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**WAR AND SURVIVAL IN SOUTHERN ANGOLA:
THE UNITA ASSESSMENT MISSION**

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THE UNITA ASSESSMENT MISSION**

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TABLE OF CONTENTS

Executive Summary.....1

I. Introduction.....3
Background
Goals of the Mission
Organization of the Report

II. Methodology.....8
Survey Area
Survey Population
Administrative Cooperation
Sources of Data
Survey Methods
Survey Procedure
Quality of the Data

III. Administrative Structure.....16
Governmental Organization
Local Administration
Resettlement Program
Summary

IV. Logistics.....22
Internal Logistics
External Logistics
Summary

V. Population Estimates.....25
Survey Population
Total Population
Summary

VI. Health Services.....29
Civilian Health Units
Health Personnel
Delivery of Services
Public Health
Maternal Child Program
Immunization Program
Program for War Disabled
Statistical Records
Summary

VII. Health Status.....40

Malaria	
Diarrhea	
Vaccine Preventable Diseases	
Other Diseases	
Child Mortality	
Summary	
VIII. Nutritional Status.....	45
Malnutrition by Survey Region	
Malnutrition by Year of Arrival	
Summary	
IX. Agriculture.....	48
Organizational Structure	
Farm Terrain	
Growing Season	
Crop Cultivation	
Animal Husbandry and Fishing	
Food Storage	
Seed Supplies	
Tool Supplies	
Diet	
Food Security	
Commerce	
Summary	
X. Other Findings.....	55
XI. Recommendations.....	56
Collaborating Institutions	
Administrative Assistance	
Logistical Requirements	
Health Requirements	
Nutritional Requirements	
Agricultural Requirements	
Blankets and Clothing	
Other Recommendations	
XII. Conclusion.....	62
XIII. Figures and Tables.....	64

EXECUTIVE SUMMARY

Angola has known civil war since its independence in 1975. The war has displaced millions of its citizens and cause the death of thousands. In 1988, the U.S. Government sponsored an assessment mission by government and private voluntary organizations (PVOs) to assess the status of the civilian population in areas controlled by the Popular Movement for the Liberation of Angola (MPLA), the government of the Peoples Republic of Angola. In July, 1989, Assistant Secretary of State for African Affairs Herman J. Cohen declared Angola a disaster area, and in October, 1989, a mission began to assess conditions in areas controlled by the National Union for the Total Independence of Angola (UNITA), the opponent of the MPLA in the civil war.

The goals of the assessment mission were first, to determine any emergency needs of the civilian population in UNITA controlled Angola with regard to health, nutrition, and agriculture; second, to examine the administrative structures that relate to the delivery of emergency assistance; third, to determine the feasibility of delivering assistance to the region, and participation by PVOs in relief efforts; and fourth, to propose specific recommendations for emergency relief needs for the coming year.

The UNITA survey was conducted between 6 October and 2 November, 1989 by six field assessors, three from the U.S. Government and three from American PVOs. The PVOs represented were the American Red Cross, Freedom Medicine, and the International Rescue Committee, the coordinator of the mission. The team began consultations in Paris and Geneva with Medicins Sans Frontieres/France (MSF), Operation Handicapped International (OHI), and the International Committee for the Red Cross (ICRC), the humanitarian organizations with current operations in the region. The team travelled to Pretoria, Republic of South Africa (RSA), where further consultations with ICRC officials were conducted.

In the 20 days of data collection, the team spent 170 hours in overland travel, covering 1,700 linear kilometers (1,000 miles) and an area of approximately 83,500 square kilometers (30,000 square miles). During this time, 53 villages were surveyed, and interviews were conducted with over 1,500 UNITA officials, village elders, health workers, agricultural specialists, farmers, and mothers with small children. Nutritional examinations were performed on over 1,300 young children.

Since April, 1989, there has been no routine access to the region by land. Thus, all relief supplies are transported by air, restricting the amount of aid due to the cost of transportation.

Within the country, there are no usable roads, and travel is by all wheel drive truck.

The health assessment found the population at serious risk of death from preventable diseases. Due to wartime conditions, almost nothing is available to prevent or treat these diseases through much of the survey area. Fifty-one percent of 1,282 mothers surveyed reported losing at least one child due to disease, with 25% of all conceptions lost before ten years of age. Malaria, childhood diarrhea, and vaccine preventable diseases are the major causes of death. Although a vaccination program has been started, it is ineffective as evidenced by widespread pertussis epidemics which were seen during the survey. Septic ulcers due to improper immunization technique were seen as well. Overall, 42% of 1,314 children surveyed were found to be malnourished. Moderate to severe childhood malnutrition averaged 7%, with the highest rate (17%) seen in the western survey region, and the lowest (0%) in the south. Recently displaced persons had the highest rate (20%), with those arriving before 1987 having the lowest (3%).

With the coming "hungry season", the time before the annual harvest, moderate to severe malnutrition is expected to triple. The closure of land borders in 1989, an increasing population size, and vagaries of the weather may further increase mortality from disease and malnutrition.

The means to significantly enhance crop production must be made available to farmers in the assessment area if the risk of famine is to be reduced.

The agriculture survey found adequate arable land and water for subsistence food production. However, seeds and farm tools are in extremely short supply, with less than 20 tons of seed in reserve for the coming planting season, and one hoe for three working adults. In addition, the location of farm plots near open water makes them susceptible to crop loss due to flooding.

Food security among Angolans in the survey area is almost nonexistent. Meager stores of grain and seed are infested with insects. With the exception of a limited amount of supplemental food for children, food relief is not needed at this time. But the marginal nutritional status of the population, and the shortage of agricultural supplies could create critical food needs in the coming year if seeds and tools are not made available now.

In order to mitigate the continuing loss of life from hunger and disease, immediate agricultural assistance is needed, with nutritional support a possibility in the future. Another high priority is emergency drugs needed for the treatment of malaria and diarrhea. Child immunization, a critical need, requires incountry training before the program can be resumed. Agricultural inputs must be distributed by July to allow distribution before planting begins in August.

The dire need for emergency assistance might best be met by a consortium of PVOs working in collaboration to deliver emergency supplies and monitor conditions in the region. The local administrative structure has the wherewithal to distribute supplies, and would collaborate with outside agencies. However, all relief support, including trucks and fuel, must be supplied by relief agencies from outside the country, and operational cooperation among agencies will increase the efficiency of relief activities.

I. INTRODUCTION

On 31 July, 1989, U.S. Assistant Secretary of State for African Affairs Herman J. Cohen issued the following declaration.

"In accordance with A.I.D. (Agency for International Development) Handbook 8, Chapter 3F, I hereby declare that a disaster exists in Angola that warrants U.S. Government assistance. I have determined that the disaster is beyond the ability of the authorities throughout Angola to respond adequately, that disaster assistance from the U.S. Government would be welcomed, and that it is in the national interest of the U.S. Government to provide such disaster assistance to respond to the current emergency.

I propose that OFDA (Office of Foreign Disaster Assistance) and A.I.D./Afr. (AID/ Africa) consult with U.S. and other PVOs (Private Voluntary Organizations) to determine the extent of the emergency throughout Angola and an appropriate emergency response."

In response to the concerns voiced by Assistant Secretary Cohen in the 1989 declaration, an assessment mission was commissioned by the U.S. Government to provide information on the condition of the civilian population in the region of Angola controlled by the National Union for the Total Independence of Angola (UNITA). This mission complemented an assessment conducted in 1988 in the part of Angola controlled by the Popular Movement for the Liberation of Angola (MPLA), the political movement currently governing the majority of the country. The assessment in UNITA territory was performed in October-November, 1989. This report describes the findings of the mission.

Background

The current emergency in Angola is a result of the civil war between the MPLA and UNITA. The war has its roots in the struggle for independence from Portugal, the colonial power that occupied Angola until 1975. The MPLA began military activity against Portugal in 1961, along with the National Front for the Liberation of Angola (FNLA), another resistance movement. Jonas Savimbi, originally aligned with the FNLA, and, in 1964, with the MPLA, broke with the MPLA in 1966 and formed UNITA.

In January, 1975, the Portuguese, MPLA, UNITA, and FNLA signed a joint cease-fire and accord for the independence of Angola under the administration of the three liberation movements. The three formed a coalition government, with independence set for later in the year. Fighting among the movements, however, was continuous.

Fighting between UNITA and the MPLA has continued to the present day. In early 1976, UNITA was dislodged from the towns it had occupied under the 1975 ceasefire agreement, and began a guerrilla war against the MPLA.

By 1979, UNITA had established a "Republic" in the sparsely settled southeastern section of the country, expanding its territory to its present size of 470,000 square kilometers (170,000 square miles, Figure I-1). Within its jurisdiction, UNITA is the sole administrative entity, and is responsible for the functions of civilian government.

Between 1979 and the present, the population of the region increased by as many as 1,200,000 displaced persons (Section V). These survive by subsistence farming and aid provided by UNITA. Limited humanitarian assistance comes from the International Commission for the Red Cross (ICRC) and private agencies.

In 1988, an agreement between Angola, Cuba, and the RSA resulted in the withdrawal of RSA forces from Angola, and a timetable for the withdrawal of Cuban troops. The RSA forces withdrew in August, 1988, and supply to UNITA ended on 1 April, 1989. Since then access to the region has been severely restricted, with no official land access for the movement of supplies.

The civil war has caused extraordinary loss of life among the civilian population. UNICEF estimates that in 1986 alone 55,000 Angolan children under five years of age died as a direct result of the war, and the U.S. Committee for Refugees estimates that as many as 20,000 Angolans have been disabled by the enormous quantities of land mines seeded in the countryside. With the disruptions of the war, social services throughout the country have been destroyed, and agricultural production has fallen sharply.

The condition of Angolans shows no signs of improving. Attempts to negotiate a ceasefire during the summer and fall of 1989 ended with renewed fighting and more population displacement; reports of drought conditions have recently emerged from both the MPLA and UNITA, threatening the marginally nourished population with starvation; the political isolation of UNITA limits international efforts to mitigate the effects of the war and isolation on displaced persons.

Although the U.S. Government does not recognize the MPLA as the government of Angola, humanitarian assistance to MPLA controlled areas of Angola began in 1981. Since then, the U.S. Government has donated 100,000 metric tons of food and other supplies valued in excess of \$100,000,000.

In 1988, the U.S. Government, concerned about the continuing deterioration of conditions in Angola, commissioned an assessment mission to determine humanitarian emergency needs in MPLA controlled areas. The team included representatives from three American PVOs and the U.S. Government. The team concluded that serious need existed, that the Peoples Republic of Angola would welcome a U.S. PVO presence in its territory, and suggested collaborative PVO activity in the provinces of Benguela and Cuanza Sul (Figure I-1). Four American PVOs and the International Red Cross have received grants based upon the assessment totalling \$1,501,000 as of 20 December, 1989, with further assistance being planned.

Goals of the Mission

The region of southeast Angola controlled by UNITA was historically a sparsely settled and unknown area. The influx of displaced persons into the region as a result of the civil war between UNITA and the MPLA resulted in a displaced population for which little information exists. In addition, the political isolation of UNITA created the condition whereby little was known regarding a major political and administrative entity with significant responsibilities to the civilian population. Thus, the UNITA assessment mission was charged with providing a comprehensive view of structural elements of the UNITA as applies to delivering humanitarian assistance in addition to the assessment of the conditions of the population. The specific goals follow.

1. To formulate a comprehensive view of the health, nutritional, and agricultural status of the civilian population in the UNITA controlled region of Angola in order to determine if life-threatening conditions exist.
2. To examine the administrative structure of UNITA as applies to the delivery of humanitarian services to the civilian population.

3. To determine the humanitarian emergency needs of the civilian population.
4. To estimate emergency needs which may arise in the near future.
5. To determine the practicability of U.S. Government and PVO participation in addressing the humanitarian needs of the population.
6. To submit specific recommendations to meet the emergency needs of the population.

Organization of the Report

The report describes conditions in UNITA controlled Angola through presentation of descriptive data collected by the assessment team. The first section describes the methods used for data collection, and limitations of the data. The following sections describe results of surveys of the UNITA administrative system, logistics, population, health care delivery, health status, nutrition, and agriculture. The presentation of the data is followed by recommendations for emergency humanitarian relief.

II. Methodology

The methodology of the assessment was governed by the need to provide a comprehensive view of the region within the limited time allotted for data collection. To accomplish its goals the assessment utilized data collected by several methodologies and from a number of sources, many of which are of uncertain accuracy. The use of a variety of data, however, reduces the effect of inaccuracy in any one source, and allows for a valid picture of the status of the population.

Survey Area

Figure II-1 plots the survey sites visited in the UNITA "republic". The area is approximately 83,500 square kilometers (30,000 square miles), representing 18% of the total land area controlled by UNITA. The survey was divided into four operational regions, each providing a different view of the displaced population. The "northern" survey region includes the survey sites numbered 1-8 in Figure II-1. The northern region is the farthest from the logistics and administrative centers in the south. The "southern" region includes sites 9-11. It is the location for the UNITA administrative center at Jamba (Site 10) and the logistics center at Likuwa (Site 11). It is the area most accessible to relief supplies and outside assistance. The "eastern" region includes sites 12-17. It is more densely populated than the other regions, with both small villages and larger population centers. The "western" region includes sites 18-23. It is less densely populated, and includes small, widely spaced villages; the western region is a principal area for new resettlement. In all regions, the population is widely dispersed.

The region surveyed was within an area under the complete control by UNITA. No military hazards were encountered, and the surveyed area was in general free from military risk. However, the area in the vicinity of Mavinga (Figure II-1, position 6) is a potential site of military activity and risk: aerial bombardment.

Survey Population

Table II-1 lists the population of the survey area by region and position. Population estimates were gathered from data supplied from census figures kept at the village and regional levels of UNITA government, and from figures reported by Medecins Sans Frontieres/France (MSF), one of the PVOs working in the region. An estimated population of 126,550 residing in 115 village groups were surveyed, with an average village size of 1,110. The village size is consistent in the northern, eastern, and western survey regions. However, with the exception of Likuwa, the smaller average village size in the southern region is misleading, since most of these village clusters are closely associated with the central town area.

Administrative Cooperation

UNITA officials endeavored to provide the assessment team with the resources needed to complete the mission. Although the officials in Jamba had not been well-briefed on the requirements of the mission, they immediately made preparations for transportation and logistical support, and the teams began the survey two days after arrival. UNITA did not restrict the team's access to any region, and developed an itinerary that satisfied the needs of the survey within the limits of time and security.

UNITA allowed the team access to the local population without evident restriction. Spontaneous requests for interviews with displaced persons, village elders, farmers, mothers, and local officials were granted without exception. UNITA provided an interpreter for interviews, and translation of questions and answers for those interviews in Portuguese were found to be accurate.

Statistical data were made available upon request. No data requested were refused, although some material was not supplied, or was of questionable validity. This is believed to be due to misunderstandings regarding the requests, and difficulties in the UNITA statistical reporting system.

Sources of Data

Interviews were held with UNITA officials, village elders, farmers, health workers, and mothers of small children. Officials and elders

gave descriptions of administrative structures as they relate to humanitarian assistance, and the methods for resettlement and distribution of relief supplies. UNITA officials provided census figures from central records in Jamba, and local census figures were collected from village elders and local officials when available. The health status of the population was determined by interviews with health care workers on the village level, statistics provided by central authorities, and interviews with mothers of small children for data on child mortality and family size. Interviews with farmers provided a measure of agricultural need and productivity, and UNITA agricultural officials gave a description of the farm allocation process. Village site surveys provided information on agricultural and food storage practices, village size, administrative structure, and general condition of the population. Anthropomorphic measurements on small children gave a measure of nutritional status.

Survey Methods

The team conducted structured and unstructured interviews with village residents. Interviews with farmers, village elders, and health workers followed an informal format with a list of topics for discussion. These interviews were conducted as group discussions. Interviews with mothers on child mortality and family size were structured, with a specific list of questions. These interviews were held individually.

Middle upper arm circumference (MUAC) was measured in 1,308 children 110cm and less in length. Nutritional status was determined by World Health Organization standards for arm circumference for length. Children were graded as nourished if arm measurements were greater than or equal to 90% of standard arm circumference for length. Children were rated mildly malnourished if they were 80%-89% of standard, and moderately to severely malnourished if they were less than 80% of standard. Kwashiorkor was measured in the eastern and western survey regions, and listed in the moderately to severely malnourished group. Kwashiorkor was determined by the presence of pretibial pitting edema, muscle wasting, and hair, skin, and personality changes. Suspected cases of mild kwashiorkor were categorized solely by arm circumference measurements, and not included as cases.

In addition to interview data agricultural field assessments were made at each survey site to determine methods of cultivation and food storage. The survey team was accompanied on these surveys by the local UNITA agricultural extension agent, local farmers, and the UNITA agricultural specialist assigned to the team, who acted as an interpreter.

Survey Procedure

Preliminary meetings were held the first week of October in Paris and Geneva with representatives of organizations with recent experience in the area. These are Medicins Sans Frontieres/France (MSF), Organization Handicapped International (OHI), and the International Committee for the Red Cross (ICRC). The team left Geneva on 7 October for Pretoria, Republic of South Africa (RSA), the only known airlift point for the journey to Angola. At present, the RSA is the only point of access to the region. The team met in Pretoria with U.S. Government officials, and representatives of the ICRC for further briefings. The team left Pretoria on 10 October on an ICRC chartered flight to Angola.

Following the team's arrival in Jamba, Angola, on 10 October, the team spent two days in meetings with UNITA officials, toured Jamba Central Hospital and various workshops, and organized the field survey. A private briefing was held with the ICRC delegate for the region, who gave the team his impressions of the status of the population, and the relief activities of the ICRC. Based upon the meetings, a decision was made to conduct the survey in two working groups to cover the broadest area within the time allotment of the survey.

Each team was assigned an interpreter/liaison officer from the UNITA Secretariat for International Cooperation, a health specialist, an agricultural specialist, and a military contingent for security. All food and travel supplies were provided, as was a truck for transport.

The groups left Jamba on 12 October. One group headed northwest toward Cangamba (the northern survey region), position 1 in Figure II-1, and the second group went north and east to Naraquina (the eastern region), position 12 in Figure II-1. The former group surveyed the northern and southern regions, and the latter the eastern and western regions. The groups returned to Jamba on 30 October.

Each site was notified in advance of the team's arrival. Upon arrival, the team met with local leaders and planned the survey procedure. Health workers, agricultural specialists, and village elders were assembled for interviews. Villagers were assembled in the central meeting place. The team was introduced to the gathered village, and told by UNITA officials that the team was there to ask them questions about their situation and emergency needs. The village was told that the team was not there to give them assistance, but would tell others who could help them with any urgent requirements. The teams were consistently greeted cordially by the local population.

After a short ceremony, women with children were gathered and counted. Based upon the number of women in each village, a systematic sample of twenty to thirty women at each site was gathered. At some sites, however, the sample was chosen from available women by the UNITA health officer without the selection procedure.

The women were brought to a shelter, usually the hospital or school, for interviews. Each was interviewed individually and privately, and queried about the number of living and dead children. In the western survey region, mothers were also asked questions regarding number of farm tools in their families and food surplus.

Small children were gathered for arm circumference measurements. In the eastern and western surveys, the children were measured at the time of the mothers' survey. In the northern and southern surveys, the children were measured separately.

The teams interviewed health workers and toured the local health facilities. Hospital conditions and resources were determined by site visit, and health workers were questioned regarding health problems of the village, community health activities including child immunizations, and needs. Local health statistics were provided where available. The village elders were queried on administrative structure, the system of government, and the distribution of resources. Farmers and agricultural agents provided information on methods of cultivation and farming needs. The team also conducted site visits of the village and agricultural areas. In total, the team interviewed over 160 village elders, 84 health workers, and over 50 farmers and agricultural technicians.

The team surveyed one or two villages per day, with an average travel distance between sites of 6 hours. Travel was along unimproved sand tracks, with an average speed of 15 kilometers per hour. The two survey groups returned to Jamba on 30 October, and left Angola on 2 November.

Quality of the Data

Population estimates. UNITA maintains detailed birth and death records, and census figures compiled on the village level. In addition, **all displaced persons are registered**, and the few local inhabitants are counted. Statistics are maintained on the local, regional, and central levels.

Although it is not possible to determine directly the accuracy of the population figures in the survey area, the size of the villages, village densities in each survey region, and relative population counts of the gathered populations during site surveys agree with the numbers given to the team on the local level. A

comparison of the official UNITA estimates of total population in the UNITA territory by age provided by the Secretariat for Economic Planning, and locally obtained census statistics in the eastern and western survey regions show similar age distributions (Table II-2), suggesting a common source of the statistics; the belief that locally derived statistics are at least approximations of the actual local populations suggests an approximate accuracy for the regional figures.

The population figures for each survey region are underestimates. Although the team endeavored to survey a representative sampling of the regions, in each region there are a considerable number of villages which were not surveyed or included in the population statistics. This does not, however, affect the findings regarding the status of the population, but results in underestimates of need.

Sampling Methods. Sample sizes for nutritional assessment and maternal surveys do not reflect the underlying populations in all areas. The time constraints of the survey required the team to collect data before population estimates were available. To adjust for this, all summaries of regional survey data are adjusted for the underlying populations.

Population numbers on a village level were unavailable for the northern and southern survey regions, and the samples were combined in the analysis by administrative group. This resulted in a loss of definition in analysis of these survey regions, but did not affect the results for the regions or the overall survey.

Site Surveys. UNITA complied with the wishes of the team regarding regions to be surveyed, and allowed each working group to modify its schedule in the field to view different types and sizes of villages. Although it is not possible to determine if UNITA specifically excluded population groups from the survey, the types of villages and the general condition of the population are in agreement with reports from the ICRC and other organizations.

Interviews. Most interviews were conducted with the interpreter assigned to each team by central authorities, and this may have influenced the responses of interviewees. Translations in the Portuguese interviews, however, were found to be accurate, with the interpreter urging the interviewees to respond honestly. There were no refusals to questions by either the interpreter or the interviewee.

Effort was made to ensure that responses from mothers on child mortality included queries on ages and causes of death of children who had died, and direct counts of living children. There were no cultural proscriptions against discussing child mortality. However, approximately 15% of the mothers did not know the ages when children had died. These mothers were asked whether children were

walking when they died to determine an approximation of child and infant mortality.

Nutritional Assessment. The MUAC gives a general approximation of nutritional status. It is considered less informative than standard weight for length measurements for growth monitoring, but it is an easily administered predictor of population mortality risk, which made it appropriate for the survey. The MUAC requires care in measurement, and its improper use is a common problem in field surveys. For this reason assessments were performed by the same team members in each group, and comparisons between administrators did not show systematic differences.

The use of any nutritional measurement which is related to an external standard may be biased, as standards are derived from other populations. Although this does not affect nutritional comparisons within a population, it is believed that the standards are appropriate for this population. The southern survey region, with the greatest concentration of UNITA administrative and logistical resources, had the most access to food supplies and was believed to be a fully nourished population. The nutritional survey in that region showed no moderate or severe malnutrition, and less mild malnutrition than other regions, which would be expected in a nourished population (Section VIII). Age was reported for 85% of the 1,312 children surveyed, and MUAC for age showed a greater than 97% correlation with MUAC for length, further suggesting the MUAC measurements are appropriate in this population by similarities in results using two different standards. Thus, it is concluded that the nutritional status as determined by MUAC for length is a valid indicator of the nutritional status of the child population.

The nutritional survey included children from small surrounding villages who travelled up to several hours with their families for the survey. This biases the sample, as it is likely that the sickest, and most malnourished, children would not travel to the survey site. However, in the eastern and western survey regions, no differences were seen among children from outlying villages compared with those at the village where measurements were made (Section VIII). This indicates that the reported rates of malnutrition are underestimates, and that the greatest underestimates are from small villages at a distance from the survey points.

Missing Data. Data were missing or excluded for several of the measurement variables. The team did not conduct nutritional surveys in 11, or 22%, of the 52 villages surveyed due to time constraints. Age was not reported for 15% of children reported living in the maternal survey, and information on farm tools and food stores gathered from the mothers was only collected in the western survey region.

None of the missing data are believed to significantly affect the conclusions of this report. None of the villages for which nutritional surveys were not conducted represented unique sites, either geographically, demographically, or in local conditions. Mothers who did not know the ages of their children could represent a different population, as knowledge of age is related to education and cultural variables. However, for both mortality and living children surveys, information of numbers of infants, that is, children who could not walk, and older children allowed estimates of infant and child mortality. The failure of these mothers to provide date of death, however, did not allow the calculation of mortality rates. The maternal farm survey was added to the program in the latter part of the mission. Although average numbers of tools and food scarcity information could differ in the other regions, data from the farmers surveys of scarcities of materials are consistent with the survey information.

III. ADMINISTRATIVE STRUCTURE

The administrative structure within UNITA controlled Angola determines the ability of outside organizations to deliver aid. The UNITA government is in essence a "liberation front" type of administrative organization: the society is cashless, and the system is staffed by "volunteers" who are not paid for their efforts; there are few highly trained personnel, although the commitment of workers is high; the population is principally displaced, and lives in regions which are not naturally populated, present survival difficulties for the residents; assistance to the population flows from a central distribution system which has scant resources; political and geographical isolation yields a naivete on the part of the administration regarding the workings of outside humanitarian agencies; civilian needs must compete for limited resources with military requirements. Thus, an understanding of the UNITA civilian administrative structure enables outside humanitarian organizations to more effectively establish relief programs.

Governmental Organization

The UNITA movement is organized into three administrative structures, the party, the military, and departments of administration. These are subordinate to the high command ("Politburo") and the Central Committee. The party is concerned with the political affairs of UNITA, and grass roots organizational programs. The party maintains a separate structure from other branches of government, and has a membership of approximately 30,000. All senior members of the various UNITA structures are members of the party, but most individuals on a regional and local level are not.

The military administration includes the fighting forces of UNITA, which are the army based in UNITA territory, and guerrilla forces elsewhere throughout the country. The army supervises through the General Logistics Directorate the movement of material for all civilian activities, including relief supplies.

The administrative branch includes several ministries, or secretariats, which administer the civilian government of the region. The units of importance to relief activities are the Secretariats for International Cooperation, Health and Social Welfare, Agriculture, and Education.

Each branch of government is organized vertically from the central authority in Jamba (Figure I-1, position 10). The civilian government is organized into regional, zonal, and local areas called positions. The latter is composed of one or more groups of small hamlets termed village groups. The military uses a somewhat different organization with the principal administrative unit called the sector.

Secretariat for International Cooperation. International Cooperation is the principal liaison with external parties, including journalists, political supporters, and relief agencies. Relief programs and visits from outside agencies are channelled by International Cooperation to other concerned secretariats and government organs. International Cooperation staffs the UNITA offices in the United States, Europe, and other countries.

Secretariat for Economic Planning. Economic Planning serves to coordinate the assessment of needs of the other secretariats regarding the civilian population, and present these to policy-making bodies and outside agencies. Economic Planning assists with the development of priorities for the requests of the secretariats, and provides lists of needed items to outside agencies regarding the displaced population. Although the secretariat has extensive statistics regarding the population, there is no comprehensive report detailing the population or its needs.

Secretariat for Health and Social Welfare. Health and Social Welfare supervises all civilian health activities. This includes the maintenance of health units and public health programs, the delivery of medicines and health-related supplies, health worker training programs, and health needs assessment for procurement. Social welfare activities include the distribution of clothing and blankets, and tending the needs of displaced persons during resettlement. Procurement of supplies is coordinated with Economic Planning.

The secretariat maintains a complex internal administrative structure for its health activities. A separate health administration, the Military Health Directorate, serves the health needs of the military. All health structures for the military and civilians

are separate, with the exception of special units like the war disabilities centers.

Logistical support within the secretariat is directed by the Department of Medical Logistics. The department receives support from the General Logistics Directorate for internal distribution of supplies, and for transportation of child immunization teams, ill persons, and special program needs.

Secretariat for Agriculture. The Secretariat for Agriculture oversees all agricultural programs in the region. This includes the maintenance of large farms for the use of UNITA, selection of agricultural sites for resettlement of the displaced population, distribution of relief agricultural supplies to the civilian population, technical assistance to displaced farmers, and development of training programs for locally recruited agricultural extension agents. The Secretariat provides Economic Planning with the estimated agricultural needs of the population.

Secretariat for Education. The Secretariat for Education administers the general educational system for children in the region. The Secretariat provides a uniform curriculum, and maintains elementary schools for grades one to four, and secondary schools for grades 5-12. The Secretariat is also charged with providing vocational programs for disabled persons. The Secretariat requests from Economic Planning textbooks and educational supplies needed for its programs.

Other Agencies. Two other agencies serve important functions in the delivery of assistance to the civilian population. These are the League of Angolan Women (LIMA), and the National Red Cross Society of Angola (SNCVA), which is not affiliated with the internationally recognized Red Cross Society of Angola.

LIMA is a politically based "mass organization." Its members are all supporters of UNITA, but most, especially on the local level, are not members of the party. LIMA is a service organization, with principal activities in education and social welfare. Although there is a central authority, most LIMA members are volunteers drawn from the local population, and serve on the village level. In all villages surveyed, LIMA representatives participated in the council of elders (see below), and actively assisted in the resettlement and health care of the village.

The SNCVA is the principal partner agency for ICRC activity in the region. The charter of the SNCVA is similar to that of most national Red Societies, services traditionally performed by the Red Cross. At present, the SNCVA has few staff, and little operational activity in the civilian health structure. Although the SNCVA is charged with monitoring the child immunization program, it is uncertain whether the staff performing immunizations are members of the SNCVA or the Secretariat for Health and Social Welfare, or

whether the SNCVA in its current form has the capacity to adequately oversee the program.

Local Administration

In the eastern and western survey regions, interviews with 163 village elders were conducted. The elders supplied a description of the local governmental structure in the region. Village affairs are run by a council of elders, headed by a chief elder. The elders are chosen by the village population, and include representation from local and displaced populations. In the eastern and western survey region, 37% of the elders' council are women. The chief elder may have been appointed by UNITA, and is a person who has served as a chief elder before coming to the region.

The elders administer all activities relating to the local population. The council is composed of the chief elder assisted by an administrative secretary who functions as a clerk/statistician, the local heads of health, education, social welfare, and agriculture, and an advisory council of 6 to 20 men. Females are represented by the local president of LIMA assisted by an administrative secretary and representatives for youth, education, and health/hygiene/nutrition. Local problems of the village are brought to the attention of the elders through village meetings, and the elders then submit requests to the appropriate UNITA agencies. Through the elders' council, a representative is chosen who attends UNITA meetings on the regional level.

Resettlement Program

Site selection for resettlement of displaced persons is based upon the ability of the land to support farming, and the location in regard to access for relief supply distribution and security. Displaced persons are registered, and attempts are made to locate other family members and resettle the new arrivals accordingly.

The resettlement strategy is to integrate displaced persons from the different provinces with the sparse local population. In 30 villages surveyed in the eastern and western survey regions, 15 are composed of displaced and local inhabitants, 13 are solely displaced persons, and two are solely local people. In the displaced population, no village surveyed is composed of people from one region or province. The program of integration appears to be successful in that there has been significant intermarriage among the population, and no discernable segregation by population group was observed by the survey team.

Resettlement has in the past occurred with new arrivals expanding existing villages as well as formation of new villages. New arrivals are assigned plots of land, and given seed and tools when

available by UNITA. The existing population shares its food supplies with the new arrivals until the next harvest when they can feed themselves. Food for new arrivals is gathered locally by a "tax" upon each family's harvest. The food gathered in this manner is only used within each village. When there is no food for new settlers, or when new villages are formed, UNITA supplies the food from its agricultural supplies. It was reported that UNITA receives support from local inhabitants, but no evidence of this was found in the survey region, and it is believed that this report refers to material support for UNITA guerrilla soldiers within government controlled areas.

Each family is given ownership of its land, and, with the exception of the "tax" for new arrivals, is the sole owner of its produce. There is no collectivization of agriculture, but farmers cooperate among themselves in sharing agricultural tools and other farming activities. UNITA has developed a system by which local farmers can trade surplus produce needed by UNITA for manufactured articles, but the scarcity of food has retarded the growth of this program.

Summary

UNITA has developed a sophisticated and comprehensive structure to administer assistance to the civilian population within its jurisdiction. There is good cooperation between civilian, political, and military branches, which allows efficient use of resources.

Administration of the civilian population through the secretariats is distinct from the political and military bureaucracies. Each secretariat maintains a functional identity, although there is considerable cooperation among the departments. The organization of the secretariats allows outside agencies to develop specific relief programs, and to plan comprehensive programs not limited to one area of relief or development. The external part of the Secretariat for International Cooperation, however, does not communicate the needs of outside agencies with clarity to the field, and there is a need for a greater degree of communication than is currently available.

UNITA does not directly interfere in the affairs of the population. Local government among displaced persons and local inhabitants has a large degree of autonomy. Decisions regarding the daily function of the village are to a large extent determined by the local council of elders, and land and produce is privately owned. However, the considerable dependence of the local population upon UNITA for survival gives UNITA a central role in the lives of the people.

The two associated agencies, LIMA and the SNCVA, the UNITA version of the Red Cross, represent important service vehicles for relief

programs. Although LIMA is organizationally a political structure, it functions primarily as a relief agency, and its representation in the villages enables LIMA to administer distribution of relief supplies and provide information on the status of the population for outside agencies. The SNCVA is less a political organization than LIMA, but suffers from a lack of staff and organization.

IV. LOGISTICS

Logistics are a central concern for all relief efforts in UNITA territory. Both internal and external logistics pose extreme difficulties for delivery of services. At present, the uncertain war and political situations sharply reduce access to populations in need.

Internal Logistics

The southeastern portion of Angola controlled by UNITA has historically been a sparsely populated region with few roads. At present, the war situation excludes the use of even the few existing roads due to the risk of land mines. Overland travel is made along mostly unimproved tracks through the countryside.

The terrain is medium forested, sandy savannah, elevating to approximately 1500 meters. Travel is almost exclusively restricted to all wheel drive two and three axle trucks, since the loose sand of the roadbeds requires all terrain vehicles, and the sand is too deep in several regions to allow for the lower clearances of passenger vehicles. The rate of travel averages 10 to 30 kilometers per hour, and the harsh road conditions reduce truck life significantly. Gearbox replacement is required every six months, and engine overhaul is needed every year.

At present, there are few vehicles available for distribution of relief supplies. Trucks are made available from the motor pool of the General Logistics Directorate, but the needs of the military,

and the routine maintenance of the civilian population burden the system.

Vehicle maintenance is performed at several facilities in the region. The number of facilities is unknown, but the largest is at the major logistics center at Likuwa (Figure II-1, position 9). The facility, which covers several hectares, includes equipment for major repairs with a machine shop to produce a limited number of spare parts from metal stock. There appears to be an adequate number of trained personnel to staff the facility.

The logistics system is restricted by an acute shortage of spare parts and fuel. At the time of the survey, the parts inventory at Likuwa had run out of general maintenance items such as oil filters, and most truck parts were gathered from cannibalized vehicles. Fuel supplies were restricted, and growing shorter since the closure of international land routes. There were adequate fuel supplies for the routine essential services.

In contrast to transport, communication is rapid and efficient. UNITA has established a radio net among the principal resettlement points, and many of the secondary centers. Information passes quickly between sites, and is potentially a useful source for rapid assessment of local conditions.

External Logistics

The civil war negates any access to the region from other parts of Angola for emergency relief at the present time. Since April, 1989, no routine access has been possible by road from other countries. The normal land route through Namibia has been closed, and there is no access currently from neighboring Zambia or Zaire that is open for the transport of relief supplies.

At present the only access for relief supplies is by air from the RSA. The flights are primarily C-47 cargo planes with 3 ton capacities, which make periodic flights for the ICRC. The flights are costly, with freight charges in excess of \$4,000 per ton. The planes currently land at airstrips at Jamba and Likuwa. The airstrips are at least 1,500 meters in length, and reportedly have accommodated fully laden C-130 cargo aircraft. Another airstrip is at Mavinga (Figure II-1, position 6), and a fourth at Naraquina, although this strip is not currently in useable condition.

The airstrip at Mavinga would be the most likely site for entry of relief supplies, as it is more centrally located than the other airfields to the civilian population (Figure II-1). However, Mavinga may pose a security problem due to its proximity to the front lines, and any MPLA military activity in the region may center near Mavinga. At present, the ICRC is considering flights to Mavinga, but these would be restricted to night flights, and not

suitable for large relief aircraft. The airstrip at Naraquina was not seen by the survey team, but UNITA officials stated that it can be made serviceable with little work, and can land C-130 aircraft.

Although there is no movement of relief supplies by land in the quantities needed by the civilian population, the team received information that private companies may be able to arrange land transport to the region. This would markedly improve the likelihood that sufficient emergency relief can reach the population, and should be actively pursued.

Radio communication exists between UNITA territory and other countries. Communication from other countries, including Europe and the United States, is possible, although the lines of communication are slow and inefficient. UNITA allows the ICRC to maintain their own radio for internal and external communication, and would allow other relief agencies to do the same.

Summary

Logistics pose a major problem for relief efforts in the region. Internal travel is slow, and restricted to transport by all wheel drive truck. The growing shortage of fuel and spare parts for existing vehicles assures that the delivery of relief supplies from existing sources will become more difficult.

The closure of land routes to UNITA territory sharply increases the cost of relief efforts. Air transport into the hazardous region is costly, and difficult to schedule. In addition, the quantities of goods required will be slowed independent of cost due to the limits of air cargo capacity, and will hamper any response to future emergency needs. Land transport of relief items should be actively explored.

V. POPULATION ESTIMATES

Estimates of population size in UNITA territory are problematic. The UNITA territory is historically sparsely settled, and little is known of the original inhabitants. Furthermore, the population is widely dispersed, which makes enumeration difficult. The majority of the population is displaced persons, who are continuing to arrive in large numbers. Arrivals are scattered across the region, which makes direct sampling of older and more accessible areas underestimate the actual population. An approximation of the population can be reached through use of area size, population density, proportion of new arrivals, and indigenous population census figures,

Survey Region Population

The surveyed population is estimated to be approximately 126,000 persons. This was determined from locally derived census figures, which is in agreement with observed village size and relative population density (Section II). The surveyed region, however, probably contains considerably more persons than are included in this number. In the more populous eastern survey area, UNITA reports the population is 140,000, twice the size of the population surveyed. The survey team covered approximately half of the territory in the region between the towns of Naraquina and Rivungo (Figure II-1, positions 12 and 18, respectively). Travel through this region revealed the village density to be similar to that of the surveyed area, which is in agreement with the UNITA estimate. In the western region, which is less densely populated, the team covered approximately half of the area, with the population in the Luangundo region not surveyed. This area is reported by MSF to

contain 12,000 people, which is in agreement with the survey results on a population density basis, allowing for the higher concentration of people around the central town. The population in the western region is estimated to be 21,000. In the south, over 70% of the land area was not directly surveyed. This area, however, is less settled, and, if the population density is 20% of the surveyed area, the population is 36,000. In the north, the team directly surveyed approximately 30% of the region. Like the other areas, the principal population concentrations are near the rivers, which cover 70% of the region. Given a similar average village size as in the eastern and western regions (Table II-1), and assuming population concentrations along the rivers are the same as in the surveyed areas, the population in the northern area is 55,000. Thus, the total population in the survey region is estimated to be 252,000 (Table V-1), yielding a population density of 14.0 persons per square kilometer (5.0 persons per square mile).

Total Population

UNITA reports that the current population administered by UNITA is 1,400,000 persons, excluding those outside the territory who are dependent upon UNITA for humanitarian assistance. Throughout Angola, UNITA maintains that they provide assistance to an additional 2,600,000 persons. Independent estimates for UNITA controlled territory range from 200,000 to 1,200,000. These estimates, however, are not based on systematic analysis.

The UNITA controlled territory covers approximately 470,000 square kilometers (170,000 square miles), which is principally the provinces of Cuando Cubango and Moxico (Figure I-1). In this area, 1970 census figures show an indigenous population of 325,000. These numbers, however, include the principal population centers which are under government control, and constitute half the regional population. Thus, the estimated indigenous rural population is approximately 150,000.

UNITA reports that the displaced population is 85% of the total population, which yields a total population of 1,000,000 persons, based upon the estimate of a 150,000 local population. The survey in the eastern and western regions found 19% of the population surveyed to be indigenous persons (Table VIII-2). Although it is not possible to determine whether these numbers are representative, they approximate the UNITA report, and yield a total population of 800,000.

The population density in the survey area, excluding the towns held by the government, is estimated to be 14.0 persons per square kilometer. The 80,000 square kilometers in the survey region is 18% of the estimated total land area under UNITA control. A similar population density across the region yields a total population of 1,400,000.

UNITA reports the displaced population increased by 100,000 persons in 1989, which would represent the total population increase, as increases in the population from births are offset by the high child mortality (Section VII). This yields a population increase of 9%. The survey in the eastern and western survey regions found those arriving in 1989 to be 4% of the total population, and 5% of the displaced, given a local population of 19% (Table VIII-2). Using the discrepancy between the observed and reported rates of new arrivals, and the proportion of the population who are displaced, the estimated population in UNITA controlled territory is 650,000. This analysis, however, is based upon small numbers, and may thus be unrepresentative.

Other sources of population data were gathered from the Secretariat for Economic Planning, which gave information on the age distribution of the displaced population in need of assistance. Table II-2 shows similar age distributions in the survey region and the total UNITA controlled territory, suggesting that the survey region is representative of the regional population.

Summary

The results of the survey, census data, and reports from UNITA give a population in the survey region of 252,000, approximately twice the numbers surveyed. Estimates of the total population of the two provinces UNITA fully controls are between 600,000 and 1,400,000 (Table V-2). Of the methods of analysis used, the estimates derived from census-based data of the local population are likely to be most accurate, since the low estimates based upon the proportion of newly arrived persons uses small numbers, and estimates by population density make assumptions regarding the distribution of the population which may overestimate the population density in areas not surveyed. Thus, it is concluded that the total population is between 800,000 and 1,000,000 persons, of whom 81% to 85% are displaced. The use of the survey data to calculate population estimates is supported by similarities in surveyed and reported age distributions.

UNITA reports that it expects an influx of 100,000 newly displaced persons within the next six months. Although it is not possible to determine the accuracy of this projection, two factors suggest population movement will occur. First, as of December, 1989, the MPLA has declared a drought emergency in the southern Angola provinces of Huila, Cunene, and Mocamedes (Figure I-1), which is confirmed by satellite data. They additionally report drought conditions developing in the fertile and populated central "Planalto" region, the principal farming area of the country. UNITA has also reported drought conditions in Menongue, the northeastern area of Cuando Cubango Province. If severe drought develops in these regions, there will be significant population movement, the majority to UNITA controlled areas as the bordering government

region is dry and inhospitable. Second, new fighting between UNITA and MPLA forces is reportedly imminent. As military activity has been associated with movement of people into UNITA territory, an outbreak in hostilities will result in additional displaced persons. Thus, it is expected that there will be an increase in the population of UNITA territory in the coming months.

VL HEALTH SERVICES

The health care system is the most complex and widespread civilian administration. Health care of some form is provided for all individuals within the region through the system of hospitals and clinics. The system is very short of resources, and focuses on public health and preventive medicine.

Civilian Health Units.

Civilian health care is delivered through four primary levels of health care facilities. These are the central hospital, regional hospital, local hospital, and clinic post. With the exception of the central hospital, the system is hierarchical, and based upon the regional civilian administrative structure. The central hospital is the only health unit that provides services across regional boundaries. Table VI-1 shows the number of health units within the UNITA jurisdiction, and the number surveyed. The total number of units are located within the UNITA region of direct administration, and in "contested" regions.

All inpatient units surveyed had patient censuses of less than 50% of bed capacity. This occurred for two reasons. First, the survey was conducted in October, near the end of the dry season and the time of lowest rates of the principal regional diseases, malaria and diarrhea (Section VIII). For example, at the Kapakala Central Hospital, reported deaths rose 300% between October and March, 1987. Second, the shortage of medicines and supplies left inpatient

units with little to offer patients, and, in these circumstances, people do not use hospital facilities.

Central Hospitals. The central hospital theoretically delivers the highest level of care, conducts health worker training programs, and administers special programs. The central hospital has a minimum capacity of 100 beds, and at least 100 health workers. Most central hospitals have departments of surgery, obstetrics/gynecology, and pediatrics. Surgical procedures performed at central hospitals include appendectomies, hernia repair, caesarian deliveries, laparotomies, and various trauma/war related procedures including limb amputations. Laboratory departments are found at four of the eight hospitals. Laboratory technicians are trained to identify bacterial and parasitic infection by smear and staining techniques from samples of blood, stool, sputum, spinal fluid, and urine. They are also able to perform cell counts, hemoglobin, and simple blood and urine chemistries. The central hospital in Jamba has the equipment for performing bacterial cultures, more advanced blood chemistries, and serology. Jamba further has a unit for determination of chemical weapons exposure. Two of the hospitals have X-ray equipment, and three have electrical power. Although the central hospitals have the expertise to perform diagnostic services, there are few supplies, and most units are nonfunctional.

Obstetrical and pediatric care is essentially the same as at regional hospitals, but unlike the regionals, separate units for pediatric cases are maintained. Two central hospitals have units to manufacture lower limb prostheses, and have rehabilitation services for amputees and other limb-related handicaps. Other units include satellite facilities for treatment of tuberculosis, leprosy, and psychiatric disorders. There are eight central hospitals in UNITA territory.

Public health activities are coordinated from the central hospitals. These include the child immunization and health worker training programs. Child immunization teams are based at each central hospital, and provide services when vaccine is available. The central hospital provides the terminal end of the immunization cold chain. Training include programs in health care and community health, and laboratory technology.

The central hospital also serves as a regional hospital for its immediate surroundings. As such, it directly administers local hospitals and clinic posts.

Allied Units. Tuberculosis is treated exclusively on an inpatient basis. Some cases are treated at central and regional hospital units, but most treatment occurs at two tuberculosis sanitariums. One center at Kapakala was visited by the survey team. The center is located approximately 30 minutes by road from the main village. Seventy-five patients were under treatment, 12 of whom were children.

Patients and their families are provided food and shelter by the health service. The facility is surrounded by farmland, and patients assist when able in providing their own food. All cases seen were pulmonary, and miliary tuberculosis is reported to be rare in the region.

Tuberculosis treatment follows World Health Organization (WHO) guidelines using isoniazid, rifampin, paracetazone, and streptomycin. Treatment protocols are for six months, and extension of treatment is based upon the results of sputum samples taken at two, six, and 8 months. At the Kapakala treatment center adequate drugs were found for daily administration, but supplies were low, and none remained in central stores. No other drugs for tuberculosis treatment were found in the survey region.

Leprosy is treated exclusively at two leprosariums. The one near Kapakala Hospital was visited by the team. The unit is organized similarly to the tuberculosis treatment unit, with 28 patients, six being children. Therapy follows WHO guidelines using dapsone, clofazamine, rifampin, and prednisolone. Treatment for tuberculoid leprosy is one year, and lepomatous is two. As with drugs for tuberculosis, the unit had adequate current supplies, but no reserves, and no planned resupply.

Psychiatric facilities are also maintained by the health service. The unit near Kapakala hospital has 20 adult patients, all of whom are family referrals. The unit is clean, and the patients well cared for. Except for custodial care, there is no treatment for the patients. Food is provided to the unit from surrounding farms.

Two central hospitals at Kapakala and Kamunda have units for the rehabilitation of war injuries and other physical disabilities. The Kapakala unit manufactures and fits lower limb prostheses at a rate of 20 per month. The unit also provides external braces for other disabilities including polio. At present, there is a shortage of material for artificial limb construction, and the waiting period for prosthesis fitting is in excess of nine months.

Regional Hospitals. The regional hospital is the principal unit of health care within the UNITA administrative structure. Like central hospitals, regionals have bed capacities of at least 100 beds, but have less staff, and provide less services. Of the twenty-eight regionals, four have laboratories, and two have electricity. Most maintain departments of surgery, obstetrics/gynecology, and pediatrics. Limited health worker training may also occur. The level of services of all departments, however, is less than at central facilities.

The regional is the principle source of distribution of medicines and hospital supplies to the displaced and local populations. It is responsible for determining local needs, requesting logistical support from central authority, and for distribution of material to

local hospitals and clinic posts within its administration. The regional is required to provide the central authority with monthly health status reports.

The regional hospital administers at least two local hospitals, and directly oversees several clinic posts. As a clinic post administrator the regional functions as a local hospital within its immediate jurisdiction.

Local Hospitals. The local hospital maintains a ten bed inpatient unit, and serves a population of at least 2,000 with a staff of approximately ten. There are no specialized units or departments except for obstetrics, no laboratory, and no health worker training programs.

The local hospital is the lowest administrative level of the health care system. It supervises several clinic posts, is responsible for distribution of drugs and health supplies within its jurisdiction, and compiles statistics from clinical posts for local and central records. The local hospital monitors the quality of health care at clinic posts, with inspections of clinic posts twice monthly. The local hospital reports either to a regional or central hospital, depending upon its location. There are 35 local hospitals in the region.

Clinic Posts. The clinic post is the principle vehicle by which the health system provides services to the widely dispersed population. The clinic post has no inpatient facilities, and focuses upon public health activities, administration of limited numbers of oral and some parenteral drugs, and compilation of local health statistics. Those in need of more services are transferred to hospital facilities. Clinic post personnel assist visiting vaccination teams by organizing local populations and assisting in immunization activities. Clinic posts are administered directly by central, regional, and local hospitals.

Although the clinic post is in general subordinate to a hospital unit and performs no oversight activities, many function as administrative centers due to lack of resources. An example is the clinic post at Naraqina, which serves a population of over 5,000, and maintains six "sub posts" within its jurisdiction.

Health Personnel

The Ministry of Health reports a total of 8,608 health workers within the UNITA administration, of which 4,781, or 55%, are within civilian jurisdiction. Table VI-2 gives the number of civilian health workers by job category. For the entire region, there are four physicians excluding at least two expatriates and physicians from humanitarian aid organizations. The physicians are based in Jamba, and travel to the central hospitals every two to three

months. The physicians function in both military and civilian capacities, and are involved in planning and administration.

The principal senior health officer, the clinician, is a Western trained nurse, typically with many years of clinical experience. Clinicians function as physicians and administrators of the central and regional hospitals, and are adequately skilled for the level of care at the health centers.

The majority of civilian health care is delivered by the medics, health workers who staff the clinic posts and deliver routine care at other health facilities. The medics are locally trained, and all are literate. They are trained to diagnose and treat the principal endemic and epidemic infectious diseases in the region. They provide early prenatal services, and arrange transportation to hospitals for delivery. Other duties include outbreak investigations and epidemic control, and public health education including the proper construction and use of pit latrines, the importance of safe drinking and bathing water, and infant and child nutrition and health. The medics further maintain statistical records for central planning. Medics also perform specialized tasks within the regional and central hospital systems, including prenatal health care and ward attendant duties.

Training. Physicians, clinicians, nurse midwives, and supervisory technicians received formal training in established programs within Angola or abroad. Within the UNITA health system there are eight health worker training schools which provide two year courses for the medics and other technicians. Potential students are selected from local villages and sent to regional centers for elementary training, followed by enrollment in the formal course. The medics receive instruction in elements of anatomy, pathology, pharmacology, first aid, and public health. The current enrollment in these schools is 297.

A modest school of public health has also been established at Kueyo, with 29 students in the two year program. The unit functions to train public health workers in principles of community health and epidemic disease control, and provides the personnel for the child immunization program.

A laboratory training program is offered at the Kapakala Central Hospital. The course provides instruction in basic public health laboratory methods, and follows the curriculum suggested by the World Health Organization for public health laboratories in the Developing World. There are currently 16 students enrolled in the one year course.

In addition to the formal education programs, two to three month upgrading courses are offered in all the technical specialties, and 30 students are currently studying medicine and nursing abroad.

All training programs suffer from a lack of educational materials. Training manuals, visual aids, notebooks, pencils, and other supplies are almost nonexistent. In addition, although the skill level of personnel in general is adequate for the delivery of services, additional training by outside specialists is needed in most areas.

Delivery of Services

Health needs are determined by Health and Social Welfare officials, and are based upon monthly statistical data supplied from the health units. With the exception of mortality statistics, reports are based upon utilization of services. These include numbers of consultations, patient censuses, number of laboratory tests performed, and immunizations. Reports are compiled by age and sex.

The determination of needs are transposed into requests submitted to Economic Planning, which functions to allocate resources among the ministries (Section III). Logistical support is requested by the Department of Medical Logistics from the General Logistical Directorate. Due to the shortage of vehicles and fuel, there is no separate system for civilian needs. Vehicles are assigned based upon specific requests, and, while no separate fuel stores are maintained, Medical Logistics, like other civilian departments, maintains an allocation account within the Logistics Directorate.

Few vehicles are permanently assigned for health services. The number of vehicles is unclear, but it is believed some central hospitals have exclusive use of one vehicle each, and three Toyota Land Cruisers have been procured for the immunization program. The Land Cruisers, however, are of limited use due to the condition of the roads (Section IV).

Health units are supplied with the scarce drugs and medical supplies in the region from the next highest level within a jurisdictional area. Central and regional hospitals supply those local hospitals and clinic posts within their direct administration, and local hospitals in turn supply the clinic posts within their authority. Supplies are distributed to regional and local hospitals based upon needs as determined by reported statistics, and availability of resources. Hospitals often distribute supplies among the clinic posts equally, independent of differences in local needs. At Wefu Local Hospital, for example, the limited drug supply was distributed equally among the seven clinic posts in its jurisdiction, although the posts served a wide range of population, with some posts covering four villages, and others but one.

Health units provide care principally through inpatient and outpatient services. At hospitals an "emergency department" performs outpatient treatment, and acts as the triage unit for inpatient admissions and referrals. The central and some regional

hospitals have specialized outpatient units within their departments, but most hospitals have a single outpatient service. Clinic posts, which have no inpatient facilities, function solely as outpatient units.

Community health occurs at all levels of the health system, and is a priority. Public health education in sanitation and child nutrition occurs in all villages through outreach programs staffed by the medics. For villages with no established clinic posts, health workers visit these sites on a monthly basis.

The child immunization program is based at the eight central hospitals with vaccination teams. Vaccine, when available, is transported to these centers, and the teams travel to local hospital centers and villages with clinic posts for vaccination activities.

Public Health

The clinic post-based public health program involves close and continuous contact with the local population. All surveyed medics reported emphasis upon educating the people in the nature of the spread of disease, the use and construction of pit latrines, maintaining safe drinking and bathing water, proper maternal/child nutrition, and the importance of immunizations. The effect of the education campaign was seen in the village site survey, where every household had access to, and used, a pit latrine, and the latrines were properly constructed and in good repair. It is not known how many families boil their water, but during the maternal survey, the women who were asked reported that they boil water for their sick children.

The close association between the medics and the population was evident during the nutritional survey (Section VIII). Several children were identified with kwashiorkor, severe malnutrition, or acute infections. When a case was identified, one of the medics would immediately note the diagnosis, and take the child and mother into a treatment room for instructions on feeding for cases of malnutrition, or treatment of infections if drugs were available. In cases where there were no drugs, arrangements were made for transfer of the child.

Maternal Child Program

The health system attempts to provide inpatient delivery services to all women. Pregnant women stay in hospital from 7 to 30 days before delivery, and up to 7 days following delivery for uncomplicated pregnancies. In areas with no local hospital, transportation is arranged for the women to attend the local hospital. It is unknown the extent of this practice in the outlying villages, but

the survey found all clinic posts offer these services, and women queried about delivery with new infants reported hospital birthing.

Prenatal care is given by the medics and assistant midwives. The medics are trained to identify complications of pregnancy including acute infections, edema suggesting preeclampsia, and premature labor. Pregnant women are given instruction in prenatal nutrition and child health.

When women attend the hospital for delivery, the family is cared for by the local LIMA organization. LIMA provides cooking and housekeeping services for the family, and custodial care for other small children. Following delivery, LIMA assists the mother in care of the newborn as well as continuing care of the family.

Maternal/child health services are divided among the various hospital and clinic based activities. Nutritional education, and care of healthy and sick newborn are continuous activities. UNITA has identified the need for developing maternal/child health centers, but at present, there is no integrated maternal/child program.

Immunization Program

The immunization program adopts a vertical organizational strategy, with teams based at the central hospitals travelling to villages within their jurisdiction for mass immunization campaigns. The program follows the vaccination recommendations of the UNICEF Expanded Program for Immunization (EPI) in the types of vaccines administered and dosing schedules.

Supplies for the cold chain have been delivered to UNITA by ICRC, and supplied by UNICEF. UNITA received vaccines and injection supplies, four 30 liter solar refrigerators, four cold boxes, a number of vaccine carriers, immunization cards, four Toyota Land Cruisers, and ten motorcycles for the program. It is unclear as to the source of the request.

Although UNITA reports administering vaccine to over 4,500 children and pregnant women, the program has been ineffective. The equipment supplied to UNITA is inappropriate for use in the region. Of the four solar refrigerators, three were seen by the survey teams, and none were working. Additionally, the costly units did not have the refrigeration capacity to satisfy the requirements of the program for storage of vaccine and freezing of cold packs. Other cold chain equipment, including cold boxes and cold packs, were inadequate for the program. The Land Cruisers are used for the program, but have frequent repair needs due to the difficult terrain (Section IV); the motorcycles are unusable.

No educational or training material was supplied. UNITA had no training manuals or associated literature, and there were no experienced expatriate personnel for instruction.

The ineffectiveness of the program is seen in widespread outbreaks of pertussis and measles in the survey region, although vaccination teams have been in these areas (Section VII). In regions where immunizations had been performed, there were few BCG scars seen among children reportedly immunized, supporting the evidence that the cold chain had been significantly violated. Additionally, the ICRC reported, and UNITA confirmed, a widespread outbreak of BCG-associated septic ulcers in the Likuwa area among an estimated 80% of children vaccinated. The survey team also observed BCG-associated septic ulcers in the eastern survey region, where, at the village of Wefu, 10 of 100 BCG-vaccinated children had healing septic ulcers six months after immunizations. UNITA has stated that the cause of the sepsis was a failure of the vaccinators to adequately clean the skin at the site of injection, and that the problem has been remedied by better training of vaccinators. It is more likely, however, that the infection was spread by contaminated material, and it is unknown if, under present circumstances, these problems would not reoccur.

UNICEF has declined to supply any additional vaccine or equipment under present conditions, a decision supported by the survey findings. UNICEF would, however, consider resumption of support for the program if assurances were given that adequate program supervision is available. The concerns of the survey team were discussed with UNITA health officials, and they expressed a desire for training and program design assistance. As vaccine-preventable diseases are a serious problem in the region (Section VII), organizations considering assistance should consider immunization training a priority.

Program for War Disabled

The UNITA Department for War Wounded supervises rehabilitation programs for physically disabled persons, most of whom are victims of the war. The program includes the manufacture and fitting of lower limb prostheses, physical therapy programs for amputees and other handicapped persons, and vocational training. Small rehabilitation units are located at two of the central hospitals, with two large centers at Bionge and Kavaleka (Figure II-1, positions 9 and 8, respectively).

The program resulted from a training project begun by Operation Handicapped International (OHI) in 1984. Approximately 30% of the UNITA prosthetists and physiotherapists were trained by OHI, and the rest were trained by the initial OHI trainees. Since the initial training program, OHI has supplied material and tools for manufacture of artificial limbs.

Examination of amputees receiving both above and below the knee locally constructed prostheses showed adequate manufacture and fit. Amputees were trained in the use of the devices, and those with prostheses for longer than one month were able to wear the units continuously without pain.

Amputees are eligible for fitting 90 days following the last amputation surgery. Candidates wait a minimum of six months for artificial limb fittings due to the shortage of leather, metal stripping, and plaster of Paris for limb manufacture. The waiting time has grown longer since the closure of the borders restricted movement of supplies.

Kavaleka and Bionge have current enrollments of approximately 120 and 825 amputees, respectively. At Bionge, there are additionally 49 visually handicapped, 118 cases of paralysis, and 428 otherwise disabled. Approximately 50% of the disabled are civilians, and 5% are children. The families of the disabled bring the total populations of the centers to over 4,000.

The centers have comprehensive rehabilitation programs. In addition to receiving artificial limbs, amputees and other disabled are enrolled in vocational classes supervised by the Secretariat for Education. At Bionge, 315 disabled are enrolled in programs teaching secretarial skills, carpentry, and other manual arts. General education classes are held with 707 enrollees in grades one through five. A braille training program has begun for visually disabled persons with 56 enrollees. All training programs suffer from a lack of educational material. There are few notebooks and pencils, and no books or typewriters in braille. UNITA health and education officials further stressed the need for instruction in the education of the visually impaired.

Statistical Records

Statistical records are maintained at all levels of the health care system. Clinic posts collect data on vital statistics, number of consultations by age, sex, and problem, and number of referrals. The statistics are reported monthly to the next highest administrative level, which in turn combines the data and reports them onward to the next level, eventually reaching the central authority in Jamba. Hospital units maintain records of service utilization depending upon the services offered. Hospitals with laboratories maintain lists of the number of tests performed by type of test, and results of the tests. Records of hospital deliveries and maternal/child complications are kept, as are admissions by age, sex, reason for admission, and duration of stay.

The compilation of records appears to be thorough, but the use of the information is limited. Compilation of data received by Jamba is slow and inefficient. The survey team found all levels of the

system very cooperative in providing requested information, but difficulties arose in communicating the requests. For example, requests for yearly statistics were rarely understood, and data provided were arbitrary, from the preceding month to the last five years.

Summary

UNITA has developed a sophisticated and comprehensive health care system within its administrative jurisdiction. The structure makes good use of limited resources by providing extended care to the widely dispersed population through small clinic posts with referral units. The emphasis upon public health and community involvement shows a close relationship between health care workers and the local population, and results of this are seen in the cooperation of the population in the maintenance of pit latrines and the boiling of drinking water. The cooperation of the local population received by the survey team during the health surveys is further evidence of a good relationship between the health workers and the public.

The quality of health workers was found to be adequate at all levels of the system. In several areas, notably in the laboratory, rehabilitation of the disabled, and immunization programs, there was a lack of trained personnel. These needs were recognized by UNITA, and assistance was requested.

The immunization program is in need of immediate assistance. Vaccine preventable diseases are a major health problem, and at present the system is not functioning. Health authorities recognize this, and welcome training assistance.

The record-keeping system is in need of improvement. At present, it is oriented solely toward utilization of services rather than population based needs. The system of compilation of statistics needs to be redesigned with the input of outside organizations interested in providing assistance.

Although structurally adequate, the system is grossly undersupplied with essential drugs and equipment, and cannot function to meet the emergency needs of the people. The cost in lost lives is high.

VII. HEALTH STATUS

No population based data are available on health conditions in the region. Data for the survey were collected from reports by health workers on major disease problems, statistics of clinic post and hospital services performed, and mortality data from the maternal survey. Nutrition-related disease is discussed in Section VIII. The most important diseases in the region are malaria, enteric diseases, and vaccine preventable childhood diseases.

Malaria

Falciparum malaria is hyperendemic in the region. All health workers reported malaria to be the most common disease at the time of the survey, although the survey was conducted near the end of the dry season, and represented the lowest annual rate of transmission. The location of the farms and villages near open water contributes to the high malaria incidence, as villages are situated near rivers or in regions of high water tables for agricultural purposes (Section IX), and are mosquito infested.

All health centers reported malaria to be the most common disease. The finding in the maternal survey that 1.0% of all conceptions resulted in miscarriage/stillbirth (see below) is likely the result of the high malaria rate.

Seasonal rates of malaria are reflected in the admission pattern at hospitals. Excluding tuberculosis admissions for the treatment center, Kapakala Central Hospital reports admissions for malaria to have been 28% of all admissions, reaching a peak in February-March, and declining thereafter to a low point in July (Table VII-1). This

is consistent with the seasonal rain pattern beginning in November, and peaking in January-February, allowing a six week interval for increasing mosquito populations.

Health authorities report considerable chloroquine resistant falciparum malaria (CRFM) in the region, with the worst area in the northern survey region near Mavinga (Figure 2-1, position 6). Health authorities report 40% of the malaria is CRFM, and, for severe cases, use quinine exclusively when available. Although it is unknown how this number was derived, reports of malaria among expatriate relief workers taking chloroquine prophylaxis, and WHO information of CRFM in MPLA territory support the belief of significant CRFM in the region.

Malaria among displaced persons is likely to be more severe than in other populations. Many displaced are from the Planalto region of higher elevation and less malaria, and therefore have little partial immunity when they arrive in the region. These individuals are at high risk of recurrent and severe attacks of malaria. This is consistent with the reports of health authorities that virtually the entire civilian population contracts malaria up to four times a year.

Malaria is a particular risk to children in the region. Not only do small children have greater risk of death than adults in general, but the widespread malnutrition (Section VIII) increases the risk of high child mortality. In the child mortality survey, of 336 deaths with a reported cause in the northern and southern regions, 121, or 36%, were attributed to fever and malaria.

The seriousness of the malaria problem is complicated by the scarcity of drugs. In the eastern, western, and southern survey regions the team inspected drug supplies, and counted the amount of chloroquine. With the exception of Jamba, the team found less than 7.5 treatment doses of chloroquine per 10,000 population, and only three treatment doses of quinine in the area.

Diarrhea

Diarrhea and/or vomiting in children are reported as the most common diseases after malaria at all survey sites. It is believed most diarrhea is viral, or malnutrition-associated. Admissions for diarrhea were 17.6% of non-tuberculosis admissions at Kapakala Central Hospital in 1987, with little seasonal variation (Table VII-1). The highest numbers of admissions, 14 and 12, occurred in August and February, respectively.

All health workers know the proper use of oral rehydration solution (ORS) for the treatment of uncomplicated diarrhea, and maintain an active program of community instruction in safe use of drinking and bathing water. However, there is no ORS in the survey region, and

only two centers have sufficient sugar and salt to provide any form of treatment.

Vaccine Preventable Diseases

Measles and pertussis are the most frequently reported vaccine preventable diseases. Thirteen of 16 centers report pertussis is a major problem, and four sites in the eastern and western survey regions reported current pertussis epidemics. At one center (Nangelengue), 80 cases with one death were reported in September, and two centers (Nangelengue and Tumbi) had instituted a public health education program to educate mothers on the mode of transmission of pertussis. In two villages (Kitara and Kapakala), four cases of pertussis were identified among children during the nutritional survey.

Except at Jamba and Kapakala, which maintained a small supply of erythromycin, no drugs for the treatment of pertussis were available in the survey area. In addition, reported rates of pertussis were independent of whether vaccinations had been performed in the area, demonstrating the ineffectiveness of the program.

Measles was reported as a current problem in 4 of the 16 sites surveyed. No measles epidemics were identified, but several reported epidemics in 1987, with Kapakala Central Hospital reporting 27% of total admissions for the year due to measles (Table VII-1). In addition, the child mortality survey found that among 336 deaths where cause of death was reported in the northern and southern regions, 75, or 20.7% were attributed to measles.

With the exception of a polio epidemic reported to have occurred in Kangamba in 1987, no other vaccine preventable diseases were seen.

Other Diseases

Tuberculosis and leprosy are endemic problems in the region, evidenced by the establishment of treatment facilities for these diseases (Section VI). Other endemic problems include pneumonia, onchocerciasis, trypanosomiasis, schistosomiasis, and a variety of parasitic gastrointestinal infestations, with most children showing signs of parasitic infection.

Child Mortality

Infant deaths and births for the region were obtained from UNITA officials. It is unlikely that the reporting intervals are the same for all regions, hence the total numbers do not yield an accurate figure of the infant mortality experience. However, the births and

deaths for each region are from the same time period, allowing an approximation of the mortality rate. The data are listed in Table VII-2. The average infant mortality rate was 7.4 per 100 live-births, with a range of 4.0 to 11.0. Based upon the small numbers, and uncertainty of the comparability of the total births and deaths due to time intervals represented, the total used is an unweighted average.

The results of the maternal survey of child mortality is given in Table VII-3. Mothers reported an average of 2.4 children per family, consistent in all regions except the south, where the number of children was reported to be 4.2 per family. Overall, 51.2% of mothers reported the loss of at least one recognized conception, with the south reporting the lowest proportion experiencing loss (31.1%). Of total recognized pregnancies, 25.4% resulted in death before the 10th year of life, with 15.7% of these dying in the first year. This represents 61.8% of all the deaths. Eighty-five percent of women reported age at death of the children, and among those listed as dying between one and ten years, 93% died at age five or less. The proportion of deaths for all categories except miscarriages and stillbirths was lowest in the south.

Summary

Data from a variety of sources show the population in UNITA territory to be at significant risk of preventable disease and death. The risks are approximately the same in all reporting regions except the south, where child mortality appears to be lower (Table VII-3).

Malaria constitutes the greatest health hazard. There are neither the resources nor the expertise to initiate a prevention program, but the structure exists to prevent a majority of the loss of life. However, at present the necessary antimalarial drugs are absent, and, if not supplied in the coming months, will result in considerable loss of life.

Diarrhea among small children is the second most common disease. In conjunction with reported malnutrition (Section VIII), this is a likely cause of the high infant mortality (7.4%). Local health workers are well versed in the use of ORS for prevention of death from diarrhea, but have none to give to mothers. The supply of ORS would have an immediate impact upon the high rate of child mortality.

Pertussis and measles are constant childhood risks. Ongoing pertussis epidemics were seen by the survey team, with most regions reported problems with pertussis. At the time of the survey, there were no recognized measles epidemics, but reports suggest widespread epidemics in 1987, and mothers reporting causes of childhood death listed measles as the cause in over 20% of the cases. It is

likely that both pertussis and measles will continue to be significant problems in the region until improvements are made in the vaccination program.

The results of the mortality survey show a high rate of pregnancy loss from all causes, with 25.4% of conceptions resulting in deaths. The findings of the survey suggest that most of this mortality is due to the diseases listed above, and is readily preventable.

VIII. NUTRITIONAL STATUS

Childhood malnutrition increases the risk of death from all causes. The rate of malnutrition found by nutritional assessment underestimates the malnutrition in the region (Section II). In addition, the time of year of the survey assures that malnutrition will increase in the coming months.

Malnutrition by Survey Region

Percent malnutrition by survey region is given in Table VIII-1. The numbers are adjusted for the estimated population figures. The rate of total malnutrition in the sample is a population adjusted 41.7%, with the western and northern regions showing the highest rates (52.0% and 50.1%). The lowest rates are in the southern region (25.4%). The rate of moderate to severe malnutrition for the population surveyed was 7.0%, with the highest rate in the western region (17.3%); no moderate or severe malnutrition was seen in the south.

Kwashiorkor was measured in the eastern and western surveys, and are included in the total moderate and severe malnutrition categories, and listed separately. Although moderate to severe malnutrition was 116% greater in the west than the east, the rate of kwashiorkor was 417% greater in the west.

The absence of severe or moderate malnutrition, and the lower rate of mild malnutrition in the southern survey region reflects the greater access of this area to UNITA resources. The villages surveyed were near the principle logistics centers and routes of international commerce. As the oldest area of the UNITA "Republic,"

this region has in general the best health and administrative facilities. The surveyed population, however, is not necessarily representative of the entire population of the region, as it is expected that the farther villages are from the centers at Likuwa and Nova Aurora, the two centers surveyed, the less access the population has to food, agricultural, and health resources. Although the region is sparsely populated, it is likely that the additional 12,000 persons who UNITA reports live within this jurisdiction fall into this category.

Malnutrition by Year of Arrival

The rates of malnutrition were examined by time of arrival by displaced persons versus local villagers in the eastern and western regions for which information was available (Table VIII-2). Rates of moderate to severe malnutrition are positively associated with year of arrival, with arrivals coming in 1989 having rates of malnutrition twice as great as those arriving in 1988 (20.9% and 10.7%). The trend is consistent for those arriving in 1987 (8.7%), and those arriving in 1986 or earlier (3.4%). Indigenous inhabitants have a rate of 14.0%. This association is not seen for mild malnutrition.

The marked increase in moderate and severe malnutrition seen in new arrivals is due to the rate of kwashiorkor (Table VIII-2), which also shows a decreasing trend among arrival from 1989 to 1987; no kwashiorkor was seen in those arriving in 1986 or earlier, or in local inhabitants.

Other variables that show no association with rates of malnutrition are family size, maternal age, child mortality, village size, and number of farm tools. An association between nutritional status and crop loss is discussed in Section IX.

Summary

The already high rate of malnutrition is expected to increase significantly in the coming months. Food reserves are low, and the next months constitute the "hungry season," the time before the first yearly harvest (Section IX). The effect is likely to be most pronounced in an increase in moderate to severe malnutrition. This is illustrated by the effect of reduced foodstocks due to flood damage to crops of greater than 20%, which was associated with a doubling of the malnutrition rate (Section IX, Figure IX-1). It is therefore likely that severe and moderate malnutrition will increase, with focal points of regional starvation being a possibility. A reasonable estimate of the effect of this is that half of the mildly malnourished children will become moderately and severely malnourished, which would increase the rate of moderate to severe malnutrition from 7.0% to 24.1%. This may occur independent

of emergency relief supplies, and, with the shortages developing due to the closure of land access to the region (Section IV), increasing resettlement of displaced persons, and the chance of renewed outbreaks in fighting, regionwide starvation is a possibility.

The high rate of kwashiorkor among arrivals in 1989 is consistent with their presumed diet. Arrivals in 1989 had no harvest of their own, and with the shortage of vegetables and other food sources, existed principally on a diet of maize meal. Crop loss due to flooding principally affects vegetable harvests (Section IX), and any losses this year are likely to increase the rate of kwashiorkor. In addition, UNITA has reported that the population of displaced persons in their territory is increasing by 5% annually (Section V), a figure consistent with the survey results showing 24 of 592 (4.9%) of displaced having arrived in 1989 (Table VIII-2). Thus, rates of kwashiorkor can be expected to increase both in numbers and as a proportion of the population.

IX. AGRICULTURE

Agricultural requirements are the principal consideration for resettlement of displaced persons. UNITA authorities select appropriate sites for resettlement based upon the availability of arable land, water for cultivation and human consumption, and local resources for maintenance of the displaced until they harvest their own crops.

The majority of the population in the two provinces controlled by UNITA are displaced people, who arrive in resettlement areas with what they can bear on their heads and backs. Relocated people are supplied with a plot of land, seeds, tools, and food until the first harvest. Although land is abundant within any relocation area, other agricultural needs are in critically short supply.

UNITA supplies land, seeds, and tools for resettlement, and the community supplies food until new arrivals can provide for themselves. There is an acute shortage of tools and seeds; the community provides seed if available, and tools are used on a shared basis. Village elders administer the relocation, and through the LIMA organization monitor the welfare of the settlers.

Organizational Structure

All agricultural programs and allotments are supervised by the Secretariat for Agriculture, with headquarters at Jamba. The Secretariat maintains regional units which supervise programs in their areas, and distribute material supplied from Jamba. Each village has one to four agricultural extension agents, with three

to ten trained assistants. The agents possess a range of skills, including methods of cultivation and crop selection, water resource management, storage of harvested food, and use of pesticides. These skills, however, are underutilized due to a lack of resources.

Farm Terrain

The soil is very sandy, well aerated, and fertile, but the general terrain of medium forested savannah and limited water supplies restricts the location of farm activities, and, consequently, resettlement.

Each displaced family and local inhabitants are allocated two private plots by UNITA. One plot of 1,000 square meters is located in a low lying area near a river or other open water source, or where the water table is close to the surface and is hand irrigated. The other plot of one hectare is on higher ground and is rain-fed.

The plots on higher ground are susceptible to the vagaries of seasonal rain patterns, but generally produce reasonable yields if proper seed is available. The low-lying area, however, is susceptible to crop loss due to mildly heavy rains as they are proximate to open water sources or very high ground water.

Growing Season

Planting in the rain-fed plots begins in November with the onset of the seasonal rains. The plots produce maize, occasionally inter-cropped with beans, and are harvested once a year at the end of May. These plots are the principal source of grain for the population.

The low-lying, hand irrigated plots yield two crops per year, with the first planting in late August, and the first main harvest in December. Some cabbages and onions, however, ripen by October. The second planting begins in January and is harvested in June.

There is no fertilizer or insecticide, and few farm tools. Seed germination is less than 50% in some areas due to the poor quality of the seed. Maize yields are limited to an average of 900 kg/ha in the hand irrigated plots and 1,700kg/ha in the rain-fed areas. This assumes, however, that there are no crop losses due to weather or other sources.

Crop Cultivation

The majority of agriculture is manual, with hoes being the only farm implement currently in use. Water for plots in low-lying areas is gathered by hand carried buckets, except where rivers allow limited small-plot irrigation. In areas where UNITA maintains farms for the army, there are a limited number of farm machinery which are made available to the civilian farmers.

The principal grain crop is maize, which is grown in the elevated rain-fed plots. Sorghum and millet are also grown in these plots to a lesser extent. In two of the survey areas, rice is cultivated in low-lying areas, as is wheat, although they are not hand-irrigated, and do not contribute significantly to the food supply. One grain crop is harvested per year. Outside of the survey region, UNITA reports that sorghum, potatoes, and cassava are important staple crops.

The most commonly grown vegetables are beans and cabbages, with chinese cabbage, onions, tomatoes, carrots, potatoes, sweet potatoes, peas, ground nuts, cassava, and soy beans under cultivation where seeds are available. All vegetables except for beans are cultivated in the low-lying areas, and harvests begin as early as October and continue until June.

No fruits are grown in the region due to lack of seed. The terrain would support cultivation of fruits such as watermelon and papaya, and farmers expressed interest in growing these crops.

Animal Husbandry and Fishing

Few families have livestock. Food animals such as pigs, goats, and cattle are raised almost exclusively by the indigenous population, and then only rarely. The average cattle herd observed is less than twenty cows, and the two villages where pigs are raised averaged seven pigs per village. Most families attempt to raise chickens, but losses are high from infectious diseases, and there are no infection control programs. Two areas surveyed have oxen for cultivation, but plows and harnesses are lacking or in poor repair.

Fish is a source of food along rivers for the small indigenous population. Fishing is performed by hook and line, and by net. Although fish are abundant in the rivers, fishing is limited by the lack of hooks, nets, and boats. Displaced persons are currently using old truck tire cord to fabricate fishing nets, but the supply of material is limited.

Food Storage

Most types of grain storage facilities consist of elevated round or square structures with mud floors, reed sides, and thatch roofs.

Maize is stored in kernel form or the ear in bulk, but is frequently infested with weevil type insects. Maize storage in sacks is preferred, but a shortage of sacks makes this a rare occurrence. In small villages, maize is stored on the ear in trees at a height of five feet. Little maize is stored as flour, as most maize is hand milled and there is a shortage of bags. Storage of other foodstuffs is a rare occurrence. Small quantities of beans and dried fish are maintained where available, but the general shortage of food supplies leave little surplus for storage.

UNITA maintains large grain storage facilities at Mavinga, Lomba, and Kueyo. These installations are wooden structures and covered with tents or grass. The total capacity of these facilities is 5,000 tons. The storage is primarily for UNITA's military and other needs. However, the facilities could be used for storage of emergency food supplies for the civilian population if necessary.

Seed Supplies

Upon arrival at resettlement sites, displaced persons are given limited amounts of maize and vegetable seeds by UNITA. After the initial allocation, each family relies principally on seed obtained from past harvests. In the past, some seed were provided by humanitarian agencies such as the ICRC, which distributed nine tons for the 1988-1989 growing season.

At the time of the survey there was little seed for the coming planting season. UNITA supplies of maize seed for displaced persons totaled 20 metric tons, less than 1% of regional needs; vegetable seeds totaled less than one half ton. Few locally produced vegetable seeds were available, and most of the maize seed was damaged by infestation. In addition, hybrid maize seed provided to the farmers produces poor secondary yields, further reducing crop yields.

The closure of land access routes to the region in 1989 has severely limited the availability of seed. Existing supplies are to be used for new arrivals, and, based upon estimates supplied by UNITA of 100,000 displaced persons arriving in the next six months, will prove far short of need. No seed is available for existing displaced persons.

Tool Supplies

A lack of basic agricultural tools is a significant impediment to the amount of cultivation among displaced persons. The family survey found approximately one hoe per three working adults (Table IX-1). The shortage of hoes leads to their serial usage, with one family member working the field at a time. Interviews with farmers consistently listed agricultural tools as a primary need; farmers

reported that if given an adequate tool supply, food production would increase. In addition to hoes, machetes and axes are almost nonexistent among displaced persons, and were requested to assist in clearing land, construction, and gathering firewood.

At present, there are no external sources for agricultural tools. The supply from UNITA is extremely limited, and reserved for newly arrived persons. Small numbers of hoes and axes are being fabricated at workshops and technical schools, but the numbers meet less than 1% of the need.

Diet

The diet is limited principally to the amount of food grown by individual families, and there is little trading of food except within a village. New arrivals and those with inadequate supplies receive maize donations from the local village when available.

The principal food is boiled maize meal, eaten twice or three times per day. When available, vegetables are added to the diet, but the loss of vegetable crops in the hand-watered plots this year from flooding reduce their availability. Along the rivers, fresh and dried fish is a major food source. There is little meat, and no oil or fruits.

Food Security

Food security in the context of the regional needs is virtually nonexistent. At the time of the survey, all regions reported little food reserves. A limited amount of cabbage, chinese cabbage, and onions cultivated in the hand watered plots were ready for harvest. Maize from the last harvest stored in quantities greater than one cubic meter were infested with insects.

The low-lying plots are susceptible to crop loss from the rains and flooding. A family survey conducted in nine villages in the western region found that of 155 respondents, 46, or 29.7% (31.4%, adjusting for population) reported a shortage of food due to flood-related crop loss (Table IX-2). Reports of crop loss were from both areas located along open water courses and those with no open water but high water tables. The losses were almost exclusively from the second planting.

Flood Damage and Malnutrition. Significant crop loss was reported due to flooding. However, this does not mean that the past rain season was exceptionally heavy. The necessity of planting near open water or in areas with high ground water results in flooding with moderately heavy rains, and it is likely that crop loss due to excessive ground water will continue to be a yearly risk.

Crop loss due to floods during the last growing season significantly affect food reserves. The survey found food to be in very short supply across the survey region before the start of the "hungry season", the period from November to December before the first harvests. The importance of flooding upon the nutritional status of the population is seen in Figure IX-1. In villages reporting greater than 20% crop loss due to floods, 19.0% of children surveyed were moderately or severely malnourished, compared with 9.3% for those with little or no crop loss. This difference is not seen in the percent of total malnutrition, which is similar in both groups (50.9% and 51.9%). Comparison of rates of malnutrition by village size, geographical location, family size, number of field workers per family, and number of farm tools did not show this association.

These data suggest that the significant likelihood of flooding in the region poses a continuing nutritional risk to the population. The finding that the flood loss had no impact on the proportion of total malnutrition illustrates the fragile nutritional status of the population. As of October, 1989, villages reporting flood loss had 270% greater rates of moderate and severe malnutrition, although the total malnutrition was the same. This is consistent with decreasing food supplies, where mildly malnourished children are affected first, becoming severely malnourished, with adequately nourished children following later as food supplies diminish. As the population enters the "hungry season" of November to January, it is therefore expected that the rate and severity of malnutrition in the flood areas will increase, as well as the proportion of total malnutrition. The flood survey was not conducted in other regions. However, farmers reported flood damage in several areas in both the northern and eastern surveys.

Commerce

There is almost no commerce practiced by displaced persons. UNITA maintains a mobile trading system whereby farmers can exchange surplus food for consumer items such as cloth, clothing, shoes, radios, and batteries. Food scarcity leaves little for exchange, and the supply of consumer items in UNITA shops is limited. Thus, trading occurs infrequently due to the lack of goods for exchange by both farmers and UNITA, and the system has little impact upon the population's needs.

Commerce among displaced persons is also limited. Produce is often exchanged within a village, but no commerce occurs between villages. In the village of Wefu (Figure II-1, position 13), which is along a major river, the population has surplus dried fish which could be used for trading. However, no trading with neighboring villages occurs, although there is continuous contact.

In nine villages in the western survey region, one reported surplus food for trading. Food was exchanged almost exclusively for cloth and clothing, which illustrates the shortage of these supplies, and the lack of alternative trading goods.

Summary

Displaced persons have developed a functional system of subsistence agriculture in UNITA-controlled southern Angola. The disbursement of land and methods of delivering goods and services developed by UNITA is adequate, given the terrain and needs of the population. The needs of the population, however, are not being met, principally due to a shortage of supplies.

Although land for cultivation is abundant, the shortage of seeds and tools limit farming, and reduce productivity. The finding of less than one hoe for two working adults, and no other farm tools, leaves little chance for increasing food production under current circumstances.

Farming practices result in significant crop loss due to flooding. A direct effect of this is seen in moderate to severe malnutrition rates 104% higher in villages surveyed in which greater than 20% of respondents reported loss of crops due to floods. This illustrates the fragile condition of the food supply, and the lack of significant food reserves.

The flood damage is not likely to be an unusual event, since the nature of the terrain requires planting in areas near high water sources. Thus, it is probable that flood damage will be an ongoing occurrence, and addressed only by increasing production to allow for the loss.

However critical the current agricultural status of the population, it is likely to worsen. The survey was conducted before the start of the "hungry season," the months immediately preceding the yearly harvest, and malnutrition will increase in the immediate future. Newly displaced persons are arriving, with additional demands placed upon food reserves and agricultural resources. The restriction on land access from outside the region begun this year decrease the amount of agricultural supplies and increase the cost of transport to the extent that the coming harvest may be less than the last, and shortages more acute. Recent reports of drought in both MPLA and UNITA territories may lead to even greater shortages, as does the specter of a resumption of hostilities. Without additional agricultural inputs from outside sources, emergency food aid will be required to limit starvation.

X. OTHER FINDINGS

After the need for agricultural and health supplies, all respondents in the survey reported clothing and blankets to be the top priority. Displaced persons arrive with little or no resources or extra clothing, and except for limited distributions, have received no clothing or blankets. In all survey areas, the population was seen to be clothed in little more than rags, and few had blankets. The lack of clothing and blankets is felt most acutely following the end of the rainy season, and the beginning of cooler weather in May.

Water was plentiful in most settlement areas, as the demands of agriculture required settlements near water sources. Agriculture was limited, however, by the lack of simple irrigation supplies such as buckets or hand pumps. In certain areas water for human consumption was difficult to obtain. In Mavinga (Figure II-1, position 6), women reported travelling up to two hours for potable water, and the scarcity of buckets increased their difficulties.

Although most regions report plentiful water, the widespread reports of diarrhea suggest contamination of water for drinking and bathing. Health officials maintain an active campaign for boiling drinking water and positioning bathing areas which do not contaminate supplies. The success of the health campaign is unknown, but the importance placed upon it at all levels of the health system suggests that the contaminated water problem is mitigated by public health activities.

XI. RECOMMENDATIONS

Recommendations for emergency humanitarian assistance to civilians in Moxico and Cuando Cubango Provinces of Angola are based upon three findings. First, there is an urgent and immediate need for emergency assistance to the population. Second, the UNITA authorities welcome and encourage the assistance of outside agencies, including PVOs, and would facilitate positioning of their personnel in the region. Third, a good organizational structure exists for outside agencies to help satisfy the principal emergency humanitarian needs of the population.

The relief effort might best be accomplished by a consortium of PVOs and other agencies with coordinated programs. This is more desirable than a single agency, as the size and scope of the operation would benefit from participation of several groups with a variety of expertise and capabilities. The extreme logistical situation requires that all agencies work closely together.

The recommendations are based upon the needs of a population of 160,000 for one year. This includes a base population of 130,000, the number in the region directly surveyed, and 30,000 expected new arrivals. The numbers in need are considerably greater than this, but it is believed that attempting to cover a greater number of people in the first phase of the relief operation would delay emergency operations unacceptably, and, given the logistical difficulties, jeopardize relief efforts. A comprehensive listing of the needs of the entire population has been supplied by UNITA to the OFDA, and is available from that office. These needs, however, are unconfirmed by independent sources.

The assessment found that the principal needs of the population can be met through the distribution of relief supplies. The findings that the region possesses a well organized and committed administrative structure reduces the need for expatriate field personnel to deliver goods and administer programs. The primary need is therefore the delivery of goods, development of a distribution system using existing structures, provision of monitoring services, and continuing needs assessment in the volatile environment. Specialty training programs are also needed, but, with the exception of the child immunization program, do not fall within the emergency relief category.

It is important that expatriate personnel stationed in Angola have fluency in Portuguese or Spanish. Portuguese is the principal western language spoken, and, except for senior personnel, few know English. For short term specialty training programs, however, English is acceptable.

Collaborating Institutions

The political conflict in Angola creates additional difficulties for outside humanitarian aid organizations. It is necessary to provide assistance with the assurance that aid is not diverted for other than intended purposes, and that the aid is not used for political advantage. The nature of the conflict is such that no aid can be given to either side without some violation of these principles, but the use of strict monitoring procedures, and the use of local organizations outside the primary governmental structure as collaborating agencies reduces these problems.

Two indigenous organizations are appropriate for liaison with PVOs. These are the local Red Cross (SNCVA) and the woman's organization, LIMA. The ICRC uses the SNCVA as its partner agency in the region, but the SNCVA lacks the internal structure to effect a broad-based relief operation. Although LIMA is a political entity on the administrative level, it is locally based, and provides humanitarian assistance at the village level. Thus, the LIMA structure allows participating organizations to collaborate with a single agency for distribution and monitoring of relief supplies. UNITA representatives have pledged to support either organization chosen as a partner agency.

Administrative Assistance

The internal administrative structure is capable of supplying the necessary administration for distribution of supplies. The various Secretariats have excellent capabilities for record keeping and coordination, and have pledged full cooperation to satisfy the requirements of outside agencies. However, the political sensitivity of relief efforts requires strict monitoring procedures to

preclude the possibility of inappropriate use of relief funds. Participating agencies should develop a uniform reporting methodology for UNITA that is used by all agencies, and assist UNITA to implement the system.

Logistical Requirements

Internal Logistics. All equipment required for distribution of relief supplies, including vehicles, fuel, and support for field staff except for shelter must be provided by participating agencies.

Travel within the region requires all wheel drive vehicles. The most used and serviceable are Magerius-Deutsche two axle trucks, and the smaller Mercedes-Benz Unimogs. Three axle trucks are also used, but will have difficulty in reaching some of the less accessible distribution points. All fuel and spare parts for the vehicles must be provided by participating agencies, but service will be provided locally. Passenger vehicles have limited utility, but can be used by field staff around the major centers.

A total of six trucks of both the two and three axle types are recommended for the movement of the estimated 1,000 tons of relief supplies. The two axle Magerius trucks have a gross capacity of 7-8 tons in these conditions, and the three axle trucks carry approximately 12 tons. The Unimog is not recommended for this operation.

Internal communication is by radio. UNITA maintains an excellent radio network throughout their territory which can be used for relief purposes. In addition, outside agencies can use their own radios if needed.

External Logistics. Transport of relief supplies may be restricted to airlift from the RSA. Currently serviceable airstrips in the territory which can accommodate aircraft appropriate for relief efforts are at Mavinga, Likuwa, and Jamba (Figure II-1, positions 6, 11, and 10, respectively). All three positions have facilities for fuel and supply storage, as well as accommodations for personnel. Mavinga is the most centrally located site for relief efforts, but the risk of military conflict in the area threatens any relief effort. It is therefore recommended that Likuwa, the principal logistics center of the region, be used as the point of embarkation for relief activities.

The cost of the external transport is best reduced by organization of a single airlift program to position all supplies at a base of operation, followed by the distribution over an extended period. UNITA will provide warehouse and fuel storage facilities at the site chosen by participating agencies.

The transport of fuel to the region is a major proportion of the relief airlift. Relief trucks can be expected to consume 1 liter of diesel fuel per kilometer, and, with an estimated need for six trucks covering 2,000 kilometers per month each (2,500 liters), and two passenger vehicles requiring 250 liters per month each, the total fuel requirement for one year is 186,000 liters, with a net weight of 780 tons.

The cost and time required for air transport of needed supplies makes it imperative that all possibilities for utilizing ground transport supplies from neighboring countries must be explored. Efforts should focus on obtaining permission from neighboring countries for the passage of aid, and identifying private companies with the wherewithal to transport supplies.

Communication with support bases outside the region is possible by radio. UNITA has agreed to allow outside agencies to maintain independent radio communication with external bases.

Health Requirements

The three most immediate needs are antimalarial drugs, ORS for childhood diarrhea, immunization program training and supplies, and general health supplies. Based upon a 133% estimated attack rate in the coming rainy season, 2,000,000 250mg tablets of chloroquine (200,000 doses), 100,000 300mg tablets quinine (3,000 doses), 5,000 units IV quinine and sending material, and 500,000 ml chloroquine pediatric syrup is immediately needed. A supply of 250,000 individual packets of ORS will satisfy the immediate need for treatment of diarrhea. These estimated needs are for the immediate three months of the rainy season, with an equal amount needed for the remainder of the year.

The needs for other essential medical supplies follow the contents of the WHO Basic Emergency Kit for populations of 10,000 for three months. Estimates for these drugs and supplies are based upon a population of 40,000, as most people in the region do not have routine access to the hospital centers. This results in a requirement of the equivalent of 16 kits for the coming year. In addition, oral antibiotics such as penicillin, ampicillin, tetracycline, sulfa compounds, and erythromycin are used by medics, and can be supplied for use within the population. Other needs for leprosy and tuberculosis treatment are not included in this report.

Child immunization programs are an immediate need. At the present, the failure of the existing system precludes the provision of additional supplies. A program providing appropriate program supplies and training is necessary before immunizations can be resumed, and this should be considered a priority.

Nutritional Requirements

Both bulk and supplemental food supplies would be of value to the population. The findings of significant kwashiorkor and malnutrition in young children, and the certainty that food supplies will grow shorter in the coming months demonstrates the need for immediate food relief. In addition, reports of drought in the region, and the restriction of seeds and tools for the coming planting raises the possibility of a worsening situation, and may produce mass starvation. With the current logistical situation, however, providing large quantities of food aid is not possible. It is suggested that quantities of high nutritional supplements for 30,000 children be positioned to provide emergency supplementation as needed.

Agricultural Requirements

It is not possible to supply agricultural support to improve the coming harvest. However, supplies must be received, and distributions begun by May to affect the 1990-1991 season.

Seed Requirements. Seed requirements are based upon an average family cultivation area of one hectare for the rain-fed plots and 1,000 square meters for the hand irrigated plots, and seed requirements of 16-22 kg per family of maize seed, and 250g per family of assorted vegetable seeds. The total required for 30,000 families is 600 metric tons maize seed, and 7.5 tons vegetable seeds.

Tool Requirements. Recommendations for tool supply are based upon the provision of one hoe for each working adult, and, with an average of one hoe per family found in the survey, an additional 40,000 hoes are needed. This estimate allows for error in survey results and new arrivals. In addition, it is recommended that 5,000 machetes and a similar number of axes be distributed on a village basis, and 30,000 20 liter buckets for use in hand irrigation should be provided.

Other Agricultural Requirements. Significant loss of stored food and seed occurs from insect infestation. Backpack pump sprayers with A.I.D. approved pesticides would increase the total food supply. Agricultural extension agents are trained in the proper use of pesticides, but any donation of material would require confirmation of proper use before general distribution. Two hundred pump sprayers, two per village, are needed with a commensurate amount of pesticide.

Fishing is potentially an important food source throughout the region. A scarcity of fishing supplies, however, limits this activity. The provision of fish nets, lines, and hooks would allow

additional food for local consumption and trading within the population. An initial distribution of 100,000 hooks and 500,000 meters of fishing line would accommodate 10,000 fishermen.

Blankets and Clothing

A total of 160,000 blankets, or one per person, is required. Clothing is also needed for the total population, which includes clothing for 31,200 adult males, 54,400 adult females, 14,400 males age 10-16 years, 17,400 females age 10-16 years, 13,600 males age 3-9 years, 15,500 females age 3-9 years, and 8,100 males and females age 0-2 years.

Other Recommendations

In addition to the relief effort, additional assessment is needed in regions not covered by the survey. A program to expand the assessment area and provide information on the needs of the entire population is required. In addition, future assessment should provide a monitor of the region for the changing needs of the population, and develop a system for timely reporting of the information. Special attention should be given to areas where there is reports of floods or drought, or where there is military activity creating population displacement.

Programs in health and agriculture designed to reduce the emergency needs of the population are needed. These include assistance in methods of food storage and preservation, the use of pesticides in agriculture, provision for expanded laboratory and other health-related services, and programs for the training of the war-related disabled.

XII. CONCLUSION

This report provides the results and recommendations of a comprehensive assessment of the conditions and needs of the civilian population in two extremely isolated provinces of Angola. The report highlights the extreme difficulties faced by the population, and the potential for increasing loss of life due to disease and famine. Considering the needs of the population, and the humanitarian concern of the international community for innocent life, this tragedy is preventable. Yet, without the assistance of both sides in the conflict, aid may not reach enough of the civilian population to prevent a continuation of this terrible tragedy.

The present state of affairs does not have to be a fact of life. In 1988, the United Nations developed a protocol agreeable to both sides in the conflict in Sudan which allowed humanitarian aid to reach civilians on both sides of the fighting. Operation Lifeline/Sudan saved the lives of countless thousands.

The Lifeline experience demonstrates that humanitarian assistance can be removed from political disagreements in times of great need. The principle of the neutrality of humanitarian aid in times of conflict holds what is the only hope for thousands of civilians affected by the Angolan civil war. The following proposals are based upon this principle.

1. Both the MPLA and UNITA are urged to enter negotiations for the movement of relief supplies across their lines by neutral agencies. Each side should retain the right of inspection, receive documenta-

tion of the type and amount of material transported, and assurances that the distribution of the material is proper.

2. Both sides should agree upon "corridors of tranquility", routes through their territory that are to be used for humanitarian relief, and that are immune from attack.
3. Both sides should provide escort through their respective territories, and provide humanitarian organizations with assistance in identifying military hazards such as road mines.
4. The MPLA should not discourage the flow of humanitarian aid from bordering countries to UNITA territory.
5. UNITA should allow the reopening of segments of the Benguela railway through territory it influences for the use by neutral third parties.
6. The international community should exert its influence to demand both sides accept a declaration of humanitarian principles. The United Nations should lead this endeavor, having demonstrated its success in the Sudan conflict.

The uses of disease and starvation among civilian noncombatants as weapons of war should never be tolerated by civilized men and women. A failure of the international community to demand that the warring parties in Angola allow the civilian population the right to survival is an abrogation of responsibility by those who claim nonpartisan concern.

XIII. Figures and Tables

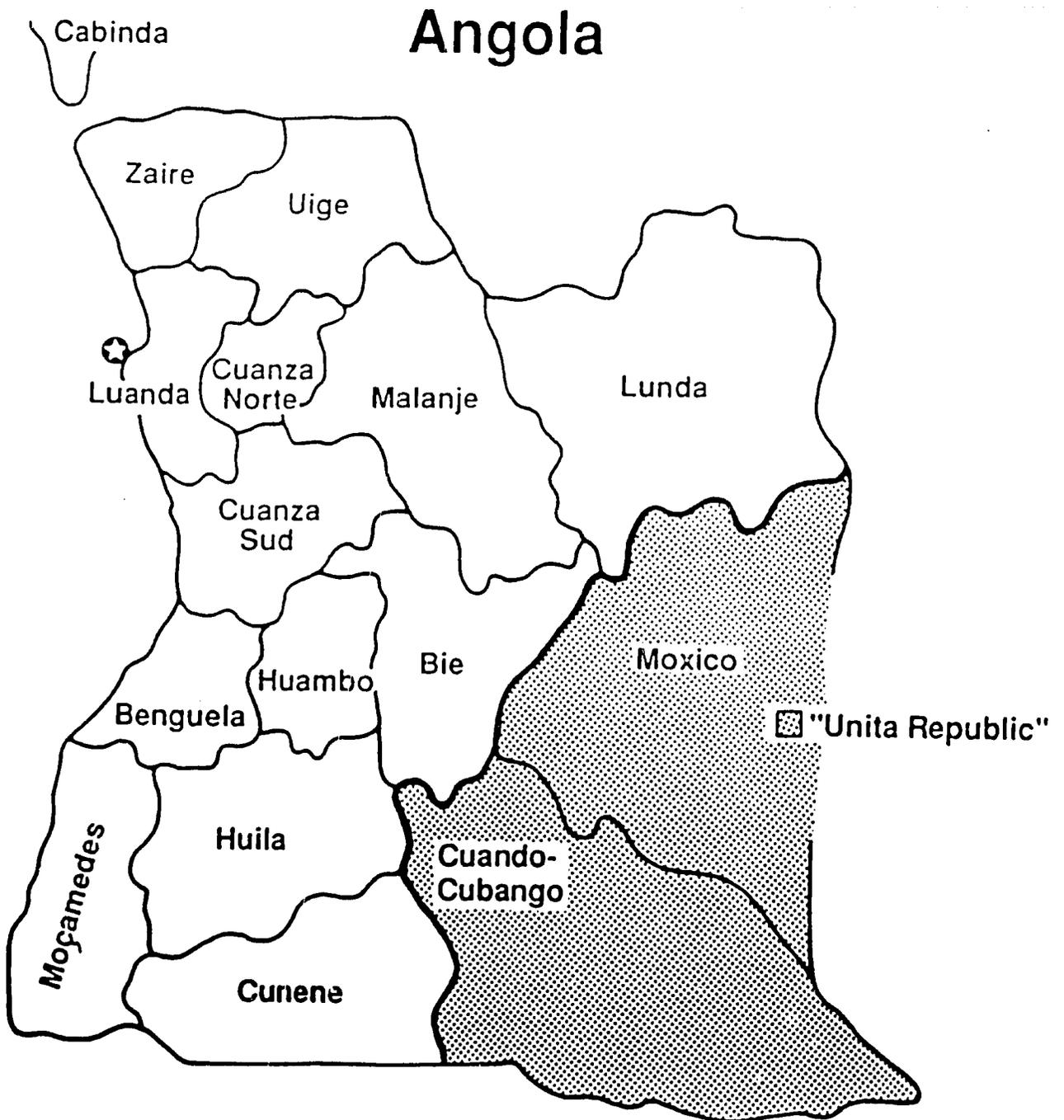


Figure I -1 Unita Controlled Angola

"Unita Republic"



Figure II -1 Survey Positions

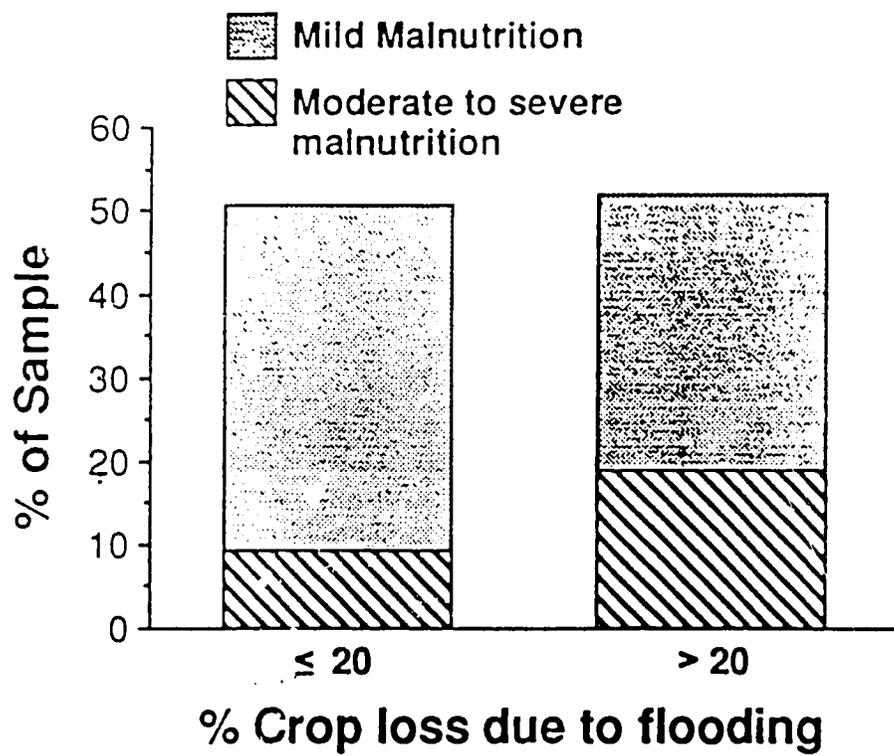


Figure IX-1 Percent Malnutrition by Crop Loss Due to Flooding

TABLE II-1. POPULATION BY SURVEY REGION AND VILLAGE GROUPS

<u>Position</u>	<u>Population</u>	<u>Village Groups (surveyed)</u>	<u>Population/ Village¹</u>
<u>Northern Region¹</u>			
Mavinga	12,500	8 (8)	1,560
Muie	4,500	5 (5)	900
Cangamba	4,000	1 (1)	4,000
Porto Rico	4,000	1 (1)	4,000
Total	25,000	15 (15)	1,670 *
<u>Southern Region</u>			
Jamba	9,000 ²	12 (1)	750
Likuwa	12,000 ²	15 (6)	800
Nova Aurora	3,400 ¹	5 (1)	680
Total	24,400	32 (8)	763 *
<u>Eastern Region³</u>			
Naraqaina/Chilenga	8,650	22 (6)	390
Wefu	11,900	7 (7)	1,700
Kapakala	6,000	1 (1)	6,000
Katombela	5,800	1 (1)	5,800
Chiluongo	3,900	1 (1)	3,900
Rivungu	8,700	5 (0)	1,740
Chilembo-Chuti	7,800	9 (2)	820
Nangulengue	4,600	7 (1)	660
Kitara-Kitaha	6,800	5 (2)	1,360
Bionge	3,400	1 (0)	3,400
Chisika	2,300	1 (1)	2,300
Total	69,850	60 (22)	1,160 *
<u>Western Region³</u>			
Kanga	600	1 (1)	600
Fulay	1,000	1 (1)	1,000
Makovo	1,400	1 (1)	1,400
Keyeye	1,300	1 (1)	1,300
Kandombe	2,000	1 (1)	2,000
Tumbi	800	1 (1)	800
Muzaza	1,900	1 (1)	2,300
Wazeke	2,300	1 (1)	2,300
Total	11,300	8 (8)	1,400
Survey Total	26,550	115 (53)	1,100 *

Date Source: 1. UNITA central records
 2. Medicins Sans Frontiers
 3. Local census

* Weighted average

TABLE II-2. POPULATION BY AGE IN SURVEY AREA AND UNITA TERRITORY

	<u>Under 15 Years (%)</u>	<u>Over 15 Years (%)</u>	<u>Total (%)</u>
Survey Region	34,045 (42.3)	46,485 (57.7)	80,530 (100.0)
Unita Territory	506,500 (41.1)	726,430 (58.9)	233,000 (100.0)

TABLE V-1. ESTIMATED SURVEYED AND REGIONAL POPULATION

<u>Survey Region</u>	<u>Surveyed Population</u>	<u>Regional Population</u>
East	70,000	140,000
West	9,000	21,000
North	21,000	55,000
South	25,000	36,000
Total	125,000	252,000

TABLE V-2. POPULATION ESTIMATES FOR UNITA CONTROLLED ANGOLA

<u>Source of Data</u>	<u>Population</u>
UNITA Derived Statistics	1,400,000
Estimate from Surveyed Population Density	1,400,000
Estimate from UNITA on Local Population	1,000,000
Estimate from Surveyed Local Population	800,000
Estimate from Surveyed New Arrivals	650,000

TABLE VI-1. SURVEYED AND TOTAL NUMBER OF UNITA CIVILIAN HEALTH UNITS

	<u>Surveyed</u>	<u>Total</u>
Central Hospitals	2	8
Regional Hospitals	2	28
Local Hospitals	9	35
Clinic Posts	8	656
Total Health Facilities	21	727

TABLE VI-2. CIVILIAN HEALTH WORKERS BY JOB CATEGORY
IN UNITA CONTROLLED TERRITORY

<u>Category of Health Workers</u>	<u>Number</u>
Physicians	4
Clinicians	150
Medics	3,750
Nurse Midwives	50
Midwives and Assistants	420
Public Health Officers	89
Dental Technicians	35
Laboratory Technicians	56
Surgery, Anesthesiology, Radiology, Pharmacy, and Other Technicians	65
Prosthetists and Physiotherapists	106
Total	4,781

TABLE VII-1. ADMISSIONS BY CAUSE, AND MONTH OF ADMISSION EXCLUDING TUBERCULOSIS AT KAPAKALA CENTRAL HOSPITAL FOR 1987

<u>Cause of Admission</u>	<u>Jan</u>	<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Jun</u>	<u>Jul</u>	<u>Aug</u>	<u>Sep</u>	<u>Oct</u>	<u>Nov</u>	<u>Dec</u>	<u>Total</u>
Malaria	19	12	22	15	19	9	4	10	7	9	11	10	147
Measles	16	27	27	8	3	5	6	3	19	19	1	8	141
Diarrhea	11	12	1	8	5	4	4	1	1	12	11	9	92
Pneumonia	8	7	11	3	5	2	1	6	9	5	3	3	63
Malnutrition	-	1	3	3	10	-	1	1	2	2	1	2	27
Other	1	3	9	2	1	-	2	9	4	7	3	10	51
Total	55	62	73	39	43	20	18	43	42	54	30	43	521

TABLE VII-2. INFANT DEATHS, LIVEBIRTHS, AND MORTALITY RATE BY REGION
IN UNITA TERRITORY

<u>Region</u>	<u>Livebirths</u>	<u>Deaths</u>	<u>Rate/100 Livebirths</u>
Jamba	638	35	5.5
Likuwa	120	8	6.7
Wefu	100	4	4.0
Cuando	18	2	11.0
Kueyo	53	5	9.4
Muie	40	3	7.5
Kakonda	660	40	6.1
Luangundo	199	14	7.0
Etalangala	386	35	9.1
Total	2,214	203	7.4 ¹

1. Unweighted average

TABLE VII-3. CHILDREN PER FAMILY, LIVEBIRTHS, AND CHILD MORTALITY AS A PERCENT OF CONCEPTIONS BY SURVEY REGION

Region	Population	Village Groups	Sample Size	Children/ Family	% of Livebirths	% with Loss	% Mortality ¹			Total
							<1 yr	1-10 yrs	Miscarriage/ Stillbirth	
North	25,000	16	233	2.4	1,809	46.0	12.7	1.8	2.6	17.1
South	3,400	1	93	4.2	246	31.1	4.5	6.3	0.9	11.7
East	57,750	20	301	2.6	780	54.7	17.8	8.6	0.7	27.1
West	11,300	8	135	2.7	365	54.4	15.1	9.9	0.9	25.9
Total	97,450	45	1,282	2.4	3,200	51.2	15.7	8.5	1.2	25.4

76

1. Population adjusted average

TABLE VIII-1. MALNUTRITION AS A POPULATION ADJUSTED PERCENT
OF SAMPLE BY SURVEY REGION

<u>Region</u>	<u>Sample Size</u>	<u>Population</u>	<u>Number of Villages</u>	<u>% Nourished</u>	<u>% Mild Malnutrition</u>	<u>% Moderate/ Severe Malnutrition</u> (Kwashiorkor)	<u>% Total Malnutrition</u>
North	569	2,500	15	49.9	44.5	5.6 (- ¹)	50.1
South	116	15,400	2	74.6	25.4	0.0 (- ¹)	25.4
East	470	55,400	19	60.2	31.8	8.0 (0.6)	39.8
West	159	8,700	5	48.0	34.7	17.3 (3.1)	52.0
Total	1,314	104,500	41	59.1 ²	34.2 ²	7.0 (1.0 ²)	41.7 ²

1. Not recorded
2. Population adjusted

TABLE VIII-2. NUTRITIONAL STATUS BY YEAR OF ARRIVAL FOR EASTERN AND WESTERN SURVEY REGIONS

<u>Year of Arrival</u>	<u>Sample Size</u>	<u>% Nourished</u>	<u>% Mild Malnutrition</u>	<u>% Moderate/ Severe Malnutrition</u> (Kwashiorkor)	<u>% Total Malnutrition</u>
1989	24	45.8	33.3	20.9 (16.7)	54.2
1988	121	61.2	28.1	10.7 (1.7)	38.8
1987	161	49.2	41.6	8.7 (1.2)	50.8
1986-80	177	58.7	37.9	3.4 (0.0)	41.3
Local	114	48.3	37.7	14.0 (0.0)	51.7
Total	592	53.9 ¹	37.0 ¹	9.1 (1.9) ¹	46.1 ¹

1. Sample weighted average

TABLE IX-1. POPULATION WEIGHTED AVERAGE OF FAMILY SIZE, WORKERS PER FAMILY, AGRICULTURAL TOOLS PER FAMILY, AND TOOLS PER AGRICULTURAL WORKER IN WESTERN SURVEY REGION

Number of Respondents (Villages)	155	(9)
Population (Village range)	13,702	(577-2302)
Mean Family Size (Village range)	4.9	(4.3-5.3)
Mean Workers per Family (Village range)	2.4	(2.0-2.8)
Mean Tools per Family (Village range)	1.1	(1.0-1.3)
Mean Tools per Agricultural Worker (Village range)	0.4	(0.4-0.5)

TABLE IX-2. REPORTED CROP LOSS DUE TO FLOODING IN WESTERN
SURVEY REGION BY VILLAGE GROUP

<u>Village</u>	<u>Sample Size</u>	<u>Village Population</u>	<u>% Reporting Flood Loss</u>
Candombe	25	2,012	52.0
Keyeye	12	1,304	0.0
Makovo	13	1,437	0.0
Tumbi	25	817	32.0
Kuandu	20	2,253	75.0
Waseke	15	2,302	33.3
Mizaza	15	1,974	20.0
Kanga	15	577	0.0
Fulay	15	1,026	13.3
Total	155	13,702	29.7 (31.4 ¹)

1. Population weighted average