Most of the major surfaced highways radiate from Addis Ababa and Asmara to important economic production areas and the two Red Sea ports. Away from the major roads, traditional methods of transportation are generally found, such as mules and donkeys in the highlands and camels in the lowlands.

The Third Five-year Plan (1968-1973) placed heavy emphasis on construction of secondary feeder roads and surfacing of heavily trafficked roads. It programmed Eth\$265.4 million for road construction, improvements, feasibility studies and a major survey of national road development requirements. Of this amount, about Eth\$97 million was proposed to be raised through various international banking loans. The 1972-73 budget programmed over Eth\$79 million.

The railroad network consists mainly of two independent systems. The larger is the Franco Ethiopian Railway Company, consisting of 880 kilometers of track connecting Addis Ababa with the Port of Djibouti in the French Territory of Afars and Issas. The other is the Imperial Ethiopian Government Railway of 306 kilometers, within the province of Eritrea, connecting the port of Massaua with Asmara and continuing west to Agordat. Country rail rates are very high. During the Second Five-Year Plan, approximately Eth\$13.1 million was expended by the government on railroad development. Eth\$16.4 million was programmed for railroad transport in the Third Five-Year Plan to modernize and improve existing lines.

The government operated Ethiopian Airlines was established in 1945. It is operated by Transworld Airlines. It provides both domestic and international service. A large portion (Eth\$40 million) of the money programmed for air transport in the third Five-year Plan (Eth\$74 million) was earmarked for investments in airports and facilities. Of the Eth\$40 million earmarked, the major part, Eth\$25 million, came from a U.S. loan for improvements to Addis Ababa and Asmara International Airports and for consultant services.

The development of communication systems in Ethiopia is somewhat retarded. All information organs are under the supervision of the Ministry of Education. There are eight daily, six weekly and three monthly newspapers published in the two major cities. Newspaper circulation in 1970 was about 107,000. Radio broadcasts are in English, Amharic, Arabic and Somali. Television service began in 1964. On weekdays, 2-1/2 hours of educational programming are provided for the Addis Ababa schools. A few television sets for communal viewing have been installed in city squares, parks, hotels, and other public places.

In 1970 there were approximately 45,000 telephones in the country; 90 percent were in the major cities. By 1975, it is estimated that the number of telephones will increase to about 70,000.

Foreign mail accounts for more than 90 percent of the postal service. In 1970, about 100 towns were served by a permanent post office; a few others had mobile offices. As family registers and addresses are not complete, even in the cities, there is no postal delivery structure. Accordingly, letter boxes (P.O Boxes) are installed and the individual must pick up his own mail.

CHAPTER TWO

HEALTH STATUS OF THE POPULATION

Living Conditions

The majority of the population live in rural areas and are engaged in agriculture. The per capita income in the 1950s was about US\$10-15 and increased to around US\$76 by the early 1970s, still indicative of a low standard of living. Subsistence farmers see relatively little cash. Very few earn cash wages, which can be used for basic necessities.

There is very little difference in the living conditions of the wealthy and poor in rural areas, because wealth is measured by the amount of land held, number of livestock and quality of feasts, rather than by the quality of living conditions.

Most of the rural population live in dwellings that have mud floors, thatched roofs, inadequate lighting and ventilation, lack sanitary facilities, and are infested by vermin. Overcrowding, proximity of domestic animals to living quarters, and use of the same eating utensils by all members of the family contribute to unhealthy living conditions. The nutrient value of food consumption is less than required for good health. Religious and local customs pertaining to food also promote nutritional inadequacies.

Most rural inhabitants rely on traditional healers for health care. Traditional beliefs contribute to popular resistance to the limited available services of modern medicine. Frequently, isolation due to the limited communications system adds to the lack of understanding of the concepts of public health.

In the cities, increased migration has resulted in crowded living conditions, sanitary problems, unemployment, crime, prostitution and overburdened public health facilities, aggravated by new social problems. The elite in the cities enjoy western type living conditions, but this group is relatively small.

Housing

Housing for the majority of Ethiopians consists of a circular or square hut called a "Tukle" made of wooden posts and covered with a mixture of clay and straw.

In Amhara, Tigr and Galla villages, each family cluster of dwellings and out-buildings are surrounded by fields in which crops are grown. Gurage villages are more symmetrical in design. Crops lie behind the houses and a 30-50 foot wide street bisects the circular settlement. The Nomadic Somali live in collapsable portable huts that can be easily dismantled and loaded on pack animals that move with the herd.

About two-thirds of all houses in towns are made of chick (mud and dung) with corrugation roofs. Over one-half of the urban residents own their own homes, mainly consisting of one room. The average family size is four persons.

Water

The lack of water for domestic consumption is a tremendous problem facing the government and the people. Recently, a drought has taken on the proportions of a national

catastrophe. It is reported that thousands of nomads and peasants died of hunger in the country's southern provinces and many are severely affected in the northern provinces of Tigre and Wollo, where at least 100,000 persons reportedly died last year.

Myriad problems have been encountered in trying to reach the drought victims: the remoteness of many hamlets; the government's inability to transport the grain coming into the country's two ports, Assab and Massawa; a shortage of gasoline and other fuel to maintain the few available foreign relief aircraft; and the absence of administrative mechanisms in most drought-affected areas.

Even in the absence of the drought problem, water supplies in general are not potable. Contamination occurs either at the source or during distribution. Only about 3 percent of the country's population has access to potable water.

The majority of people living under rural conditions obtain their water from unprotected wells, streams or natural springs. Sources frequently are not potable and hazardous to health.

In the past few years, over 300 wells and water supply facilities have been provided in the rural areas, in addition to drinking water facilities in new schools and health centers.

Only in the cities are public water supplies generally available and they are not adequate either in quantity or quality. Piped water is generally available at public spigots at a cost of Eth\$0.10 per four gallon can. Only in Eritrea, of the provinces, do more than 45 percent of the urban dwelling units have running water.

In Addis Ababa approximately 55 percent of the people have access to clean piped water for drinking. This is generally limited to better residential and commercial areas. In some sections of the city, water is distributed through hydrants and carried to the home in open containers. Piped water is chlorinated. Supply is estimated at less than 6 gallons per person per day in the dry season.

Asmara has a fairly modern water supply system. Water is delivered to storage reservoirs before distribution. Water supply is shut off daily and residual chlorine can be usually found in the pipes. The intermittent supply results in danger of contamination. In some of the poorer sections of the city, supply is by hydrants from untreated wells and reservoirs. Signs are posted stating that the water is non-potable but this is the only available source of supply for many people. The system supplies about 21 gallons per person per day.

In other cities, supplies are unreliable. For example, in Dire Dawa, the water supply system is only turned on for 30 minutes each day, and in Gonda, piped water supply is unsafe without boiling.

Inadequate water supplies are a serious problem in many parts of the country. Water supplies are highly effective as preventive health measures, and it is estimated that, on a cost basis, a purely preventive water supply program can be financed by one-half to one percent of the national income, while a curative program will cost ten times this amount (Winslow). Consequently, the lack of an adequate program to supply potable water can be identified as a key Ethiopian health problem.

Waste Disposal

Limited availability of sanitary facilities and a general lack of understanding of modern sanitation practices contribute significantly to the prevalence of communicable diseases in the country.

In rural areas sanitary sewage disposal is practically nonexistent. There are no individual latrines in the houses and open fields are normally used for excreta disposal.

About 40-60 percent of the people in the urban areas have access to sanitary facilities, most of which consist of pit latrines. Cesspools and septic tanks are used in some more affluent residential sections of the larger cities. About one percent of households have flush toilets, except in Eritrea, where the rate rises to 2.5 percent. In Addis Ababa, of the 44 percent of households which have toilet facilities, 4.4 percent are of the flush type.

Sewage treatment plants are nonexistent even in the two major cities of Addis Ababa and Asmara, and raw sewage is discharged into open ditches and nearby water sources.

Night soil is commonly used as a fertilizer which, without proper conditions, plays a role in the spread of disease. Public health legislation enacted in 1950 prohibited the practice of polluting the soil, but the law is not faithfully observed.

In Addis Ababa a refuse removal service is available for a fee, but operates on an irregular basis. Throughout the country, garbage is generally deposited at any convenient place.

Food Inspection

Legislation for the sanitary inspection of foods in cities exists and is enforced largely by the local elder (neighborhood self-help association). A shortage of qualified personnel prevents regular supervision of open air markets and slaughterhouses. Distribution of milk and the manufacture of dairy products are also subject to controls but enforcement is lacking.

Indicators of Health Status

Reliable data on disease incidence are generally lacking. Information is mainly drawn from those who seek assistance from the country's medical facilities. The overall health condition of the population is poor, life expectancy is low, and infant mortality is high.

Causes of Morbidity

Among outpatients treated in hospitals (1969-1970), infective and parasitic diseases accounted for one-third of all diagnoses. These were followed by diseases of the respiratory system (14.7 percent), those of the digestive system (13.9 percent), diseases of the skin and musculoskeletal system (12.6 percent) and others.

Among hospitalized patients, "diseases of pregnancy, delivery and puerperium" and "infective and parasitic diseases" each account for 19 percent, followed by "diseases of the digestive system" (12.9 percent), "injuries from external causes" (10.3 percent), and "diseases of the respiratory system" (9.7 percent). A survey of 950 patients at the Princess Tsehi Memorial Hospital from April 1966 to March 1967 revealed that "acute febrile illnesses", "diseases of the alimentary system," liver disease and diseases of the respiratory tract comprise over 55 percent of the total. "Acute febrile illnesses" were most common, accounting for 19 percent. Other sources estimate febrile illnesses in hospitals to account for as much as 50-70 percent of all cases.

In a five-year survey of approximately 6.5 million cases in hospitals and clinics (1958-1963), infectious diseases made of 38.2 percent of all disorders reported.

A comparison of disease occurrence among inpatients at the Haile Selassie Hospital, Addis Ababa and the Ras Makonnen Hospital, Harer, revealed that diseases of the gastrointestinal tract and respiratory system accounted for almost 50 percent of diseases treated.

Among the causes of deaths of hospitalized patients (1969-1970), "infective and parasitic diseases" accounted for over 23 percent of the total deaths. This was followed by deaths due to diseases of the digestive system (16 percent). A large number of deaths (40 percent) were from respiratory diseases.

H.B.C. Russell, in his final report on the "Pilot Mobile Health Team," for WHO in 1959, listed the common communicable diseases in rank order, according to the numbers seen and treated in the mobile team clinic:

- | | | |
|-------------------|--------------------------|-------------------------|
| 1. Malaria | 8. Acute Gonorrhea | 15. Ancylostomiasis |
| 2. Ascariasis | 9. Schistosomiasis | 16. Pneumonia |
| 3. Scabies | 10. Dermatophytosis | 17. Relapsing Fever |
| 4. Conjunctivitis | 11. Taenia saginata | 18. Leprosy |
| 5. Yaws | 12. Whooping cough | 19. Congenital Syphilis |
| 6. Trachoma | 13. Filariasis | 20. Typhoid Fever |
| 7. Early Syphilis | 14. Pulmon. Tuberculosis | |

Of the 12 most frequent communicable diseases or disease groups observed and recorded in 1962, malaria, parasitic skin disease, and helminthiasis made up more than 50 percent.

In the absence of survey morbidity data, by combining the above information, it can be concluded that the most common diseases in Ethiopia are the infectious diseases, followed by diseases of the digestive tract and those of the respiratory system. It can be said that about 50-80 percent of the diseases are communicable and could be prevented by fairly simple measures such as improving water sources, sanitation, control of insect vectors and good personal hygiene.

In its Third Five-Year Plan, the Government of Ethiopia classified diseases according to importance. The very important diseases were listed as leprosy, malaria, shigellosis, and yellow fever; the fairly important diseases are ancylostomiasis, diphtheria, enteric fever, poliomyelitis and schistosomiasis; while among those of relative unimportance is amebiasis. The discrepancies of this ranking with prevalence order ranking may indicate the differing importance of these diseases accorded by Ethiopian values, the differing perceptions of feasibility to control or a failure of planning.

Disease -- Specific Data

Malaria

This is the major single disease problem in terms of epidemic potential and economic burden. It is estimated that almost one-half of the people live in areas where this disease is prevalent and that there are several million persons infected. Some estimate an infection rate as high as 60 percent. Seasonal outbreaks occur each year along the Blue Nile, Jila and Baro Rivers.

In 1965, a study by Chand revealed that half of all cases of communicable diseases admitted to hospitals were diagnosed as malaria. Only a small proportion of malaria patients normally receive adequate medical treatment. In many areas of high malarial incidence, there is only a rudimentary health service. Microscopic diagnosis is not made and treatment is usually given by auxiliary medical personnel.

Mortality is 1-2 percent during non-epidemic periods, and during epidemics it may reach 25 percent. Due to the frequent occurrence of malnutrition of the population, physical resistance is lowered, increasing susceptibility.

Malaria not only has been the cause of high mortality and morbidity rates, but has greatly hampered agricultural development of large areas since people are often forced to leave the fertile plains and move to higher altitudes to escape transmission.

There was an epidemic during the fall of 1958 and malaria morbidity was estimated at no less than 3 million cases (over 35 percent of the population at risk); deaths may have exceeded 150,000 (5 percent case fatality rate). The Provinces of Shoa, Gojam, Welo, and Tigre were the worst affected. The epidemic struck at the time of harvest; crops were either not brought in at all or with considerable delay and famine ensued in some areas.

Malaria is predominantly seasonal in the greater part of the country, being associated with heavy rains which begin in June and end in late September. Malaria incidence reaches a peak in October and November. A correlation exists between the rainy season and breeding conditions for the vectors. During the dry season, transmission is negligible, the vectors being greatly reduced in number by the paucity of breeding places.

The disease is endemic at elevations ranging from sea level to 5,000 feet, notably in the Ogaden area and the lowlands bordering Sudan.

Plasmodium falciparum is the most prevalent parasite (60 percent), followed by P. vivax (25 percent), and P. malarie (15 percent). Mixed infections are quite common.

Tuberculosis

In Ethiopia tuberculosis is widespread and is the second most serious disease problem. It is estimated to affect 30-40 percent of the population.

According to the notifications by the Ethiopian clinics and hospitals, 26,485 new cases of various types of tuberculosis were admitted in 1962. From 1958 to 1965, the incidence varied from 8-13 cases per 100,000 individuals. Of all types of tuberculosis seen, the most frequent is pulmonary, representing 60 percent of all cases. In 1958 during the Nutrition Survey, 15 percent of the persons examined made statements which indicated that they had been suffering from tuberculosis at some time.

Incidence shows a considerable variance between individual provinces and areas of the country. It was reported that at medium altitudes the infection rate is highest. For the Somalia in the eastern part of the country, a prevalence rate of 3 percent has been ascertained. A prevalence rate of 5 percent has been reported for Ogaden Province.

The problem of tuberculosis appears serious in the provinces of Harer and Kefa, and in the capital, Addis Ababa. On mass X-rays of soldiers and their dependents at Addis Ababa, 2 percent examined had tuberculosis and the prevalence rate for children was as high as 3.7 percent. In 1960, among patients at a GYN clinic in Addis Ababa, 1.3 percent

of the 13,378 women examined were suffering from some type of tuberculosis. Pulmonary tuberculosis was predominant in these patients, exceeding 80 percent of the cases. In Kembata District of Shewa Province at the Hosaina Health Centre, 2.9 percent of out-patients were under treatment for tuberculosis.

This high prevalence of tuberculosis is due to inadequate hygienic conditions, particularly poor housing of people living in crowded, windowless rooms. The spread of tuberculosis is favored by the practice of drinking "Borde" and events in which many people, more than 100 on occasion, drink from the same vessel at one sitting. This also applies to the custom of smoking from one common pipe.

There are no demonstrative statistical data on mortality attributable to tuberculosis. One author estimated the number of persons, of all age groups dying annually, to be as high as 20,000.

Venereal Diseases

The high incidence of venereal diseases poses a very serious health problem. Approximately 75 percent of the adult population has or has had a venereal disease. Prevalence in the rural areas, particularly along the highways, is at the same high level as in towns and cities.

The number of new cases of syphilis per annum is estimated at 150,000 to 200,000 and about 7 million suffer from sporadic infection. Of the 103,636 cases of syphilis registered by the V.D. Control Service between 1957 and 1961, 1,728 cases were children up to 14 years old (1.7 percent). The largest proportion of new cases is found in the most sexually active group, 15 to 35 years of age.

Hospital data reveal that syphilis accounts for 4.1 percent of the outpatients and 10 percent of hospitalized patients, whereas gonorrhoea accounts for 5.9 and 3.4 percent, respectively. At the Princess Zenebe Work Hospital (1968), of the 4,700 individuals studied, the majority (33.5 percent) revealed syphilitic skin lesions of some form. The data revealed that syphilis was observed in 126 (41.4 percent) of the 302 boys and girls below 14 years of age, indicating a very large increase over previous years.

The prevalence of gonorrhoeal infections is estimated at 7 percent. A continual increase in incidence has been observed in the past few years. In Addis Ababa, it accounts for 41 percent of all venereal diseases.

Lymphogranuloma venereum accounts for about 2 percent of all venereal disease. It is more prevalent in males than females by a ratio of 3:1. Chancroid is relatively common.

Venereal disease presents both serious social and health problems. Traditional cultural patterns, lack of education, promiscuity, prostitution, migration to urban areas have contributed to the high incidence.

According to Wilcox, 80-90 percent of venereal infections in Africa are transmitted through prostitution; this may also apply in Ethiopia. Although the number of prostitutes in Ethiopia is unknown, it is believed that of those in the profession, 80 percent are under 20 years of age, and fewer than 10 percent are over 40. In spite of youth, the vast majority (90 percent) have been married more than once. Their educational level is low and more than 90 percent are illiterate.

In a survey of 900 prostitutes, more than 66 percent were found to be suffering from latent syphilis. Incidence rates of other venereal diseases found were gonorrhoea (53.3 percent) and chancroid (12 percent).

Leprosy

Leprosy is prevalent in much of Ethiopia. The prevalence is estimated at 10-15 per 1,000 population. There are an estimated 200,000 infected people in the country; over 60,000 are registered cases and about 6,000-8,000 are found in the capital city of Addis Ababa. It may be assumed that up to 10 percent of the population contracts the disease at some period of their lives.

Leprosy is irregularly distributed. Concentrations are found in the central provinces at elevations over 6,000 feet and the disease is common in Hararge and Gojam Provinces and in areas bordering Sudan. In 1961, the following prevalence rates per 1,000 were recorded in the provinces: Gojam, 25; Wollo, 15; Shewa, 12; and Bejemde, 10.

The sex distribution of leprosy in Ethiopia shows that it is more common among males than females by a ratio of 60:40. Among school children, the sex ratio is also 6:4, the prevalence again being higher among males. Of outpatients treated at the Princess Zenebe Work Hospital, over 70 percent were between the ages of 5 and 39 years.

An analysis of 4,000 cases of leprosy seen at the Princess Zeneba Work Hospital provides information as to the age of the patient when leprosy became manifest in them: 20 percent of the patients had contracted leprosy by the age of fifteen and more than 90 percent before they reached age forty.

Deformities due to leprosy are seen in about one-fifth of the cases. Further information from the Princess Zeneba Work Hospital reveal that of 2,091 patients, only 15 percent came under treatment during the first year of illness and half more than three years.

Schistosomiasis

Schistosomiasis is widespread throughout Africa and as a parasitic disease is considered second in importance only to malaria. S. mansoni and S. haematobium appear to be diffusely endemic in various parts of the country. Statistics are poor and research is comparatively recent in Ethiopia. The disease will probably be perceived as an important health problem in the future as more is known. This is predicted on the basis of the widespread distribution of the variety of snails that are the intermediate host, the movement of infected individuals associated with the development of agriculture and industry, and the construction of irrigation ditches. Yearly reported incidence varies from 19 cases in 1955 to 4,236 cases in 1961, averaging 1,018 cases per year. However, lack of surveillance in various locations suggests that incidence may be grossly underestimated.

Sample studies allow some insight into the prevalence of the disease. Certain localities have reported 70-80 percent of school children passing ova in stools, mainly S. mansoni. Data collected reveal S. mansoni infection rates approach 100 percent among school children in the northern lowlands and an infection rate of about 25 percent in the population of Gambela. In Begemdir Province (1961), 20 percent of the school children were reported to be infected.

A study of the town of Adawa revealed that the Asam River was a primary focus for the dissemination of human schistosomiasis. Other areas include the northern highlands, western borderlands and in Hararge and Eritrea Provinces. Infections are reported in all provinces of the country except Gemu Gofa and Illubabor Provinces.

Case mortality appears low -- one fatal case reported per 100 patients.

Trachoma

Diseases of the eye such as trachoma and conjunctivitis occur in many parts of the country. About 40-50 percent of the population with a medium and low standard of living suffer from trachoma and higher numbers from periodic occurrences of conjunctivitis. The higher the social status, the lower the rate of contagious diseases of the eye. The Somalia of Harrarge Province and the Arabs appear to be the most badly stricken.

The percentage of active trachoma between the ages of one and eight years is about 40 percent and as high as 90 percent in some places. There is a high prevalence in the Gondar area in Begemdir Province with 90 percent, and in Dese in the Welo Province with 60 percent. Among adults in the country the average active rate of trachoma is estimated at 20 percent.

Smallpox, Typhus, Relapsing Fever

These diseases are endemic in the country.

Smallpox

Smallpox appears to be decreasing in incidence since the 1960s. Until 1971, about 350-600 cases were being reported to the authorities each year, but evidently constituted only a small fraction of the cases actually occurring. In 1971, due to intensive case-finding and better reporting as part of a smallpox control program, a sharp rise to about 26,000 new cases was noted. The number represented 55 percent of cases reported throughout the world. The overall incidence of smallpox per 100,000 inhabitants was 104, ranging from 55 in Arusi Province to 459 in Illubabor.

Children of both sexes, to the age of 14, fall victim to smallpox with equal frequency. Of the adult cases, the male patients outnumber the female 2:1.

A significant increase in transmission occurs in the rainy season, culminating in the month of July (one-sixth of all cases). The lowest number of cases are reported in December. Increased human contacts caused by overcrowding during the rainy season favor the spread of smallpox.

Typhus

Lack of diagnostic laboratories and the inaccessibility of certain regions make it impossible to obtain complete statistics for the country.

In 1958, 5,000 cases were reported, dropping to 1,744 cases and three deaths in 1967.

It has a seasonal curve of incidence with two peaks. Sharp increases occur after the main rainy season and during the coldest months of the year. Overall peak incidence is in November.

It is thought that louse-borne typhus mortality is higher than that of tick-borne.

Relapsing Fever

Ethiopia is one of the few countries in the world where louse-borne relapsing fever is endo-epidemic. In 1969, of a total 5,000+ cases reported world-wide, 90 percent occurred in Ethiopia.

The following are illustrative yearly incidence reports: 1951, 2,300 cases; 1959, 8,800 cases; 1967, 2,171 cases; 1969, 4,600 cases.

Mortality is estimated to be about 40 percent in untreated cases and 2-4 percent in treated cases.

The disease is endemic in all provinces but usually found in the higher elevations. The louse-borne form is mainly found in the high plateau and Eritrea Province and tick-borne in the lowlands. Louse-borne typhus tends to occur in epidemic outbreaks and tick-borne is usually sporadic and endemic.

Optimum breeding conditions are produced by the habit of living closely together in round huts, especially during the rainy season and during the cold season. Conditions are worsened by the type of clothing worn and lack of personal hygiene.

Yellow Fever

In 1959 there was an outbreak of yellow fever in Welega Province. The number of cases was about 15,000 and 88 deaths were reported.

The most severe epidemic ever observed in Africa was in 1960-62. It affected the southwestern part of Ethiopia. An estimated 200,000 cases were reported. All age groups were affected, men under 40 most severely. There were more than 30,000 deaths. Other outbreaks were reported in 1963 and 1966, but no details are available. No cases have been reported since.

Typical yellow fever areas are usually surrounded by (ensete) banana plantations, which play a significant part in the propagation of yellow fever as the vector, Aedes simpsoni, breeds on throughout the year between the leaves and the stems of the plants.

Other Diseases

Parasitic infections among all age groups throughout Ethiopia are widespread. Stool tests of 5,431 persons during 1961-62, at the Ras Makonnen Hospital, revealed that 61.1 percent had some type of parasitic infection and A. lumbricoids was most common.

Cholera was pandemic in 1970. The epidemic was brought under control within a few months after affecting thousands of people. After this outbreak, cholera vaccination was required prior to entering the country.

Typhoid and paratyphoid infections are reported in all provinces. Statistics from the Anti-Epidemic Service for 1959-1963 show that monthly indices vary between 48 and 96 cases of typhoid in July and 144.5 and 291 in November. The lowest incidence of paratyphoid is in August and highest in June. The highest incidence is registered in the dry season; for typhoid fever the beginning of the season and for paratyphoid fever the period immediately before the main rainy season.

The continuous occurrence of typhoid-paratyphoid cases stems from the fact that only a few of the persons carrying and excreting the causative agents (carriers) are known to the public health services. New problems arise with increasing urbanization: the construction of sanitary installations and water supply and sewage disposal systems has not kept pace with the population increase.

Amoebiasis is usually found in tropical zones where sanitary conditions are unsatisfactory. A study of 2,030 patients of the Haile Selassie Hospital (1965-66), found 38 percent of the patients were carriers of E. histolytica; 10 percent were suffering from acute disease and 5.6 percent showed intestinal and other complications.

Cases of diarrhea of unknown etiology are relatively frequent as voiced by patients receiving medical treatment.

In the five year national survey, of the respiratory diseases, acute respiratory tract infections were listed as the most common (32 percent), followed by influenza (14 percent), and lobar pneumonia (10 percent).

Among the diseases of bones and extremities, rheumatic disorders are most common. In the mental diseases category, psychoneuroses and disorders of personality predominate by 50 percent. Of the diseases caused by external injuries, those due to traffic accidents involving motor vehicles are low at about 6 percent; accidents due to burns, 7 percent; those due to violence, 23 percent; and those attributable to other causes, 32 percent;

Zoonotic diseases are apparently being observed with increasing frequency. Rabies is believed to be widely prevalent. The incidence and prevalence of tuberculosis in cattle and other animals are largely unknown, but a prevalence rate of 60 percent was observed in one herd of cattle tested near Addis Ababa. This appears to be an economic and public health problem and will become more important as the dairy industry expands and testing is increased.

Nutrition

The average Ethiopian is of slender build. Average height is about 65.6 inches for males and 60.9 inches for females; average weight is 116.3 pounds and 101.4 pounds, respectively.

The Nutrition Survey of 1958 showed that 12 percent of the population was below "Standard Weight." This "Standard" based on American and European experience, may be inappropriate. It was generally noted that the height and weight growth for boys and girls lagged two to four years behind that for European and American children.

The daily caloric requirement of an adult Ethiopian has been estimated at about 2,500 calories a day. Based on this assumption, there is an average caloric deficit of up to 400 calories per person per day.

Results of the 1959 Nutrition Survey indicate that malnutrition is widespread and predominantly involves pre-school children, pregnant women and lactating mothers. Protein deficiency syndromes have been found in 2 percent of the males and 8 percent of females among the poorer population. Advanced protein-caloric malnutrition is found to be an important reason for admissions to hospitals and the associated cause of many deaths. One study reported rates of advanced protein malnutrition to vary from 3.5 to 4.6 percent of the population in various provinces.

The nutritional problems of infancy are of major importance. Many children die as the direct result of improper feeding, especially during the weaning period. For those who survive, the deprivation during this critical time results in many not reaching full physical potential in later life, evidenced by growth retardation of two to four years. In some parts of the country, indications of dietary inadequacies show up in the frequency of protein deficiencies such as kwashiorkor. Rickets, as a consequence of a poor diet in calcium and vitamin D, occur in 33 percent of infants, in spite of a tropical sunny climate.

Among the adult population, shortages of vitamin A and C are manifested by the frequent occurrence of skin lesions and gum deterioration. Vitamin A deficiency is found in about 10 percent of the males and about 3 percent of the females. Vitamin C deficiency affects 30-33 percent of the population. Endemic goiter, indicating a low intake of iodine, also persists in many areas and is a serious public health problem. It affects about 2 percent of the males and around 9 percent of the females.

The substandard nutritional condition of the people stems from a number of factors: crop failures (at times resulting in famines), limited utilization of arable land, primitive farming methods, lack of transportation facilities, storage and distribution of food products and ignorance concerning good food practices.

Religion and customs pertaining to food contribute to nutritional inadequacies. The Ethiopian Orthodox Church designates all or part of 239 days as fast days and most people observe 56 fast days before Easter (Lent) and in August. Muslims refrain from all pork products. They fast from sunrise to sunset during the traditional month of Ramaden.

Dietary patterns vary from one ethnolinguistic group to another and according to geographic region, but food production and tradition combine to create a number of food habits on which poor nutrition is based. The most important basic food in the diet is injera bread, a pancake made from teff (a cereal grain high in iron). Its companion food is a stew called wot or allicha, prepared with or without hot spices. This dish uses as a main ingredient either peas, chickpeas, lentils or potatoes, depending upon the region of the country. This dish is the one preferred on religious fast days. The basic diet is enriched with meat only occasionally. About 20 percent of the people have meat more than once a week, 16 percent once a month and the rest not at all. Chicken is a dish for festivals; eggs are seldom eaten. About 50 percent of the non-nomadic population drink milk less than once a week. The nomadic tribes base their diet on milk. Vegetables are eaten in small amounts and citrus fruits are sold rather than eaten by the poor -- about 3 percent of the people have them once a week. Sugar is used in beverages, especially coffee, by 50 percent of the people, including children, once a week.

The Ethiopian Government gives priority to the general problems of nutrition through emphasis on agricultural development and health activities. Roughly 6 percent of the government's budget is utilized for food production and nutrition-related programs. Their fourth Five-year National Development Plan will probably emphasize agriculture as the sector for priority attention.

The Ethiopian Women's Welfare Association, using a proposed U.S. Agency for International Development grant of Eth\$86,000 is planning to develop materials for adult education in the context of basic agriculture, health, nutrition and family education.

A low-cost, soybean-base, milk supplement called Kaffa has been developed. This is being produced locally (350 metric tons annually) for use at various health institutions and MCH programs.

WHO and the Swedish government have been instrumental in initiating nutrition related programs, and assisted the Ethiopian Government in establishing the Ethiopian Nutrition Institute.

CHAPTER THREE

HEALTH SERVICES ORGANIZATION, ADMINISTRATION, AND RESOURCES

Health Administration

The government is the principal provider of health services. The Ministry of Public Health in turn is the prime provider of governmental services. It operates a system of medical care facilities, as well as a number of vertical programs directed at specific disease problems. Decentralized governmental programs include school health, military health and environmental sanitation. The private medical sector appears smaller than the governmental, and is dominated by Christian missions. The traditional health practitioners still provide a major portion of all services.

The government places a great deal of emphasis on prevention and environmental services -- the malaria campaign alone receives about one-quarter of the total budget of the Ministry of Health. Medical care is provided by a health team including two grades of "dressers" who receive minimal training and work at the primary contact level. These dressers in theory are supervised by local public health teams of three paramedicals: a health officer, a sanitarian, and a community nurse. A small number of physicians provide overall direction.

Central Administration

In 1948, the Ministry of Public Health was established. The functions of the Ministry include, among others: the study of health planning; supervision of medical personnel and health facilities; and provision of technical guidance in health matters. The organization of the Ministry of Public Health was developed within the framework of the Second Five-Year Plan and includes five departments: health services, environmental health, laboratory and pharmacy, health education of the public and training of personnel, and administrative services.

The aim of health planning is to decentralize public health services focusing on disease prevention. The Second Five-Year Plan called for long-term objectives of integration of services, provision of one health center per 50,000 inhabitants, and provision of one health station per 5,000 inhabitants.

There are plans for the eventual integration of a number of existing centralized services and projects into the general health services.

Special Centralized Services Operated by the Ministry of Health

Anti-Epidemic Service

Established in 1948, the service is responsible for control of diseases of epidemic proportions. It operates a 40-bed isolation ward in Addis Ababa. In 1969-70, over one million persons were vaccinated for smallpox and over 330,000 were given BCG.

Quarantine Service

Stations are maintained at major harbors, airports and border crossing points, and are responsible for carrying out international health regulations.

Malaria Eradication Service

Established in 1959, and supported by WHO and USAID, the goal of this service is a step by step control program for complete eradication of malaria by 1980. The intention was to reduce danger from, and incidence of, malaria in fertile but unused areas to bring them into agricultural use. For malaria control purposes the country was divided into four areas:

Area A - Eritrea, Tigre, Begemdir, Eastern Welo, Northern Harer, Western Shoa, and Northern Arusi.

Area B - Gojam, Western Welo, Northeastern Welega, Northern Kefa, and Eastern Illubabor.

Area C - Southwestern Welega, Western Illubabor, and Southern Kefa.

Area D - Southern Harer, Southern Arusi, Bale, and Eastern Sidamo.

It is evident from reports that spraying of DDT has reduced the level of malaria but has not, even under favorable circumstances, achieved interruption of malaria transmission. The program was reviewed in May 1970. Recommendations were that the program maintain the achievements in Area A by continuing DDT spraying in a more discriminating manner while expanding into other areas as finances permit and until such time as circumstances allow a return to eradication -- the ultimate goal of the service. The Center for Disease Control in Atlanta, Georgia, believes that the eradication of malaria is unattainable. It recommends extension of the Malaria Eradication Service capabilities by partial integration of basic health services, and extension of surveillance and epidemiological activities by the collection of data on the prevalence of other diseases. An alternate solution would be to concentrate more comprehensive and sophisticated malaria control measures in strategically selected areas, i.e., those of greatest economic importance and greatest malaria impact, with firm plans for integrating the service into the basic health services.

From 1955 to 1965, the United States had contributed \$4,867,000 in grants for malaria programs. In 1972-73, USAID financing for the program is Eth\$6 million and Ethiopian domestic sources contributed Eth\$4,300,000 for a total of Eth\$10,900,000, or 24.7 percent of the total health budget.

WHO also offers assistance by sponsoring a Malaria Eradication Training Center at Nazareth. Since 1968, there were 450 sub-professionals retrained.

Tuberculosis Control Service

The seriousness of tuberculosis was recognized by the Ministry of Public Health as early as 1955 when a mass BCG vaccination campaign began. Convinced that tuberculosis control must be instituted before the disease attained unmanageable proportions, the government established the Tuberculosis Demonstration and Training Center in Addis Ababa in 1959 with WHO and UNICEF assistance. Similar centers were established in Asmara in 1964 and Harer in 1965.

The purpose of these centers is: training in TB control methods; performing routine diagnostic, therapeutic and preventive work; epidemiological investigation; involvement in BCG campaigns; and eventual integration into the general health service system.

In addition to the above, there are three hospitals in the same areas for the treatment of TB patients. Almost all general hospitals have TB wards. There are a total of 760 TB beds and 9 TB physician specialists in the country. All services, including chest X-ray and treatment, are free in most health institutions.

Records reveal that attendance at the Addis Ababa Center for routine TB examination grew from 30,642 in 1960 to 68,187 in 1969. Each year about 900,000 people are examined for TB and about 14,000 cases are treated in hospitals and health centers. During the last fifteen years about 4-1/2 million BCG vaccinations have been given, of which 80 per cent were children under 15 years of age, the age group most at risk.

Venereal Disease Control Service

The first V.D. clinic was established in Addis Ababa in 1949 for curative services. In 1952, with the assistance of WHO, a Venereal Disease Control Center was opened in Addis Ababa. Its major functions are identification of cases of prevalent venereal diseases, treatment of such cases, and training of laboratory technicians. In 1956, with UNICEF support, services were further developed and extended to areas other than Addis Ababa. Since 1956, the Center (including mass field campaigns) has treated over one million people for venereal and skin diseases.

In all health facilities in the country, free treatment is available in most cases. In urban centers, like Dire Dawa and Asmara, a special service is organized for regular check-up and treatment of potential reservoirs of disease in the community.

Pregnant mothers who attend maternal and child health clinics are routinely checked for V.D.

Communicable Eye Disease Control Service

Communicable Eye Disease Control Centers were established in Asmara and Addis Ababa in 1953 and 1958, respectively, in the form of demonstration and training centers. Their purpose was to organize and evaluate mass trachoma campaigns, carry out research activities, and train health workers, with the aim of integrating control of trachoma and other communicable eye diseases into the general health services.

The program started in the province of Eritrea (1952-1956) with yearly surveys and treatment of school children. This led to a countrywide campaign which ended in 1967 after 1,081,153 persons had been treated, including 45,127 school children. This was followed by a maintenance campaign to keep prevalence at the level attained after the mass campaign. During 1968-69, a total of 386,645 examinations were done and 99,773 persons treated. This indicates that perhaps maintenance has not proved successful.

Activities of some health centers now include trachoma work, but their achievements are modest and there has not been a sustained effort to tackle the problem with the vigor it deserves. Efforts by the Center in Addis Ababa have not developed as envisioned; however plans are underway to reactivate this project by the end of 1973. Activities will focus on three provinces as field project areas.

Smallpox Eradication Program

This program was initiated in 1970 with substantial assistance from WHO. The objective of the program is to achieve smallpox eradication in Ethiopia in the shortest possible time.

Through intensive surveillance, 25,329 cases were discovered in 1971, mainly in the Southwest and South Ethiopia. During this time, 3,057,540 vaccinations were given. The impact of the program began to be felt in 1972 when only 16,889 smallpox cases were discovered.

The number of vaccinations performed from the beginning of this program to the end of 1972 reached the 6 million mark. This is almost 25 percent of the population. By the end of 1973 the Smallpox Eradication Program is expected to reach the maintenance phase.

Leprosy Control Service

In 1954, the Leprosy Control Service was established with headquarters at the Princess Zenebe Work Hospital. Early activities aimed at isolation of all infective patients in "settlements." In 1963 a new policy was adopted consisting of as many strategically located rural treatment centers as possible. This plan was taken a step further in 1970 when a system of mobile health workers was organized to treat patients regularly at market areas on market days. There are now 375 mobile market clinics serviced by 112 health workers.

In provinces of high prevalence, a Leprosy Control Office is attached to the Provincial Health Department to coordinate and facilitate integration of activities into the general health service. This is being done by assigning a specialized health worker to the general health institution to treat leprosy patients.

At present there are 7 Leprosaria with approximately 360 beds.

In connection with leprosy control, mention should be made of the All-Africa Leprosy and Rehabilitation Center (ALERT) at the Princess Zenebe Work Leprosarium in Addis Ababa. It mainly provides training for physicians and senior categories of leprosy and rehabilitation workers from all parts of Africa.

Although not part of the centralized services or programs, there are two other activities that warrant mention: the school health service and family planning.

School Health Service (SHS)

This is an autonomous unit within the Ministry of Education headed by a Medical Director. There are 144 clinics and over 200 elementary and advanced dressers employed in the provinces, subordinate to the school inspector of the province. Although the SHS is responsible for both curative and preventive services, it concentrates on treatment of sick pupils. The transfer of the School Health Service to the Ministry of Public Health has been discussed many times.

Family Planning

The government has no official Population/Family Planning policy. It has no objection to the inclusion of family planning services in connection with maternal and child

health care. Its main opposition is bound up in religion and politics. Ideas on birth control are resisted on the grounds that it would affect the monogamous Christian group much more than the polygamous Muslims. The major source of opposition to family planning is the Ethiopian Orthodox Church. The subject was not addressed in the Third Five-Year Plan.

In 1966 a voluntary Family Guidance Association was formed. The Association conducts a family planning clinic in Addis Ababa and assists with family planning activities in 64 health centers and hospitals throughout Ethiopia. The Association is sponsored by the Haile Selassie I Foundation and receives support from the International Planned Parenthood Federation. It received a \$100,000 pledge for 1973 operations which was up from \$87,000 in 1972.

The government allows commercial importation of a wide variety of contraceptives, mostly through non-commercial channels, particularly through the International Planned Parenthood Federation-supported Family Guidance Association.

Low key population/family planning articles are appearing more frequently in the press. From all indications, it appears unlikely, however, that any significant progress can be made in this area in the near future.

Provincial Health Administration

Each of the 14 provinces has a Provincial Health Department, headed by a Health Officer. At the present time all Provincial Health Officers are physicians. The Provincial Health Officer is in charge of all Public Health Services in the province and is directly responsible to the Governor-General.

Basic health services in the provinces are decentralized and consist of health centers and health stations which provide both preventive and curative primary health and medical care. These services were developed in 1959 when a health tax scheme was introduced and revenues from these taxes were budgeted to be used solely for expansion of these services.

Health centers, located usually in larger towns, are the responsibility of a team of health workers: Health Officers, Community Nurses, and Sanitarians. Health stations are the smallest unit in the basic health service system. The majority function as satellite stations of health centers to which they are administratively subordinate.

Supervision of health facilities and personnel in the provinces are far from satisfactory. This is mainly due to inadequate staff. Another apparent need is to strengthen and increase the authority of the Provincial Health Officers. For example, health center budgets are prepared by the Central Offices of the Ministry of Public Health and not by the Health Center or Provincial Health Department staff. As a result, budgets are stereotyped, do not reflect local conditions or needs, and are based entirely on records of expenditures from previous years. Consequently, budgeting is not used as an administrative or planning tool for programming, development or evaluation.

Physical Resources

Hospitals

Within the last 25 years the number of hospitals and hospital beds have more than doubled:

| | | |
|---------------|-------------|-------------|
| | <u>1947</u> | <u>1972</u> |
| Hospitals | 38 | 85 |
| Hospital beds | 3300 | 8415 |

Currently 53 percent of all general and specialized hospitals (excluding police and armed forces) and 67 percent of all beds are government operated.

In 1973, there were approximately 3.3 beds per 10,000 inhabitants. This may be compared with the WHO estimate for 1961 of 3.9 beds per 10,000 population. We may conclude that there has been no significant increase in hospital bed availability in Ethiopia in at least a decade. The current bed availability is comparatively low by international standards.

It was estimated in 1969 that about 10-20 percent of the total population received modern organized health services. As facilities are located chiefly in the larger towns and cities, topographic obstacles and lack of surface transportation cause access problems for the large, scattered rural population.

Almost one-half of all hospital beds are allotted for general medical and surgical cases (46 percent), followed by beds for tuberculosis (10 percent), with the remainder for other purposes.

Of the other non-governmental agencies engaged in the field of hospital services, the largest single group is formed by missions representing various Christian denominations. In 1972, the mission hospitals accounted for 73 percent of all non-government hospitals in the country with 29 facilities consisting of 1,484 beds. Missions provide valuable services in augmenting government facilities.

Hospital services in the country will be expanded by the opening (scheduled for the end of 1973) of the Duke of Harrer Hospital.

Health Centers

The second Five-year Development Plan established a long-range goal of one health center for at most 50,000 people. At the present time there are 93 health centers in the country. With 20 percent of the goal realized, there is one health center per 277,419 persons. The majority of provinces have four or more health centers. In Bale Province, one of the least densely populated, only 2 have been established.

It is estimated that each center can service about 20,000 to 30,000 persons, dependent on road conditions and population density. Health center facilities are generally considered poor, with very little medical equipment and activity limited because of shortage of personnel. Expansion of the number of health centers depends largely on the number of trained personnel graduated from the Condar Health College which trains almost all health workers.

In 1966, a study was conducted in three different health centers. The distribution of health center staff-time, during an average work week, was measured. It was found that the majority of Health Officers' time was spent in polyclinic activities (48 percent), which is consistent with the hypothesis that effort is unduly concentrated on curative services. In addition, a fair amount (13.6 percent) of his time was spent on administration. The Community Nurse appears to spend more time in public health (31.6 percent) home visiting type activities. Sanitarians spent the largest single portion of their time inspecting dwellings (27 percent).

Health Stations

There are 649 health stations or clinics, of which 274 are owned by the government. Although there is a nominal goal of one health station for at most 5,000 people, less than 10 percent of those to be provided by the government have been put into operation. Health stations tend to be inadequately staffed and provisioned and therefore, less beneficial to rural health than they might be.

The Ministry of Public Health has found it to be more efficient economically and more reliable to entrust the construction of health centers to the Elementary School Building Unit, rather than contracting directly. This is understandable and logical since the School Building Unit is involved in the construction of schools in places where health centers are not available. Since this agreement in 1971, the School Building Unit has constructed 14 centers for the Ministry.

Human Resources

The Ethiopian medical system depends largely on the delegation of medical functions to dressers -- health workers with minimal training. A small number of physicians work in the country. Most of them are foreign and work in the urban areas. Provincial health services are organized around a community health team of middle-level personnel: the health officer, community nurse, and sanitarian. Training plans appear to be designed to increase the role of the community health teams while providing for the eventual replacement of foreign physicians with Ethiopian nationals. Minimal personnel availability will be a fact for decades. This pattern will therefore assure the importance of traditional or empirical medical practitioners for a long time to come. We thus emphasize the need to retrain and upgrade such personnel.

Current Manpower Supply

Medical Doctors

In 1947 there were 100 doctors in the country; by 1972 the number had increased to 374, of which 124 were Ethiopian nationals. The overall doctor/population ratio is 1 per 68,983, one of the lowest in the world. The minimum number suggested by WHO is 1 per 10,000 population.

Distribution, as in many other developing countries, is very uneven. Addis Ababa, with 2.4 percent of the country's population has 45 percent of all physicians with a doctor/population ratio of 1:3,857. Of the provinces, Eritrea has the highest number of 1:27,376 and Bale the lowest, 1:692,000.

As in many other countries, doctors prefer not to work in rural areas. To ameliorate the maldistribution of physicians, the Ministry of Public Health in 1970 implemented a two-year rural services policy for physicians.

Dentists

Twelve dentists were reported to be working in the country in 1966 (the latest date for which reliable data were available). This provides a dentist/population ratio of 1:2,150,000. Eight of the twelve dentists are found in Addis Ababa. It can be assumed that the general population in Ethiopia receives no professional dental services.

Health Officers

Health Officers are considered the key "middle-level" personnel in delivering basic health services. There were 213 health officers in 1972, slightly over 2 available for each of the 93 health centers and 1 per 121,126 population. The greatest number of Health Officers (29) are located in Addis Ababa where there are no health centers. The Province of Bale, the only province with just 1 physician, had the highest number of health officers per health center (3:1).

Nurses

In 1972, there were 892 registered nurses (1 per 28,923 population) and 270 community nurses (1 per 95,555 population) for a total nurse/population ratio of 1:22,203. This is less than the nurse/population ratio set by WHO of 1:5,000. There is a physician/nurse ratio of 1:3. Fifty-five percent of all nurses are located in Addis Ababa and Eritrea Province and the least number in Bale Province (1 percent).

Sanitarians

There were an estimated 241 sanitarians in the country in 1972 with a ratio of 1 sanitarian per 107,053 population, markedly less than the minimum recommended by WHO (1:15,000). Slightly over 30 percent are located in Addis Ababa and Eritrea Province.

Pharmacists and Druggists (pharmacy attendants) are extremely limited; there are a total of 86 for the entire country, or a ratio of 1 per 300,000 population. The ratio suggested by WHO is 1:50,000. Sixty-six percent are in the capital and 30 percent in Eritrea Province.

Laboratory and X-ray Technicians

There are 253 laboratory technicians with 44 percent in Addis Ababa. The number of X-ray technicians could not be accurately ascertained, but 64 were listed in one report in 1970.

Dressers

This group makes up the largest number of health workers in the country. There were 70 in 1947 and in 1972, advanced and elementary dressers totaled 4,003. This affords a ratio of 1 per 6,445 population. Like all other categories of health workers, the majority are located in Addis Ababa and the provinces of Eritrea and Shoa. Only in 3 provinces are there less than 100 dressers: Bale, Gemu-Goffa, and Illubabor.

Sometimes dressers in remote villages act as local physicians performing services far beyond their limitations. Except for indigenous and traditional medical practitioners, they frequently are the only health personnel available in the area. It is important that their curriculum include more preventive and public health aspects, and a more effective system of supervision be employed.

Veterinary Personnel

In 1970, there were approximately 49 veterinarians in the country, 19 of whom were Ethiopian nationals. In addition, there were 135 veterinary assistants, 34 laboratory technicians, 412 vaccinators, 17 assistant meat inspectors, and 28 lay meat inspectors.

Traditional Medical Practitioners

The "Wogesha" (surgeon-herbalist) is the most popular traditional medical practitioner. His skills are passed down from father to son and include setting fractures, pulling teeth, and dispensing purgatives and brews made from herbs. Induced bleeding is routinely practiced for many ailments, including headaches and cauterization is used to treat persons suffering from tuberculosis.

The Debtors (an unordained church functionary), although having no position in the Church, by his religious ties, is believed to have magical curative powers. He is often called upon to perform exorcising magic in case of illness.

The State has legally permitted the Wogesha to practice in the areas of his residence. Although many of his treatments are drastic, and some have deadly effects, the majority of his treatment is based on empirical knowledge, and on the whole he is an important adjunct to the medical manpower system. With the extreme shortage of health personnel, the co-opting of these individuals could be beneficial in expanding health services.

Training of Personnel

The chief training centers for medical personnel are the Faculty of Medicine of the Haile Selassie I University, Gondar Public Health College and various hospital schools.

The lowest level health workers in the country are dressers. Training of dressers started in 1946. They function under supervision as auxiliaries in hospitals and independently in a number of health stations. Present minimum academic requirement for entrance for training is completion of the eighth grade. Elementary dressers receive a one-year course and advanced dressers receive a second year after an interval of service. In 1973 there were 18 training schools. A total of 3,147 elementary dressers have graduated and 1,206 have qualified as advanced dressers.

The first nursing school was established at the Haile Selassie I University, Addis Ababa, in 1949. Training prepares nurses for hospital based services. The present minimum entrance requirement is completion of the eleventh grade and training is for 3 years. There are nine nursing schools, and 917 nurses have graduated.

In 1954, the Gondar Public Health College opened in order to train teams consisting of Health Officers, Community Nurses, and Sanitarians for Health Centers. Admittance to the health officers course requires 12 years of basic education. Training is for four years upon which a B.Sc. in Public Health is awarded. Health Officers are trained to function as head of health center teams. Since the school opened, 348 health officers have been trained. Reports indicate that the course has become too academic and nearly equals the complexity of the course for a physician.

Community nurses training requires completion of tenth grade for entrance. The course is three years. They are taught to function as part of the health center team, specifically skilled in MCH and Public Health. To date 344 nurses have graduated.

Sanitarians are the third component of the health center team. The training prerequisite is 8-10 years of education, and the course of training is for three years. Students specialize in environmental sanitation. The training generally consists of 45 percent classroom training, 55 percent practical training, plus one year of internship. Although there has been a steady increase both in numbers of students admitted and in teaching staff, budget for this training program has remained relatively constant at about 1.2 million Ethiopian dollars. Thus far there have been 316 graduates under this program.

A review of the Gondar Training Program in relation to meeting the needs of the Basic Health Services suggests:

1. Inadequate contact with community by the staff: the health center personnel feel they are highly educated and tend to isolate themselves from the community.
2. Personnel appear to be overly dependent on facilities. There are too many demands for equipment, which frequently represents an excuse for not having developed a full program of public health activities.
3. Curative services are given most attention. There is a need for more emphasis on preventive services.
4. Adjustment is required in the ratio of training health officers and community nurses -- many more community nurses are needed.
5. Sanitarians are the weakest staff members, consequently they require more practical training.
6. More emphasis is needed on "team spirit." Working relationships among team members are not satisfactory. They need more regular staff meetings and close cooperation and coordination of services.

A study of Gondar graduates in 1967 revealed that approximately three-fourths had accepted employment with the Ministry of Health. This is partially explained by the fact that graduates must serve the government two years for each year of training they receive. Of government employees, from 58 to 73 percent (according to profession) were employed in health centers. Twelve percent of Health Officers were employed by the Military Health Service.

The Faculty of Medicine was established at the Haile Selassie I University in 1965. Four of the first medical students were Gondar graduates. Forty-eight physicians have graduated so far. It is estimated that a yearly output of about 25 is required to meet demand.

The School of Pharmacy was opened in 1963 and has trained 51 pharmacists and 54 pharmacist attendants. With the very large volume of drugs imported into the country and with the small number of trained pharmacists, it can be assumed that the majority of people dispensing drugs in the country are untrained. It is estimated that a yearly output of 20 graduates are required for Ministry of Health facilities and operations.

The first Laboratory Technician Training School started in 1957 at the Gondar Public Health College and a junior laboratory school was started at the Menilik II Hospital in 1962. The basic entrance requirement is a tenth grade education. The training for

junior technicians is two years and is extended for one year for senior laboratory technicians. There have been a total of 228 laboratory technicians trained.

An X-ray technician school was established in 1965. Entrance requirements are a tenth grade education. Graduates to date have numbered 129.

There is no doubt that the insufficient supply of trained medical manpower is one of Ethiopia's major and critical medical care problems. It is the health officers, community nurses, sanitarians and dressers who bear the brunt of staffing the services in the provincial and rural areas. Because of heavy demand for treating disease, medical personnel are primarily occupied with curative medicine and neglect the preventive field.

There is not only a need to increase training capacity and ongoing evaluation of curriculum, but also a need to set up a career structure with promotion and salary scales from grade to grade with a fully recognized status and appropriate authority.

In addition to scarcity and maldistribution of medical personnel, in Addis Ababa the situation is aggravated by the competition between government departments for available personnel. It is not uncommon to find that a service which has trained a technician to a point where his work is effective, loses him to another agency which may not even have a use for his special skills but can offer him a few more dollars.

The following table shows the number and type of personnel currently available and the number by 1982 based on estimated projection goals.

| <u>Type of Personnel</u> | Type of Available Personnel, 1972 and Projected Availability, 1982 | | |
|---------------------------------|---|--------------------------------------|-----------------------------------|
| | Availability 1972 | Estimated goal of production/year | Projected Availability 1982 |
| Doctors* | 374 | 25 | 574 |
| Health Officers | 213 | 40 | 813 |
| Hospital Nurses and Midwives | 892 | 130 | 2,192 |
| Community Nurses | 270 | 30 | 570 |
| Sanitarians | 241 | 30 | 541 |
| Lab Technicians | 253 | 20 | 453 |
| Dressers | 4,003 | 300 | 7,003 |

* In 1972, 250 doctors were not Ethiopian nationals. It is assumed that this number will be reduced 20 percent in 10 years and assuming negligible emigration and dropout.

Economic Resources

Charges for beds in government hospitals are divided into three types: first class, second class, and third class. The majority of beds in all hospitals (60 percent) are third class; 24 percent are in the first and second class category; the remaining 16 percent are free.

There is no health insurance system. Employers usually assume the cost for hospitalization of wage earners. Menelik Memorial Hospital in Addis Ababa accepts civil servants at half the usual cost. In the early 1970s, the fee for paying patients at the Haile Selassie I Hospital ranged from Eth\$7 to Eth\$15 per day.

The charges for a third class bed while low, can be assumed to be out of reach for the masses of the population. On the other hand, the charges made for first and second class beds are generally below the cost of maintaining them. Thus, first and second class beds, providing care to the "middle class" are also subsidized by the State. In Addis Ababa, for example, the cost of a "first class" hospital bed is considerably less than that of a good hotel room.

There are no official figures for the cost of operation per bed in hospitals. Estimates range from Eth\$5-25, depending on the hospital, with a mean of around Eth\$10. The proportion of operating costs received from the patients is not known, but it is believed to be about 20-25 percent. In principle, this is returned to the Ministry of Finance. Recently some hospitals have been allowed to retain a proportion of their income for expenditures with the approval of the Ministry of Health.

Although the functions and work of the health centers and health stations cannot properly be equated with those of hospitals, a broad picture of comparative costs can be useful in setting priorities. The following are comparative costs of different types of health facilities:

| <u>Type of Cost</u> | <u>Health Station</u> | <u>Health Center</u> | <u>One Hospital Bed</u> |
|--|-----------------------|----------------------|-------------------------|
| Initial capital cost (building, equipment) | Eth\$5,000 | Eth\$30,000 | Eth\$20,000 |
| Annual recurrent cost (including depreciation) | Eth\$5,000 | Eth\$50,000 | Eth\$ 4,000 |

The estimated average cost per in-patient treated (on the basis of a stay of 15 days) is Eth\$150. Thus, the cost of establishing one health center is equivalent to the cost of setting up only 1.5 hospital beds or 6 health stations. The cost of operating the three types of facilities is such that one health center equals 10 health stations or equals the cost of operation of 12.5 hospital beds.

If one takes a hospital like the Princess Tsahai, where one bed costs Eth\$25 per day, to operate, or the Duke of Harar Memorial Hospital, where it is anticipated the cost will be more, the annual cost of a health center, or 10 health stations, becomes equivalent to only 5 hospital beds in which 125 patients may be expected to be treated during the year.

The Third Five-Year Plan re-emphasized the importance of developing basic health services, which seems to be appropriate for the government, based on cost accounting.

In 1971-1972, 14 health centers and 43 clinics were planned and built; 12 health centers and 45 clinics were to be completed in 1972-1973.

Other Health Service Resources

Laboratories

The Imperial Central Laboratory and Research Institute is located in Addis Ababa. Its functions include (1) diagnostic service (sputum, stool and urine tests) for medical facilities, especially around Addis Ababa; (2) analysis of water and imported and locally produced food and beverages; (3) production of freeze-dried smallpox, rabies, typhus, cholera and TB vaccines and anti-rabies serum; and (4) control of pharmaceutical products and training of laboratory technicians.

In Asmara, there is a Veterinarian Research Institute which does research on animal diseases. It produces a number of vaccines such as rabies, smallpox, anthrax and rinderpest. Also there is a private laboratory in Asmara which is well equipped for virology and has been used in studying trachoma.

Some provinces have provincial public health laboratories. In order to combat the effects of widespread prevalence of communicable diseases, steps are being taken to institute a National Public Health Laboratory Service.

Pharmaceuticals and Medical Supplies

A relatively large amount of money is spent every year in foreign currency on the importation of pharmaceuticals. Only a small amount are distributed through the organized health services; the majority are distributed through private pharmacies. The cost of distribution and profits is high, therefore the cost of drugs to the consumer, especially in the private sector, is high. Efforts of the Ministry of Health and local authorities to control the sale of drugs have been limited and not very successful. Any citizen can buy whatever he wants and can afford.

In order to provide drugs to the people at a modest price, the Ethiopian Pharmaceutical Manufacturing Share Company opened in 1971 with the Imperial Ethiopian Government holding 51 percent of the shares. The company sales for the fiscal year 1972-73 increased by 25 percent over the previous year and it was expected that the rate of increase would be sustained in 1973-74.

In 1964, a Central Medical Store was established, a chartered Organization under the direction of the Ministry of Public Health. The "Store" is a center responsible for selling tax-free chemical and pharmaceutical products and medical equipment to all government health facilities. In 1971-72, the proceeds from the sale of chemical and pharmaceutical products and medical equipment reached Eth\$5 million.

Social Welfare

Traditionally the welfare of individuals has been the responsibility of the family. There is no social security legislation and the government views social welfare as one of self-help with government assistance. There is a social welfare department in the Ministry of National Community Development and Social Affairs. In 1960, laws were passed for the protection of the young, destitute and deserted.

Social welfare departments operate a number of urban community centers for women and a few rehabilitation centers for retraining the crippled and the unemployed have been started in Addis Ababa, Asmara and Harar.

There are a number of voluntary social service organizations. Thus the Haile Selassie I Foundation operates an umbrella factory for the employment of the disabled, and the Women's Welfare Association operates a women's vocational school for destitute children. Some other private welfare organizations are the Ethiopian Red Cross, Young Men's and Young Women's Christian Association and World Neighbors.

CHAPTER FOUR

THE HEALTH SECTOR PLANS AND THEIR FINANCING

Health plans have been an important element in the series of national development plans. The First Five-Year Development Plan (1958-62) did not include public health. At that time, priority was given to the development of an infrastructure which represented the prerequisite for accelerating economic growth.

The Second Five-Year Development Plan (1963-67) was prepared by a group of experts from West Germany. Some of the health objectives of the plan were fulfilled, i.e., targeted increases in physicians and nurses.

Second Five-Year Plan Targets and Actual Developments

| | Actual 1954 (1963)* | SFYP Target 1959 (1967)* | Actual 1959 (1967)* | Actual as 1959 (1967)* % |
|---|---------------------------|-----------------------------------|---------------------------|--------------------------------|
| Net contribution to GDP (Eth\$million) | 13.7 (1) | 22.1 | 23.2 (1) | 105.0 |
| Number of hospital beds | | 9,700 | 8,472 (2) | 90.0 |
| Number of doctors and interns | | 320 | 370 | 115.6 |
| Number of registered nurses | | 580 | 617 | 106.4 |

(1) In 1958 constant prices.

(2) Refers to active beds only, whereas the Plan target figures are for total beds.

* Gregorian Calendar

Source: Third Five-Year Development Plan, Imperial Ethiopian Government, 1968-1973.

At the end of the Second Five-Year Plan, the distribution of hospitals remained geographically unbalanced. Hospitals, health centers and health stations were functioning though generally understaffed, inadequately supervised, and lacking essential medical supplies and equipment. Transportation, particularly for supervision of health centers and for the field activities of health center personnel remained inadequate. Many of the problems stemmed from inadequate operating budgets.

Capital investment on health and medical care programs was planned at Eth\$38.9 million. In fact, investment amounted to only Eth\$18.6 million, of which the government financed about 30 percent with the remainder coming from external sources.

The Second Five-Year Plan set long-term objectives for health centers and health stations. It envisioned one health center for every 50,000 persons, with each center supervising 10 health stations. Each station is to serve 5,000 people on the average.

Third Five-Year Plan (1968-1973)

The Third Five-Year Plan envisaged an economic growth rate of 6 percent and gave high priority to agriculture.

Goals

In health the major goals focused on are (1) The Malaria Eradication Program. Malaria was considered to be the major communicable disease and to have the greatest economic impact; (2) Development of basic health services was planned, partly to complement the malaria program. Eventually all medical and health control measures are to be dealt with by the basic health services. Until these services are fully developed, specialized programs such as TB, Leprosy, etc. are to continue; (3) The provincial health departments with the growing decentralization of the health services were to be further developed to ensure closer supervision of all health activities at provincial and Awraja levels. The hospitals, especially those in provincial and rural areas, are to be increasingly integrated into the basic health services by enhancing their preventive functions, particularly in terms of maternal and child health and greater participation in communicable disease control; (4) Emphasis was to be given to training of all professional and auxiliary personnel.

The following gives a summary picture of the main targets of the Third Five-Year Plan in terms of physical facilities and medical personnel:

Health Activity, Third Five-Year Plan

| | 1968 <u>Estimated</u> | 1973 <u>Target</u> | <u>Percent Increase 1968-1973</u> |
|--|--------------------------|-----------------------|---------------------------------------|
| Contribution to GDP ¹ (at 1958 prices) | 26.4 | 44.4 | 68 |
| Number of hospital beds ² | 8,830 | 9,850 ³ | -- |
| Number of health centers | 68 ⁴ | 124 | 82 |
| Number of health stations | 587 | 997 | 70 |
| Number of doctors and interns | 370 | 630 | 70 |
| Number of registered nurses | 677 ¹ | 1,041 ¹ | 54 |
| Number of health officers | 163 | 358 | 120 |
| Number of community nurses | 185 | 355 | 92 |
| Number of sanitarians | 185 | 330 | 78 |

¹ Data for all health services estimated.

² Data for all health services covering active beds only.

³ Excludes the increase for institutions other than Ministry of Health

⁴ Assuming six health centers that were to have been built in FY 1968.

Source: Third Five-Year Development Plan, Imperial Ethiopian Government, 1968-1973

Financial Provisions

The total government expenditures budgeted in 1972-73 amounted to Eth\$757,014,282. The largest item was for General Services (31.4 percent), most of which was designated for national defense (12.5 percent); 16.9 percent was for social services including public health services. Of the total government budget (Eth\$43,992,075), 5.8 percent was spent on health (excluding school health, military medical services, environmental health and other decentralized services).

The annual growth rate of the GDP for 1960-65 was 5.2 percent, and 4.7 percent during the 1965-69 period. The percent of the GDP spent by the government stayed somewhat constant for 1966-71 (1966-69, 10.9 percent, and 1970-71, 11.2 percent), as did receipts (1966-69, 9.8 percent and 1970-71, 10.1 percent). There has apparently been deficit financing. The budget of the Ministry of Health represents about 1 percent of the Gross Domestic Product.

As total government expenditures were growing, health expenditures were growing at a slightly faster rate. Expenditures for health services ended the last decade (1963-73) at nearly the same percentage of total budget as they began (6.4 percent and 6.7 percent). During this period, capital expenditures peaked in 1969-70 (17.6 percent total investment) and operating health expenditures were at a low point in 1968-69 at 5.2 percent.

In Ethiopia, the Malaria Eradication Program is counted as a capital expenditure; consequently the budget for 1972-73 including health facilities construction allotted Eth\$13,128,600 for capital expenditures. Actual investment in physical facilities (Eth\$2,148,600) was 5.1 percent of the total health budget.

Of the total operating budget, 43.9 percent goes for provincial hospitals and clinics, 18.3 percent for hospitals and clinics in Addis Ababa and 4.5 percent towards central administration. The remainder is for expenditures such as those covered by proceeds from health taxes (which are not defined), central laboratory and research institute, contributions to WHO, etc. Of the total hospital and clinic budget, about 64.4 percent appears to be for personal related services and 21.7 percent in materials and supplies.

It is interesting to note that in 1971, imported drugs and medicines amounted to over Eth\$13,050,007. In 1972-73, Eth\$1,552,472 were allotted for drugs and supplies in the Ministry budget. It may be assumed, therefore, that at the most, 10 percent of the drugs and medicines are used in public facilities.

To augment the funds made available by the government, the Ministry of Health gets considerable assistance through bilateral agreements and from international agencies. The assistance is obtained in the form of cash-grants, fellowships, equipment or the service of experts. On the bilateral side, technical assistance directly to public health increased over three times from US\$2,000,850 in 1964-65, to US\$6,000,289 in 1968-69. Multilateral assistance has remained somewhat constant over this period of time (1963-64, US\$1,000,050; 1968-69, US\$1,000,009).

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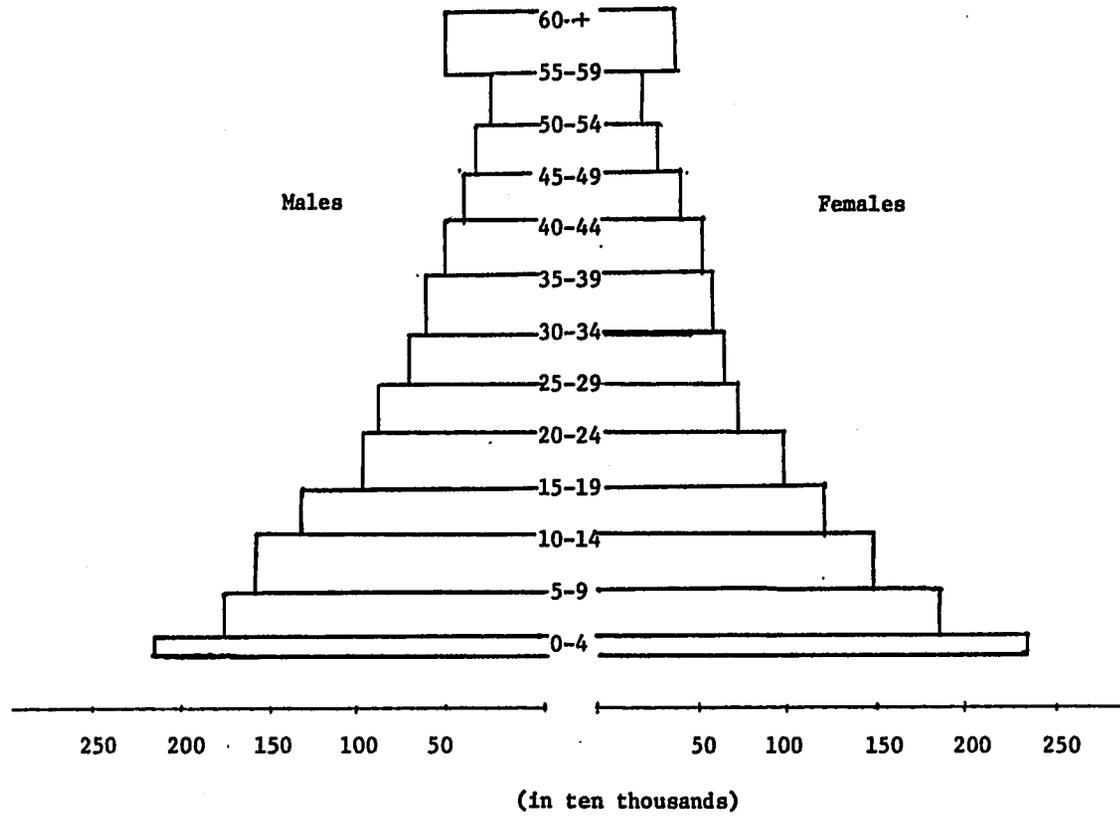
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I L L U S T R A T I O N S
A N D
T A B L E S

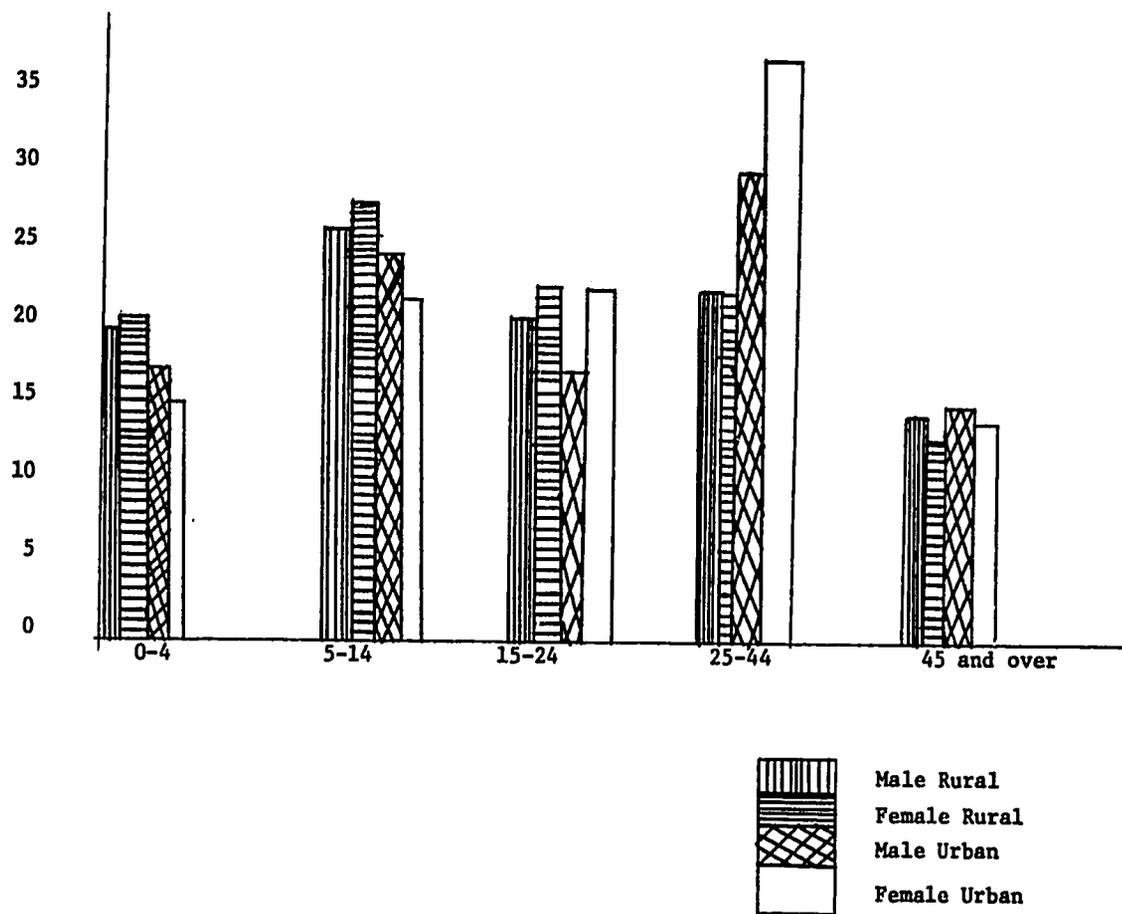
Illustration 2

POPULATION IN 1971 BY AGE GROUP AND SEX



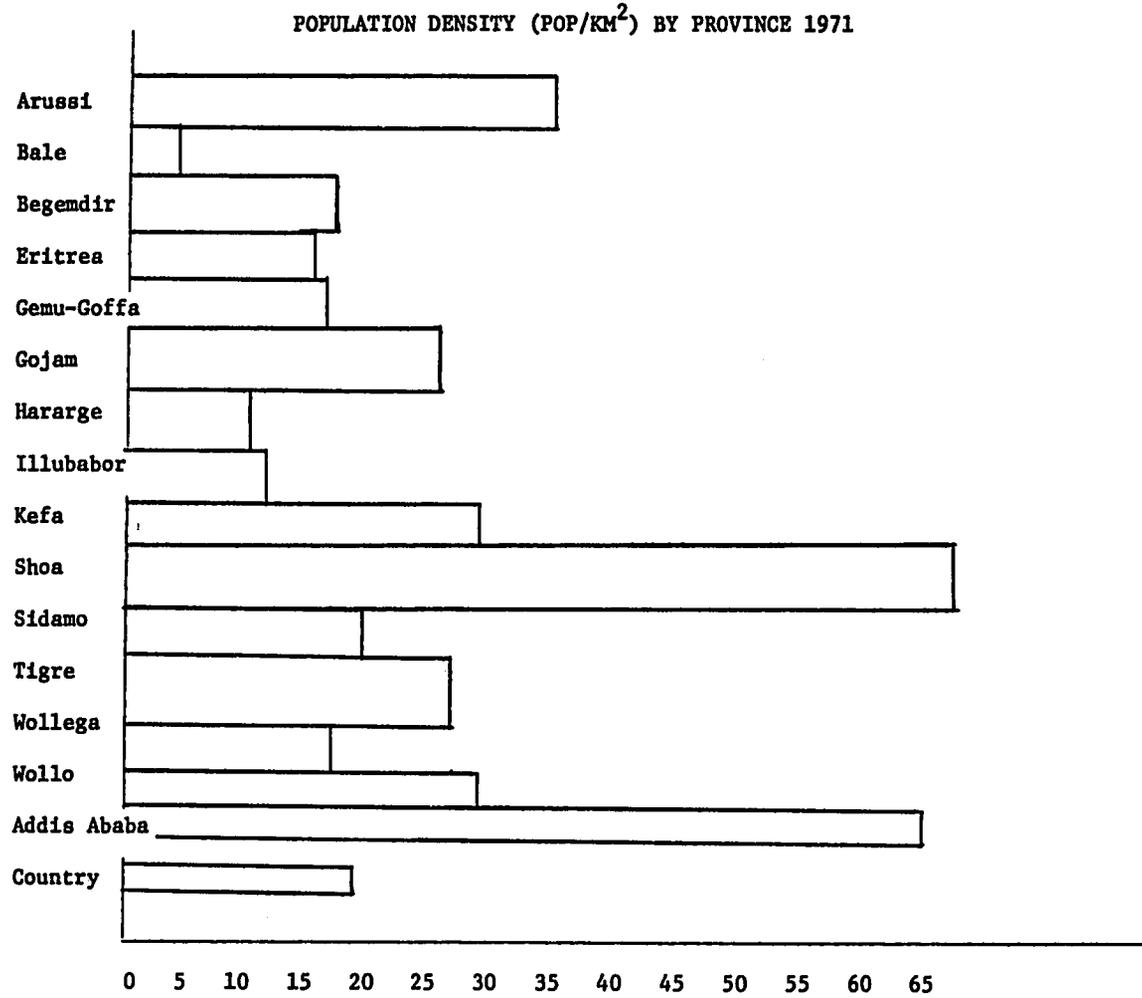
Source: Ethiopia Statistical Abstract, 1971.

Illustration 3



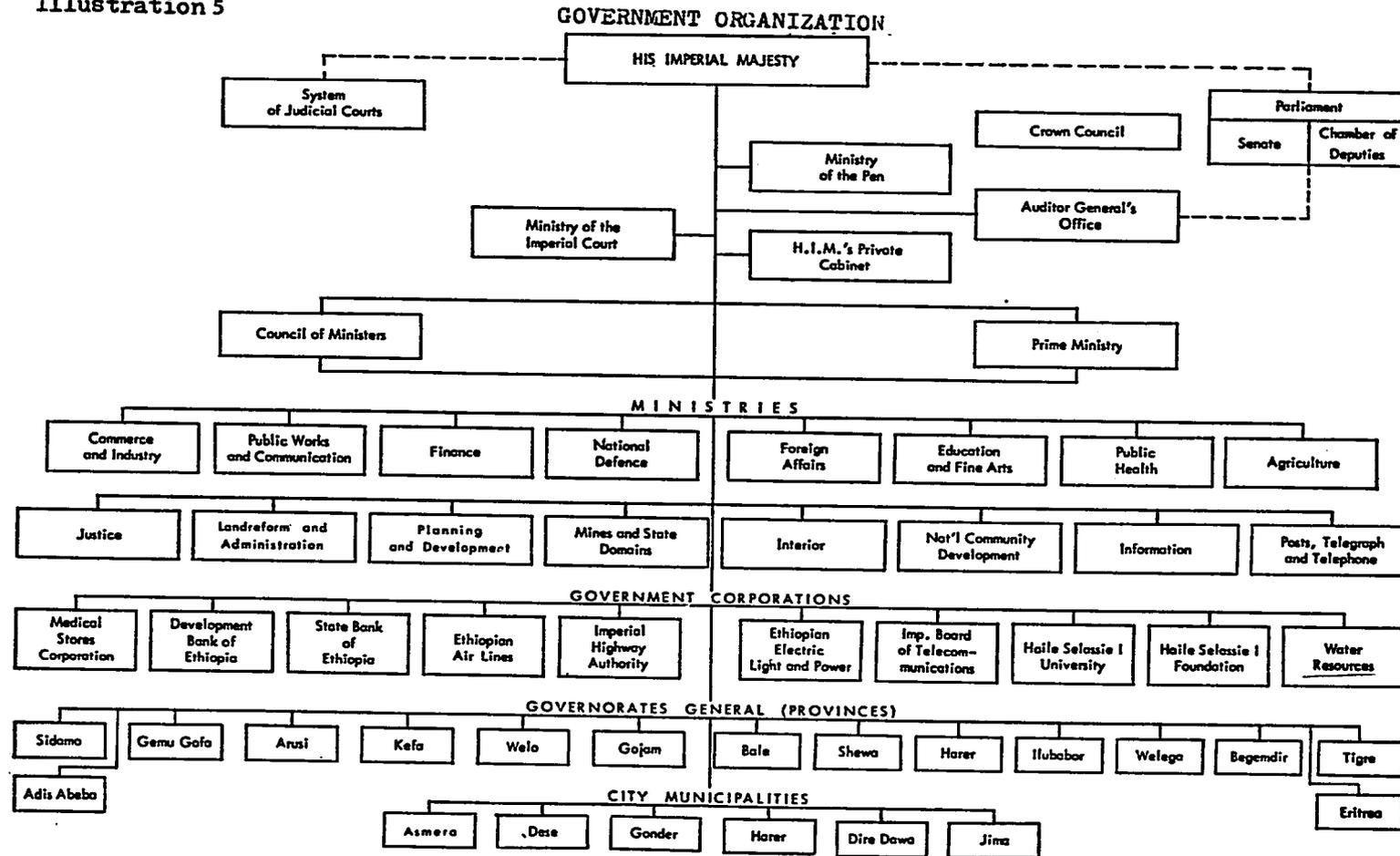
Source: Ethiopia Statistical Abstract, 1971.

Illustration 4



Source: Ethiopia Statistical Abstract, 1971.

Illustration 5

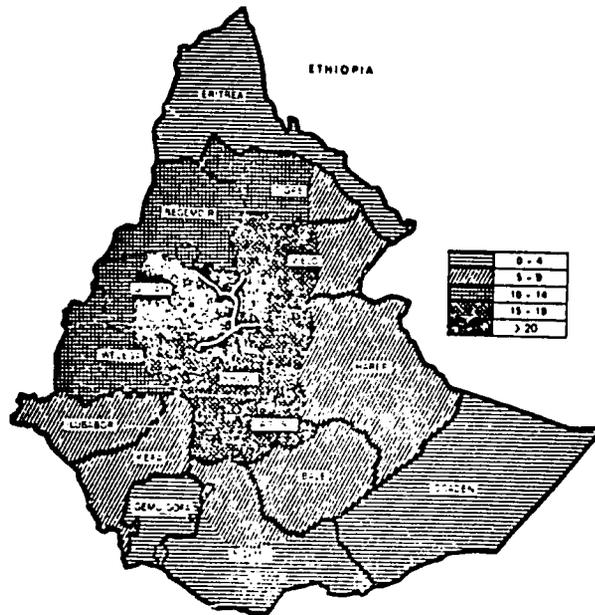


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Source: Geomedical Series, Ethiopia, 1972

Illustration 6

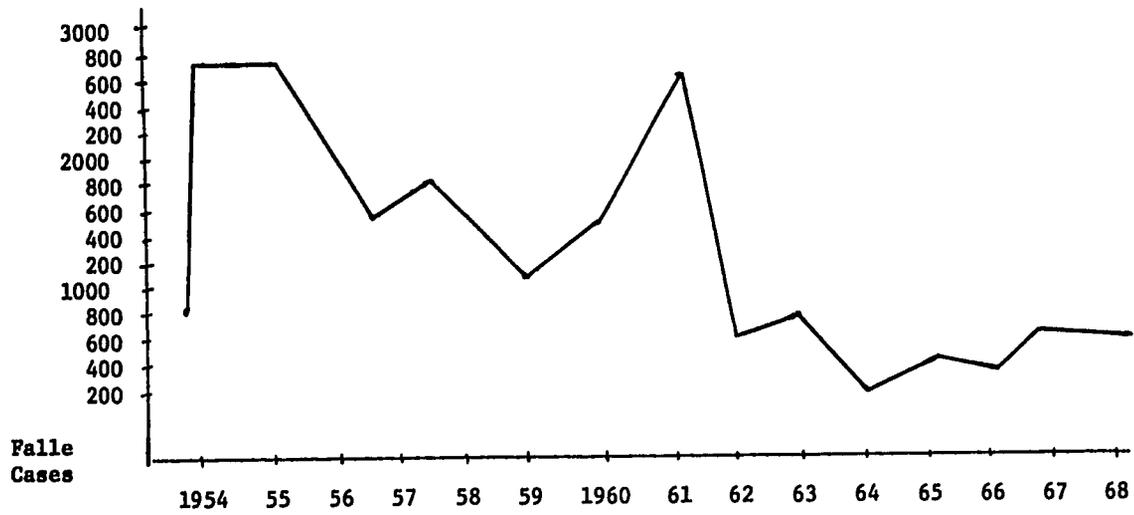
PREVALENCE OF LEPROSY
IN 1,000 OF THE POPULATION



Source: Geomedical Monograph Series 3, Ethiopia, 1972.

Illustration 7

OCCURRENCE OF SMALLPOX IN HOSPITALS AND
DISPENSARIES IN ETHIOPIA, 1954-1968



Source: Geomedical Monograph Series 3, Ethiopia, 1972

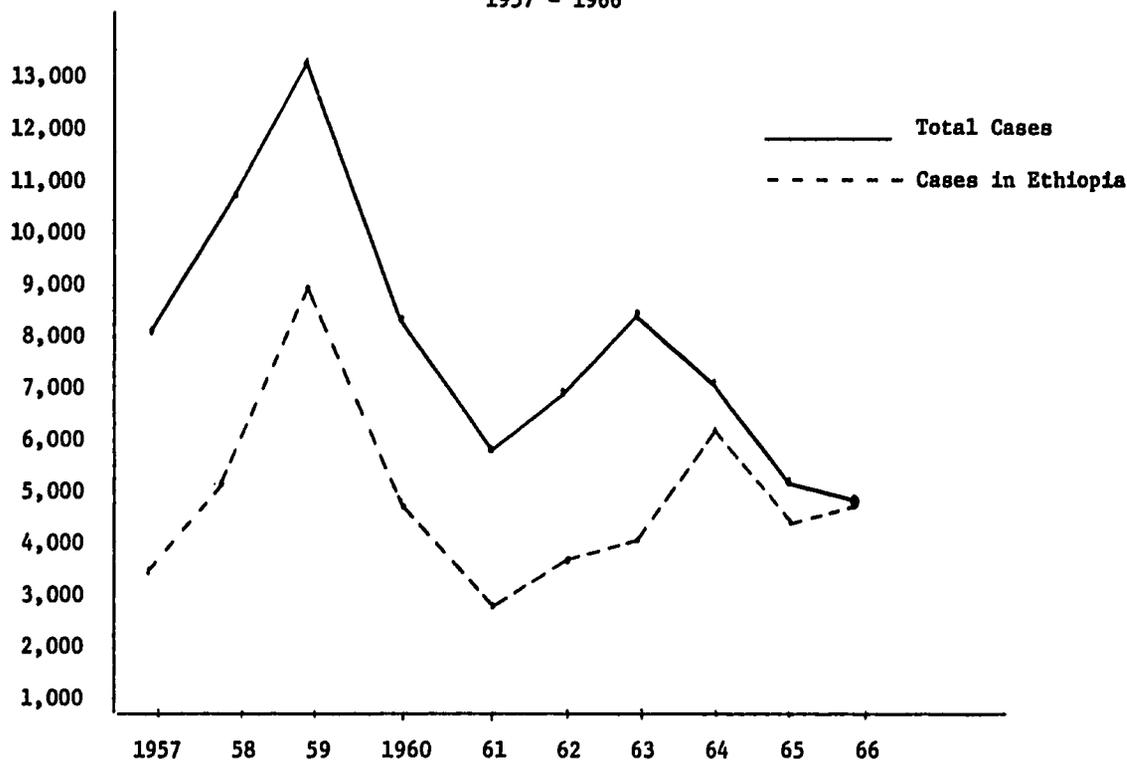
Illustration 8

OCCURRENCE OF TYPHUS IN HOSPITALS AND DISPENSARIES IN ETHIOPIA, 1954-1968



Illustration 9

TOTAL REPORTED CASES OF RELAPSING
FEVER COMPARED WITH CASES REPORTED FROM ETHIOPIA
1957 - 1966



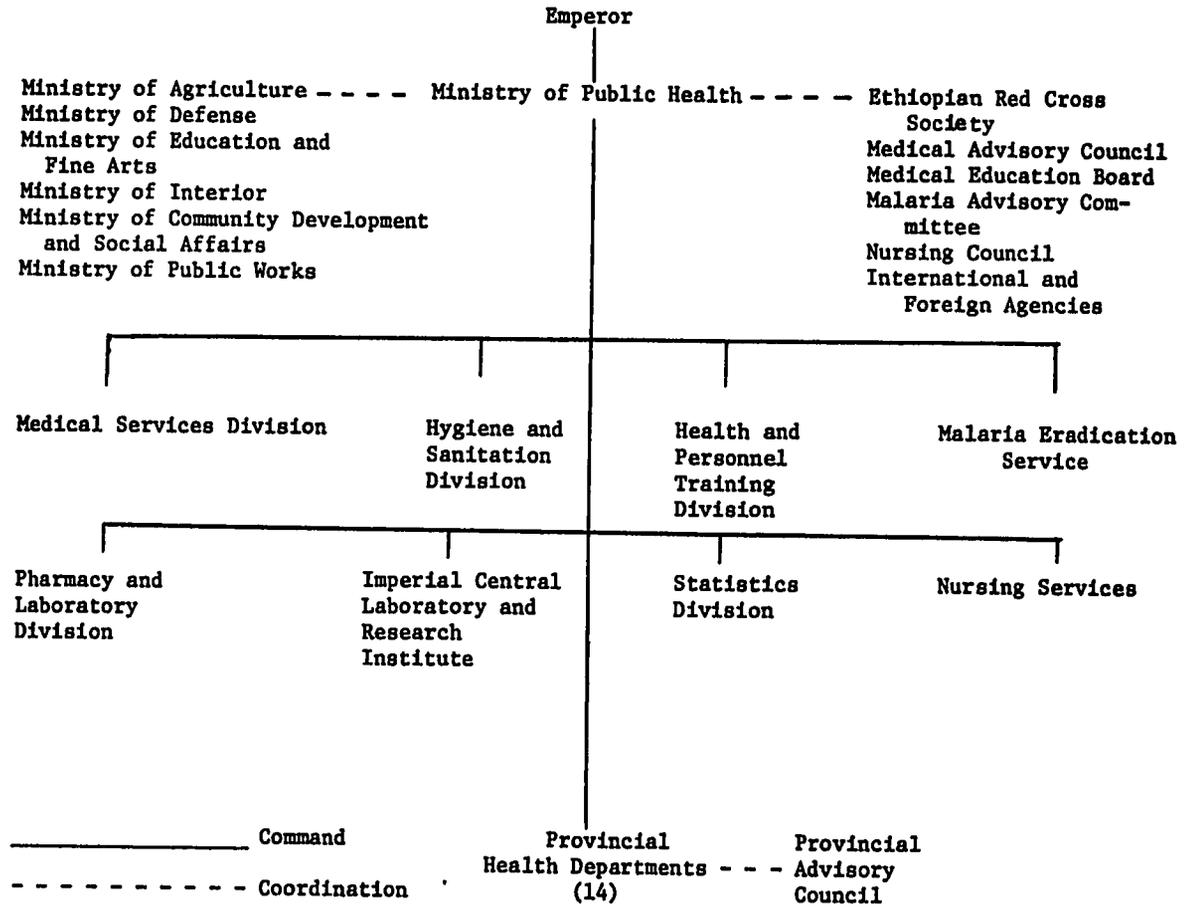
Morbidity Trends of Relapsing Fever (1957 - 1966)

Figure 3 compares the trend in total cases of relapsing fever from all countries of the world with cases reported from Ethiopia. Apart from a disproportionate increase in total cases in 1963, the trends have been closely parallel. That divergence was due to epidemics of tick-borne disease in Rwanda, Tanzania, and Colombia. In the last three years, however, Ethiopia has accounted for virtually all of the relapsing fever reported throughout the world.

Source: International Epidemiologic Report, Vol. 1, No. 1, July 1967, U.S. Department of HEW/Public Health Service/ Bureau of Disease Prevention and Environmental Control/Foreign Quarantine Program/National Communicable Disease Center/ Atlanta, Georgia.

Illustration 10

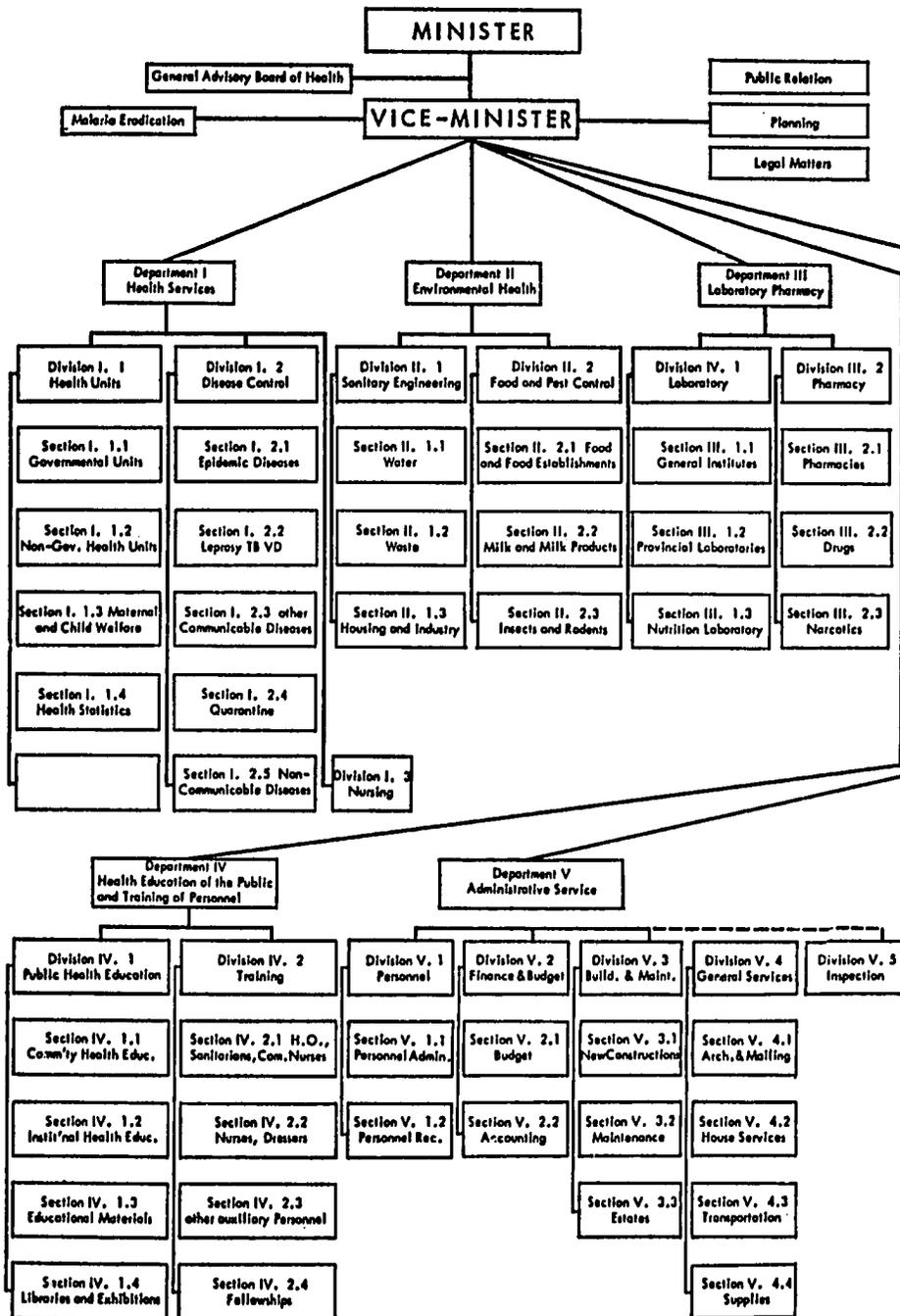
ORGANIZATION OF PUBLIC HEALTH SERVICE, 1971



Source: Ethiopian Government, Ministry of Health, 1971.

Illustration 11

ORGANIZATION CHART FOR THE MINISTRY OF PUBLIC HEALTH



Source: Geomedical Monograph Series 3, Ethiopia, 1972.

Illustration 12

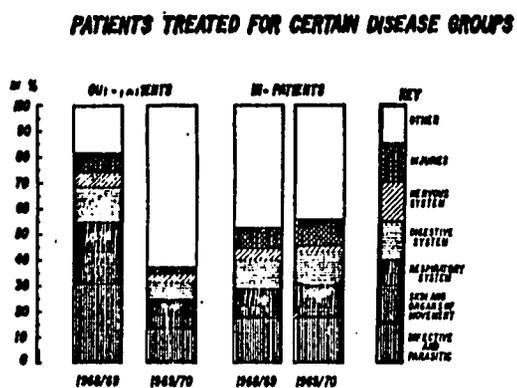


Illustration 13

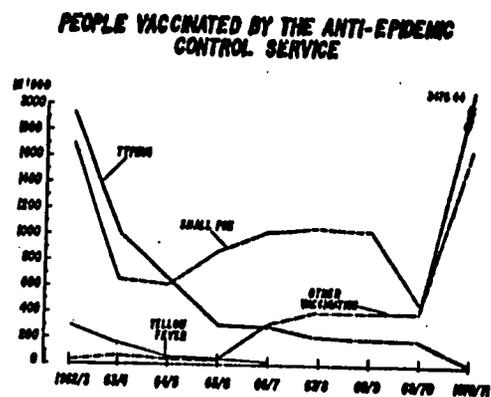
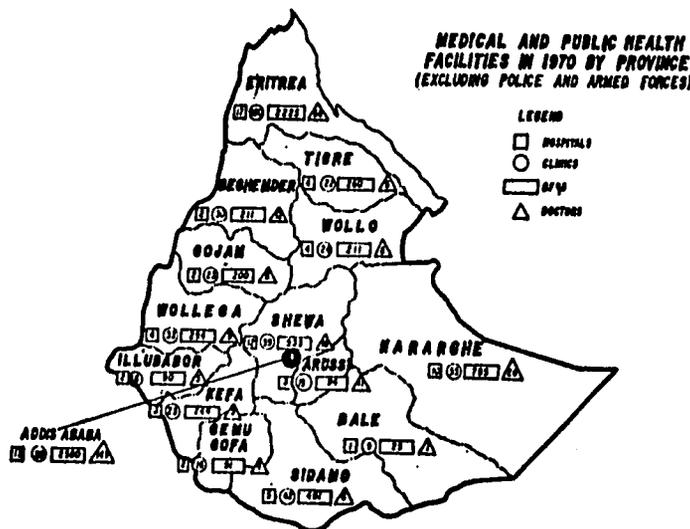


Illustration 14

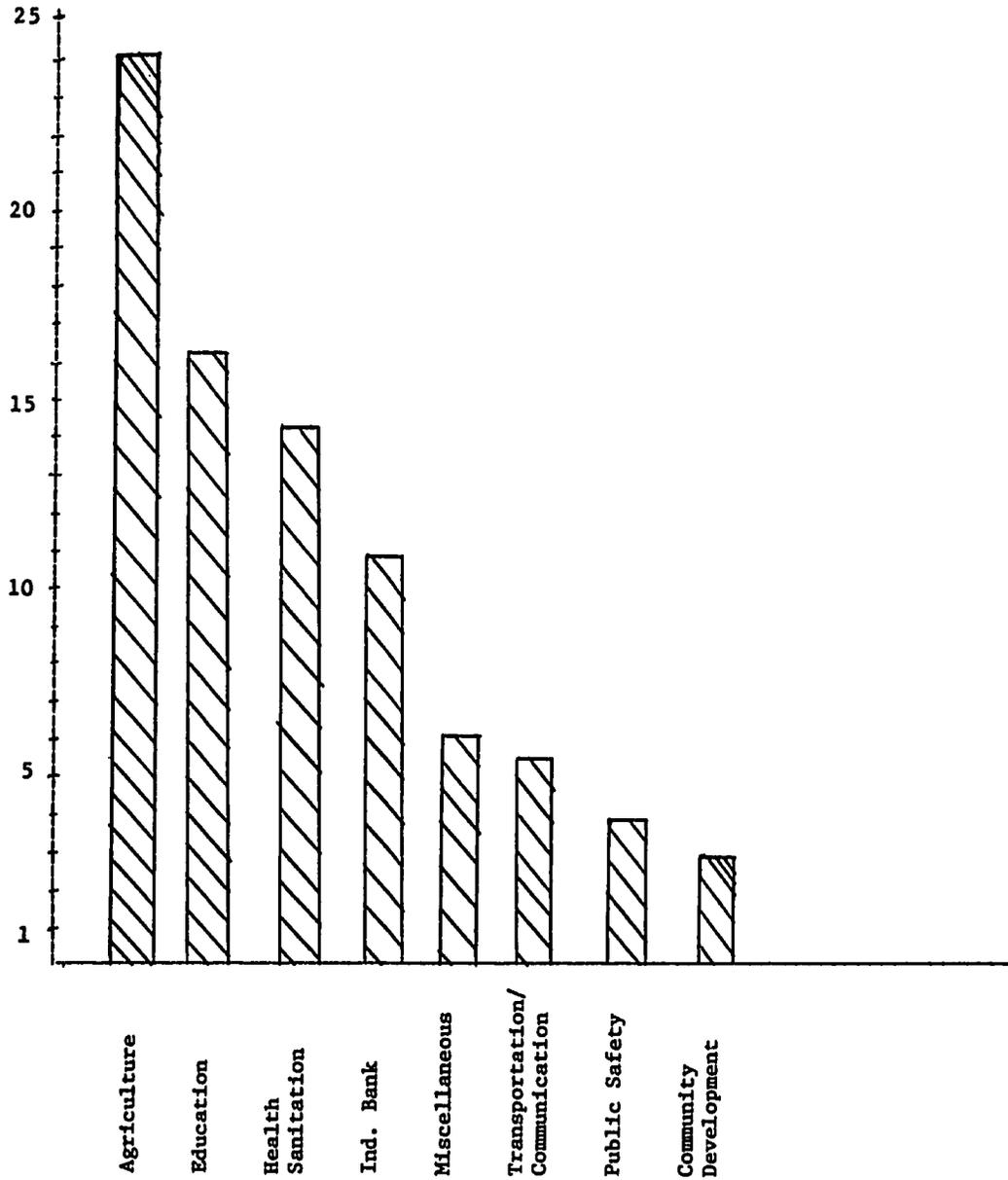


Source: Ethiopia Statistical Abstract, 1971.

Illustration 15

USAID/ETHIOPIA GRANTS BY AREA
1952-1968

Millions of U.S.
Dollars



Source: Status of USAID Assistance to the Imperial Ethiopian Government as of March 17, 1969. Mimeograph copy available through the USAID/Planning Director, AID Building, Addis Ababa.

Table 1

LAND USE OF ETHIOPIA, 1970-71

| | <u>1000 KM²</u> | <u>PERCENT DISTRIBU- TION</u> |
|------------------------------|----------------------------|---------------------------------------|
| TOTAL | 1,221.9 | 100.0 |
| AGRICULTURAL LAND | 840.7 | 68.8 |
| CULTIVATED LAND | 134.9 | 11.1 |
| CROP LAND | 106.5 | 8.7 |
| FALLOW LAND | 21.1 | 1.7 |
| FRUITS AND STIMULANTS | 7.3 | 0.6 |
| MEADOWS | 0.1 | 0.1 |
| PASTURES | 654.0 | 53.5 |
| SWAMPS | 51.8 | 4.2 |
| FORESTS | 88.2 | 7.2 |
| BARRENLAND AND BUILT-UP AREA | 172.1 | 14.1 |
| WATER AND WATER COURSES | 120.9 | 9.9 |

Source: Primary, Ministry of Agriculture and Planning Commission
 Secondary, Ethiopia Statistical Abstract, 1971

Table 2

ESTIMATED POPULATION, POPULATION DENSITY AND SIZE OF HOUSEHOLD
IN 1971, BY PROVINCE

| <u>Province</u> | <u>Area</u> <u>('000 KM²)</u> | <u>Population</u> <u>('000)</u> | <u>Population</u> <u>Per KM²</u> | <u>Rural</u> <u>No. of Persons/Household</u> | <u>Urban</u> <u>No. of Persons/Household</u> |
|-----------------|---|------------------------------------|--|---|---|
| Arussi | 23.5 | 833.5 | 25.5 | 5.03 | 3.39 |
| Bale | 124.6 | 692.6* | 5.6 | 4.28 | -- |
| Begemdir | 74.2 | 1,325.1 | 17.9 | 4.41 | 3.30 |
| Eritrea | 117.6 | (1,889.7) | 16.1 | -- | 3.79 |
| Gemu Goffa | 39.5 | 683.5 | 17.3 | 4.26 | 3.35 |
| Gojam | 61.6 | 1,712.3 | 27.8 | 4.47 | 3.02 |
| Hararge | 259.7 | 3,286.9** | 12.7 | 5.05 | 3.49 |
| Illubabor | 47.4 | 674.1 | 14.2 | 4.14 | 3.75 |
| Kefa | 54.6 | 1,656.7 | 30.3 | 3.94 | 3.62 |
| Shoa | 85.2 | 5,209.7 | 61.1 | 4.97 | 3.79 |
| Addis Ababa | 0.2 | 851.6 | 4,258.0 | -- | -- |
| Sidamo | 117.3 | 2,425.0 | 20.7 | 4.80 | 3.76 |
| Tigre | 65.9 | 1,787.5 | 27.1 | 4.53 | 3.67 |
| Wollega | 71.2 | 1,241.7 | 17.4 | 5.03 | 3.82 |
| Wollo | 79.4 | 2,407.2 | 30.3 | 4.39 | 3.27 |
| TOTAL | 1,221.9 | 25,825.5 | 21.1 | 4.65 | 3.65 |

- * The increase in population is due to fresh information from the second round of NSS.
 ** The population of Ogaden has probably been overestimated by about 100 percent, and the resulting population figure for the province is therefore probably overestimated.

Source: Ethiopian Statistical Abstract, 1971.

Table 3

POPULATION OF ETHIOPIA, 1971, BY AGE GROUP AND SEX

| | <u>Number</u> <u>(1,000)</u> | <u>Percent</u> | <u>Number</u> <u>(1,000)</u> | <u>Percent</u> | <u>Number</u> <u>(1,000)</u> | <u>Percent</u> |
|-------------------------|---------------------------------|----------------|---------------------------------|----------------|---------------------------------|----------------|
| TOTAL POPULATION | | | | | | |
| 0 - 4 | 4,764.1 | 18.4 | 2,414.5 | 18.4 | 2,349.6 | 18.5 |
| 5 - 9 | 3,777.8 | 14.6 | 1,894.3 | 14.4 | 1,883.5 | 14.9 |
| 10 - 14 | 3,167.0 | 12.3 | 1,593.5 | 12.1 | 1,573.5 | 12.4 |
| 15 - 19 | 2,675.9 | 10.4 | 1,323.7 | 10.1 | 1,352.2 | 10.7 |
| 20 - 24 | 2,239.0 | 8.7 | 1,107.7 | 8.4 | 1,131.3 | 8.9 |
| 25 - 29 | 1,945.0 | 7.5 | 975.1 | 7.4 | 968.1 | 7.6 |
| 30 - 34 | 1,644.9 | 6.4 | 835.4 | 6.4 | 809.5 | 6.4 |
| 35 - 39 | 1,368.2 | 5.3 | 695.7 | 5.3 | 672.5 | 5.3 |
| 40 - 44 | 1,122.1 | 4.4 | 574.0 | 4.4 | 548.1 | 4.3 |
| 45 - 49 | 873.7 | 3.4 | 456.0 | 3.5 | 417.7 | 3.3 |
| 50 - 54 | 699.2 | 2.7 | 362.8 | 2.8 | 336.4 | 2.6 |
| 55 - 59 | 534.3 | 2.0 | 286.5 | 2.2 | 247.8 | 1.9 |
| 60 and over | 1,016.1 | 3.9 | 610.0 | 4.6 | 406.1 | 3.2 |
| TOTAL | 25,825.5 | 100.0 | 13,129.2 | 100.0 | 12,696.3 | 100.0 |
| RURAL POPULATION | | | | | | |
| 0 - 4 | 4,388.2 | 18.8 | 2,217.1 | 18.6 | 2,171.1 | 19.0 |
| 5 - 9 | 3,453.4 | 14.8 | 1,728.2 | 14.5 | 1,725.2 | 15.1 |
| 10 - 14 | 2,893.4 | 12.4 | 1,454.1 | 12.2 | 1,439.3 | 12.6 |
| 15 - 19 | 2,437.7 | 10.4 | 1,215.7 | 10.2 | 1,222.0 | 10.7 |
| 20 - 24 | 2,014.7 | 8.7 | 1,025.3 | 8.6 | 1,016.4 | 8.9 |
| 25 - 29 | 1,714.4 | 7.4 | 881.7 | 7.4 | 832.7 | 7.3 |
| 30 - 34 | 1,434.3 | 6.2 | 738.4 | 6.2 | 695.9 | 6.1 |
| 35 - 39 | 1,189.0 | 5.1 | 607.2 | 5.1 | 581.8 | 5.1 |
| 40 - 44 | 979.3 | 4.2 | 500.0 | 4.2 | 479.3 | 4.2 |
| 45 - 49 | 781.9 | 3.4 | 405.0 | 3.4 | 376.9 | 3.3 |
| 50 - 54 | 618.4 | 2.6 | 321.6 | 2.7 | 296.8 | 2.6 |
| 55 - 59 | 490.7 | 2.1 | 262.2 | 2.2 | 228.5 | 2.0 |
| 60 and over | 914.1 | 3.9 | 560.3 | 4.7 | 353.8 | 3.1 |
| TOTAL | 23,336.5 | 100.0 | 11,916.8 | 100.0 | 11,419.7 | 100.0 |
| URBAN POPULATION | | | | | | |
| 0 - 4 | 375.9 | 15.1 | 197.4 | 16.3 | 178.5 | 14.0 |
| 5 - 9 | 324.4 | 13.0 | 166.1 | 13.7 | 158.3 | 12.4 |
| 10 - 14 | 273.6 | 11.0 | 139.4 | 11.5 | 134.2 | 10.5 |
| 15 - 19 | 238.2 | 9.6 | 108.0 | 8.9 | 130.2 | 10.2 |
| 20 - 24 | 197.3 | 7.9 | 82.4 | 6.8 | 114.9 | 9.0 |
| 25 - 29 | 228.8 | 9.2 | 93.4 | 7.7 | 135.4 | 10.6 |
| 30 - 34 | 210.6 | 8.5 | 97.0 | 8.0 | 113.6 | 8.9 |
| 35 - 39 | 179.2 | 7.2 | 88.5 | 7.3 | 90.7 | 7.1 |
| 40 - 44 | 142.8 | 5.7 | 74.0 | 6.1 | 68.8 | 5.4 |
| 45 - 49 | 91.8 | 3.7 | 51.0 | 4.2 | 40.8 | 3.2 |
| 50 - 54 | 80.8 | 3.3 | 41.2 | 3.4 | 39.6 | 3.1 |
| 55 - 59 | 43.6 | 1.7 | 24.3 | 2.0 | 19.3 | 1.5 |
| 60 and over | 102.0 | 4.1 | 49.7 | 4.1 | 52.3 | 4.1 |
| TOTAL | 2,489.0 | 100.0 | 1,212.4 | 100.0 | 1,276.6 | 100.0 |

Source: Ethiopia Statistical Abstract, 1971

Table 4

ESTIMATED RURAL AND URBAN POPULATION BY PROVINCE, 1971

| PROVINCE | TOTAL | RURAL | URBAN | % URBAN POPULATION IN THE PROVINCE |
|------------|-------------------|-----------|---------|---|
| | POPULATION (1000) | | | |
| Arussi | 833.5 | 784.6 | 48.9 | 5.9 |
| Bale | 692.6 | 666.6 | 26.0 | 3.8 |
| Begemdir | 1,325.1 | 1,234.8 | 90.3 | 6.8 |
| Eritrea | 1,889.7 | (1,479.6) | 392.1 | 20.7 |
| Gemu Goffa | 683.5 | 648.9 | 34.6 | 5.1 |
| Gojam | 1,712.3 | 1,622.4 | 89.9 | 5.2 |
| Harrarge | 3,286.9 | 3,113.4 | 173.5 | 5.3 |
| Illubabor | 674.1 | 648.9 | 25.2 | 3.7 |
| Kefa | 1,656.7 | 1,582.6 | 74.1 | 4.5 |
| Shoa | 5,209.7 | 4,090.4 | 1,119.3 | 21.5 |
| Sidamo | 2,425.0 | 2,300.1 | 124.9 | 5.1 |
| Tigre | 1,787.5 | 1,659.1 | 128.4 | 7.2 |
| Wollega | 1,241.7 | 1,189.1 | 52.6 | 4.2 |
| Wollo | 2,407.2 | 2,298.0 | 109.2 | 4.5 |
| TOTAL | 25,825.5 | 23,336.5 | 2,489.0 | 9.6 |

Source: Ethiopia Statistical Abstract, 1971

Table 5

ESTIMATED POPULATIONS OF TOWNS IN ETHIOPIA¹

| <u>Population Center</u> | <u>Urban Population</u> | <u>Percent of total Urban Population</u> |
|----------------------------------|-------------------------|--|
| Addis Ababa | 644,190 | 33.5 |
| Asmara | 178,537 | 9.3 |
| Dire Dawa | 50,733 | 2.6 |
| Harar | 42,771 | 2.2 |
| Dessie | 40,619 | 2.1 |
| Gondar | 30,734 | 1.6 |
| Jimma | 30,580 | 1.6 |
| Nazret | 27,812 | 1.4 |
| Mekele | 23,105 | 1.2 |
| Debre Zeyt | 22,055 | 1.1 |
| Debre Markos | 21,536 | 1.1 |
| Massawa | 15,489 | 0.8 |
| Other towns ² | | |
| 10,001 - 15,000 population (10) | 120,611 | 6.3 |
| 7,001 - 10,000 (16) | 131,942 | 6.9 |
| 5,001 - 7,000 (15) | 94,274 | 4.9 |
| 3,001 - 5,000 (61) | 233,609 | 12.1 |
| 1,001 - 3,000 (100) | 193,475 | 10.0 |
| 600 - 1,000 (34) | 23,281 | 1.2 |
| TOTAL | 1,925,353 | 99.9 ³ |

¹ Population of Addis Ababa from 1967 census; of Asmara from 1968 census; populations of other towns estimates based on surveys made between 1965 and 1968 or on Ministry of Interior population reports.

² Numbers in parens indicate number of towns in this category.

³ Does not add to 100.0 because of rounding.

Source: Adapted from Imperial Ethiopian Government, Central Statistical Office, Statistical Abstract, 1967 and 1968.

Table 6

STUDENT ENROLLMENT, BY GRADES AND TYPE OF SCHOOL

| <u>School/Grades</u> | <u>Government</u> | <u>Mission</u> | <u>Private</u> | <u>Church</u> | <u>Total</u> |
|------------------------------------|-------------------|----------------|----------------|---------------|--------------|
| <u>1968/69</u> | | | | | |
| 1 - 6 | 382,360 | 50,814 | 62,476 | 18,331 | 513,981 |
| 7 - 8 | 48,516 | 4,414 | 3,389 | 599 | 56,918 |
| 9 - 12 | 28,759 | 1,702 | 1,228 | 254 | 31,943 |
| Specialized Schools | 6,246 | 2,019 | 1,294 | ---- | 9,559 |
| Institutions of Higher Learning | 3,870* | ---- | ---- | ---- | 3,870* |
| TOTAL | 469,751 | 58,949 | 68,387 | 19,184 | 616,271 |
| <u>1969/70</u> | | | | | |
| 1 - 6 | 430,758 | 56,063 | 80,378 | 23,246 | 590,445 |
| 7 - 8 | 54,839 | 4,524 | 3,011 | 841 | 63,215 |
| 9 - 12 | 38,093 | 1,901 | 2,052 | 441 | 42,487 |
| Specialized Schools | 6,495 | 1,281 | 1,192 | ---- | 8,968 |
| Institutions of Higher Learning | 4,636* | ---- | ---- | ---- | 4,636* |
| TOTAL | 534,821 | 63,769 | 86,633 | 24,528 | 709,751 |
| <u>1970/71</u> | | | | | |
| 1 - 6 | 470,983 | 63,025 | 95,267 | 26,152 | 655,427 |
| 7 - 8 | 63,405 | 4,852 | 3,977 | 887 | 73,121 |
| 9 - 12 | 48,521 | 1,645 | 2,553 | 517 | 53,236 |
| Specialized Schools | 6,948 | 1,224 | 1,217 | ---- | 9,389 |
| Institutions of Higher Learning | 4,543* | ---- | ---- | ---- | 4,543* |
| TOTAL | 594,400 | 70,746 | 103,014 | 27,556 | 795,716 |

Figures for Private University of Asmara are not available.

* Including the Students on Ethiopian University Services (1968/9=412; 1969/70=541; 1970/71=476)

Primary Source: Bureau of Educational Research and Statistics, Ministry of Education.
Secondary Source: Ethiopia Statistical Abstract, 1971.

Table 7

GROSS DOMESTIC PRODUCT BY INDUSTRIAL ORIGIN AT CURRENT FACTOR COST, 1961-69
(Million Eth.\$)

| | Agriculture | Forestry | Hunting | Fishing | Construction of Tukuls ¹ | Sub-total |
|------|-------------|----------|---------|---------|--|-----------|
| 1961 | 1,434.4 | 65.9 | 1.3 | 2.9 | 76.0 | 1,580.5 |
| 1962 | 1,439.1 | 67.4 | 1.5 | 2.4 | 77.2 | 1,587.6 |
| 1963 | 1,470.2 | 74.9 | 2.1 | 3.1 | 78.5 | 1,628.8 |
| 1964 | 1,641.5 | 76.9 | 1.0 | 3.6 | 79.9 | 1,802.9 |
| 1965 | 1,871.6 | 77.7 | 1.3 | 3.3 | 81.3 | 2,035.2 |
| 1966 | 1,929.0 | 79.5 | 1.6 | 4.5 | 82.8 | 2,097.4 |
| 1967 | 1,811.2 | 85.7 | 1.5 | 4.2 | 84.3 | 1,986.9 |
| 1968 | 1,900.0 | 88.9 | 1.3 | 3.0 | 85.8 | 2,079.0 |
| 1969 | 2,011.8 | 92.7 | 1.2 | 3.0 | 87.4 | 2,196.1 |

¹ Tukuls are round-shaped thatched cottages built by farmers; construction of these is considered agricultural activity for national accounting.

Table 7 (continued)

| | Mining & Quarrying | Manufacturing | Handicrafts & Small Industries | Building and Construction ² | Electricity and Water | Sub-total |
|------|-----------------------|---------------|-----------------------------------|---|--------------------------|-----------|
| 1961 | 3.3 | 43.9 | 98.4 | 54.8 | 10.2 | 210.6 |
| 1962 | 3.7 | 55.6 | 101.4 | 67.3 | 10.4 | 238.4 |
| 1963 | 4.2 | 61.2 | 103.5 | 70.1 | 11.5 | 250.5 |
| 1964 | 5.4 | 76.1 | 118.1 | 76.6 | 13.6 | 289.8 |
| 1965 | 9.4 | 94.5 | 126.6 | 84.5 | 14.2 | 329.2 |
| 1966 | 11.6 | 108.2 | 136.8 | 104.4 | 14.9 | 375.9 |
| 1967 | 12.1 | 149.4 | 148.7 | 133.3 | 17.9 | 461.4 |
| 1968 | 11.2 | 176.6 | 157.3 | 122.7 | 20.5 | 488.3 |
| 1969 | 9.1 | 211.5 | 177.2 | 126.9 | 21.7 | 546.4 |

² Excluding construction of Tukuls

Table 7 (continued)

| | Wholesale and Retail Trade | Banking, Insurance and Real Estate | Transport and Communication | Sub-total | Gross Domestic Product |
|------|-------------------------------|---------------------------------------|--------------------------------|-----------|---------------------------|
| 1961 | 139.7 | 20.2 | 70.7 | 230.6 | 2,323.3 |
| 1962 | 150.4 | 22.4 | 76.4 | 249.4 | 2,406.9 |
| 1963 | 162.9 | 25.2 | 84.3 | 272.4 | 2,500.3 |
| 1964 | 204.4 | 28.0 | 99.8 | 332.2 | 2,811.5 |
| 1965 | 236.0 | 33.8 | 116.4 | 286.2 | 3,188.0 |
| 1966 | 256.1 | 39.0 | 124.1 | 419.2 | 3,369.7 |
| 1967 | 246.2 | 40.0 | 125.7 | 411.9 | 3,375.3 |
| 1968 | 286.0 | 43.7 | 139.8 | 469.5 | 3,594.3 ³ |
| 1969 | 319.8 | 49.5 | 142.8 | 512.1 | 3,849.9 ³ |

³ Due apparently to an arithmetic error, Statistical Abstract 1970 shows a figure of Eth\$3,606.0 million for 1968 and Eth\$3,860.7 for 1969.

Table 7 (continued)

| | Public Administration and Defense | Education | Health and Medical | Sub-total |
|------|---|-----------|-----------------------|-----------|
| 1961 | 88.9 | 20.5 | 13.8 | 123.2 |
| 1962 | 110.1 | 22.1 | 14.6 | 146.8 |
| 1963 | 114.2 | 25.0 | 16.5 | 155.7 |
| 1964 | 124.7 | 40.0 | 18.8 | 183.5 |
| 1965 | 155.8 | 45.5 | 20.7 | 222.0 |
| 1966 | 165.8 | 53.2 | 21.9 | 240.9 |
| 1967 | 178.8 | 60.4 | 23.3 | 262.5 |
| 1968 | 191.2 | 64.7 | 24.5 | 280.4 |
| 1969 | 203.9 | 70.0 | 24.8 | 298.7 |

| | Ownership and Dwellings | Domestic Services | Other Services | Sub-total |
|------|-------------------------------|----------------------|-------------------|-----------|
| 1961 | 99.9 | 51.2 | 27.3 | 178.4 |
| 1962 | 103.1 | 51.2 | 30.1 | 184.4 |
| 1963 | 106.5 | 52.3 | 33.1 | 191.9 |
| 1964 | 110.1 | 53.0 | 40.0 | 203.1 |
| 1965 | 113.9 | 54.2 | 48.0 | 216.1 |
| 1966 | 123.5 | 55.2 | 57.6 | 236.3 |
| 1967 | 131.5 | 56.6 | 64.5 | 252.6 |
| 1968 | 138.6 | 57.6 | 80.9 | 277.1 |
| 1969 | 147.4 | 58.6 | 90.6 | 296.6 |

Table 7 (continued)

| | Non-Monetary Agriculture | Construction of TukuIs | Imputed Rent | Non-Monetary GDP | Monetary GDP |
|------|-----------------------------|---------------------------|--------------|------------------|--------------|
| 1961 | 1,124.0 | 76.0 | 64.5 | 1,264.6 | 1,058.7 |
| 1962 | 1,130.6 | 77.2 | 65.5 | 1,273.3 | 1,133.6 |
| 1963 | 1,141.1 | 78.2 | 66.2 | 1,285.5 | 1,214.8 |
| 1964 | 1,262.4 | 80.2 | 67.9 | 1,410.5 | 1,401.0 |
| 1965 | 1,413.0 | 81.2 | 68.8 | 1,563.0 | 1,625.0 |
| 1966 | 1,467.3 | 82.3 | 69.7 | 1,619.3 | 1,750.4 |
| 1967 | 1,403.7 | 81.6 | 69.1 | 1,554.4 | 1,820.9 |
| 1968 | 1,468.3 | 84.8 | 71.9 | 1,625.0 | 1,969.3 |
| 1969 | 1,554.2 | 88.3 | 74.4 | 1,716.9 | 2,133.0 |

Source: Statistical Abstract, 1970.

Table 8

HOUSEHOLD SURVEY, 1967

| <u>Town</u> | <u>1</u> | <u>2</u> | <u>3</u> | <u>4</u> | <u>5</u> | <u>6</u> | <u>7</u> | <u>8</u> | <u>9</u> |
|--------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Adwa | 12,450 | 15.9 | 39.4 | 44.7 | 78.4 | 68.4 | 1.3 | 30.3 | 75.6 |
| Asela | 13,360 | 15.4 | 43.8 | 40.8 | 61.9 | 25.9 | --- | 74.1 | 61.2 |
| Aseb | 10,727 | 51.6 | 31.5 | 16.9 | 90.8 | 97.9 | 1.5 | --- | 90.3 |
| Debre Markos | 20,720 | 17.3 | 49.6 | 33.1 | 72.1 | 1.5 | 48.4 | 50.1 | 58.9 |
| Debre Zeyt | 21,220 | 17.6 | 45.6 | 36.8 | 61.1 | 61.7 | 14.7 | 23.6 | 34.8 |
| Dila | 10,860 | 11.9 | 48.0 | 40.1 | 47.3 | --- | 68.0 | 32.0 | 42.2 |
| Jima | 29,420 | 12.6 | 43.8 | 43.6 | 46.8 | 31.4 | 30.3 | 38.3 | 48.1 |
| Mekele | 22,230 | 16.3 | 42.5 | 41.2 | 75.9 | 75.4 | 1.6 | 23.0 | 41.1 |
| Sodo | 10,430 | 12.4 | 40.3 | 47.3 | 71.7 | 24.4 | 11.3 | 64.3 | 77.7 |

1 = Population in 1967

2 = Percentage of households with 1 person

3 = Percentage of households with 2 and 3 persons

4 = Percentage of households with 4 and more persons

5 = Percentage of households in one room

6 = Percentage of households with water supply piped water

7 = Percentage of households with water supply well

8 = Percentage of households with water supply river

9 = Percentage of households without toilet.

Source: Geomedical Monograph Series 3, Ethiopia, 1972.

Table 9

CHARACTERISTICS OF URBAN HOUSING, BY PROVINCE, 1965-68*
(percent)

| | TYPE OF TENANCY | | | WATER SUPPLY | | | |
|------------|-----------------|--------|-------|--------------|------|--------|--|
| | Owned | Rented | Other | Piped | Well | Stream | |
| Arusi | 42.8 | 53.7 | 3.5 | 11.5 | 7.9 | 80.6 | |
| Bagemdir | 35.4 | 56.7 | 7.9 | 38.4 | 12.4 | 49.2 | |
| Eritrea | 43.7 | 45.2 | 11.1 | 58.7 | 21.9 | 19.4 | |
| Gemu-Goffa | 51.7 | 43.0 | 5.3 | 19.1 | 16.8 | 64.1 | |
| Gojam | 46.4 | 48.8 | 4.8 | 17.8 | 29.7 | 52.5 | |
| Harar | 28.3 | 63.3 | 8.4 | 44.7 | 6.3 | 49.0 | |
| Illubabor | 52.5 | 44.9 | 2.6 | 0.5 | 17.7 | 81.8 | |
| Kefa | 44.9 | 49.8 | 5.3 | 18.3 | 20.9 | 60.8 | |
| Shoa | 37.0 | 56.0 | 7.0 | 26.7 | 12.2 | 61.1 | |
| Sidamo | 47.8 | 48.9 | 3.3 | 4.7 | 59.0 | 36.3 | |
| Tigre | 31.5 | 60.8 | 7.7 | 38.7 | 18.8 | 42.5 | |
| Wallega | 52.2 | 44.0 | 3.8 | 10.6 | 27.1 | 62.3 | |
| Wollo | 35.8 | 58.9 | 5.3 | 31.6 | 5.5 | 62.9 | |

* Based on a 1965-68 survey of households in 192 middle-sized and small urban communities in 13 provinces; the Province of Bale had no urban areas included in the survey.

All averages total 100.0 percent.

Source: Ministry of Public Works

Table 9 (continued)

| | NUMBER OF ROOMS | One | Two | Three | Four and above | Not stated |
|------------|--------------------|------|------|-------|----------------|------------|
| Arusi | | 62.4 | 25.7 | 6.7 | 3.1 | 2.1 |
| Bagemdir | | 69.0 | 15.3 | 3.3 | 1.7 | 10.7 |
| Eritrea | | 78.1 | 15.3 | 3.7 | 2.4 | 0.5 |
| Gemu-Goffa | | 62.9 | 22.6 | 8.7 | 3.3 | 2.5 |
| Gojam | | 69.6 | 21.3 | 5.5 | 1.8 | 1.8 |
| Harar | | 72.6 | 16.7 | 5.5 | 2.8 | 2.4 |
| Illubabor | | 38.8 | 37.9 | 9.9 | 6.6 | 6.8 |
| Kefa | | 46.5 | 43.1 | 5.1 | 4.2 | 1.1 |
| Shoa | | 57.1 | 29.6 | 4.6 | 3.2 | 5.5 |
| Sidamo | | 40.5 | 35.4 | 14.4 | 4.8 | 4.9 |
| Tigre | | 73.0 | 18.0 | 3.5 | 2.5 | 3.0 |
| Wallega | | 38.4 | 43.3 | 5.4 | 3.1 | 9.8 |
| Wollo | | 60.5 | 26.8 | 4.3 | 3.0 | 5.4 |

Table 9 (continued)

| | TYPE OF CONSTRUCTION | Stone, concrete thatched roof | Stone, concrete corrugated roof | Chiga, thatched roof | Chiga, corrugated metal roof |
|------------|-------------------------|----------------------------------|------------------------------------|-------------------------|---------------------------------|
| Arusi | | 0.0 | 0.3 | 26.6 | 73.1 |
| Bagemdir | | 1.6 | 8.7 | 20.5 | 69.2 |
| Eritrea | | 10.0 | 38.8 | 23.0 | 28.2 |
| Gemu-Goffa | | 3.1 | 0.0 | 43.5 | 53.4 |
| Gojam | | 0.1 | 1.2 | 42.4 | 56.3 |
| Harar | | 4.3 | 23.5 | 23.1 | 49.1 |
| Illubabor | | 0.2 | 1.2 | 23.4 | 75.2 |
| Kefa | | 1.0 | 7.2 | 16.0 | 75.8 |
| Shoa | | 0.3 | 2.3 | 21.4 | 76.0 |
| Sidamo | | 0.1 | 1.3 | 35.0 | 63.6 |
| Tigre | | 3.5 | 25.9 | 26.4 | 44.2 |
| Wallega | | 0.1 | 0.6 | 22.8 | 76.5 |
| Wollo | | 0.1 | 1.9 | 33.1 | 64.9 |

Table 9 (continued)

| TOILET FACILITIES | Flush toilet | Pit | None |
|-------------------|--------------|------|------|
| Arusi | 0.0 | 29.8 | 70.2 |
| Begemdir | 0.1 | 32.4 | 66.5 |
| Eritrea | 11.3 | 18.1 | 70.6 |
| Gemu-Goffa | 0.0 | 47.3 | 52.7 |
| Gojam | 0.5 | 30.7 | 68.8 |
| Harar | 2.4 | 53.2 | 44.4 |
| Illubabor | 0.9 | 41.8 | 57.3 |
| Kefa | 1.5 | 43.6 | 54.9 |
| Shoa | 0.9 | 30.4 | 68.7 |
| Sidamo | 0.8 | 49.0 | 50.2 |
| Tigre | 0.3 | 29.2 | 70.5 |
| Wallega | 0.1 | 30.7 | 69.2 |
| Wollo | 0.6 | 32.6 | 66.8 |

Table 10

PATIENTS TREATED UNDER THE VARIOUS DISEASE GROUPS

| Disease Group | OUTPATIENTS | | | 1967/8 | INPATIENTS | |
|--|-------------|---------|------------------------|--------|------------|---------|
| | 1967/8 | 1968/9* | 1969/70 | | 1868/9 | 1969/70 |
| Infective and parasitic diseases | 157,333 | 257,038 | 286,174 | 14,393 | 11,379 | 16,295 |
| Neoplasma | 5,019 | 3,013 | 4,117 | 875 | 1,094 | 1,876 |
| Allergies, endocrine and nutritional diseases and diseases of the blood forming organs | 23,759 | 31,382 | 38,660 | 2,920 | 3,361 | 4,676 |
| Mental, psychoneurotic and personality disorders | 7,614 | 8,890 | 8,654 | 938 | 1,526 | 1,816 |
| Diseases of the nervous system and sense organs | 72,731 | 57,870 | 66,472 | 2,197 | 2,272 | 2,531 |
| Diseases of the circulatory system | 10,579 | 12,623 | 12,724 | 1,314 | 1,693 | 2,662 |
| Diseases of the respiratory system | 132,245 | 98,126 | 131,760 | 4,431 | 4,738 | 8,175 |
| Diseases of the digestive system | 104,875 | 109,151 | 124,848 | 5,724 | 6,977 | 10,904 |
| Diseases of the genito-urinary system | 18,651 | 21,445 | 20,524 | 2,298 | 2,923 | 4,643 |
| Diseases of pregnancy, childbirth and puerperium and normal deliveries | 20,251 | 12,840 | 13,247 | 6,551 | 11,661 | 16,768 |
| Diseases of the skin, cellular tissue, bones and organs of movement | 96,644 | 101,399 | 114,099 | 3,039 | 2,203 | 3,667 |
| Congenital malformations | 282 | 7,362 | 450 | 99 | 123 | 220 |
| Diseases of early infancy | 4,376 | 52,025 | 4,103 | 177 | 190 | 280 |
| Senility and ill-defined conditions | 11,815 | 15,451 | 18,547 | 651 | 547 | 1,020 |
| Injuries from external causes | 75,018 | 48,039 | 48,290 | 4,714 | 5,296 | 8,700 |
| Disease not stated | ----- | ----- | 1,257,030 ¹ | ----- | 6,785 | 3,198 |
| TOTAL | 841,192 | 836,715 | 2,149,699 | 50,321 | 62,768 | 87,437 |

¹ Total number of patients seen in clinics
 * Data for Begemdir not included

Primary Source: Ministry of Public Health,
 Statistics Division
 Secondary Source: Ethiopia Statistical
 Abstract, 1971.

Table 10A

CLASSIFICATION OF DISEASES BY SYSTEM AND THEIR INCIDENCE
(SURVEY OF 950 PATIENTS AT THE PRINCESS TSEHAI MEMORIAL
HOSPITAL FROM APRIL 1966 TO MARCH 1967)

| <u>Disease by System</u> | <u>Number of Patients</u> | <u>Percent</u> |
|---|-------------------------------|----------------|
| I. Acute febrile illnesses | 184 | 19 |
| 1. Pyrexia of undetermined origin | 51 | |
| 2. Malaria | 40 | |
| 3. Typhoid fever | 37 | |
| 4. Relapsing fever | 20 | |
| 5. Typhus | 12 | |
| 6. Influenza | 11 | |
| 7. Others | 13 | |
| II. Diseases of the alimentary system | 151 | 16 |
| 1. Gastritis | 37 | |
| 2. Bacillary dysentery | 27 | |
| 3. Duodenal ulcer | 25 | |
| 4. Gastroenteritis | 18 | |
| 5. Amebic dysentery | 14 | |
| 6. Colitis | 11 | |
| 7. Schistosomiasis | 7 | |
| 8. Tumors | 3 | |
| 9. Others | 9 | |
| III. Diseases of the liver | 125 | 13 |
| 1. Cirrhosis | 82 | |
| 2. Infectious hepatitis | 21 | |
| 3. Amebic liver abscess | 11 | |
| 4. Acute hepatic necrosis | 4 | |
| 5. Hepatoma | 3 | |
| 6. Others | 4 | |
| IV. Respiratory diseases | 93 | 10 |
| 1. Pneumonia | 73 | |
| 2. Acute bronchitis | 10 | |
| 3. Chronic bronchitis | 4 | |
| 4. Others | 6 | |
| V. Cardiovascular diseases | 81 | 9 |
| 1. Rheumatic valvular disease | 27 | |
| 2. Cardiomyopathy | 15 | |
| 3. Hypertension | 15 | |
| 4. Cor--pulmonale | 4 | |
| 5. Infarction | 4 | |
| 6. Syphilis | 2 | |
| 7. Coronary insufficiency | 1 | |
| 8. Congestive heart failure of questionable etiology | 8 | |
| 9. Others | 5 | |

(CONTINUED)

| | | |
|--|----|---|
| VI. Diseases of the urinary tract | 61 | 6 |
| 1. Chronic nephritis | 28 | |
| 2. Acute pyelitis and pyelonephritis | 24 | |
| 3. Nephrotic syndrome | 4 | |
| 4. Others | 5 | |
| VII. Tuberculosis | 46 | 5 |
| 1. Abdominal | 17 | |
| 2. Pulmonary | 14 | |
| 3. Miliary | 4 | |
| 4. Lymph node | 4 | |
| 5. Pericarditis | 3 | |
| 6. Bone | 3 | |
| 7. Meningitis | 1 | |
| VIII. Diseases of the endocrine system | 51 | 5 |
| 1. Diabetes mellitus | 44 | |
| 2. Hyperthyroidism | 3 | |
| 3. Hypothyroidism | 2 | |
| 4. Adrenal insufficiency | 2 | |
| IX. Diseases of the nervous system | 42 | 4 |
| 1. Psychoses and psychoneuroses | 18 | |
| 2. Cerebral hemorrhage | 7 | |
| 3. Meningitis | 6 | |
| 4. Encephalitis | 5 | |
| 5. Epilepsy | 5 | |
| 6. Cerebral thrombosis | 1 | |
| X. Diseases of bones and joints | 16 | 2 |
| 1. Rheumatoid arthritis | 9 | |
| 2. Gout | 3 | |
| 3. Arthritis of questionable etiology | 2 | |
| 4. Pheumatic arthritis | 1 | |
| XI. Diseases of the gall bladder and bile duct | 14 | 2 |
| 1. Cholecystitis and cholelithiasis | 13 | |
| 2. Carcinoma of gall bladder | 1 | |
| XII. Diseases of the blood | 14 | 2 |
| 1. Anemias | 6 | |
| 2. Leukemias | 5 | |
| 3. Lymphomas | 3 | |

(CONTINUED)

| | | |
|--------------------------------|-----|-------|
| XIII. Miscellaneous conditions | 19 | 2 |
| XIV. Gynecologic disorders | 12 | 1 |
| 1. Pelvic inflammatory disease | 7 | |
| 2. Ovarian tumors | 3 | |
| 3. Others | 2 | |
| XV. Diseases of the pancreas | 2 | 0.2 |
| 1. Acute pancreatitis | 1 | |
| 2. Chronic pancreatitis | 1 | |
| XVI. Non-diagnosed illness | 42 | 4 |
| TOTAL | 950 | 100.0 |

Source: Ethiopian Ministry of Public Health

Table 10B

COMMON DISEASES OF HOSPITALIZED PATIENTS AND
OUTPATIENTS

| <u>DISEASE</u> | <u>OUTPATIENT</u> | | <u>INPATIENT</u> | |
|--|-------------------|----------------|------------------|----------------|
| | <u>Number</u> | <u>Percent</u> | <u>Number</u> | <u>Percent</u> |
| Infections of the skin and Subcutaneous tissue | 159,452 | 11.7 | 3,557 | 7.5 |
| Inflammatory eye disease | 103,471 | 7.6 | 1,834 | 3.9 |
| Malaria | 189,210 | 13.9 | 3,628 | 7.7 |
| Dysentery | 101,672 | 7.5 | 4,022 | 8.5 |
| Helminthic diseases | 104,316 | 7.7 | 2,827 | 6.0 |
| Syphilis | 55,138 | 4.1 | 4,754 | 10.0 |
| Gonorrhoea | 80,556 | 5.9 | 1,587 | 3.4 |
| Gastroenteritis and Colitis | 57,361 | 4.2 | 3,036 | 6.4 |
| Rheumatism | 57,976 | 4.3 | 1,078 | 2.3 |
| Acute upper respiratory infections | 73,186 | 5.4 | 1,223 | 2.6 |
| Accidents | 93,675 | 6.9 | 6,424 | 13.6 |
| Pneumonia | 4,974 | 0.4 | 437 | 0.9 |
| Bronchitis | 33,935 | 2.5 | 1,252 | 2.6 |
| Tuberculosis | 28,848 | 2.1 | 3,943 | 8.3 |
| Influenza | 33,221 | 2.4 | 1,408 | 3.0 |
| Otitis media and mastoiditis | 60,898 | 4.5 | 837 | 1.8 |
| Diseases of the teeth and supporting structures | 37,718 | 2.8 | 860 | 1.8 |
| Homicide, suicide and self-inflicted injuries | 36,800 | 2.7 | 2,012 | 4.2 |
| Gastritis and duodentis | 33,607 | 2.5 | 1,671 | 3.5 |
| Typhus and other rickettsial diseases | 14,967 | 1.1 | 940 | 2.0 |
| TOTAL | 1,360,949 | | 47,330 | |

Source: Various National and International
Agencies and Institutions

Table 10C

GROUPS OF DISEASES ACCORDING TO THE FIVE YEAR SURVEY
1958/1963*

| <u>Group of Disease</u> | <u>Occurrence in %</u> |
|---------------------------------------|------------------------|
| 1. Infectious diseases | 38.2 |
| 2. Skin, musculo-skeletal system | 17.0 |
| 3. Nervous | 14.2 |
| 4. Respiratory tract | 9.5 |
| 5. Intestinal tract | 8.1 |
| 6. Injuries | 4.9 |
| 7. Diseases of old age | 2.2 |
| 8. Allergy, metabolism and nutrition | 1.8 |
| 9. Cardiovascular system | 1.1 |
| 10. Urogenital system | 1.1 |
| 11. Pregnancy and birth | 0.9 |
| 12. Neoplasm | 0.8 |
| 13. Malformations, neonatal disorders | 0.4 |

* National Survey

Source: Geomedical Monograph Series 3, Ethiopia, 1972.

Table 14

THE 12 MOST FREQUENT COMMUNICABLE DISEASES OR DISEASE
GROUPS OBSERVED IN ETHIOPIA IN 1962

| <u>Disease</u> | <u>Number of Cases</u> | <u>Percent</u> |
|----------------------------|------------------------|----------------|
| 1. Malaria | 149,455 | 18.95 |
| 2. Parasitic skin diseases | 139,534 | 17.70 |
| 3. Helminthiasis | 93,720 | 11.88 |
| 4. Infectious eye diseases | 93,507 | 11.86 |
| 5. Syphilis | 77,635 | 9.84 |
| 6. Dysentery of all types | 70,937 | 8.99 |
| 7. Gonorrhoea | 51,582 | 6.54 |
| 8. Pneumonia | 33,149 | 4.20 |
| 9. Tuberculosis | 26,485 | 3.35 |
| 10. Influenza | 25,824 | 3.27 |
| 11. Typhus | 16,289 | 2.06 |
| 12. Leprosy | 10,202 | 1.29 |
| TOTAL | 788,319 | 100.00 |

Source: Geomedical Monograph Series 3, Ethiopia, 1972.

Table 15

COMMUNICABLE DISEASES
IN ETHIOPIA 1954-1963

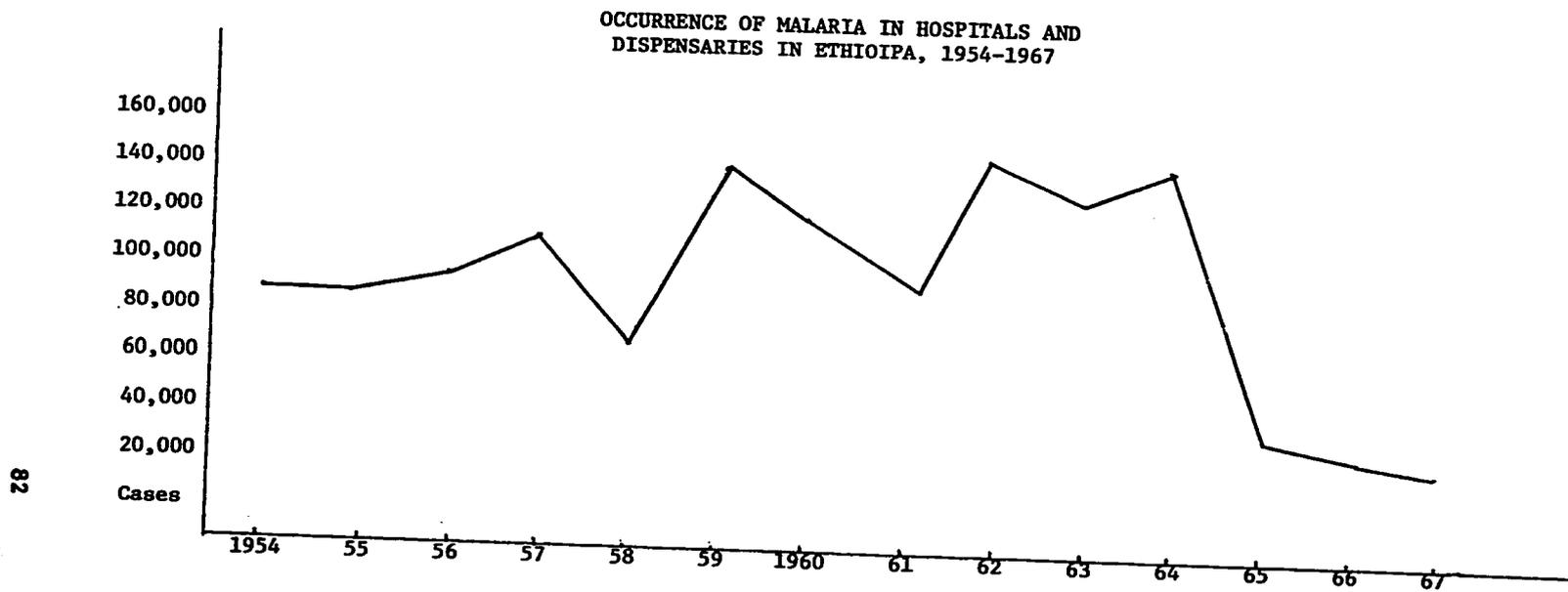
OUTPATIENT MORBIDITY*

| <u>YEAR</u> | <u>Smallpox</u> | <u>Malaria</u> | <u>Typhoid</u> | <u>Paratyphoid</u> |
|---------------------------|-----------------|----------------|----------------|--------------------|
| 1959 | 713 | 129,618 | 1,632 | 739 |
| 1960 | 1,243 | 110,105 | 2,594 | 865 |
| 1961 | 2,347 | 67,306 | 4,079 | 1,069 |
| 1962 | 455 | 137,624 | 2,045 | 414 |
| 1963 | 693 | 123,603 | 1,666 | 211 |
| | | | | |
| <u>All from Dysentery</u> | | <u>Typhus</u> | <u>Rabies</u> | |
| 46,322 | | 15,477 | 366 | |
| 44,991 | | 11,640 | 712 | |
| 43,455 | | 12,589 | 309 | |
| 62,896 | | 15,289 | 321 | |
| 76,319 | | 13,118 | 395 | |

* From monthly reports of outpatients, seen in hospital clinics

Source: Ministry of Public Health, Anti-epidemic Service, 1965

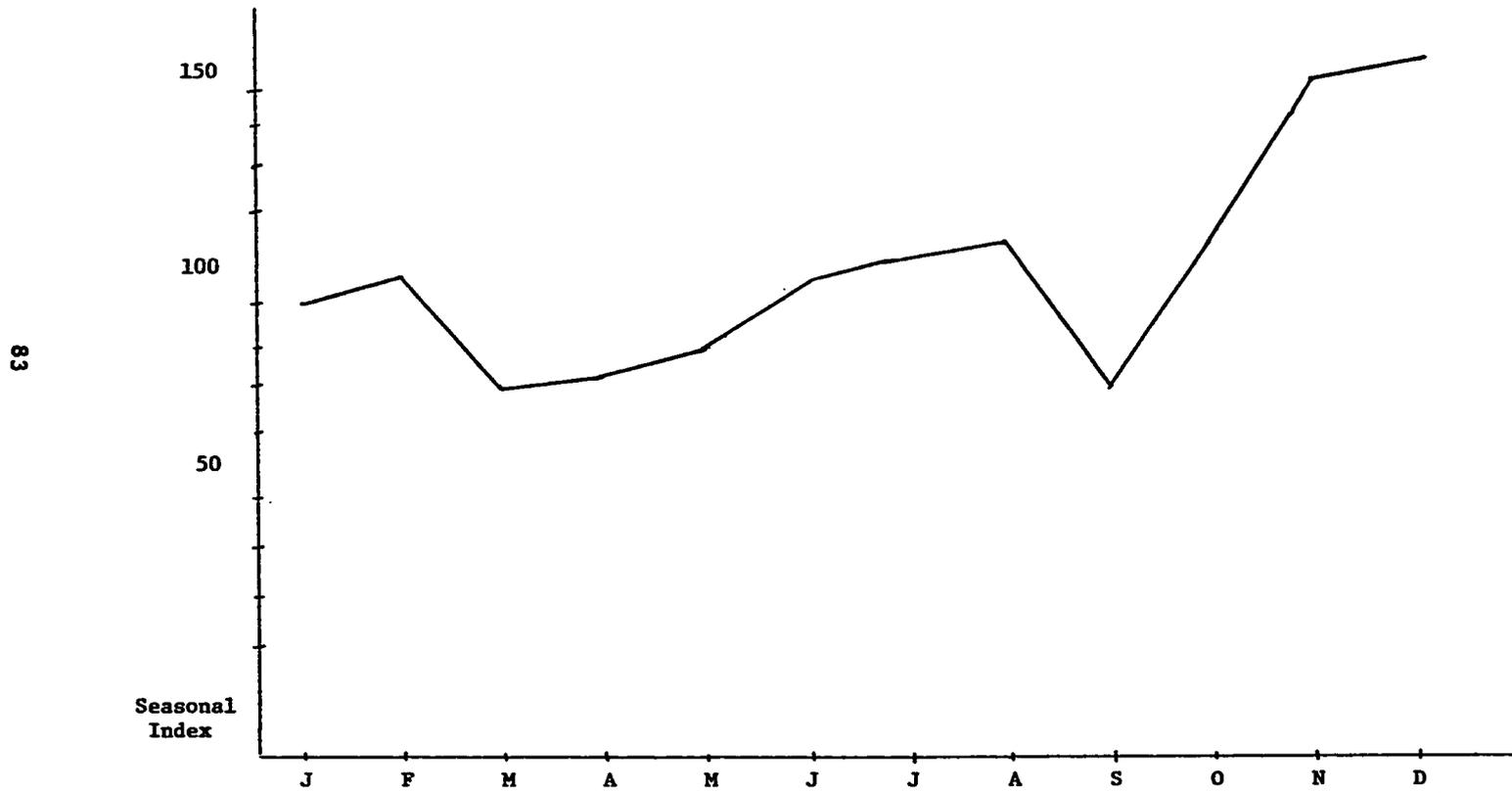
Table 16



Source: Geomedical Monograph Series 3, Ethiopia, 1972.

Table 17

SEASONAL OCCURRENCE OF MORBIDITY OF MALARIA
IN ETHIOPIA (OUTPATIENTS), 1959-1963



Source: Geomedical Monograph Series 3, Ethiopia, 1972.

Table 18

RELATIONSHIP BETWEEN AGE, SEX AND RATE OF INFESTATION
WITH ASCARIS, TRICHURIS AND ANCYLOSTOMA, 1967

| Age (Years) | Ascaris | | Trichuris | | Ancylostoma | |
|---------------|---------|------|-----------|------|-------------|------|
| | M% | F% | M% | F% | M% | F% |
| 0 - 2 | 8.2 | 3.5 | 4.1 | 1.7 | --- | 3.5 |
| 2 - 9 | 47.6 | 48.0 | 27.1 | 26.0 | 21.7 | 21.0 |
| 10 - 19 | 40.2 | 55.6 | 23.4 | 34.5 | 41.3 | 27.2 |
| 20 - 29 | 39.0 | 54.6 | 33.1 | 37.2 | 34.4 | 20.8 |
| 30 - 39 | 33.8 | 49.7 | 32.9 | 42.7 | 29.3 | 22.6 |
| 40 - 49 | 19.6 | 47.9 | 27.9 | 50.7 | 29.1 | 16.9 |
| 50 and higher | 29.6 | 43.1 | 29.6 | 49.2 | 27.0 | 41.6 |

Source: Geomedical Monograph Series 3, Ethiopia, 1972.

Table 19 PREVALENCE OF WORM INFESTATION IN THE ETHIOPIAN
POPULATION ACCORDING TO TWO SERIAL TESTS

| Worm Species | 1956 | 1965 |
|---------------------------|-------------------------------------|-----------------------------|
| | <u>Nutrition Survey^a</u> | <u>Begemdir^b</u> |
| Ascaris lumbricoides | 36.8 | 63.4 |
| Trichuris trichiura | 47.5 | 17.2 |
| Ancylostoma duodenale | 12.2 | 5.2 |
| Taenia sp. | 4.3 | 4.8 |
| Schistosoma mansoni | 3.1 | 0.8 |
| Enterobius vermicularis | 2.5 | 0.3 |
| Hymenolepis nana | 2.5 | --- |
| Strongyloides stercoralis | 2.2 | 8.2 |
| Trichostrongylus sp. | 2.0 | --- |

^a 322 Stool samples from 10 different places of 8 provinces

^b 995 Persons from different places of the Province Begemdir

Source: Geomedical Monograph Series 3, Ethiopia, 1972.

Table 20

CALCULATED DAILY NUTRIENT INTAKE - ETHIOPIA, 1958
(based on a typical Ethiopian diet)

| | | | | | | | | | | | |
|---------------|-----|-------|-----|-----|-----|-----|-------|------|------|-------|------|
| Teff | 450 | 1,589 | 41 | 10 | 495 | 405 | --- | 1.90 | 0.50 | 8.50 | --- |
| Peas | 50 | 173 | 11 | 1 | 32 | 2 | 50 | 0.29 | 0.07 | 1.20 | 2.0 |
| Meat (beef) | 40 | 56 | 6 | 3 | 4 | 1 | 8 | 0.02 | 0.04 | 0.99 | --- |
| Oil | 30 | 270 | --- | 30 | --- | --- | --- | --- | --- | --- | --- |
| Butter | 30 | 216 | --- | 24 | 4 | --- | 960 | --- | --- | --- | --- |
| Onions | 100 | 42 | 1 | --- | 30 | --- | 50 | 0.02 | 0.03 | 0.15 | 3.2 |
| Cabbage | 25 | 7 | 1 | --- | 36 | --- | 1,195 | 0.01 | 0.03 | 0.15 | 7.0 |
| Potato | 25 | 17 | 1 | --- | 2 | --- | --- | 0.01 | 0.01 | 0.23 | 1.4 |
| Berbera | 5 | 22 | 1 | 1 | 7 | 5 | 500 | 0.02 | 0.01 | 0.44 | --- |
| Miscellaneous | | | | | | | | | | | |
| Foods 5% | | | | | | | | | | | |
| Total | | 120 | 3 | 3 | 30 | 20 | 138 | 0.11 | 0.03 | 0.58 | 0.7 |
| TOTAL | | 2,512 | 65 | 72 | 640 | 433 | 2,901 | 2.38 | 0.72 | 12.24 | 14.3 |

85

Primary Source: The Ecology of Malnutrition in Eastern Africa and Four Countries of Western Africa, 1970.
 Secondary Source: Interdepartmental Committee on Nutrition for National Defense, Ethiopia Nutrition Survey.

Table 21

FOOD AVAILABILITY PER CAPITA PER DAY - ETHIOPIA, 1961

| <u>Item</u> | <u>Total Grams</u> | <u>Calories</u> | <u>Proteins</u> | <u>Fats</u> |
|--|--------------------|-----------------|-----------------|-------------|
| Cereals | 406.7 | 1,375 | 44.3 | 7.7 |
| Potatoes and starchy foods, including ensete | 50.9 | 74 | .8 | .1 |
| Pulses, nuts and oilseeds | 56.8 | 208 | 12.0 | 3.6 |
| Vegetables | 34.3 | 8 | .4 | --- |
| Fruits | 4.5 | 3 | --- | --- |
| Meat | 48.1 | 79 | 6.8 | 5.6 |
| Eggs | 7.7 | 11 | .8 | .8 |
| Fish | 1.4 | 1 | .1 | --- |
| Milk | 224.9 | 152 | 9.7 | 8.0 |
| Oils and fats* | 13.4 | 145 | --- | 13.4 |
| Sugar (refined) | 5.3 | 21 | --- | --- |
| TOTAL | | 2,077 | 74.9 | 39.2 |

* In terms of pure fat content

Primary Source: Adapted from FAO Food Balance Sheets.
 Secondary Source: The Ecology of Malnutrition in Eastern Africa
 and Four Countries of West Africa, 1970

Table 22

NUMBER OF PEOPLE VACCINATED BY THE ANTI-EPIDEMIC
CONTROL SERVICE

(in thousands)

| <u>Year</u> | <u>Typhus</u> | <u>Smallpox</u> | <u>Typhoid</u> | <u>Whooping Cough</u> | <u>Yellow Fever</u> | <u>Rabies</u> | <u>Cholera</u> | <u>BCG</u> |
|-------------|---------------|-----------------|----------------|---------------------------|-------------------------|---------------|----------------|------------|
| 1961-62 | 775.4 | 439.1 | 3.5 | 3.9 | 513.6 | 34.5 | 1.8 | --- |
| 1962-63 | 1,937.6 | 1,710.1 | 90.4 | 23.3 | 294.8 | 599.6 | --- | --- |
| 1963-64 | 1,011.4 | 665.0 | 17.5 | 10.8 | 150.7 | 28.6 | 0.6 | --- |
| 1964-65 | 645.8 | 621.4 | 28.9 | 4.9 | 54.0 | 9.2 | 0.5 | --- |
| 1965-66 | 318.0 | 888.9 | 24.5 | 10.5 | 9.9 | 7.3 | 4.2 | --- |
| 1966-67 | 300.5 | 1,052.4 | 2.7 | 2.6 | 2.4 | 3.4 | 0.2 | 147.7 |
| 1967-68 | 275.9 | 1,457.3 | 3.8 | --- | --- | 4.7 | --- | 429.8 |
| 1968-69 | 217.2 | 1,060.1 | 2.6 | --- | --- | 4.8 | --- | 416.7 |
| 1969-70 | 207.3 | 507.3 | --- | --- | --- | 4.2 | --- | 459.8 |
| 1970-71 | 9.9 | 1,725.6 | 3.6 | 0.2 | --- | 4.0 | 3,138.0 | 330.6 |

87

These data are based on the monthly reports of permanent health institutions. As there was epidemic cholera in 1963 (Eth. Calendar), vaccinations were performed by mobile teams. Hence, it is estimated that the total number of vaccinated people is over 10 million.

Source: Ethiopia Statistical Abstract, 1971.

Table 23

SELECTED DATA ON HEALTH FROM DIFFERENT COUNTRIES

| | Doctor-Pop. Ratio (1963) | Beds Ratio Per 10,000 Pop. (1961) | Expenditure on Health (1961) |
|-----------------|-----------------------------|---|---------------------------------|
| USA | 780 | 90.9 | US\$ 161.2 |
| Sweden | 1,100 | 159.1 | 93.9 |
| Israel | 400 | 73.8 | 48.2 |
| Venezuela | 1,400 | 35.6 | 31.4 |
| Ceylon | 4,500 | 30.7 | 4.8 |
| Ivory Coast | 18,000 | 21.2 | 2.9 |
| Kenya | 9,300 | 13.1 | 2.8 |
| ETHIOPIA (1968) | 65,380 | 3.9 | 0.36 |

Source: WHO, Experts Report

Table 24

NUMBER OF HEALTH FACILITIES BY OWNERSHIP
AND PROVINCE: ETHIOPIA, SEPTEMBER, 1972
(Excluding Police and Armed Forces)

| Province | Hospitals | | Hospital Beds | | Clinics | | Health Centers (All government) |
|---------------|------------|-------|---------------|-------|------------|-------|------------------------------------|
| | Government | Other | Government | Other | Government | Other | |
| All Provinces | 45 | 40 | 5,661 | 2,754 | 472 | 177 | 93 |
| Arussi | 1 | 2 | 68 | 62 | 16 | 11 | 4 |
| Bale | 1 | -- | 23 | -- | 8 | 6 | 2 |
| Begemdir | 1 | 1 | 182 | 35 | 32 | 1 | 10 |
| Eritrea | 12 | 5 | 2,023 | 217 | 98 | 19 | 5 |
| Gemu Goffa | 1 | 1 | 18 | 55 | 15 | 6 | 4 |
| Gojam | 3 | -- | 232 | -- | 34 | 3 | 7 |
| Harrarge | 6 | 4 | 487 | 368 | 47 | 8 | 8 |
| Illubabor | 1 | 1 | 60 | 10 | 12 | 3 | 6 |
| Kefa | 1 | 2 | 200 | 27 | 18 | 6 | 6 |
| Shoa | 3 | 9 | 82 | 451 | 54 | 27 | 12 |
| Addis Ababa | 8 | 5 | 1,718 | 586 | 19 | 41 | -- |
| Sidamo | 3 | 2 | 259 | 158 | 32 | 15 | 5 |
| Tigre | 3 | 1 | 203 | 40 | 36 | 5 | 7 |
| Wollega | -- | 4 | -- | 285 | 19 | 18 | 6 |
| Wollo | 1 | 3 | 106 | 100 | 32 | 8 | 11 |

Source: Ethiopia Today, Public Health, Ministry of Information, July 1973.

Table 25

MINISTRY OF PUBLIC HEALTH
TOTAL HEALTH BUDGET 1972-1973

HEALTH

| <u>Ministry of Public Health</u> | <u>Ordinary Expenditures (Eth\$)</u> |
|---|--------------------------------------|
| Subh. 01. Administration and General Services. | |
| Personal Services | 1,268,148 |
| Non-personal Services | 65,200 |
| Maintenance of Premises and Equipment | 34,100 |
| Motor Vehicles and Equipment | 1,500 |
| Materials and Supplies | 23,370 |
| TOTAL Subh. 01 | 1,392,318 |
| | |
| Subh. 02. Prince Mekonnen Memorial Hospital (Nursing School) | |
| Personal Services | 95,260 |
| Non-personal Services | 21,600 |
| Maintenance of Premises and Equipment | 30,000 |
| Motor Vehicles and Equipment | 22,540 |
| Materials and Supplies | 121,800 |
| Current Transfers | 10,800 |
| TOTAL Subh. 02 | 302,000 |
| | |
| Subh. 03. Hospitals and Clinics in Addis Ababa. | |
| Personal Services | 3,490,525 |
| Non-personal Services | 188,488 |
| Maintenance of Premises and Equipment | 181,926 |
| Motor Vehicles and Equipment | 23,058 |
| Materials and Supplies | 1,452,010 |
| Current Transfers | 12,000 |
| TOTAL Subh. 03 | 5,348,007 |

TOTAL HEALTH BUDGET (CONTINUED)

| <u>Ministry of Public Health</u> | <u>Ordinary Expenditures (Eth\$)</u> |
|--|--------------------------------------|
| Subh. 04. Provincial Hospitals and Clinics | |
| Personal Services | 9,543,362 |
| Non-personal Services | 6442,93 |
| Maintenance of Premises and Equipment | 332,460 |
| Motor Vehicles and Equipment | 169,883 |
| Materials and Supplies | 2,592,715 |
| Current Transfers | 257,350 |
| TOTAL Subh. 04 | 13,540,063 |
| Subh. 05. Expenditure Covered by Proceeds from the Health Tax. | 6,000,000 |
| Subh. 06. Central Laboratory and Research Institute, Grant-in-aid. | 311,000 |
| Subh. 07. Contributions to WHO Ethio-Swedish Joint Fund etc. | 3,950,087 |
| Head 31 - TOTAL | 30,843,475 |
| Public Health - TOTAL | 30,843,475 |

Source: Imperial Government, Budget for Fiscal Year 1972-73

Table 25

DISTRIBUTION OF HEALTH CENTER STAFF TIME
DURING AN AVERAGE WORK WEEK

| Activity | Maychew | | Health Officers | | Metu | |
|--|---------|----|-----------------|----|------|----|
| | | % | Hosaina | % | | % |
| Polyclinic | 5/11 | 45 | 6/11 | 55 | 5/11 | 45 |
| MCH Clinic | 1/11 | 9 | 1/11 | 9 | 2/11 | 18 |
| School Health | 1/11 | 9 | 1/11 | 9 | 1/11 | 9 |
| Communicable Disease Control and "far field"* | 1.5/11 | 14 | 1/11 | 9 | 2/11 | 18 |
| Administration | 2.5/11 | 23 | 1/11 | 9 | 1/11 | 9 |
| Other | | | 1/11 | 9 | | |
| <u>Community Nurses</u> | | | | | | |
| Polyclinic | 3/11 | 27 | 3/11 | 27 | 3/11 | 27 |
| MCH Clinic | 1/11 | 9 | 1/11 | 9 | 1/11 | 9 |
| Other (TB Clinic and Ladies Club) | | | | | 2/11 | 18 |
| Home Visiting | 4.5/11 | 41 | 4/11 | 36 | 2/11 | 18 |
| School Health | 1/11 | 9 | 1/11 | 9 | 1/11 | 9 |
| "Far Field"* | .5/11 | 5 | 1/11 | 9 | 1/11 | 9 |
| Records | 1/11 | 9 | 1/11 | 9 | 1/11 | 9 |
| <u>Sanitarians</u> | | | | | | |
| Dwelling Inspection | 2/11 | 18 | 3/11 | 27 | 4/11 | 36 |
| Meat Inspection | 1/11 | 9 | 2/11 | 18 | 1/11 | 9 |
| Food and Drink Establishment Inspection | 2/11 | 18 | 1/11 | 9 | 2/11 | 18 |
| Food Handler's Class | 1/11 | 9 | | | 1/11 | 9 |
| Prison Service | 1/11 | 9 | 1/11 | 9 | | |
| School Health | 1/11 | 9 | 1/11 | 9 | 1/11 | 9 |
| "Far Field"* | 1/11 | 9 | 1/11 | 9 | 1/11 | 9 |
| Polyclinic (health education) | 1/11 | 9 | 1/11 | 9 | | |
| Records | 1/11 | 9 | 1/11 | 9 | 1/11 | 9 |

* Services to outlying villages

Source: Ethiopian Medical Journal, "Ethiopia's Health Center Program - Its Impact on Community Health, 1967.

Table 26

NUMBER OF SELECTED HEALTH PERSONNEL BY PROVINCE:
SEPTEMBER, 1972
(Excluding Police and Armed Forces)

| Province | Doctors | Health Officers | Hospital Nurses & Midwives | Community Nurses | Sanitarians | Laboratory Technicians | Dressers |
|---------------|---------|-----------------|----------------------------|------------------|-------------|------------------------|----------|
| All Provinces | 374 | 213 | 892 | 270 | 241 | 253 | 4,003 |
| Arussi | 7 | 6 | 22 | 11 | 8 | 10 | 149 |
| Bale | 1 | 6 | 9 | 4 | 6 | 2 | 48 |
| Begemdir | 14 | 15 | 19 | 18 | 14 | 13 | 166 |
| Eritrea | 69 | 12 | 144 | 14 | 25 | 24 | 559 |
| Gemu Goffa | 2 | 6 | 8 | 10 | 7 | 7 | 73 |
| Gojam | 13 | 13 | 16 | 18 | 16 | 8 | 140 |
| Hararge | 28 | 19 | 45 | 13 | 17 | 19 | 273 |
| Illubabor | 9 | 11 | 11 | 11 | 10 | 7 | 97 |
| Kefa | 9 | 13 | 25 | 11 | 10 | 10 | 191 |
| Shoa | 19 | 26 | 61 | 32 | 24 | 15 | 449 |
| Addis Ababa | 167 | 29 | 416 | 67 | 50 | 111 | 971 |
| Sidamo | 9 | 9 | 39 | 14 | 12 | 3 | 323 |
| Tigre | 9 | 17 | 23 | 20 | 16 | 9 | 177 |
| Wollega | 10 | 14 | 38 | 12 | 11 | 9 | 220 |
| Wollo | 8 | 17 | 16 | 15 | 15 | 6 | 167 |

Source: Ethiopia Today, Public Health, Ministry of Information, July 1973.

Table 27

TRAINING INSTITUTES FOR HEALTH PERSONNEL
IN ETHIOPIA, 1966

| <u>Training Institution</u> | <u>No. of Schools</u> | <u>Yearly Output</u> | |
|--|-----------------------|----------------------|-----------------|
| | | <u>Present</u> | <u>Future</u> |
| Haile Selassie I University | | | |
| Faculty of Medicine | | | |
| School of Medicine | 1 | 5 | 25 |
| School of Pharmacy | 1 | 12 | 20 |
| Public Health College | | | |
| Health Officers | 1 | 15 | 25 |
| Community Nurses | | 20 | 30 |
| Sanitarians | | 20 | 30 |
| Nursing Schools | | | |
| Basic | 6 | 35 | 100 |
| Midwifery | | 15 | 30 |
| Anesthetists | | 3 | 3 |
| Dresser Schools | 24 | 200 | 300 |
| Laboratory Technicians | 4 | 20 | 40 |
| X-Ray Technicians | 2 | 10 | 20 |
| | | (Every 2 years) | (Every 2 years) |
| Malaria Eradication Technicians | 1 | 50 | 90 |

Source: Wen-Pin-Chang, "Health Manpower Development in an African Country: The Case of Ethiopia," Journal of Medical Education, Vol 45, No. 1, January 1970.

Table 28

MEDICAL PERSONNEL TRAINED IN ETHIOPIA

| Year | Grade | Community Nurses | Health Officers | Sani- tarians | Technicians | | Adv. Dressers | Elem. |
|---------|-------|---------------------|--------------------|------------------|-----------------|-------|------------------|-------|
| | | | | | Labora- tory | X-ray | | |
| 1947/8 | -- | -- | -- | -- | -- | -- | 6 | 34 |
| 1948/9 | 1 | -- | -- | -- | -- | -- | -- | 7 |
| 1949/50 | -- | -- | -- | -- | -- | -- | -- | 55 |
| 1950/1 | 1 | -- | -- | -- | -- | -- | -- | 17 |
| 1951/2 | 1 | -- | -- | -- | -- | -- | -- | 8 |
| 1952/3 | 17 | -- | -- | -- | -- | -- | 20 | 45 |
| 1953/4 | 5 | -- | -- | -- | -- | -- | 32 | 85 |
| 1954/5 | 36 | -- | -- | -- | -- | -- | 72 | 67 |
| 1955/6 | 13 | -- | -- | -- | -- | -- | 52 | 89 |
| 1956/7 | 25 | -- | -- | -- | 3 | -- | 48 | 95 |
| 1957/8 | 22 | 15 | 20 | 12 | 3 | -- | 6 | 104 |
| 1958/9 | 49 | 13 | 29 | 19 | 13 | -- | 55 | 267 |
| 1959/60 | 29 | 12 | 17 | 21 | 2 | -- | 83 | 70 |
| 1960/61 | 46 | 17 | 18 | 23 | -- | -- | 45 | 116 |
| 1961/2 | 30 | 13 | 7 | 23 | 6 | -- | 44 | 106 |
| 1962/3 | 44 | 17 | 13 | 30 | 12 | 14 | 53 | 92 |
| 1963/4 | 53 | 22 | 13 | -- | -- | 10 | 53 | 82 |
| 1964/5 | 40 | 28 | 10 | 25 | 4 | 19 | 39 | 162 |
| 1965/6 | 60 | 20 | 13 | 15 | 34 | 12 | 44 | 174 |
| 1966/7 | 57 | 28 | 21 | 18 | 41 | 34 | 69 | 223 |
| 1967/8 | 83 | 29 | 23 | 27 | 23 | 14 | 69 | 222 |
| 1968/9 | 67 | 33 | 24 | 29 | 44 | 11 | 66 | 281 |
| 1969/70 | 87 | 40 | 43 | 30 | 20 | -- | 106 | 243 |
| 1970/1 | 74 | 29 | 40 | 25 | 23 | 15 | 119 | 240 |
| 1971/2 | 69 | 27 | 39 | 21 | -- | -- | 125 | 263 |

Primary Source: Ministry of Public Health
 Secondary Source: Ethiopia Statistical Abstract, 1971.

Table 29

EMPLOYMENT STATUS OF GONDAR GRADUATES - 1967

| | <u>Health Officers</u> | <u>Community Nurses</u> | <u>Sanitarians</u> |
|---|----------------------------|-----------------------------|--------------------|
| <u>TOTAL GRADUATES</u> | 165 | 185 | 184 |
| Under the Ministry of Public Health | 128 | 134 | 148 |
| a. Health Centers | 74 | 98 | 93 |
| b. Provincial Health Departments | 12 | 0 | 15 |
| c. Special Projects* | 14 | 34 | 26 |
| d. Ministry HQs | 1 | 0 | 13 |
| e. Medical School for Further Education | 26 | 0 | 0 |
| f. Advanced Study Abroad | 1 | 2 | 2 |
| Under Military Health Service | 19 | 0 | 1 |
| Left Services of Ministry of Public Health | 14 | 48 | 33 |
| Disabled | 1 | 0 | 0 |
| Dead | 1 | 3 | 1 |

*Includes the Public Health College, Gondar

Source: Wen-Pin-Chang, "Health Manpower Development in an African Country; the Case of Ethiopia," Journal of Medical Education, Vol. 45, No. 1, January 1970.

Table 30

CENTRAL GOVERNMENT: COMPOSITION OF CAPITAL EXPENDITURES, 1963/64-1972/73
(Percentages)

| | <u>Actual</u> <u>1963/64</u> | <u>Actual</u> <u>1964/65</u> | <u>Actual</u> <u>1965/66</u> | <u>Actual</u> <u>1966/67</u> | <u>Actual</u> <u>1967/68</u> | <u>Actual</u> <u>1968/69</u> | <u>Actual</u> <u>1969/70</u> | <u>Actual</u> <u>1970/71</u> | <u>Actual</u> <u>1971/72</u> | <u>Actual</u> <u>1972/73</u> |
|----------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|
| 1. <u>Economic Development</u> | <u>90.5</u> | <u>87.3</u> | <u>92.2</u> | <u>87.2</u> | <u>78.7</u> | <u>61.5</u> | <u>68.7</u> | <u>83.5</u> | <u>82.0</u> | <u>75.3</u> |
| Infrastructure | 46.1 | 43.8 | 33.0 | 40.9 | 33.9 | 23.0 | 38.9 | 48.9 | 50.8 | 41.4 |
| Mining, Industry and Commerce | 26.8 | 15.3 | 33.5 | 22.2 | 21.0 | 15.0 | 9.3 | 10.3 | 10.5 | 11.0 |
| Agriculture and Land Reform | 7.0 | 7.0 | 5.1 | 4.1 | 14.8 | 9.4 | 4.6 | 10.7 | 13.3 | 15.6 |
| Multipurpose Projects | 5.0 | 9.7 | 4.5 | 3.8 | 6.0 | 8.0 | 4.6 | 1.6 | 1.9 | 2.2 |
| Financial Institutions | 5.7 | 11.5 | 16.1 | 16.2 | 2.9 | 6.2 | 11.3 | 12.0 | 5.5 | 5.0 |
| 2. <u>Social Development</u> | <u>4.6</u> | <u>6.8</u> | <u>4.6</u> | <u>8.4</u> | <u>15.5</u> | <u>35.5</u> | <u>30.3</u> | <u>15.1</u> | <u>18.0</u> | <u>24.0</u> |
| Education | 2.9 | 3.8 | 1.0 | 3.1 | 8.5 | 19.3 | 11.0 | 5.5 | 8.8 | 14.5 |
| Health | 1.4 | 1.9 | 3.3 | 4.9 | 5.7 | 13.8 | 17.6 | 8.8 | 8.2 | 8.7 |
| C.D. and Social Welfare | 0.3 | 1.1 | 0.3 | 0.4 | 1.3 | 2.4 | 1.7 | 0.8 | 1.2 | 0.8 |
| 3. <u>Public Buildings</u> | <u>4.9</u> | <u>5.9</u> | <u>3.2</u> | <u>4.4</u> | <u>5.8</u> | <u>3.0</u> | <u>1.0</u> | <u>1.4</u> | <u>—</u> | <u>0.7</u> |
| TOTAL | <u>100.0</u> |

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Source: Various National and International Institutions and Agencies, 1973.

Table 31

CENTRAL GOVERNMENT OPERATIONAL EXPENDITURES: COMPOSITION, 1963/64-1972/73
(Percentages)

| | <u>Actual</u> <u>1963/64</u> | <u>Actual</u> <u>1964/65</u> | <u>Actual</u> <u>1965/66</u> | <u>Actual</u> <u>1966/67</u> | <u>Actual</u> <u>1967/68</u> | <u>Actual</u> <u>1968/69</u> | <u>Actual</u> <u>1969/70</u> | <u>Actual</u> <u>1970/71</u> | <u>Actual</u> <u>1971/72</u> | <u>Actual</u> <u>1972/73</u> |
|--|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|
| <u>General Administration</u> | 62.2 | 62.0 | 62.8 | 60.7 | 60.3 | 58.8 | 55.9 | 53.7 | 53.0 | 49.2 |
| Administrative Services | 16.3 | 14.6 | 14.5 | 15.3 | 14.8 | 14.1 | 12.0 | 12.1 | 11.8 | 10.8 |
| Defence and Internal Order and Justice | 45.9 | 47.4 | 48.3 | 45.4 | 45.5 | 44.7 | 43.9 | 41.6 | 41.2 | 38.4 |
| <u>Economic Services</u> | 15.0 | 13.9 | 11.1 | 11.9 | 11.6 | 12.1 | 11.0 | 11.6 | 11.0 | 12.2 |
| Agriculture | 2.3 | 2.5 | 2.3 | 2.7 | 2.6 | 2.8 | 2.7 | 2.8 | 2.9 | 3.1 |
| Industry and Commerce Public Works etc. | | | | | | | | | | |
| <u>Social Services</u> | 21.8 | 22.4 | 24.2 | 24.7 | 25.0 | 25.8 | 29.7 | 31.2 | 32.3 | 34.2 |
| Education and Culture | 12.7 | 12.8 | 14.4 | 14.6 | 14.8 | 15.2 | 15.5 | 19.0 | 19.7 | 20.8 |
| Health | 6.7 | 6.7 | 6.4 | 6.0 | 5.8 | 5.2 | 5.4 | 5.8 | 5.7 | 6.4 |
| Social Affairs | 2.4 | 2.9 | 3.4 | 4.1 | 4.4 | 5.4 | 8.8 | 6.4 | 6.8 | 7.0 |
| <u>Interest on Public Debt</u> | 0.9 | 1.6 | 1.8 | 2.7 | 3.0 | 3.3 | 3.3 | 3.5 | 3.7 | 4.3 |
| TOTAL | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

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Source: Various National and International Agencies, 1973.

Table 32

ETHIOPIAN BUDGET 1972-1973
ORDINARY AND CAPITAL EXPENDITURE

| | <u>Ordinary Expenditure Eth\$</u> | <u>Capital Expenditure Eth\$</u> | <u>Total Eth\$</u> |
|------------------------------|---|--|------------------------|
| <u>Public Health</u> | | | |
| Ministry of Public Health | 30,843,475 | 2,248,600 | 33,092,075 |
| Malaria Eradication Programs | ---- | 10,900,000 | 10,900,000 |
| Public Health - TOTAL | 30,843,475 | 13,148,600 | 43,992,075 |

Source: Imperial Government, Budget for Fiscal Year 1972-73

Table 33

ETHIOPIAN BUDGET 1972-1973
HEALTH FACILITIES AND MALARIA ERADICATION
CAPITAL EXPENDITURES

| <u>Head 89. Public Health</u> | <u>Total (Eth\$)</u> |
|--|----------------------|
| Subh. 1. Health Centers, Clinics and Hospitals. | |
| 01. Health Centers | 1,023,000 |
| 02. Clinics | 401,800 |
| 03. Hospitals | 723,800 |
| Subh. 1 - TOTAL | 2,148,600 |
| Subh. 2. Prince Mekonnen Memorial Hospital | 100,000 |
| Subh. 3. Malaria Eradication | 10,900,000 |
| Head 89 - TOTAL | 13,148,600 |

Source: Imperial Government, Budget for Fiscal Year 1972-73

Table 35

LOANS AND GRANTS FROM ABROAD
(U.S. Fiscal Years - Millions of Dollars)

| U.S. Program | U.S. OVERSEAS LOANS AND GRANTS OBLIGATIONS AND LOAN AUTHORI- ZATIONS | | | Repayments and Interest 1946-72 | Total less Repayments and Interest |
|---|--|-------|------------------|--|---|
| | 1971 | 1972 | Total 1946-72 | | |
| A. Official Development Assistance | | | | | |
| <u>AID and predecessor agencies</u> | | | | | |
| total | 20.4 | 31.1 | 217.5 | 22.1 | 195.4 |
| Loans | 14.9 | 26.7 | 115.4 | 22.1 | 93.3 |
| Grants | 5.5 | 4.4 | 102.1 | --- | 102.1 |
| (Supporting assistance) | --- | --- | (3.3) | | |
| <u>Food for Peace - Total</u> | 0.9 | 0.8 | 27.1 | 2.5 | 24.6 |
| <u>Title I - Total</u> | --- | --- | 6.1 | 2.5 | 3.6 |
| Repayable in U.S. Dollars | | | | | |
| Loans | --- | --- | 5.6 | 2.4 | 3.2 |
| Payable in Foreign Currency | | | | | |
| Planned for country use | --- | --- | 0.5 | 0.1 | 0.4 |
| (total sales agreement, including U.S. uses) | (---) | (---) | (0.8) | (---) | (0.8) |
| <u>Title II - Total</u> | 0.9 | 0.8 | 21.0 | --- | 21.0 |
| Emergency Relief, Economic Development & World Food Voluntary Relief Agencies | 0.8 | 0.7 | 17.0 | --- | 17.0 |
| | 0.1 | 0.1 | 4.0 | --- | 4.0 |
| <u>Other Official Development Assistance</u> | 2.1 | 1.1 | 28.5 | 0.5 | 28.0 |
| Peace Corps | 2.1 | 1.1 | 27.6 | --- | 27.6 |
| Other | --- | --- | 0.9 | 0.5 | 0.4 |
| <u>Total Official Development Assistance</u> | 23.4 | 33.0 | 273.1 | 25.1 | 248.0 |
| Loans | 14.9 | 26.7 | 121.9 | 25.1 | 96.8 |
| Grants | 8.5 | 6.3 | 151.2 | --- | 151.2 |
| B. Other Official Economic Programs | | | | | |
| Export-Import Bank Loans | --- | --- | 25.2 | 21.3 | 3.9 |
| Other Loans | --- | --- | --- | --- | --- |
| <u>Total Other Official Loans</u> | --- | --- | 25.2 | 21.3 | 3.9 |

Table 35 (continued)

LOANS AND GRANTS FROM ABROAD

| U.S. Program | U.S. OVERSEAS LOANS AND GRANTS OBLIGATIONS AND LOAN AUTHORIZATIONS | | Total 1946-72 | Repayments and Interest 1946-72 | To Repayments and Interest |
|---|--|------|------------------|--|-------------------------------------|
| | 1971 | 1972 | | | |
| <u>Total Economic Programs</u> | 23.4 | 33.0 | 298.3 | 46.4 | 251.9 |
| Loans | 14.9 | 26.7 | 147.1 | 46.4 | 100.7 |
| Grants | 8.5 | 6.3 | 151.2 | --- | 151.2 |
| <u>Military Programs</u> | | | | | |
| <u>Military Assistance (Charged To FAA Appropriation)</u> | 11.8 | 10.9 | 173.0 | --- | 173.0 |
| Credit Sales (FMS) | --- | --- | --- | --- | --- |
| Grants | 11.8 | 10.9 | 173.0 | --- | 173.0 |
| <u>Military Assistance Service- Funded Grants</u> | --- | --- | --- | --- | --- |
| Transfers from Excess Stocks | 0.5 | 0.3 | 8.6 | --- | 8.6 |
| Other Grants | --- | --- | 5.5 | --- | 5.5 |
| <u>Total Military Programs</u> | 12.3 | 11.2 | 187.1 | --- | 187.1 |
| <u>Total Economic and Military Programs</u> | 35.7 | 44.2 | 485.4 | 46.4 | 439.0 |
| Loans | 14.9 | 26.7 | 147.1 | 46.4 | 100.7 |
| Grants | 20.8 | 17.5 | 338.3 | --- | 338.3 |

Other Economic Programs

| Assistance from International Agencies - Commitments | FY1971 | | FY1972 | FY1946-72 |
|--|--------|------|--------|-----------|
| | | | | |
| TOTAL | 18.2 | 35.5 | 229.2 | |
| IBRD - World Bank | --- | 10.8 | 108.6 | |
| International Finance Corp. | * | --- | 14.1 | |
| Int'l. Dev. Association | 9.5 | 21.7 | 66.2 | |
| UNDP - Special Fund | 6.6 | 1.3 | 22.0 | |
| UNDP - TA (CY) | 0.7 | 0.7 | 10.6 | |
| Other UN (CY) | 1.4 | 1.0 | 7.7 | |

Table 35 (continued)

LOANS AND GRANTS FROM ABROAD

D.A.C. COUNTRIES (EXCLUDING U.S.)
OFFICIAL BILATERAL GROSS EXPENDITURES

| <u>Donor</u> | <u>CY 1970</u> | <u>CY 1971</u> | <u>CY 1960-71</u> |
|--------------|----------------|----------------|-------------------|
| TOTAL | 24.3 | 17.0 | 127.6 |
| Italy | 9.4 | 6.0 | 50.7 |
| Sweden | 6.7 | 6.8 | 39.0 |
| Germany | 5.2 | --- | 25.7 |
| Other | 3.0 | 4.2 | 12.2 |

ASSISTANCE FROM COMMUNIST COUNTRIES
(Loans and Grants Extended)

| | |
|----------------------|-----|
| 1971 Calendar Year | 84 |
| 1972 Calendar Year | -- |
| Cumulative thru 1972 | 203 |

Source: Various National and International Agencies and Institutions

Table 36

BILATERAL AND MULTILATERAL TECHNICAL ASSISTANCE, 1963/64-1968/69
(Million Eth.\$)

| | | Education | | Public Health | | Agriculture, Commerce and Industry and Natural Resources* |
|----------------|--------|-----------|--------|---------------|--------|---|
| <u>1963/64</u> | | | | | | |
| Bilateral | (64.4) | 15.134 | (12.1) | 2.850 | (10.4) | 2.444 |
| Multilat. | (0.7) | 0.166 | (4.5) | 1.050 | (3.6) | 0.856 |
| <u>1964/65</u> | | | | | | |
| Bilateral | (29.5) | 18.145 | (8.5) | 5.205 | (1.9) | 1.165 |
| Multilat. | (0.6) | 0.355 | (3.9) | 2.395 | (2.5) | 1.535 |
| <u>1965/66</u> | | | | | | |
| Bilateral | (28.6) | 20.990 | (7.8) | 5.749 | (2.9) | 2.131 |
| Multilat. | (1.2) | 0.910 | (1.4) | 1.051 | (3.5) | 2.469 |
| <u>1966/67</u> | | | | | | |
| Bilateral | (32.9) | 25.034 | (11.6) | 8.837 | (19.1) | 14.546 |
| Multilat. | (1.1) | 0.866 | (1.5) | 1.163 | (3.6) | 2.754 |
| <u>1967/78</u> | | | | | | |
| Bilateral | (40.5) | 29.900 | (16.0) | 11.800 | (12.2) | 9.000 |
| Multilat. | (3.1) | 2.300 | (2.0) | 1.500 | (7.0) | 5.200 |
| <u>1968/69</u> | | | | | | |
| Bilateral | (47.3) | 27.956 | (10.6) | 6.289 | (15.7) | 9.283 |
| Multilat. | (1.7) | 1.010 | (1.8) | 1.090 | (4.9) | 2.917 |

* Includes Mining, Water Resources, Wildlife and Land Reform

Table 36 (continued)

BILATERAL AND MULTILATERAL TECHNICAL ASSISTANCE, 1963/64-1968/69

| | | Transport and Communication | | Community Development | | Mapping |
|----------------|-------|-----------------------------------|-------|--------------------------|--------|---------|
| <u>1963/64</u> | | | | | | |
| Bilateral | (0.1) | 0.029 | (0.4) | 0.089 | (---) | --- |
| Multilat. | (1.2) | 0.271 | (0.5) | 0.111 | (---) | --- |
| <u>1964/65</u> | | | | | | |
| Bilateral | (6.4) | 3.921 | (0.4) | 0.225 | (39.3) | 24.200 |
| Multilat. | (0.4) | 0.279 | (0.1) | 0.075 | (---) | --- |
| <u>1965/66</u> | | | | | | |
| Bilateral | (0.5) | 0.333 | (1.5) | 1.076 | (33.0) | 24.200 |
| Multilat. | (0.4) | 0.267 | (0.3) | 0.224 | (---) | --- |
| <u>1966/67</u> | | | | | | |
| Bilateral | (0.2) | 0.114 | (0.6) | 0.494 | (26.4) | 20.000 |
| Multilat. | (0.2) | 0.186 | (0.3) | 0.206 | (---) | --- |
| <u>1967/68</u> | | | | | | |
| Bilateral | (1.0) | 0.750 | (0.2) | 0.200 | (13.6) | 10.000 |
| Multilat. | (0.2) | 0.150 | (0.4) | 0.300 | (0.1) | 0.100 |
| <u>1968/69</u> | | | | | | |
| Bilateral | (2.0) | 1.169 | (0.9) | 0.502 | (0.5) | 0.262 |
| Multilat. | (1.4) | 0.801 | (0.2) | 0.132 | (---) | --- |

Table 36 (continued)

BILATERAL AND MULTILATERAL TECHNICAL ASSISTANCE, 1963/64-1968/69

| | | Other Fields | | Sub-total | Grand Total |
|----------------|--------|--------------|--|-----------|---------------|
| <u>1963/64</u> | | | | | |
| Bilateral | (1.8) | 0.434 | | 20.980 | (10.8) 23.500 |
| Multilat. | (0.3) | 0.066 | | 2.520 | |
| <u>1964/65</u> | | | | | |
| Bilateral | (5.4) | 3.301 | | 56.162 | (8.6) 61.500 |
| Multilat. | (1.1) | 0.699 | | 5.338 | |
| <u>1965/66</u> | | | | | |
| Bilateral | (18.3) | 13.404 | | 67.883 | (7.4) 73.300 |
| Multilat. | (0.6) | 0.496 | | 5.417 | |
| <u>1966/67</u> | | | | | |
| Bilateral | (2.5) | 1.900 | | 70.925 | (6.7) 76.100 |
| Multilat. | (---) | --- | | 5.175 | |
| <u>1967/68</u> | | | | | |
| Bilateral | (3.0) | 2.200 | | 63.850 | (13.5) 73.900 |
| Multilat. | (0.7) | 0.500 | | 10.050 | |
| <u>1968/69</u> | | | | | |
| Bilateral | (12.0) | 7.112 | | 52.573 | (11.0) 59.244 |
| Multilat. | (1.0) | 0.611 | | 6.671 | |

** Planning, Statistics, Technical Agency, Financial Intermediaries,
Finance Information, Public Administration and Miscellaneous

Note: Figures in brackets are percentages.

Source: Planning Commission Office

Table 37

PUBLIC HEALTH PROGRAMS, 1969

| <u>Program</u> | <u>Sponsor</u> | <u>Scope and Status</u> | <u>Remarks</u> |
|--|---------------------------|--|---|
| Administration and support: Administration | Ministry of Public Health | Coordinating health planning with Five Year Plan, strengthening provincial health administration and integrating preventive and curative services, providing advisory services for rural health facilities, developing epidemiological services at all public health levels, improving health statistics; continuing | AID, WHO, Netherlands, Norway, Sweden, United Kingdom, West Germany - assistance. |
| Education: Training | Ministry of Public Health | Strengthening of medical school by assignment of WHO professors in biochemistry, physiology, social and preventive medicine; fellowships for study in various health fields; training auxiliary health personnel; continuing | AID, UNICEF, WHO, Norway, Sweden, United Kingdom, assistance. |
| 107 Environmental Sanitation: Water Supply | Ministry of Public Works | Construction, improvement of water supplies for small towns, starting with Tegre Province; number of projects underway; program handicapped by shortage of funds and personnel; begun 1967, continuing | WHO, France - assistance |
| Waste Disposal | MOPW | Improvement of sewerage in Addis Ababa, providing waste disposal facilities for new settlements in the Awash River Valley; continuing | WHO, France - assistance |
| Public Health: Disease Control Animal Diseases | Ministry of Agriculture | Tuberculin testing and slaughter of diseased animals, annual vaccinations for rinderpest, voluntary vaccination and treatment for various other animal diseases; continuing | FAO, Taiwan assistance |
| Cholera | Ministry of Public Health | Vaccination campaign during 1970 outbreak coordinated with Sudan and Somalia, all swimming pools closed in Addis Ababa during epidemic; current status na. | WHO assistance |

Table 37 (continued)

| <u>Program</u> | <u>Sponsor</u> | <u>Scope and Status</u> | <u>Remarks</u> |
|-----------------------|----------------|--|--|
| Eye Diseases | MOPH | Casefinding, treatment of patients, continuing | UNICEF assistance |
| Leprosy | MOPH | Casefinding, treatment of patients, rehabilitation program; continuing | WHO and various foreign countries assistance |
| Malaria | MOPH | Insecticide spraying - northern Ethiopia in attack phase, rest of country in preparatory phase; continuing | AID, WHO assistance |
| Smallpox | MOPH | Casefinding, vaccinations, surveillance; begun 1970, continuing | WHO assistance |
| Trypanosomiasis | MOPH | Survey to detect extent of disease; continuing | WHO assistance |
| Tuberculosis | MOPH | Prevention, diagnosis, treatment, BCG immunizations; continuing | UNICEF, WHO assistance |
| Venereal Diseases | MOPH | Casefinding, treatment of patients, health education; continuing | |
| Yellow Fever | MOPH | Insecticide spraying, insect surveys; continuing | WHO assistance |
| Maternal-Child Health | MOPH | Health education, pediatric examinations and treatment, immunizations; continuing | UNICEF, WHO assistance |
| Nutrition | MOPH | Child nutrition institute established at Princess Tsehai Memorial Hospital, nutrition education, milk distribution; continuing | UNICEF, Sweden assistance |

na = Data not available

Source: Various National and International Agencies and Institutions

Table 38

PL 480 TITLE II ACTIVITIES
(THOUSANDS)*

| | <u>FY 1973 Actual</u> | | | <u>FY 1974 Estimated</u> | | | <u>FY 1975 Requests</u> | | |
|--------------------------------------|-----------------------|--------------------|----------------------|--------------------------|-----------------------|----------------------|-------------------------|----------------------|----------------------|
| | <u>\$</u> | <u>lbs.</u> | <u>No. of Recip.</u> | <u>\$</u> | <u>lbs.</u> | <u>No. of Recip.</u> | <u>\$</u> | <u>lbs.</u> | <u>No. of Recip.</u> |
| I. <u>Child Feeding</u> | 99 | 578 | 30 | 125 | 1,386 | 31 | 126 | 1,400 | 31 |
| A. <u>Maternal and Child Feeding</u> | 99 | 578 | 30 | 125 | 1,386 ^a | 31 | 126 | 1,400 | 31 |
| 1. Govt-to-Govt | | | | | | | | | |
| 2. Voluntary agency | (99) | (578) | (30) | (125) | (1,386) | (31) | (126) | (1,400) | (31) |
| 1. UNICEF | (99) | (578) | (30) | (125) | (1,386) | (31) | (126) | (1,400) | (31) |
| II. <u>Food for Work</u> | 113 | 2,976 | 110 | 779 | 19,577 | 163 | 494 | 12,390 | 183 |
| A. Govt-to-Govt | 113 | 2,976 ^b | 110 | 472 | 11,861 ^c | 108 | 362 | 9,083 ^d | 108 |
| B. Voluntary agency | | | | 307 | 7,716 | 75 | 132 | 3,307 ^f | 75 |
| 1. WFP | | | | (307) | (7,716) ^e | (75) | (132) | (3,307) ^f | (75) |
| III. <u>Other</u> | 27 | 677 | 3 | 1,498 | 40,234 | 193 | 26 | 661 | 3 |
| A. Govt-to-Govt (relief) | -- | -- | -- | 657 | 17,637 ^g | 90 | -- | -- | -- |
| B. Voluntary agency | 27 | 677 ^h | 3 | 841 | 22,597 | 103 | 26 | 661 ^j | 3 |
| 1. WFP (WADU) | (27) | (677) ^h | (3) | (20) | (551) ⁱ | (3) | (26) | (661) ^j | (3) |
| 2. WFP (Relief) | -- | -- | -- | (821) | (22,046) ^k | (100) | -- | -- | -- |
| <u>Total</u> | 239 | 4,231 | 143 | 2,402 | 61,197 | 407 | 646 | 14,451 | 217 |
| Govt-to-Govt | 113 | 2,976 | 110 | 1,129 | 29,498 | 198 | 362 | 9,083 | 108 |
| Voluntary agency | 126 | 1,255 | 33 | 1,273 | 31,699 | 209 | 284 | 5,368 | 109 |
| 1. UNICEF | (99) | (578) | (30) | (125) | (1,386) | (31) | (126) | (1,400) | (31) |
| 2. WFP | (27) | (677) | (3) | (1,148) | (30,313) | (178) | (158) | (3,968) | (78) |

* Values based on CCC prices in FY 1974.

Source: U.S. Agency for International Development