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Environmental Assessments Project

Section I Part G  
VOLUME THREE :

Health Sector Assessment  
Republic of Upper Volta

HEALTH SECTOR ASSESSMENT

REPUBLIC OF UPPER VOLTA

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May 1977

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I. BACKGROUND

A. FRAME OF REFERENCE FOR PRESENT STUDY

1. Introduction

In carrying out the Health Sector Assessment in Upper Volta, the team was guided by the basic objectives in Appendix A of Contract No. AID/Afr-C-1253 and the scope of work established by APHA for the team dated 17 January 1977. The broad mission was directed toward ascertaining the situation within the health sector as follows:

- a. The nature and extent of health problems.
- b. The adequacy of health infrastructure to meet health needs.
- c. Manpower availability, requirements, and training needs.
- d. Suggested approaches to meet deficiencies within present constraints.
- e. Prepare ourselves to assist the mission in formulating a basis to identify good possibilities for project activities within the context of regional and long term programs.

In the Mission concurrence for the study (State 017167), it was considered to be an analysis of Health Structures,

Health Problems and Policies, Manpower, Nutrition and Population Factors, and to give results in the form of recommended strategies for the health sector. The setting within the Government of Upper Volta (GOUV) for a special team to study the health sector was laid in a letter from the Country Development Officer (CDO) to the Minister of Health dated 10 July 1976. A preliminary survey to the Regional Economic Development Support Office (REDSO) had made proposals to the CDO for the conduct of the health sector analysis which lead to mounting this study. Attention was directed to the Regional office of "Strengthening Health Delivery Systems" (SHDS), with the suggestion that its potential be considered in our recommendations. A synthesis of the various concepts for a study was made by the team and a plan of action presented to the CDO on arrival during his initial briefing. A certain flexibility was built into the study outline in view of the great amount of descriptive details already accumulated for a country health profile by the WHO Country Representative. The health profile report covered the Health, Nutrition, and Water Sub-group planning program of the Club des Amis du Sahel.

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(1) "Public Health in Upper Volta; a Sanitary Profile", Dr. F. Martin Samos, 1976.

This study was adjusted to utilize this assemblage of current, detailed information on the country situation relevant to the health sector and to sharpen the team's focus on providing a more factual basis for programming AID assistance.

## 2. Programmatic Guidance

The basic documents utilized have been the Proposal for Long-term Comprehensive Development Programs for the Sahel (April, 1976) and the basis for program activities as expressed in the country Development Assistance Paper (DAP). The Project Budget Submission (PBS) for 1978 had already recognized the need for updating the assessment of the DAP health sector. Questions that appeared to require clarification were identified in the early document review and became specific points for examination while in the field, so that a truer interpretation of program directions could be obtained. In broad terms, the DAP considered areas of malnutrition, certain transmissible diseases, health infrastructure, and the health politics situation. As the present assessment progressed, the changes in these areas were evaluated in terms of their possible influence on the validity of DAP strategies. An assessment of the present situation pertaining to those points appears in the body of this report.

Also of relevancy have been the Congressional Presentation of the Health/Nutrition/Population Sector objectives for the Sahel Development Program, AID/W, and its commitment of cooperation with

the Club des Amis, OECD. Strategies developed so far for U.S. initiatives seemed to have settled into a pattern of objectives relating to community-based preventive and first-line medical care with National health service structure for back-up referral care, overall planning and guidance, training, popular health education, and program evaluation. In addition, the essential nature of existing In-State or Regional approaches to some aspects of the total health problem has been recognized.

#### B. COUNTRY NOTES

A great amount of data on the country relating to the health sector is now available in the WHO Sanitary Profile, referred to repeatedly in this report. Some highlights are reviewed here along with the subjective impressions of team members which had more or less influence on the final opinions of the actual health sector situation formed at the end of the study.

##### 1. Geography and Climate:

Upper Volta is a small land-locked country in the sub Sahelian region of West Africa, a little larger than the state of Colorado, having an area of 274,122 km<sup>2</sup> or 106,000 square miles. It is composed of a plateau rising from the southwest to the north varying in altitude from 650 to 1000 feet above sea level. There are three climatic zones: south sudan, north sudan and Sahel. In which the average temperatures are 20<sup>0</sup>/35<sup>0</sup>C, 14<sup>0</sup>/40<sup>0</sup>C, and 13<sup>0</sup>/42<sup>0</sup>C respectively. There are essentially two seasons although they are sometimes divided into three: the cool season and the rainy season. Average temperatures in the cool season

are a maximum of 45°C in the day (20°-30° usually) and a minimum of 22°C at night.

The rainfall varies from south to north with an average of 40 inches in the south and less than 10 inches in the north. The number of days of rain averages 25 to 27 days, but the rainfall does not come all at once. There are rains with some dry days or weeks between, scattered over the period of May through October. This varies slightly from south to north. The manner in which these rains come is quite important to the traditional rhythm of planting and harvesting.

Upper Volta is almost all savannah and brush with small tree forest. To the north this gradually runs through Sahel to desert. The soil is mainly laterite especially in the center of the country with more sandy soils in the north. There is a river system with the consequent increased fertility of the land near the rivers, but there is no "renewing" of the land by deposition of silt from higher up in the system as in the Nile basin and only one river, the Black Volta, flows all year round.

## 2. Population

The population of Upper Volta was estimated at 5,572,712 in 1976. Populations are concentrated in the south and center where densities are greater than 125/sq. mi. The overall density is about 31/km<sup>2</sup> (53/sq. mi.,) which varies from large areas that are uninhabited or intermittently inhabited, to 37/km<sup>2</sup> in the central zone. Population growth 1960-1970 was 19.5%. The annual growth rate in 1973 was estimated at 2/1%.

The population under 20 years of age is 50% and the rate of urbanization 7.3%.

The majority (95%) of the population is rural. The percent used depends on how rural is defined. Usually this means everything outside the two or perhaps three major cities of Ouagadougou, Bobo Dioulasso, and perhaps Ouahigouya, or it may be everything outside the six major cities listed below:

Ouagadougou	202,000	Ouahigouya	23,000
Bobo Dioulasso	112,572	Kaya	18,402
Koudougou	35,803	Tenkodogo	18,100

One problem is immediately evident in that most of those are at best small towns. Another can be exemplified by the situation in Fada N'Gourma which would be one of the next larger group of towns in which most of the inhabitants are rural people who travel out to their farms daily during the planting and harvesting season and are thus essentially rural people. In addition, 20% of the town moves out completely, pots, children and animals during this time as their land is too far away to "commute".

Even larger towns such as Kaya are in essence a collection of villages where 18,000+ people are scattered over a radius of 10-15 km. Life within these towns is essentially rural. The importance of making the distinction is that they are relative concentrations of

rural people many of whom represent the lowest level of society economically.

### 3. Agricultural Society

Agriculture support 89% of the population and 94% of the resident labor force. There is a balanced agro-pastoral rural environment, i.e., it supports livestock raising and grain production of relatively equal importance.

Most people are engaged in either grain production or raising of other crops or livestock production, or both, to supply the needs of the extended family. There are crops which are raised as cash crops such as sisal, sesame, peanuts, shea nuts, or cotton. There is a certain amount of marketing of animals (Upper Volta's second largest export item) and there is gardening for marketing in the immediate neighborhood. But for the most part the emphasis is on raising enough for the immediate needs of the extended family group. Attempts to get groups to raise larger amounts for marketing in general have not been successful. Families tend to hold on to their animals, as is the practice among many groups, because they represent wealth. The extended family system of ownership seems to be responsible for this general reaction. Land is usually considered to belong to everyone in the community and is controlled by the elder. Farming is done by the extended family. If someone owns more than another, the latter may ask for part of it and expect to be given a part. It is indicated that families also have the added responsibilities for providing food for occasions like burials or circumcision camps which fall to

the person having the best crop. These may account for reasons some people have no desire to plant more than they need. Many people, mostly young men or young couples are beginning to break away from this system. The trend is that younger individuals seek small plots of ground not owned by the tribe or go to the city to find jobs. In the city of Bobo Dioulasso it is reported that at least 10,000 people go to the city yearly although they cannot find jobs. Others migrate to the Ivory Coast, Ghana or other countries in an effort to find employment. They may leave their families in Upper Volta or send for them, or return periodically on visits.

#### 4. Education

One of the largest amounts of money from the national budget is being invested in education. This represents 20% of total national budget. Nonetheless, there have been few gains made. The country's adult literacy rate is between 5-10%. Total enrollment in 1972 was 131,068, excluding the rural education system. The primary and secondary school systems are in the French tradition. It is estimated that there are 105,706 students in primary schools. There are usually more than 10 students for each place at primary school level. This leads to a sorting out at an early age of the more aggressive student who may be less acceptable and leads to the retention of the more aggressive ones.

Entering secondary school is an extremely competitive process and there are 9,006 secondary and vocational students. Beyond secondary school there are few schools of higher education. With the exception of certain types of education, most higher education is obtained abroad.

There are 1,020 students in higher education.

The country has been trying to be innovative with a new program of rural education which addresses itself to rural youth 13-15 years of age who have never been educated. This is a three-year program which would train rural youth and integrate them into rural life. Although the concept was excellent the program did not go well. Many reasons were cited including poor instruction and curricula, lack of understanding by parents, inability of young to obtain land and put their knowledge into practice. But this experiment is being continued with a credit from International Development Administration (IDA) which will provide young Farmers Training Centers and to organize, equip and staff 150 Youth Cooperative Groups. This is also an extremely vulnerable group and it might be valuable to introduce, if possible, sex education and health and sanitation education into the curriculum. The composition of this group male vs. female is not known but if it is representative of most education programs in this country few recipients will be girls. At 11 years of age 12% are boys and 4.5% are girls enrolled in school out of the total 11 year old population. IDA's education project will also provide science facilities for 21 secondary schools. How this will assist in improving health manpower should be explored.

Drop-out rates in secondary school are high and investment lost. It is said that many families take their daughters out of school.

to teach them household duties and keep them at home to perform such duties. The boys find it more profitable once they have received a certain level of education to emigrate to the Ivory Coast where the wages are better. Obviously there is a great loss in the investment that is put into educating the Voltaics and innovative approaches such as the rural education program should be developed in order to have a manpower pool not only for health but other activities.

There are two extremes in the manpower pool that have not been met. At one extreme is the education in non-traditional method of large masses of the population so that they are capable of taking care of their own life's needs; health, nutrition, small agricultural or other businesses, farming, child care, sanitation, animal husbandry as well as forms of education which will provide them with the skills for earning a living and having an improved quality of life. The numeracy and literacy of these people would have to be re-evaluated especially if they are taught in their native languages. The other extreme is the formation of a cadre of technocrats who would have the scientific, management, entrepreneurial, language, social and political science, etc. skills to plan, organize, manage and evaluate the country's program in both the private and public sectors and who would be able to communicate both in language and skills with the world community. This exchange with other technocrats would enable the Voltaics to absorb new methodologies and technologies to alter and apply them to their own realities. At present, there is a serious lack of upper and middle-level technocrats

with whom technical advisors can interact and who are able to manage the country's programs. The consequences of these two deficiencies in the manpower pool have serious consequences in the planning of a health services delivery system and in the health education of large masses of people.

#### 5. Employment

The average per capita income is \$70 USA/year. This increases to \$1000 USA/year in the urban areas. The labor force in 1971 was estimated to be 53% of the population but of this group 99% were involved in some type of agriculture. Wage earners constitute 33,500 of the population and of those 15,000 are employed in the public or parapublic sectors.

An accurate estimate of unemployment is exceedingly difficult to obtain in rural areas but it is considered to be very high among school drop-outs. Of this 53% of the Voltaic labor force approximately 28% will emigrate. This latter point is crucial in this country because it is draining off the young and strong elements of the country. It also may represent a large number of the manpower pool who are more skilled and if given the opportunity and the wage potential offered elsewhere could be effective in improving the conditions in Upper Volta.

#### 6. Agriculture

Agriculture, the main productive activity of the country accounts for 31% of GNP and is the main source of livelihood for 90% of the population. The principal agricultural products are millet, sorghum, maize, and cotton. Of these, millet and sorghum are the essential

food products of the country. Cotton is the most important agricultural export product. Although the drought seriously affected the already poor agricultural production other on-going conditions have also played an important part in the sparse agricultural output. Among these conditions are harsh climatic conditions, irregular rainfall (too much or too little), unbalanced population distribution, poor soils, outmoded agricultural methods and land tenure problems.

The principal source of export is livestock although only 6% of the population is engaged in this activity. Lands which could be better cultivated due to better soil and rainfall conditions are sparsely inhabited principally because of onchocerciasis and perhaps other diseases. The Onchocerciasis Project will provide "Onchocerciasis free" regions over a period of 20 years. It is anticipated that agricultural production both for internal consumption and export will increase as these regions become suitable for settlement. A process such as this is a long term activity and for the near future a dramatic improvement in agricultural output does not seem too realistic.

## 7. Industrialization

Industrialization is primarily based in agricultural products and by-products. Private sector enterprises are few in number and size of production. Industrial production in manufacturing (12%) and construction (5%) together account for 17% of the GNP. Main problems in increasing the growth of industrialization appears to be the scarcity of managerial capability, lack of domestic raw materials, high energy costs, small

domestic market, high cost of transport due to land lock position, insufficient domestic capital and lack of technical capability. It is doubtful that in the near future industry will play an important role in the economy of this country.

## 8. Transportation

Upper Volta has a network of roads, national (4,451 km) and secondary (12,211 km) which total 16,662 km. Of these 564 km are paved and 2,050 km are all weather roads. Many of the roads especially in the north are unusable during the rainy season. This prevents the distribution of products to and from these regions. The roads from Bobo to Bamako (Mali) and Ouagadougou to Accra (Ghana) and Lome (Togo) are paved. However, the principal road Ouagadougou - Abidjan (Ivory Coast) is still not entirely paved. There are no navigable rivers except for the Volta Noire and the Comoe River.

Most international travel is by railroad. This at present connects Ouagadougou, Koudougou, Bobo and Banfora to Abidjan. New tracks are being laid to connect Ouagadougou with Kaya, Dori and Tambao (where manganese is expected to be mined).

At the present time there are two international airports, at Ouaga and Bob, as well as 45 secondary airports distributed throughout the country.

Transportation network and costs of transportation must be taken in to consideration in the planning of a low-cost health delivery system. The manner in which new drugs, vaccines, equipment and supplies are distributed and the accessibility of health facilities for large numbers of the population are heavily dependent on these networks. The costs of constructing feeder roads must also be taken into consideration in developing plans for increased health facility coverage.

C. NATIONAL ADMINISTRATION

1. National Development Policy

a. General

The present Government of Upper Volta has committed itself to a program of economic and social development in which conventional medical services has low priority. Contributions of the health sciences toward recognized national goals are being solicited in governmental directives for the preparation of the various sector plans, specifically singling out the campaigns for the control of the major endemic diseases which are holding back socio-economic progress in rural areas. The national philosophy also seems to be oriented toward strengthening national identity among the various social groups, with whom the national health services can relate. The recent realignment of the health sectors to coincide with civil administration boundaries is taken as an effect to relate these technical services more closely with a national political organization. Regarding the budgetary constraints imposed on the various ministries and services, the "Sanitary Profile" quotes on page 29 a Presidential circular giving guidance on the methods to be used

in forming plans for development. What is suggested is essentially to base plans on popular participation and to make a contribution to national, social and economic development. However, this study found the health services were most often pursuing classic colonial health services in an autocratic manner independent of these mandates.

## 2. Governmental Administration

The country is a Republic with a president and a traditional French type governmental organization. A national spirit of "Renewal" has been put into effect with the new President (President Lamizana) in 1975. There has been a cabinet change in the past three months but the Minister of Health and Social Affairs nominated 8-10 months earlier has remained.

The other Ministries are as follows:

- M. of Interior and Security
- M. of Justice
- M. of Foreign Affairs
- M. of National Defense
- M. of Finance
- M. of Planning\*
- M. of Rural Development\*
- M. of Commerce and Industrial Development
- M. of Public Works, Transport, and Urbanism\*
- M. of National Education and Culture\*

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\*The ministers marked (\*) are those which have a direct or indirect relationship to health services. The Ministry of Rural Development is particularly linked to the provision of health services and its role and organization will be described later.

Under the Minister of Interior and Security the local government structure consists of 10 Prefectures headed by a Prefect who has been appointed by the National government, presently most being senior military officers. The Prefect has responsibility for all state activities within his jurisdiction including general administration, postal services, police, gendarmerie, justice of the peace and tax collection. His responsibilities for health and schools are shared with the technical services of the Ministries of Health and of National Education. The appellation "Department" still in use by some seems to be a carry-over from some previous political arrangement. The 10 Prefectures are further subdivided into 43 Subprefectures with a Sous-Prefect as head. In some instances, the Sub-Prefecture was further divided into Arrondissement, apparently when certain conditions of population density and political cohesion were met. This sub-division has been noted particularly in connection with a specific sub-unit of a health sector.

The tribal community organization is at the village level. There is also reference to a group of villages having a "cantonal" chief with certain authority over land use and other matters among the villages. The strongest tribal group is the Mossi where its chief has great authority over the affairs of its people, subject to the regulations of the national government. The other extreme is the nomadic and pastoral groups which are difficult to draw into a national administrative process.

Although there is some decentralization of government, most governmental decisions and policies are made at a national level with minimal input from the local areas.

## II. HEALTH SYSTEM

### A. GENERAL

There is a general feeling among the team members that the health system is in a state of development and transition. The present health system is relatively young and still retains vestiges of an older, highly centralized colonial health service. The colonial system is highly visible and operative and the French influence in all aspects of the health system is recognized. The present system still relies heavily on the technical expertise of expatriates.

Major hospitals other than the two national hospitals still carry the name "Regional Hospital" even though it now supports primarily the one Health Sector/Prefecture; the smaller hospitals in neighboring sectors looking directly to the national hospitals for referral upwards. The operation at certain specialized facilities such as the centers for treating leprosy and trypanosomiasis retains a degree of autonomy from both the field control program and the general hospital service.

The previous arrangements for having a medical care system and another system for the "Fight against Grand Endemic (diseases)" placed them under two self-contained directorates at the ministerial level. The reorganization of the directorates in an ordinance of 1976, attempted to integrate curative and preventive medicine at the administrative level under a Director-General, however, operational control of field activities in the

countryside still appear to continue as before. The present study did not come across any formal description of the authority and organization at the operating level of the Health Sector. The general impressions given in comments from various sources of how the health sector was to function were reminiscent of a highly centralized, national system. It is significant that the chief medical officer of each Health Sector reports to a directorate responsible for program execution in the field rather than the General Directorate having the authority to organize and coordinate all aspects of health programs which are to be carried out at the local prefectural administrative level.

## B. HEALTH POLITICS AND BUDGET

### 1. Priority of Socio-Economic Development

The National Government has set itself firmly toward national unity and economic development based primarily on agricultural development. All land in Upper Volta has been allocated either as being owned privately, tribal ownership, or governmental. Five major ethnic groups make up the population distributed within defined geographic areas among whom a sense of nationhood is being instilled. While there has been an appeal to all ministries to contribute directly to productive goals of socio-economic development within the fiscal restraints of the overall national budgets, the place where the Ministry of Health seems to sit within the broad political scene is one of spending more pursuing the elusive quality of health in the individual than there is a return toward national goals. The health share of the national budget reflects this sort of judgment.

Economic analysts and health tacticians agree that use of the standard cost/benefit ratio in analysing economic benefits derived from better health is not very useful in the development of a health program strategy. An expanded and extended rural health delivery system would probably improve the general level of health in the rural areas where the agricultural sector engaged 70% of the land and 80% of the national labor force. However, the indirect effect of better health on agricultural output has not been sufficiently documented to visibly influence the budgetary distribution. The one exception is the prominence given to the classic campaign against the major parasitic diseases that had initially opened up much of the lands for agricultural exploitation. The direct subvention of financial support to the regional organization concerned with this problem illustrates the level of national interest.

## 2. Budget Distribution

### a. Direct National Funding

In terms of the total State Budget, the proportion of funds allocated to the Ministry of Health has continued to decline from approximately 7.4% in 1975 to approximately 5.38% in 1976. It has been reported that the MOH budget in 1977 will probably reach an all-time low of about 3.5% of the total governmental receipts. The attached graph shows that the direct health allocations have shown a continuous low rise in absolute terms but is falling markedly behind in its share of the steeper rise in total governmental expenditures. In this sense the health budget reflects a recognition of,

as one health official explained, "The interest and necessity for the government to provide funds for building the economic infrastructure at the expense of other public demands."

b. Indirect National Funding

Any interpretation of the published budget for the Ministry of Health must recognize that a considerable amount of national funds is being expended for health services that does not appear in the mentioned budget. The share of the financial support for the regional activities of the Organization of Coordination and Cooperation for the Control of Major Endemic Diseases (OCCGE) was an amount equal to 2.5% of that directly allocated to the Ministry of Health. Within the budget of the Minister of Rural Development and the financial resources available to the local rural development agencies, health related activities are being supported. The financially autonomous Volta Valley Authority has a definite input into the health sector within the areas undergoing resettlement. Sources outside of the national budget supporting health activities are being touched upon separately.

c. Budget Formation

Considering the official Ministry of Health budget solely, the major division of personnel salaries and supplements is embracing an ever increasingly large proportion of the health budget at the expense of the materials, supplies and medicine element. Approximately 86% of total health expenditures is for personnel and 14% is for the operational materials. Partial explanation for this wide gap is the

(3) The Ecole National des Infirmiers/es Brevete (ENIIB) was originally started in 1948 at Bobo Dioulasso to train nurses working in the program of les Grandes Endemies (major epidemic diseases). It was closed in 1969 because it was believed at that time that nurses would all be trained at the professional three year level in Ouagadougou. The need for auxiliary nurses continued and the ENIIB was reopened in 1974 in January. The Director is a CESSI graduate and has a staff of ten others of which three are infirmiers d'Etat with CESSI graduation, five are infirmiers d'Etat and two are sage femmes (mid-wives) d'Etat. Another infirmier d'Etat is to join his staff shortly. The admission requirements are the C.E.P.E. (six years of school) and passing the entrance exam. Length of the course is two years and consists of didactic and practical training. The didactic

fixation of civil service cadre as an immutable recurring expenditure, with a built-in escalation provision through the upward reclassification of qualifications of the individuals. Also there are administrative pressures for the assignment of additional health personnel at new sites, representing the presence of national health services even though the wherewithal to provide any service is in universal scarcity. A partial explanation is that: "The Minister accepts as an obligation, a positive response to the request from communities for health personnel where the community has built a facility and desires personnel to man the station and make it functional". Budget adjustments are made in the direction of reducing the provision of drugs and the maintenance and repair of equipment.

The distribution of the health budget also requires more study. Although the combined population of urban and semi-urban populations represents only 11% of the total population, their share of the National Health Budget represents 40%. Add to this 10-15% of the National Budget being allocated for administrative costs at the national level. Thus 90% of the population is directly served by 45% of the official health budget. This type of budget management results in uneconomical and inefficient utilization of available funds and a definite contributing cause of failure to meet stated objectives.

The Director of Administration is aware of these constraints for more efficient budget management and would welcome opportunities for short-term training of personnel in his office. He is also anxious for the Ministry to establish an office of National Health Planning which would combine the functions of the two sections, Health and Demographic Statistics and the office of Studies and Programming. It is his conclusion that this is a first step toward a more realistic budget formulation based on accurate information, economic analysis and modern management budget practices.

d. External Health Sector Support

A major contribution to the health sector is external assistance in the form of direct support to ongoing health services. Funding assistance from government and private organizations has a tremendous impact on the operations of the MOH. It constitutes a major portion of allocated funds and in some instances exceeds the funds appropriated for specific elements in the budget. An indication of the magnitude of these funds appear in the Tables as compiled by Dr. Martin Samos, OMS in his sanitary profile report; Collaboration du Pays en Matieres du Sante, section 3.1.2., September, 1976. These statistics indicate how vital external assistance is to the operation of the health delivery system of the Ministry of Health.

External assistance increases the total amount spent on health by at least 50%. Contribution to the health sector in descending order are primarily from FAC (which contributes most money and technical

assistance related to direct health delivery services) FED, IBRD (Oncho and other programs), the Federal Republic of Germany, UNICEF, USAID, China (hospital in Koudougou), Libya (X-ray equipment, medical supplies, dentistry equipment), and about 3% of total outside assistance from voluntary agencies (mostly with some religious affiliation).

The private sector in the form of medical practitioners does not play a very significant role at this time. There is, however, some private medical care being done by government physicians, midwives and nurse practitioners. How much of this is currently being practiced is unknown. Their clientele are largely the functionaries, foreign residents, and other middle-class, primarily urban residents.

Private pharmacists are also engaged in medical practice as well as the distribution of medications. The extent to which they contribute to the informal health delivery system is also unknown.

If one adds to this the amount per capita being spent on care provided by traditional healers and midwives, it becomes apparent that the true amount being spent per capita in health is well above the published health budget. Traditional healers in this country are well paid by their clients and provide primary health services for more than 70% of the population. A better estimate is difficult to obtain because of the secretiveness of both the healer as well as the patient in their dealings with one another.

e. Local Government Funding

Other sources of health revenue which have also not been taken into account are those monies provided to health sector operations

by members of local communities for the improvement of their health care. The Prefect maintains an administrative budget with funds collected locally in which the prefect can include projects in education, health, agriculture, etc. The Prefect also has budget allowances that he may use for emergency use for any activity in the Prefecture.

Only fragmentary information could be obtained on the extent that the local civil administrations support health related activities, the impression received being that this depended largely on the initiative and persuasiveness of the individual medicine chefs. Examples of the type of support being given by a Prefecture were: gasoline for travel to a village in need or for evacuation of a patient to a hospital complex, salary for a temporary laborer and payment for minor refurbishments to a health facility. While no specific instance of community public health action was recorded, the general environmental appearance of some of the larger prefectural or subprefectural towns bespoke of the community's concern in its sanitation. Although the potential for local administrative funding for health activities could not be even preliminarily assessed during this study, the presence of a local taxing authority should be recognized at the time health sector relationships are being more fully explored.

The active role of the ORD's in rural health matters cannot be overlooked in an evaluation of health budgeting but for the purposes of this report, it is discussed as a separate community health operation.

## C. CENTRAL HEALTH ORGANIZATIONS

### 1. Administration of the Ministry of Health

a. The Ministry of Health and Social Affairs is one of sixteen ministries making up the central government. It is headed by Dr. Tinga Douamba, who has held the position of Minister about a year. The health policy for 1977-1981 continues to be that contained in a 1974 Presidential circular giving the major health issues as

- (1) the execution and development of programs for the control of disease is the priority
- (2) the development of basic health service and, particularly, PMI (MCH) services is urgent and all efforts must be mobilized
- (3) parallely, and tied to the previous statement, the materials necessary for the medical care of the individual must be improved
- (4) the training and improvement of paramedical personnel, principally in public health, and the control of epidemics is the basis of the health policy in rural areas.

In addition to the conventional cabinet activities at the Ministerial level, an ordinance published in June 1976 reorganized the central organization under the General Directorate of Public Health and Social Affairs. The Director General, Dr. Jean Marie Kyelem, reports directly to the Minister and is presiding officer of three permanent bodies:

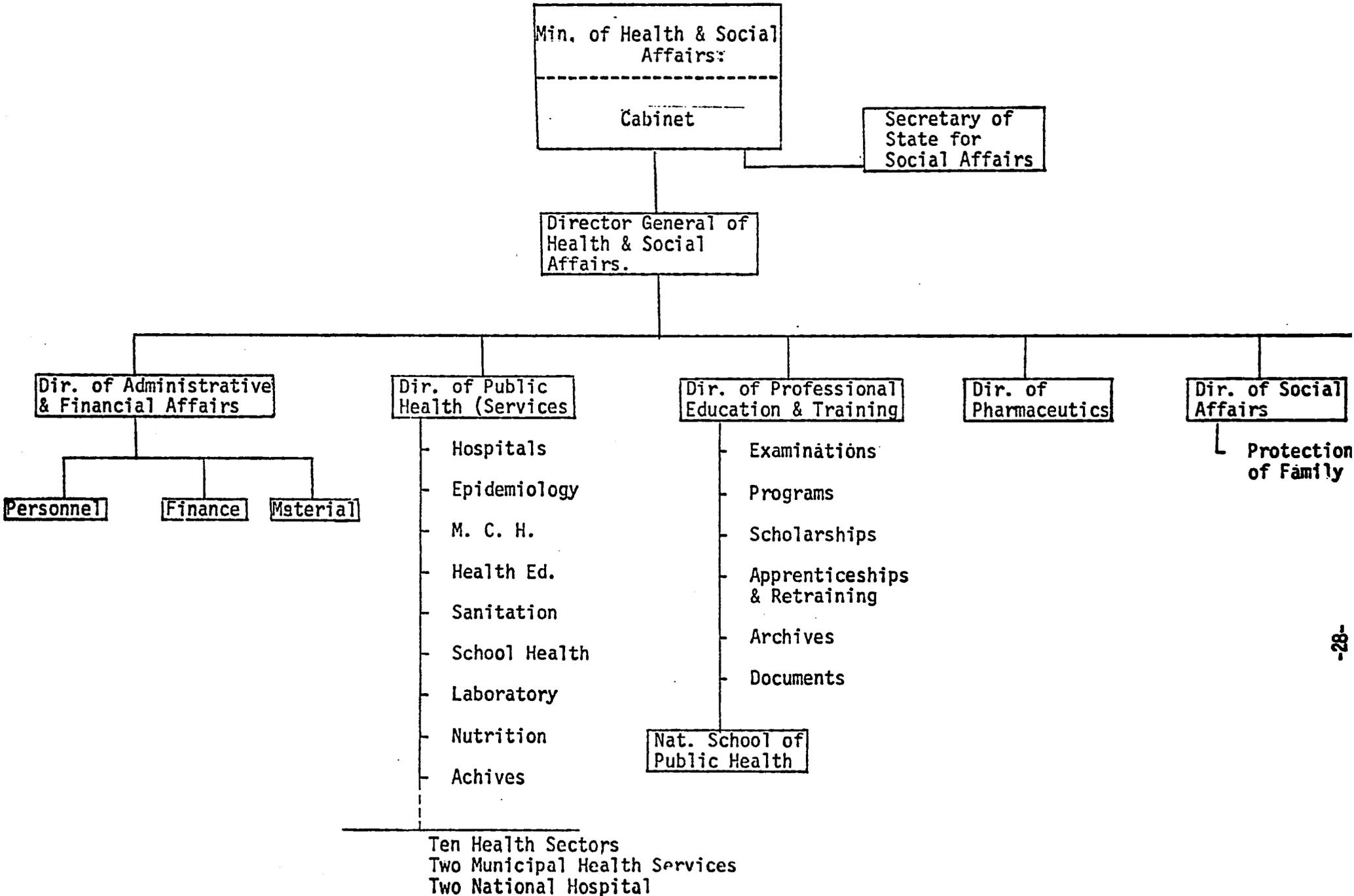
- (1) National Health Council as a professional regulatory agency

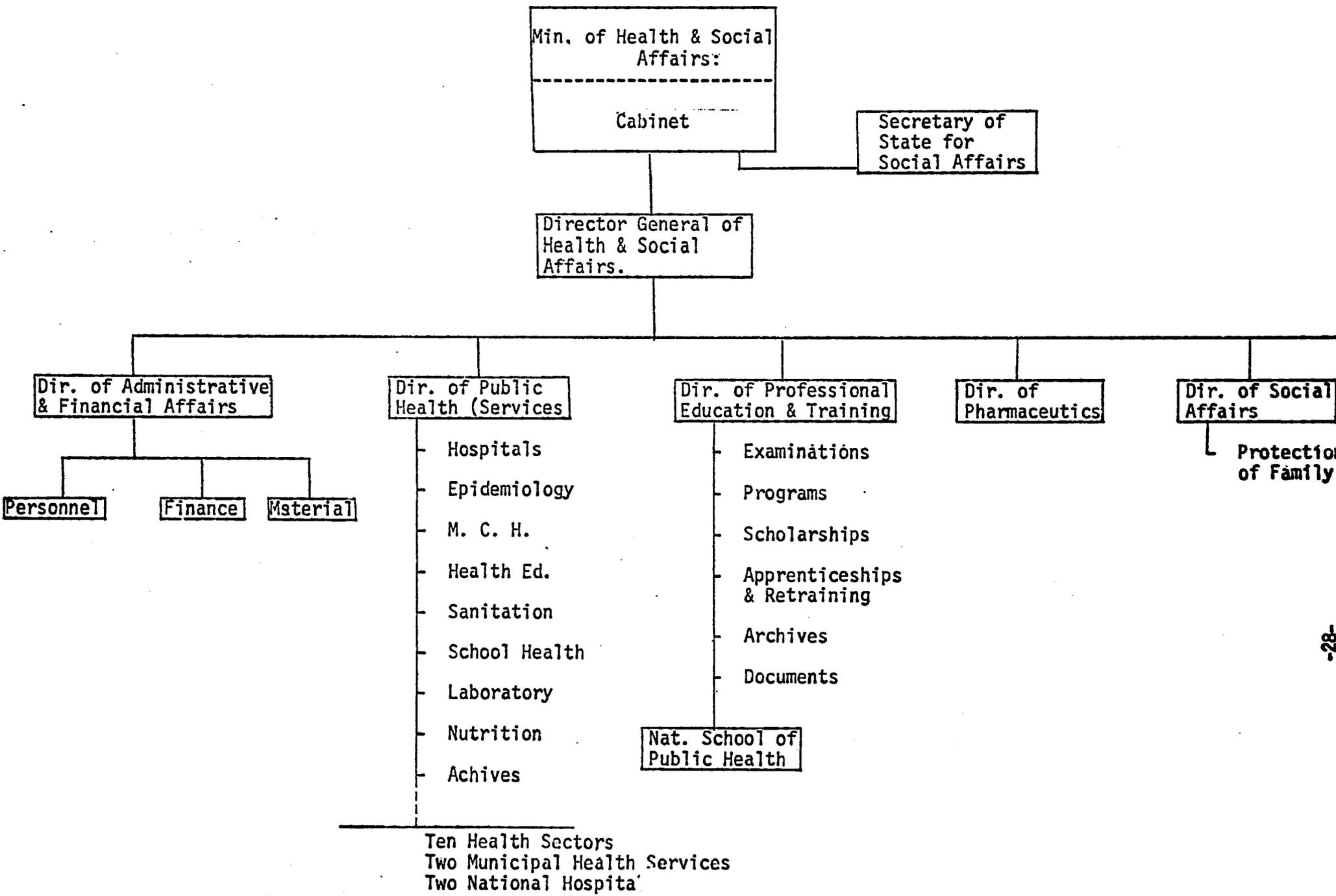
(2) Special Committee for Studies and Planification as a consultative organ to the Minister

(3) Committee on Assignments to handle requests for transfers and the assignment of recent technical graduates.

b. The General Directorate is charged with the organization and cooperation of programs for social promotion, the promotion and recovery of health, following the general lines established by the Minister. The Director General has under him five technical Directorates, each being discussed in relation to its function. A point of confusion arises with respect to central planning capabilities of the General Directorate, with one published organizational chart showing a Health and Demographic Statistics Section and a Studies and Programming Bureau attached to the General Directorate, while the legal organizational document lists only a Bureau of Statistics and Documentation within the Secretariat. In either event, no office conducting this type of overall planning could be found.

c. In view of the importance attached in this assessment to any potential for planning, the existing structure was reviewed for indications of actual capabilities in this direction. The most active planning activity is for immediate operational directions given for the major disease control program within the Directorate of Public Health. Within the scope of budget management of the Directorate of Administration and Finances, a planning element enters which is recognized by the present Director, Mr. Abdoulaya Keita, as being short-term adjustments rather than true comprehensive





planning. The one officially designated place for health planning was in the form of the Special Committee for Studies and Planning (CSEP) mentioned earlier. However, there was no permanent secretariat to prepare drafts and studies that would give a degree of continuity to the planning process. The Committee apparently exists only when it is called to meet at the discretion of the Minister. Under the chairmanship of the Director General, permanent members consist of (1) all service directors; (2) the technical advisor to the Minister (who is also chief of the FAC health assistance program), and (3) the WHO Country Representative. Temporary members may also be appointed. Its assigned functions are as follows:

- (1) Study all the problems relating to public health and affaires sociales
- (2) Prepare a plan of action for social and health policy permitting an efficient programming of health and social services
- (3) Prepare policy relevant to the training of personnel necessary for the program
- (4) Look into the possibility of external aid and the definition of the best possible uses of this aid.
- (5) Study social and health legislation and the establishment of a medical ethics code.
- (6) Study the papers requesting authorization to open private pharmaceutical and health establishments for which the commission must be consulted and give its opinion.

## 2. Manpower Considerations

### a. Manpower Organization at the MOH

The Directorate Professional Education and Training is one of five Directorates in the Ministry of Health and is under the direction of Dr. Paul A. Kambire. The Director is energetic and interested in training. He has done much planning for future training which is described later. He is also vocal and expressed the fact that many studies and surveys have been done regarding manpower requirements, but that few assistance projects have been forthcoming.

There are six technical sections under his direction and three national schools. The technical sections are as follows:

- (1) Examination and competition
- (2) Program
- (3) Scholarships
- (4) Apprenticeship and Retraining
- (5) Archives
- (6) Documents

The first three sections are covered by one (1) infirmier d'Etat who has attended the advanced school of training and administration in Yaounde. The school called CESSI (Centre d'Education Superieur en Soins Infirmier) is a two-year course for educators and administrators. This section chief is in charge of all three schools' programs as well as examinations for entrance to these three schools. He also helps handle scholarships and stipends under the supervision of the Director.

The fourth section for apprenticeship or clinical and field training has also a CESSI graduate and his responsibilities involve

programming of all clinical and field practice for students in hospitals, dispensaries, maternities and in rural areas. He is also in charge of recycling or improvement courses, but has done little in this area because of lack of teaching personnel, money, educational and transportation materials.

The fifth and sixth sections for archives and documents are filled by a non-professional person who handles the document work for the section.

b. Training Facilities

There are three schools under the Bureau, the Ecole National des Infirmiers/es d'Etat in Ouagadougou, the Ecole National des Aides Sociales in Ouagadougou, and the Ecole National des Infirmiers/es Brevete in Bobo Dioulasso.

(1) The Ecole National des Infirmiers/es d'Etat in Ouagadougou has undergone many changes in names and curriculum. Starting in 1948, the school known as A.M.I. (Assistance Medicale Indigene) had first a six-month course, then one year, then two for nurses. In 1958 it was called A.M.A. (Assistance Medicale Africaine) training nurses for one year, then two years and finally three years. In 1968 the present school was opened, training professional nurses for the first time. The course was three years in length and required for admission the C.E.P.E. (Certificat d'Etude Primaire Elementaire) plus the B.E.P.C. (Brevet Elementaire Premier Cycle). These admissions requirements represent ten years of schooling, six years for the C.E.P.E. and four years for the B.E.P.C. Prior to the first class entering in 1968, all professional nurses from Upper Volta were trained outside the country

mainly in Dakar, Abidjan, and Europe (France, Switzerland and Belgium).

The school staff consists of a director who is an infirmier d'Etat with CESSI training in Yaounde, a chief monitor and coordinator for each of the three classes of students, and instructors. Total staff consists of approximately 15 people, nine of whom have had CESSI training.

All students must take entrance examinations for admission and for the 40 slots per year there are about 500 to 600 taking the exam. The curriculum consists of both didactic and practical teaching. The courses are more medically than nursing oriented. List of courses are in the Appendix. Practical training takes place in the various wards of the hospital, in dispensaries, maternities, PMI and in a rural area. All practical training, except rural dispensary, is done in the morning and the didactic classes are in the afternoon. The rural experience takes place during two full months and the students actually live in the villages.

The main objectives of the rural training are:

- (a) to describe the community in all aspects; health, economy, agriculture, etc.;
- (b) to follow one family for care during the two months;
- (c) to learn the functioning of a rural dispensary by working there; and
- (d) to do health education in the community, particularly in the school setting.

The students are placed 2-3 together in about 17 rural areas. Their housing is provided by the villagers. F.E.D. (Fond Economique due Development) provides each student with 500 CFA per day for living expenses and WHO gives a lamp, water filter, netting and folding bed. A team from the nursing school goes out 2-3 times during the two-month period.

Other outside help for students consists of:

1st year students - 27,500 CFA from F.E.D.  
for starting needs

12,500 CFA from WHO each  
month for living expenses

2nd year students - 18,500 CFA/month from C.E.E.  
(Comite Economique d'Europe)

3rd year students - 18,500 CFA/month from C.E.E.

This school is housed in a very old building and cannot at this time enlarge the student body.

(2) The Ecole National des Aides Sociales in Ouagadougou was started in 1961. The director is a French-trained aide sociale. The course is three years in length and entrance requirements are a baccalaureate which is equivalent to 12 years of schooling, plus passing entrance examination. The first year is taken with the nursing students from E.N.I.I.E. (Ecole Nationale Infirmiers/es d'Etat) and the students branch out into social work for the last two years. Their work consists of some health education, home economics, cooking, sewing and social work and is done in Social Centers throughout the country.

(3) The Ecole National des Infirmiers/es Brevete (ENIIB) was originally started in 1948 at Bobo Dioulasso to train nurses working in the program of les Grandes Endemies (major epidemic diseases). It was closed in 1969 because it was believed at that time that nurses would all be trained at the professional three year level in Ouagadougou. The need for auxiliary nurses continued and the ENIIB was reopened in 1974 in January. The Director is a CESSI graduate and has a staff of ten others of which three are infirmiers d'Etat with CESSI graduation, five are infirmiers d'Etat and two are sage femmes (mid-wives) d'Etat. Another infirmier d'Etat is to join his staff shortly. The admission requirements are the C.E.P.E. (six years of school) and passing the entrance exam. Length of the course is two years and consists of didactic and practical training. The didactic again covers most medical subjects, not much nursing (see Appendix) and the practical is done in the hospital in Bobo, including practice in medicine, surgery, pharmacy, pediatrics, etc., plus dispensaries, maternities and, as of 1 March 1977, a period of one month will be spent in rural areas. All students are sponsored by national government funds.

(4) All three of the previously described schools are to be combined in the Ecole National de la Sante Publique which is presently being built under a UNICEF/CIDA grant which should be ready for occupancy in September, 1977. However, because of limitation in space at the new school, as well as lack of clinical training facilities, the school in Bobo (ENIIB) will remain open and a training program for mid-wives (Sage Femmes d'Etat) will be started with the ENNIE and the

Ecole National for Aides Sociales. In essence, the new school will be training professional nurses, mid-wives and social workers, although very little of the future plans for the actual operation of the combined school could be ascertained.

c. Training Capabilities and Personnel

(1) Physicians

There are no training capabilities within the country. Consequently all physicians are trained out of the country. The Director General of Health informed us that the country could not possibly think of in-country training for at least three years and possibly more. As of 1975, there were 85 practicing physicians in the country, 58 of which are expatriates. There is no record of physicians in full time private practice. Most Voltaic physicians are in administrative positions, as are most of the expatriates.

As of 1975/1976, there are 155 medical students studying abroad. See Figure 1 on the following page for a breakdown of the host countries and scholarship source. The government of Upper Volta does not expect all of these medical students to come back to work in the country. There are also five physicians studying in France in various specialities.

Of the 119 physicians in the country in 1975, 85 were involved in clinical practice, of which 58 were expatriates. Forty-five physicians were in Ouagadougou, 24 in Bobo-Dioulasso. This means about 61% of the doctors are serving less than 9% of the population. The average number of patients per doctor is one M.D. per 52,072 persons.

FIG. 1. DISTRIBUTION OF MEDICAL STUDENTS IN FOREIGN SCHOOLS AND THEIR SCHOLARSHIP SOURCES

Scholarship Source	Ivory Coast	Niger	Senegal	Togo	Algeria	Tunisia	France	Germany RAF	USSR	Hungary	Rumania	Total
National Funds	1	9	1	23			18	1				53
W.H.O.	2		4	2	1							9
A.U.A.	1	2	4			1						8
C.E.E.												
F.A.C.			63	9			3					75
Country of Study									6	1	3	10
TOTAL	4	11	72	34	1	1	21	1	6	1	3	155

### Variation by Sector and City

Dori	1 M.D./178,218 persons
Ouaga City	1 M.D./6,080 persons
Tenkodogo	1 M.D./229,720 persons
Bobo (outside city)	1 M.D./79,251 persons
Kaya	1 M.D./312,553 persons

### (2) Pharmacists

There are no capabilities for training pharmacists in the country. There are a limited number in the country who have pharmacies in urban areas, there are four pharmacies in Ouagadougou. In 1975-76 there were 52 students in France, Senegal and USSR studying pharmacy. The return rate back to the country is not known.

### (3) Dentists

There are no training capabilities in the country and dentists are also limited. In our travels we were aware of four, all working in hospitals or large dispensaries. In 1975-76, there were ten students studying outside the country, mainly in Senegal, Ivory Coast and Bulgaria. The return rate is not known.

### (4) Nurses

#### Infirmiers/es d'Etat or professional nurses

As of March, 1976, there were 353 professional nurses in the country. Those trained prior to 1968 were trained outside the country and the first graduating class in the country was 1971. The school

graduates about 40/year. Among these 353 are 16 CESSI graduates who work mostly on the staff of the two training schools and in MOH. In 1975-76, there were eight nurses taking the CESSI courses, four in Cameroon and four in Senegal. There are also eight nurses studying specialization (not identified) outside the country, mostly in France. Using March, 1976 numbers, the ratio of professional nurses per inhabitant is one nurse per 17,976 inhabitants.

#### Infirmiers/es Brevete or auxiliary nurse

As of March, 1976, there were 946 auxiliary nurses in the country. They are presently trained in Bobo and the first graduation was in 1975. The school graduates about 50 students each year. None of these nurses can take advance training because they do not qualify for CESSI due to their low educational admission requirements. They have only six years of prerequisite training and both Dakar and Yaounde CESSI schools require ten years. They can, however, take an entrance exam for professional training in the country, but must go a full three years. Using March 1976 figures, the ratio of auxiliary nurses per inhabitant is one per 6,707.

#### (5) Sages Femmes d'Etat

The term "Sage Femme" is used generally as a highly specific appellation for the trained professional mid-wife.

There are no training facilities for mid-wives in the country. As of March, 1976, there were 96 mid-wives in the country all having been trained out of the country in a variety of areas, but mostly in France and Germany. This makes for a great variety in the

basic training. In 1976-76 there were 84 students studying out of the country mostly in other African countries, Ivory Coast, Senegal and Togo. The rate of return is very high and the major loss is through marriage, and this is apparently a very low rate. Using March, 1976 figures, the ratio of mid-wives to inhabitants is one per 66,099. This may also be deceiving because of the distribution which is mostly in urban areas.

The term "matrone" appears to embrace a large group of health workers who have learned by doing.

These ladies work in small dispensaries and in villages. Their work includes delivering babies and providing minor care. Most have not had any formal training; however, some of them have had short basic courses in a recycling process, but the course is not standardized nor given regularly. As of March, 1976, there were 5,077 in country for a ratio of one per 1,250 inhabitants.

(6) Distributeurs de Comprimes (pill distributors)

This also is a group of untrained workers who pass out pills, mostly for malaria. Some have had recycling courses. There are 155 in country for a ratio of one per 40,938 inhabitants.

d. In Country Training Projections and Plan

(1) Infirmiers/es d'Etat or Professional Nurses

The Bureau of Professional Training and Stages has, with the opening of the new School of Public Health in September, 1977, planned to increase the number of entering students each year through 1986.

(2) Infirmiers/es Brevete

This school has not projected any increase, but hopes to continue accepting 50 students per year.

(3) Sages Femmes or Mid-wives

With the opening of the new school, the Bureau of Professional Training hopes and plans to start a three year course in country in September, 1977 with an entrance class of 23 students continuing for the next ten years.

All other categories of personnel such as doctors, dentists, pharmacists and nurses with CESSI training will depend on the number of scholarships received from foreign contributors and amount allotted from National Budget. Furthermore, a decree #76/728 signed August 5, 1976 states that there is to be no more on-the-job training for matrones and distributeurs de comprimes and that the Bureau of Professional Training and Stages is to prepare a one year course for two new categories of personnel to replace the matrones and distributeurs de comprimes. The new categories will be known as Accoucheuses Auxiliares or Auxiliary Mid-wives and Agent de Sante Itinerant or Itinerant Health workers. The Bureau is beginning curriculum planning for such a course.

e. Training Problems and Comments

The main problems which came up both in interviews and observations were:

(1) Limitations in Personnel - many dispensaries have to be closed because there is no personnel to staff them. The Director

General informed the team that in 1976 fifty dispensaries remained closed for that reason.

(2) Untrained Personnel - many people are receiving care which is grossly inadequate and diagnoses are made which are not always valid, that is by symptoms alone. For instance, all cases with fever and indeterminate symptoms are called malaria. This tends to skew the morbidity figures and makes them most unreliable.

(3) Limitations of Equipment - Shortage in supply of equipment and non-operable equipment are problems reiterated by most people interviewed in all areas visited. There are very few syringes available in dispensaries and the staff works with one or two for numerous patients receiving injections. There is no laboratory equipment or microscopes for diagnostic tests. The sterilizers and X-ray equipment are usually not functioning. In the training school there is little or no audio-visual equipment, the mannequins and skeletons are broken beyond use. There are no library supplies, texts, or duplicating equipment. Most workers do not have even the basic essential equipment to do a minimal job.

(4) Limitations of Medication and Supplies

These problems were very apparent in all medical facilities visited and were stated by all persons interviewed. Where there were some medications, they were not the basic kinds more generally used and consequently remain on shelves. In one hospital, the X-ray films were so limited that only accidents or emergencies were done. It was also said that surgery was curtailed because of lack of sponges,

surgical thread, scissors and clamps. Repeated requests for medications and supplies remained unfilled.

(5) Limitation in Supervision, Motivation and In-Service Education

The health personnel in rural areas have very little supervision. The Medecin Chef does not have time to provide regular supervision. There appears to be a lack of motivation on the workers' part to do a better job. There seems to be no recognition for a worker who does a good job over one who does a mediocre one or not at all. There is no opportunity for in-service education or seminars to up-grade the present work cadres' knowledge.

(6) Limitation in Planning and Standardization

In most medical facilities visited, there seems to be little standard format in the delivery of services and no set objectives or long-term plans. The service seems to be to deliver immediate care as it is needed daily. Not much health education to prevent recurrences. There seems to be no protocol to guide the workers in the delivery of care or follow-up system. The only set of written general and specific objectives was seen in the nursing school in Ouagadougou which set out what the training program means to accomplish by its teaching. These have just been written and are certainly a step in the right direction. The objectives can certainly be the framework from which job descriptions can now be written.

(7) Budgetary Limitations

This is the big underlying factor which enters into most of the previously mentioned problems. Some additional funds are warranted to gain the most return out of the major budgetary commitment for personnel costs.

#### f. Manpower Requirements

The absence of a specific plan for a health service delivery system in Upper Volta's Health Sector Document makes it difficult to assess the country's health manpower needs by an conventional set of criteria.

The WHO staff, resident in Upper Volta, has prepared a "Country Profile", that contains comprehensive statistics concerning existing health personnel and facilities, in terms of numbers, categories, accessibility and utilization. Attempts to extrapolate meaningful manpower needs for even basic health planning from these data were not successful.

The regional document, "Strengthening Health Delivery Systems", developed by the regional office of SHDS located in Abidjan, contains guidelines for assessing health manpower requirements. It was concluded, however, that the orientation of these guidelines was inappropriate for use in this assessment. Two French publications, "Medical Care in Rural Zones, Technical Paper No. 10, 1975", and "How to Respond to the Fundamental Health Needs of Populations in Developing Countries", V. Djukanovic and E. P. Mach, FISE/OMS, 1975, were reviewed because they developed the theme of community involvement in the delivery of health care. It appears that manpower needs will more likely be set by budgetary limitations, technical school recruitment goals and civil service roll quotas rather than by the absolute health needs of the population.

### 3. Public Health Operations

a. The operational apex of the infrastructure for the deliverance of

health services is the Directorate of Public Health, one of the five directorates under the General Directorate of Public Health and Social Affairs. The Director of Public Health is in charge of all activities aimed at the promotion, protection and recovery of health. The directorate in its present form is relatively new, being a combination of the old separate Directorates of Urban Health and of Rural Health formed under the reorganizing Arrete of 1976. The present Director of Public Health, Dr. Pierre K. Campaori, was formerly in charge of the rural health program and carries with him much of what was the original approach to field programs under the "Grandes Endemies" concept. An outline of the duties and responsibilities of the Director of Public Health has been translated directly from the ordinance and is given here without further comment:

"Article 7. The Director of Public Health is responsible to:

- (1) Keep necessary basic information on:
  - (a) Geography, communication, physical aspects of country
  - (b) Population, composition and living conditions
  - (c) Health problems and geographic distribution relative to human and environmental factors and relative importance
  - (d) All resources available for solution
  - (e) Different programs of Director General and priorities

- (2) Establish close coordination with different programs
- (3) Put into operation a system of statistical information required by the Director General for evaluation
- (4) Inform the Director General of all situations requiring urgent measures, propose actions, request necessary supplementary means, and watch over the execution of decisions taken
- (5) Receive the periodic reports of the Medecin Chefs of Sectors and all other documents judged necessary

To furnish the Director General with a succinct quarterly report on the sanitary state of the country, highlighting problems of quick resolution, and a summary report of activities accomplished.

To furnish the Director General with an annual report of activities with an evaluation of results obtained and indicate the objectives to be reached the following year."

b. The Service level within the Directorate follows in practice the principle of a central executive agency

directly responsible for the conduct of health services even though the ordinance creates classic public health staff offices. The ordinance reorganizing the General Directorate was signed less than four months after a new decree reorganized the National Cabinet and probably reflects more of a response to a political situation rather than a true effort to put a new operational plan into effect.

The present functioning of the nine Services established by ordinance within the Directorate of Public Health reflects the situation with respect to field operations and the delivery of rural health services. The Service of Hospitals is assigned responsibility for coordination of hospital activities with other institutions and has not been filled since the reorganization. The the Service of Archives and Documentation is the conventional administrative section. The Services of Maternal and Child Health , Health Education, Sanitation, and School Health were assigned conventional staff program duties and, with the exception of small school health cadres for the urban cities, were vacant. The Nutrition Service had Biochemist/Nutritionists but had not yet developed a program. One Nutritionist was reassigned as Director of Social Affairs during the study. By far the most active was the Epidemiology Service which effectively provided the

major direction to field operations. Although there was an identified Service for the promotion of a laboratory service for improved diagnostic capability, the only activity involving laboratory support was undertaken as part of epidemiology.

Within the Epidemiology Service, schedules are prepared for National vaccinating teams and special disease control teams. The Service reviews morbidity/mortality reports from Health Sectors and issues directives ordering the appropriate response. The impression was received that this was the operational center for the major undertakings by the Health Sector and controlled the financial and material resources accordingly.

2. Below the central ministerial level, the country was divided into 10 health sectors following the Prefectural boundaries, each headed by a Chief Medical Officer reporting directly to the Director of Public Health. Some aspects of the field structure has been discussed under the disease surveillance system. An apparent carry-over from previous organizational arrangements is the status of the National Hospitals and the independent urban health services of Ouagadougou and Bobo-diolasso. No reference to an administrative order concerning the organization below the Directorates and Services of the General Directorate could be found during this study. Whether its unavailability was due to routine

delays or whether there has not yet been a reworking of out-of-date orders could not be determined. The impression was that much of the confusion and variability of programs at the Health Sector level were due to absence of a clear directive outlining the organization and responsibilities.

All the team members noted that the health infrastructure seemed to be in a state of flux. In the organization for the delivery of rural health services, there were definite evidences of residuals from the pattern of military preventive medicine/public health for wide areas introduced during colonial times. There now seems to be a striving to gain control over their own destiny and to develop their own pattern of operations. Their vagueness of specific goals and indecision with respect to definite courses of action is allowing great variability in the directions field operations in the sectors are taking. That the officials desire to break out of a fixed mold was read into the invitation by the Minister at his briefing of our mission; for us to "look into the health problems at Upper Volta and from an understanding of their situation a dialogue could begin." A reference by one high official to some aspects of the field operations as a "sequel to colonialism" is taken as an appeal for an alternative.

## D. RURAL HEALTH DELIVERY

### 1. General Setting

The actualities in Upper Volta require that deep thought be given to the form by which health services are to be extended out to cover a greater proportion of the total population. The present economic status of the country will not tolerate movements to create an elaborate network of health facilities designed to deliver some mix of curative and preventive health care within the geographic vicinity of every population group. The present apparatus is faltering in its ability to be of significant value to the semi-urban and tiny slice of rural population it now does reach. Attention has to be given to various forms that health services may take for achieving the objectives being pursued. In Upper Volta, the objectives can be paraphrased as the conduct of highly technical programs of immunizations and the control of the major endemic diseases on the one hand and a supportive role of delivering small primary care with referrals upward for major medical attention. Small primary care in this sense is referring to the important contributions that can be made to family health by trained front line health workers with a minimum of nationally supplied medications by working through community or social entities.

#### a. Social Structures and Conditions

The rural population that is to be the target of an expanded health program has its own character typical of

that part of the world which merits its own definition of appropriateness for a health delivery system. It is difficult to transmit in writing a sense of the actual nature of life in the broad expanse of the country away from passable roads and the semi-urban market centers or towns surrounding civil administrative seats. The fabric of life in the area must be personally experienced before imposing a culturally oriented set of preconditions for a "good" health program.

The organization of society at the rural level remains very much as it has been for centuries. The tribal structure, the influence of the chiefs, the extended family system and authority system etc. have changed little. The new governmental organization has been superimposed on this older structure despite the attempts on the part of the government to supplant it. This means that the systems exist side by side, with some functions accepted by people as belonging to one and some to the other. Within the area of health for instance it can be expected that certain diseases, or all diseases by certain people will be considered to be the realm of the traditional healer rather than the health personnel while vaccination may be more or less generally accepted as a function of the health system.

Communications and decision making are very important to any development of health care, of health education, and of change in health behavior. Both occur from the top down.

The chief and the elders know the most and the chief makes most decisions. But more than this, decisions are made as a group. Throughout most of the rural societies no one makes a decision on his own but always submits the decision to father, brothers and, if animist, to the ancestors. Great confusion and tensions arise as these people come to the edge of modern society and are expected to act as individuals. They don't know what to do as an individual. The usual reaction is to comply within the situation but this may not produce any real behavioral change. At the same time if a top-level decision or group decision is made the change follows rapidly. In looking into PMI's we found at one point that a village chief had decreed that all women with babies should go to the PMI and they did. At another point it was found that another village built a maternity hut and the village chief ruled that all women should have their babies in that hut. This cohesive societal structure is important to the members of the group. It represents their social security and police protection. <sup>6</sup> Understanding of teaching given must be considered in this context also. They have been taught to think culturally and receive information into the preformed cultural thought patterns rather than in the context in which the information is given or with the meaning that the accompanying

explanation is intended to give. Thus the reaction may not at all be, "What does this mean to me and my child?" but rather, an entirely unexpected thought pattern. But also they have learned by memorizing so they are quite capable of remembering and repeating on demand everything they have been told. This knowledge, however, may have nothing to do with behavior since learning does not necessarily influence behavior. Behavior is culturally determined.

Just as governing structures exist side by side so the close societal groups and individualistic trends coexist in the society. The breakdown of kinship systems began with the introduction of French philosophy and the effects of French culture on the people they ruled. Young men particularly began to escape from the family rule. Now it is said, "they become Catholics" because they are then no longer responsible to the old system. Young people have desires to own things, to grow their own produce and sell for their own profit. One young educator estimated that the extended family system would be gone in ten years. It will probably not happen that fast. The contrasts in the social structure will probably remain for much longer but for those who would see the society become more knowledgeable, more able to cope with the advancements necessary for survival and more able to change, it is important that they neither artificially hasten the fragmenting of the society nor that they assist the entrenchment of systems

that prevent the society from adapting.

b. Family Living Conditions

Houses are of two main types in rural areas, each having its characteristic arrangement. The most common type is the circular hut built of mud brick and plastered with mud covered by a conical roof. These single room dwellings are arranged in a semi-circle with or without walls connecting the houses and enclosing the central courtyard. There are from 4 to 20 houses in the circle or cluster of circles. Nearby - perhaps 1/2 km more or less is another cluster and so on, all of which form a village which may have 300 to 6000 people. Living in the small circle are the father, his wife or wives, children, grown sons and their wives and children. For various reasons, often disputes between sons, one son and his family split off and make a new circle nearby, thus clusters grow. The village may be made up of a single extended family or if large may consist of families of three or four tribes.

The other kind of dwelling is associated with Muslims. It is also a small mud-brick room but is rectangular in shape and the roof is mud on top of poplar poles and brush. These rooms increase in number as families increase in size and one room is built on the wall of another with passageways running throughout the card-house like maze. There are courtyards in the maze and walls protecting the group from outside gaze.

Most of the floors of dwelling rooms and courtyards are of pounded dirt. Some of these are kept swept very neatly and the whole unit is very clean; many however have much loose dirt and litter on inside floors. The rooms are dark with few or no windows, doors are openings in the wall often unprotected.

Cooking is usually done in the house with the smoke left to find its way out the door or a hole in the roof. This may account in part for the high incidence of lower respiratory disease. The huts are 10 to 12 feet in diameter and 10 to 12 people may live in one.

c. Disease and Disability Problems of Rural People

Although reporting is grossly inadequate, there are indications from existing data and from those who work in the health fields of what are the important health problems in the rural areas. Great importance is attached to the various endemo-epidemic diseases described earlier, however the distribution and intensity of specific infections varies from area to area. From an analysis of available records and information gathered on the field trips, a tentative listing can be made of the most commonly seen health problems of importance to the rural population. Without any real effort to arrange them in any order of priority, the list would include; malaria, acute and chronic lower respiratory disease, diarrheal disease especially amebiasis, malnutrition measles, meningitis, trauma, tetanus (newborn, postpartum, and wound infection)

trachoma and other eye infections, skin and wound infections, sepsis, and typhoid fever.

## 2. Health Sectors

### a. Organization

As noted earlier there seems to be considerable variation in how a health sector is organized and a confusion of terminology used to refer to the various subunits. The typical health sector can be cautiously described as having a Medicin Chef administratively in charge of all sector-level fixed facilities and mobile teams. Fixed facilities consist of Sector Health Administration, a main hospital, hospitals/medical centers of varying degrees of competence at the Chief-towns of different sub-prefectures, a few health center dispensaries/maternities alone or joint at other major towns including some chief-towns of Arrondissements, and a scattering of rural dispensaries and rural maternities serving as outposts. By no means does this network attempt to serve all the rural population outside the few fortunate villages. Theoretically, the circuits established for mobile medical teams cover all the major population groups in the Prefecture.

There is an obvious attempt to establish echelons of health service comparable to the local administrative levels of Prefecture, Sub-Prefecture, and Arrondissement. The two autonomous cities, Ouagadougou and Bobo-Dioulasso are the exceptions since they have separate municipal health services and independent National Hospitals. Also

retained under direct National control are a number of vaccinating teams and special surveillance teams. With the WHO Profile addressing the subject of numbers of facilities and categories of health personnel in detail, no duplication of that type of information will be made here.

b. Utilization

Comments have already been made on the manpower training, maintenance and supply, participation in preventive activities, and administration of the sector-level fixed facilities. Recognizably, these each are connected with the areas of concern of the five staff Directorates under the Director General of Public Health and Social Affairs. The lack of definition of the duties and responsibilities of the chief executive position for each Sector seems to be the principal obstacle to a more effective deliverance of rural health services. Field visits to seven of the ten health sectors confirmed that even the existing facilities and manpower were falling drastically short in their contribution to rural health that could be made.

Both statistics and observations in the field show a fair degree of use of hospital facilities. Outpatient clinic and dispensary utilization is a different question since the system of recording utilization does not lend itself to this kind of analysis. During team visits to the field, very little activity at dispensaries was noted. Many places were visited during the afternoon

when, traditionally, clinic attendance was mostly in the mornings. Also, the fact that medication at most dispensaries was in very short supply, or lacking, was said to have discouraged patient visits. The general opinion of those interviewed was that people would travel long distances to reach a health facility that was functioning and in which there was a reasonable degree of confidence.

c. Outpatient Visits

As will have been noted in other parts of this health sector analysis, the method of reporting of patient visits makes it impossible to determine either the number of different patients who attend a health facility in a year or the average number of visits patients make.

All units reported both verbally and statistically having large numbers of patients visiting their facilities each day. The season in which this analysis was carried out was said to be a relatively high season. There is no farming going on at this time and the temperatures were relatively mild. The attendance was said to have dropped off to nearly half the previous month however because most units had already run out of medicine and "the word was getting around." Admittedly we arrived at some places in the afternoon ("Patients don't come in the afternoon.") but even taking these things into consideration we were struck by the fact that in most places we visited, the staff was idle or doing very little. In hospitals, there

were no nurses visible in wards or halls unless seated around talking, except for an occasional emergency room, delivery room or operating room. There were few people waiting in most places. One of the places we saw a number of people waiting was in a food distribution center. There were also numbers of patients waiting at facilities in Ouagadougou.

An analysis of hospital, dispensary and maternity from Table 15 shows the following:

<u>Average bed occupancy</u>	<u>%</u>
Regional Hospitals & Medical Centers	64.6%
Dispensaries	181.7%
Maternities	67.2%

The figure for dispensaries is probably a mistake. There is a marked increase, 10 to 20 fold, in occupancy in contagious disease hospital wards during epidemics but this does not apply to dispensaries. In addition, the same phenomenon should be seen in hospitals and medical centers.

How much this reflects the validity of the rest of the figures one can only guess.

There are several things that came out of what was gained from discussions with many people both medical and non-medical.

- (1) People will come from 100 km to a facility that is functioning and in which there is a reasonable amount of confidence.

(2) "One thing people will buy is medicine."

(3) "The word gets around" that a hospital has no medicine and the numbers of people drop.

These things could be said to apply to a certain population, that is, those who do not follow the traditional actions taken when these things occur.

This is an area of almost zero knowledge, that is, what percent of the population will go to a modern (US traditional) health facility, if available, and when. This, by the way, is what is missing in the studies of utilization by distance from a center.

Both statistics and observations on the field show a fair degree of use of hospital facilities. Clinic facilities are a larger question because we don't know how many different people use a facility in comparison to the number of times certain people came. If the number of patients seen represented one patient visit per person rather than multiple registrations of one person, there would be half of the population being seen once a year. This is a very low level of medical care considering the amount of disease present. If patient visits are at all useful, we might have a figure of 1.1 visits per capita per year - again a low figure.

d. Hospitals

For any rural health delivery program, the top of the pyramid is the hospital to which patients can be referred for secondary or tertiary care. The highest level for

referral should be the two national hospitals. One of them, the hospital of Bobo Dioulasso, has reasonable facilities and apparently reasonable care, but the Yalgado Hospital in Ouagadougou, is incapable of functioning at any reasonable level. Better care, including facilities, diagnostic capabilities, organizational cohesion and treatment capabilities are found in Ouahigouya, Fada N'Gourma and Gaoua.

Yalgado Hospital, at the present time, has no medicines or dressings and very little X-ray film. They are doing only emergency surgery and X-rays in case of accidents. Bobo Dioulasso also reports acute shortages of medicines and supplies but seems to have at least some and manages these in a better way. However, almost all patients going to any kind of hospital in the country have to buy their own medicines and dressings. The three regional hospitals seem to be in better shape but still little can be dispensed to patients.

The total bed situation in the country is hard to specify. Fada N'Gourma, for instance, is listed as 198 beds, but they have a new (2 weeks now) convalescent unit of 40 to 50 beds, and their contagious disease unit is capable of taking 150 to 200 patients in case of epidemic, but it is closed now. Kaya, a 45 bed hospital is able to take up to 200 in an emergency. However, just using the figures as they appear in reports, the total bed situation in Upper Volta is:

Total Beds	3,645 (including city hospitals to rural maternities)
Population	5,772,712
# of Beds/Population	1 Bed/1,583 Population

This number of beds could not be construed in any way to be sufficient for this population. However, at this stage in the development of health services, it is probably all that can be hoped for. Any addition of hospital facilities in the country will tip the balance more in favor of the more advantaged. In addition, the capability of management and operation of these hospitals is so low that it would seem foolish to add additional units which would also be non-functioning. One of the notable things about most hospitals was that dental units and surgeries were often working, but in most of the rest of the hospital, there was little being accomplished.

e. Dispensary-Maternities, Medical Centers or Dispensaries Alone

These units vary from an extensive group of services with many beds (but probably not over 50) to a small 3 room dispensary with nearly 3 or 4 room maternity with 3 or 4 beds. In the larger dispensaries with several doctors, there was usually activity going on, patients waiting to be seen and at least one doctor seeing them. In the small dispensaries, there was little activity, personnel was sitting around; sometimes there seemed to be more personnel than patients.

Stores were examined and found to be very small quantities of relatively useless kinds of medication. Sometimes there was a stack of samples on the floor or on a table. Stores were much better at some of the medical centers but considering the fact that many had received their entire year's supply, there was pitifully little. At Gourci, they estimated the year's supply might last through March. Some medical centers (Kongousse) had nothing left and there was no pharmacy in town.

Examining tables in the average units were obviously unused. They were covered with dust, had papers arranged all over them or a microscope set up on them, or were buried behind a stack of boxes. I watched as one ill child was brought in. The two State Diploma nurses and one Brevete nurse had been knitting and chatting. One nurse moved slowly to the table, asked 3 questions, put her hand on the child's forehead and abdomen to feel the temperature and gave the mother 2 quarter tablets of Nivaquine, 2 quarter tablets of Aspirin and a prescription for 4 or 5 medicines.

It is impossible to find out how many patients are seen per year. The patients, diagnosis and treatment are listed each day. If it is a return visit that month, a hatchmark is inscribed on another page but they start all over again the next month. So, if treatment is continued over the beginning of a month, the patient is registered twice and if the patient returns with something else next month, he is listed again. At best, the

lists of "consultants" may indicate the number of incidents, but even that would be incorrect. We then might be able to arrive at an estimate of the number of patient visits per capita per year.

f. Maternities

Maternities are scattered fairly evenly among population groups. They vary from the large obstetric units of the city hospital to small 3 or 4 room buildings having 3 or 4 beds. Maternities are usually associated with dispensaries, but may be separate. There are 219 maternities in rural areas which with other small non-hospital units in cities account for 757 of the 1,607 beds outside of major hospitals or 47%. We have not yet been able to find out how many deliveries per year are done in these units.

The number of patient visits was 184,220 and the number of hospitalizations 15,115 in maternities not under a doctor's supervision, but which group this represents is not clear as medical centers and some health centers and dispensary-maternities are under a doctor's supervision at least indirectly. In this group, the average length of stay was about 6 days. Relatively few maternities are headed by sage-femmes, the state licensed midwives. Most are run by matrones. These women may have gone through a training course of 3 months; they may have been trained on the job by the Medecin chef or many have not.

been trained at all. A recent decree has been passed that training can no longer be done at the local level.

g. PMI or Maternal and Child Health Units

Most Maternal and Child Health programs in Africa are said to have grown up around the distribution of PL 480 food. This was mainly a relief effort to begin with, but as the U.S. began to insist that food distribution be accompanied by nutrition education, the activities of the MCH programs expanded.

The establishment of PMI's as part of the health services of the Ministry of Public Health began in 1969 and was a part of the 5-year plan of 1970-1975. However, a combination of new development plans, relief efforts and multiple donors put a variety of projects and groups into the act. Knowing the importance of mothers' and children's health to the well-being of a community, almost every program had a health component aimed at this level.

(1) The Ministry of Public Health and Social Affairs

PMI programs were designed as a part of the usual health units both urban and rural. Legally, all PMI's as well as all other health activities were to be under the supervision and jurisdiction of the Medecin chef du secteur. The actual existence of a functioning FMI has been dependent on the presence of an interested Medecin chef, infirmieres or other personnel such as Peace Corps Volunteers.

(a) The specific objectives of the PMI were stated:

- Pregnant Women - watch the growth of the uterus, find dystocias, early diagnosis of toxemia, cooking demonstrations and hygiene education.
- Children 0-5 Years - early diagnosis and prevention of malnutrition and vitamin deficiencies, case-finding of transmissible endemic and epidemic diseases.
- Both - Malaria prophylaxis.

PMI's were to be run by infirmieres, with matrones as assistants. Where there was either no personnel or little interest, the PMI did not develop.

(b) Private Groups - many private agencies, mostly Catholic also ran PMI's.

(c) Affaires Sociale, a division of the Ministry of Health, also began to develop PMI's. These were usually associated with Social Welfare Centers. This division was engaged in informal education primarily of women, but also of men. The education for women included cooking, sewing, knitting and a number of areas of hygiene and nutrition education. A number of levels of personnel were trained, all admitted to training by an examination in French. These are:

- Graduate Social Workers - Baccalaureate + 3 years advanced work

- Adjoint Social Workers - 12 years primary education
- Assistant Social Workers - 6 years primary education, given training in Home Economics
- Animatrice - 5 years primary school and on-site practical training

(d) ORD Social Centers - The first year the ORD program was begun, 5 women were hired from each of 5 villages chosen for community development, in each of the 10 ORD's (roughly equivalent to departments). They also hired Assistant Social Workers, Social Aids and Animatrices. The animatrice is the least trained. She is expected to move into a village, organize the women and get a social center program going. Part of the program is a PMI. The workers that are hired by ORD are under the Economie Familial of the Ministry of Rural Development. For health activities, they are supposed to be responsible to the Medecin chef of the sector.

(e) The Femmes Foyer of the Department of Agriculture have PMI's.

(f) Many other groups involved in development or health have or will have village level programs that will have PMI as a component in function if not in name: Save the Children Fund, Africare, World Bank, etc.

To complicate things more, the PMI's are divided into two groups, those who do and those who do not use PL 480 foods through Cathwell. There is considerable difference of opinion and not a little high feeling on both sides of this question. In both camps, there are PMI's that function well and those that don't, largely dependent on the motivation and fervor of those in charge.

Activities of most PMI's however, are very similar. They consist of weighing children 0-6 years of age marking the weight on a chart, spending some time explaining the weight to the mother, referring the child to a dispensary if it is ill, and teaching some cooking, sewing, knitting and health and hygiene and, if part of the Cathwell program, distribution of food. Many of the centers work well although the primary activity in a majority seems to be weighing and marking charts and distribution of food with little time for teaching. In most of the centers we visited, there was nothing going on, except in city centers.

There are some good things about the PMI's and some problems. A good precedent is being set in the small charge of 25-50 francs per month per child which pays the salaries of the workers, the transport of food to the center, the cost of the demonstration foods and the cost of a few medicines. The food distribution brings people to the centers, but in places where a good program is being carried out without food distribution, people also

come, but never as many.

The problems associated are multiple but the major ones are that they reach too few people, many are non-functional and the overall cost effectiveness is probably small. A great deal of time, effort and money is being put into something that is not addressing the needs of the people.

## E. ENVIRONMENTAL HEALTH

### 1. General

Environmental conditions in the rural areas are best described as man's adaptation to existing circumstances rather than an effort to manipulate conditions more favorably for man's well-being. The exceptions are essentially those interventions for agricultural production and to a limited extent for the amelioration of certain endemo-epidemic parasitic diseases. The mere existence of water is a matter of survival without additional concern about quality or as a source of chronic parasitism. There seemed to be little activity in an evaluation of the health/disease potential inherent in major environmental modifications such as irrigation, brush clearing, settlement, well-digging, plant protection and livestock exploitation. Even the major environmental control effort of the UNDP/OMS Onchocerciasis Program to hold down black fly populations has a relatively small element that considers there will be a residual health concern remaining after a "successful" vector campaign.

## 2. Central Organization

With the trend toward urbanization where national health services are concentrated, there has begun a limited interest in sanitary engineering with a service under the Directorate of Public Health identified for this purpose. However, there are no public health engineering, sanitary sciences, or occupational safety and health services as such. In 1975, 5 positions for Agents d'Hygiene were budgeted in Bobo and none in Ouagadougou. In 1976, five were continued in Bobo and one position was budgeted for Ouagadougou. This expenditure probably does nothing for the improvement or safeguarding of the elements in the environment in which the people live, work, and die.

## 3. Urban Water Supplies

The sanitary conditions in the cities of Bobo and Ouagadougou although poor by modern standards, are not serious enough to be considered major contributors to the spread of disease. Human wastes are deposited in open rainsewer drains at times during the year. However, this apparently does not result in significant contamination of the piped water supply system. The use of cesspools is a common means of disposal of human wastes in most developed commercial and residential areas of the cities. In Ouagadougou, there is a trash and garbage collection service "about" once a week. Some residences and commercial establishments use wells.

A visit to the water purification and filtration plant at Dougodougou and conversations at the Secretariat, Societe

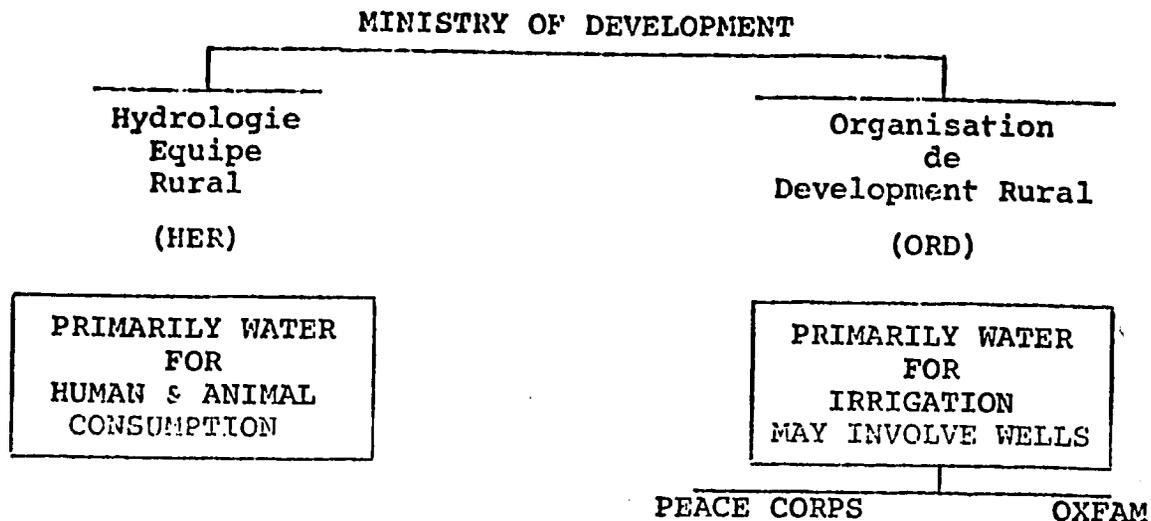
National Des Eaux (SNE), revealed the following about the piped water supply to Ouagadougou.

The company, Societe Nationale Des Eaux (SNE) which is 50% government and 50% privately controlled, is responsible for the water stored in the dams or barrages. At the present time, water is used from Barrage No. 3 close to Ouagadougou and Laumbila about 20 kms from Ouagadougou. The SNE is also responsible for the piped water supply for residential and commercial use. The barrages store only water from a natural source, rain. The water plant has a capacity of 15,000 cubic meters a day. There are 5,207 recorded establishment consumers both residential and commercial. The plant maintains a daily chemical check on the quality of water. Bacteriologic examinations are made each week on the four reservoirs located around Ouagadougou. The Ouagadougou hospital laboratory does the laboratory work and reports the results to the MOH.

The rainsewer drains in the city, although channelled close to the route of the piped water supply, do not co-mingle with water in the barrages at any point. It is reasonable to assume there is little contamination of the piped water supply system from the rain-drain system. The Danish Government, in cooperation with the Government of Upper Volta, is expanding the water plant located in Ouagadougou.

#### 4. Rural Water Development

The Ministry of Development controls water operations in the rural areas as diagrammed below.



The exceptions to this diagram are the AVV controlled areas.

In the rural areas, the Peace Corps Volunteers serve as operators and technicians in rejuvenating dry wells and digging new ones. In most instances, villages provide labor and materials and the Peace Corps Wells Program provides the technical service.

OXFAM, a British organization providing external assistance, acts as a funding source for wells and irrigation (dams) activity. The Peace Corps Wells Program has received required funds for well operations through village council requests to ORD and OXFAM. The funds from OXFAM have dried up recently because the Peace Corps well standards differ from the standards of the government control organization, HER. OXFAM has no further plans to fund well operations in the Peace Corps Wells Program which may result in serious curtailment of it.

### III. NATURE AND EXTENT OF HEALTH PROBLEM

#### A. THE SURVEILLANCE OF DISEASE

The principal collection of indices of health have been morbidity and mortality figures submitted administratively by the health apparatus operating throughout the countryside under the Director of Public Health. The last published report was for 1974, released in 1976. Since then, the health activities of the Ministry of Health has been reorganized placing both urban and rural health under one operational directorate, including the coordination of activities of the two national hospitals with that of the other health facilities in the country.

##### 1. Reporting Units

In addition to the two urban public health sectors of Ouagadougou and Bobo, the country is now divided into 10 Health Sectors and 34 sub-sectors for reporting purposes as well as making up a loose administrative arrangement. A weekly telephonic notification of cases and deaths for 18 transmissible diseases is made from each sector to the Epidemiology Section of the Directorate of Public Health. All but four of the 21 diseases recommended for the WHO African Region are included in those notifiable by the sectors. It includes the internationally notifiable diseases as well as diseases under specific surveillance programs. A weekly bulletin of cases and deaths by the 46 reporting units is distributed among the neighboring countries, other health agencies, and interestingly enough, US-AID. A spot review

showed over 80% of the reporting units recorded some cases of a notifiable disease for the week, the actual reporting coverage ratio was felt to be even higher. An estimate of populations covered by each reporting unit was obtained by matching Health Sector/Sub-Sector designations with census data used for specific control programs against the major endemic diseases.

a. The system for gathering in this information at the reporting units varied among the four units reviewed, a condition that mirrored the state of flux apparent in much of the field health activities. A brief report of some kind was being transmitted to Sector level by telephone or memo by each dispensary weekly (the telegram-lettre-official or TLO), one sector having the 18 diseases printed on a slip for entering the number of suspects. The flow of this type of information upwards was essentially to alert higher authorities of a suspected appearance of a health problem.

b. The collection of more substantive disease information was attempted through a structure of monthly accounts of activities prepared by the various fixed facilities. A fairly elaborate form is used for facilities that do not have a laboratory, with a place to classify patient visits by 53 nosological groups of the International Classification of Disease, and

TABLE NO. \_\_\_\_\_

Upper Volta Surveillance System  
Local Administrative Reporting Areas 1977

<u>Health Sector</u>	<u>Prefecture</u> (old department name)	<u>Sous Prefecture</u>	<u>Census Population</u>	
1	Ouagadougou (Center)	Ouagadougou-Urban	163,200	
		<u>947,170</u>	Ouagadougou-Rural	55,520
			Bousse	115,199
			Kombissari	101,546
			Sapone	81,734
			( Manga	107,552
		(1) ( Po	25,588	
		( Tiebele	61,732	
			Ziniare	134,993
			Zorgho	100,106
2	Fada N'Gourma (East)	Fada	153,534	
		<u>337,395</u>	Diapaga	88,006
			Bogande	95,855
3	Gaoua (Southwest)	Gaoua	167,582	
		<u>367,624</u>	Diebouyou	200,042
4	Ouahigouya (North)	Ouahigouya	243,682	
		<u>586,019</u>	Gourcy	131,030
			Seguenaga	126,559
			Titao	84,737

<u>Health Sector</u>	<u>Prefecture</u>	<u>Sous Prefecture</u>	<u>Census Population</u>	
5	Koudougou (Center west)	Koudougou	364,406	
		<u>873,143</u>	Leo	96,819
			Reo	109,224
			Tenado	78,878
		(2) Yako	224,216	
6	Dedougou (Volta Noir)	Dedougou	109,018	
		<u>627,394</u>	Boromo	69,568
			Nouna	75,746
			Toma	183,624
		(2) Tougen	189,438	
7	Bobo-Dioulasso (Upper Bassins)	Bobo Dioulasso-Urban	112,572	
		<u>546,770</u>	Bobo Dioulasso-Rural	110,242
			(3) Banfora	190,031
			Hounde	36,637
			Oradara	97,288
8	Kaya (Center North)	Kaya	248,098	
		<u>678,418</u>	Barsalogho	53,033
			Boulsa	160,629
			Kongoussi	168,713
			Pissila	47,945
9	Dori (Sahel)	Dori	129,392	
		<u>300,498</u>	Djibo	113,399
			Ouadalan (Gorum-Gorum)	57,707

<u>Health Sector</u>	<u>Prefecture</u>	<u>Sous Prefecture</u>	<u>Census Population</u>
10	Tenkodogo (Center East)	Tenkodogo	148,861
	<u>444,543</u>	Garago	85,960
		Koupela	121,630
		Zabre	88,092

- (1) Administered internally as a subsector reporting through Manga
- (2) Administered as a subsector
- (3) Reports directly to MOH as an independent subsector

Source:

"Weekly Bulletin of Transmissible Diseases," MOH

"Annual Report, 1974," Directorate of Public Health, MOH

by four age groups including sex of adults. The range of facility using this same form was extremely wide, from Health Center down to rural dispensary. It was apparent that this method of collecting disease information was crushed by its own weight. An almost identical form was used by facilities having a laboratory, but further dividing the nosologic grouping by half again. Laboratory activity listings are also quite optimistic, yet there is not the correlation between cases suspected and results of laboratory confirmation.

## 2. Mobile Units

Mobile vaccinations and active case finding teams use an activity type form to record their findings, submitting it on an area basis after they have completed a circuit rather than on a time period cycle. Special control teams for leprosy, trachoma, and onchocerciasis use their special activity forms. The teams are encouraged to note the presence of other disease entities during these screenings of villagers and to enter them on the form, a concept savoring of the old military Medical Civil Action Program (MedCAP).

While the mobile active-case-finding teams apparently are producing solid results in terms of cases actually identified, the ratio of missed cases was judged to be of a degree that minimizes the use of totals for program assessment purposes. There also seems to be an increased proportion of cases of these

major parasitic diseases being identified in hospitals through their passive case-finding activities.

### 3. Morbidity/Mortality Records

All of these records plus the sector hospital case load are entered onto a six-page monthly sector report. Examples seen of individual completed reports supports the impression that the system of recording morbidity and mortality is over-ambitious and under-utilized, losing much of its ability to function by being interlaced with management tools for supervising operations. A model of a simplified reporting arrangement was seen at the office of the Epidemiology Section, but it seemed that little interest had yet been generated to relieve themselves of the present burden. The Epidemiologic Section has recognized that this reporting system is cumbersome, calling it a leftover from the "old days." The new French Epidemiologist in charge of the section stated he hoped to redo the whole system but recognized that a revision of reporting also meant a redefinition of the curative/preventive medicine program at the fringes of the fixed medical facility skeleton.

### 4. Laboratory Confirmation

It is of interest to note that a system for the collection and submission of crucial specimens from suspected smallpox, cholera, and yellow fever cases was organized by OCCGE and installed in the field in

Upper Volta as a field trial. A total of 21 boxes of sampling equipment, containers, and instructions were provided to all Health Sectors so that definitive laboratory support would be available throughout the national health services. In some instances, disrepair of the boxes was noted already during the team's field visits. However, it does signify that the Ministry is willing to use a regional collaborating laboratory resource in the form of Centre Muraz, OCCGE, to back up their strictly national capabilities for definitive epidemic identification. The laboratory support available at the Centre Muraz is discussed more fully in the context of its primary mission as a regional disease control research and training institution.

The ability to screen suspected cases found through active case finding by field laboratory methods is an integral part of the mobile teams, however the quality of these confirmatory procedures probably follows the level of the overall operation. The results of the Health Sector/Prefectural Hospital Laboratories do not seem to make their way back into organized disease control administration, neither were any efforts noted to integrate their activities into the preventive medicine programs. It should be noted however, that not only is there a basic laboratory capability at each Health Sector/Prefectural Hospital but also at a number of Sub-prefectural medical facilities as well. (e.g. All four Sub-prefectures of Sector 7, Bobo-Dioulasso.

## B. APPROACH TO ASSESSING HEALTH PROBLEMS

Inasmuch as this subject has been addressed in depth by the Health Profile prepared for the Club, comments in this report will be directed at updating the description of the problem contained in the DAP. Also, it may be useful to note impressions of elements of the disease situation which tend to define roles for various components of the total health sector. The fact that the MOH structure is only one component and is very limited in its ability to provide services is very relevant to health sector assistance planning.

Although the critical situation of the immediate aftermath of the drought has stabilized somewhat, the changes in ecology and the country's capacity to respond still have their effects to alter the nature of the disease problems. There seems to be a loss of vitality in the health structure at the periphery to carry on the old, well-established mobile disease control activities. As a result, the infrastructural network seems to have deteriorated to simple outposts for giving immediate palliative care to dispensary visitors. Yet there still seems to be groundroofs yearning by the inhabitants of the immediate neighborhood for even these single representations of a national health service that cannot be denied.

Although the dimensions of malnourishment due to food scarcity have diminished, the periodic lessening of food supplies during the dry season and the caloric toll of

repeated bouts of fever and diarrhea still influence the outcome of many disease conditions, particularly in the younger age group. Nutrition per se has been updated in other assessments. The limitations of the inferences that may be drawn from results of anthropometry alone must be kept in mind when analysing the results of attained weights for age given as indications of nutritional status. This is particularly true when results are given in terms of above or below an index percentage figure representing the fiftieth percentile of well-fed urban children whose individual weights also range over a wide span of percentages below as well as above the actual median weights. The bottom line with respect to a nutritional factorization of morbidity and mortality should have the clinical and functional deterrents to health as the referent. The fact that the population as a whole is at a limited protein-caloric alimentation level is evident from food balance sheets of production plus imports.

#### C. TRANSMISSIBLE DISEASE

##### 1. Onchocerciasis

Although once a major consideration for the rural health program, the successful beginning of a regional control program has altered its importance for national health service intervention. Blindness is still prevalent and the reservoirs of infections still move about. But with transmission being interrupted, there is now an

opportunity to identify and follow carriers. Expectations are that methods of clinically managing these persons to reduce infectivity will be found during the life of the project. But much of the success in keeping the infection down after the vector control project ends depends on a strong and capable local health service monitoring the still existing human reservoir. A Preliminary Assistance Project (PAG) estimated that there were over one-half million carriers. An important surveillance element is the geographic coverage to detect small focal areas not under the formal regional control program where occasional transmissions occur to perpetuate the life cycle of the parasite. The inclusion of these responsibilities within the scope of the rural health system would be of great value and is discussed in more detail in relation to the Volta Valleys Authority (AVV).

## 2. Trypanosomiasis

This disease continues to be a burden on the country with an increasing number of new cases imported back into the country having been infected in the Ivory Coast and Ghana. The total number of infected persons registered under the control program is decreasing but also the number of new cases found by active case detection is much lower. The percentage of new cases being found by passive case finding in fixed facilities has increased

drastically over previous years. The decreased effectiveness of the mobile teams is understandable under the restricted means available to them and this raises the significance of the data coming in spottily from scattered active sentinel stations.

The new UNDP regional project for "Applied Research on Trypanosomiasis Epidemiology and Control: Surveillance and Glossina control in the moist savannah zones" has as its objectives to develop methods for holding down the riverine vectors and for increasing the sensitivity of detecting early infection in man. A high priority is being given to preventing this disease because the widely scattered foci of the vector each constitute a potential for sharp increases in new infections. Also there is the desire to maintain the confidence of the population, particularly in the newly opened lands under the Oncho program.

Although the parasites are distinct between human and animal forms, the vectors, geographic distribution, and diagnostic methods are similar for both. Considering the economic priorities attached to the animal form, close coordination with veterinary activities reduces the dependency of public health control activities on humanitarian justifications under an integrated rural development program.

### 3. Smallpox

With the formal declaration last year of the country as a smallpox-free area by an International Commission for Certification of Smallpox Eradication, the importance of this disease for the health sector has changed to one of vigilance. Fortunately, all the countries surrounding Upper Volta have also been declared free so that the situation of transhumanance presents no complication. As long as active cases still are recognized in the world and until time adds to a sense of security, an effective system of early alert, or when an immediate containment is practical, demands its place in the order of health priorities.

Vaccinations in this instance are epidemiologically justified as a measure of primary immunologic conversion at the most suitable age. At the time a case of smallpox is recognized, the general level of immunity, even though not at a protective level, would tend to slow the spread and the then required mass revaccinations would tend to have fewer complications. The announced policy of the MOH is to maintain immunizations at a reasonable level.

### 4. Measles

Vaccinations against this disease have had a direct effect on reducing its incidence. During years past when the number of vaccinations dropped, the number of cases rose. The more serious consequences of the disease in the rural African setting increases the justification of

continued vaccination programs. Because of the great susceptibility of the vaccine to inactivation by light and temperature, the vaccination program is performed by central teams, the chore falling onto the peripheral health services being one of supportive care to the missed susceptibles. However, the problems of increasing vaccination coverage through local motivation and organization at assembly points can be minimized by the rural health network addressing itself to this function.

Even with the centralized program, the possibility that much of the vaccine is inactive at the time of administration is thought to be large. It should be noted that there are indications that the health officials of a number of these countries recognize the great need for research to find a more stable vaccine and to better understand the effects of local factors, such as endemic malaria, on the initiation of an immunologic response in vaccinates. Part of a current operational research effort in the use of multiple antigens addresses the problem of mechanics in maintaining a cold chain in search for a more practical way to retain vaccine effectiveness.

##### 5. Leprosy

The incidence of leprosy is still high at 0.4 per thousand. Although the number of lepers to be maintained

under control is gradually coming down, the actual prevalence figure of those under control is still quite high. Some new survey information indicates that a significant proportion of the 71,244 registered lepers now meet the criteria for being released from control. On the other hand, the percentage of children under fifteen among all new cases found in 1974 was 10% in comparison with only 2% of the already registered cases that were in that age group. The Medicin Chef at Sector 7 who is particularly interested in leprosy has seen an increase in cases being found among school children and among family contacts.

A major activity of the sector level mobile teams is to make the circuits for active case finding and to control the clinical progress of the registered lepers. The Foundation Follereau has provided 55 million CFA a year to this activity for drugs, vehicles, and salary support. It reached 57% of the lepers in 1974. The maintenance of case cards and an annual examination to move the individual along the various stages of case management are essential activities of each health sector. Sector 7 is trying out a simple system of MacBee cards to have better records control through mechanization.

A wide variation exists in how assiduously each sector is carrying out this program. Besides logistical

support constraints, some feel that the teams lack wider training and motivation. The amalgamation of the two similar disease control programs, tuberculosis and leprosy, might lead to some improvement. But where attention is allowed to be diverted away from this work, hospitals twenty years from now will still be occupied with attempting to rehabilitate the same numbers of cripples from this disease.

Although tuberculosis was not mentioned in the DAP, it is a disease demanding the attention of the health services. Mobile vaccinating and case detection teams are operating with UNICEF support. The teams found 523 new cases during 1974 and had 804 remaining on their registers at the end of the year. The steps being taken to combine the tuberculosis control with the leprosy control have not yet tapped the full potential in terms of raising the technical competence and motivation in a team doing similar control work applicable to a wider range of human suffering. Although the daily activity of the teams seemed to be functioning passably, compromises have been made which reduce the frequency of their coverage. Also, cutbacks have been made by forming single assembly points among several separated villages instead of coming to each village in turn, which tends to reduce the number of attendees available for screening

6. Trachoma

A total of 27,826 trachoma-related ocular affections

were found in 1974. Over 75% of these cases were brought to treatment by the mobile teams as compared to 15% coming into fixed eye clinics. The national Mobile Ophthalmologic Group still make some rounds, but since it lost its ophthalmologist, it cannot provide the surgical repairs in the field as it once did.

Reports on field studies performed by OCCGE indicate that a low intake of beta carotene or retinol foods operates in many localities as a predisposing cause of chronic ocular infection and scarring, along with the environmental conditions of fine dust, water scarcity, and opportunistic infecting organisms. In any event, the frequent finding of simple xerophthalmia lead the previous ophthalmologist with the Mobile Ophthalmology Group to advise the periodic loading by vitamin A tablets to target groups.

## 7. Malaria

Malaria continues to be a major burden on the population throughout the country. For the second reporting week of 1977, 4,402 cases of malaria were reported from all but 14 of the 46 reporting areas (keeping in mind that 9 of these did not report any case of the 13 reportable diseases). Malaria transmissions are frequent and widespread so that the extent of parasitization with malaria may reach as high as 75% among

the younger children. The effect of the hyperendemicity of this single disease on the health of the infant and young child is extremely great. A major portion of deaths in this age group is attributed to acute malaria attacks until a balance is struck by the body in an accommodation to chronic infection.

The role of the national health services has become one of caring for pernicious attacks and advocating a regimen of chemosuppressants for the infants up to five years and for pregnant women. At the dispensaries visited it was noted that patient visitors with fever were immediately classified as "Malaria" and a few doses of chloroquine were handed out. With few exceptions, well-baby clinics (PHI) were not emphasizing a program of chemosuppression, rather sending out a mother with a feverish child to the dispensary where treatment for temporary relief might be available. Also, an observation made at one hospital laboratory is revealing. The lab record book showed a large number of blood slides submitted in support of a clinic operation. Only a few of the examinations were positive for malaria. The laboratory technician demonstrated his technique and showed slides he had read. His work was competent enough. Inquiry of the clinic physician revealed that he asked for no tests on the very obvious malaria cases, but was using the lab as a tool for differential diagnosis where he, as an experienced physician, saw the need. One can draw conclusions from that as to the value of the large number of Malaria cases being reported each week by the other smaller health posts.

The nature of the malaria problem does not appear to be solely one of extent of infection, but one of a misdirected public health response to the realities of widespread exposure and a process of gradual adaptation as the individual matures. The field of transmission potentials would provide more revealing information regarding the extent of this health problem than the morbidity figures usually given in public health reports. Knowledge of transmission dynamics, including the size of the human reservoir pool for infecting vectors, is an important factor in order that existing activities and resources can obtain better results against the main threats to health. The actual pattern of vectors and their vectorial potential can be translated into guidance for primary care level activities and community action to further protect vulnerable age groups.

#### 8. Cerebral Spinal Meningitis

This disease should also be mentioned as an important health problem. Although the number of reported cases had been decreasing up to 1975, the case fatality rate for that year reached almost one out of five. Some trials of vaccine have been made which may be of help. Studies in the Centre Muraz on antibiotic resistance have not

found that this may be a problem. Some bacteriologic surveys have found that among the group studied pneumococcus, hemophilus, and other organisms were in predominance rather than meningococcus. Early diagnosis and prompt antibiotic therapy seems to be coping with the problem so far, if the patient can reach an adequately supplied dispensary in time.

#### 9. Treponematoses

Both syphilis and yaws have been singled out as diseases of special interest by the Directorate of Public Health. They appear as one of the diseases to be sought by the general mobile teams and by dispensaries, treated according to plan, and reported both on the weekly notifications and the monthly sector report. Specimens for serologic examination are also encouraged when needed for doubtful clinical cases. A distinction is not being made between venereal syphilis and bejel, and the impression received was that the latter is the more common, particularly in the drier areas of Dori. An indication of the degree of endemicity can be obtained from the 1974 Annual Report; 6,148 cases of syphilis and 1,156 cases of Pian. Of the 290 serums tested, 79% were found positive.

Control strategy against the treponematoses developed under the Grandes Endemics concept lends itself very well to an application by local community action cooperating with the established local public health program.

10. Dracontiasis or "Guinea Worm"

Although actual numbers of cases are not great and the outcome of the disease is usually favorable, parasitism by the worm is well known to the villagers experiencing this endemic parasitic disease. It is said that the itching and general nauseous feeling is not to be soon forgotten. The nature of the life cycle of the nematode is a closely ordered set of circumstances for its perpetuation; an infected person immersing open lesion of the leg where the worm's uterus responds by the discharge of larvae into water. A small copepod of the genus Cyclops becomes infected and provides an intermediate host in which the larvae can mature to the infective stage. Only then, as man drinks the unfiltered or untreated water, can the larvae mature to be a reproductive adult in the human host.

As can be seen by the above description, it is man's behavior in a relatively unantagonistic environmental scene that brings his own misery. The sites in which this cycle continues are limited. In 1974, 50% of the 6,155 cases of guinea worm were reported from Ouahigouya and Dori (recall that the sous-prefecture of Djibo, Prefecture of Dori, was under Ouahigouya for reporting purposes at that time).

Another factor to consider is that traditional healing of this affliction is sufficiently successful so that

patients have no real need to seek fixed rural health facilities where the incidence would be picked up by their reporting system. The mobile teams have been tasked with responsibility for including this infection in their active case finding repertoire and are thus reporting to a limited extent. Research on the bioecology of the Cyclops, particularly on its natural foci, is a non-priority subject of the 1977-1980 program of the Centre Muraz. Unfortunately, the real value of western medicine is not being put into play by sector public health programs through the use of reports to track down the specific nidus of the adult worm in the man-crustacean-nematode cycle and engaging village support to interrupt transmissions. A sharpening of the talents of presently available health cadre could result in the quality of life for that village being abruptly uplifted without additional costs to the national health services.

#### 11. Schistosomiasis

This seems to be the forgotten "major endemic parasitic disease" within the rural health program. It is not one of the diseases included in the mobile active case finding list of diseases; it is not an obligatory reportable disease; and it seems to receive no more attention than to appear on the monthly report of cases diagnosed and treated. The 1974 Annual Report records 19,635 cases of vesicular bilharziasis, the WHO Health

Profile cites a three-year survey, 1952-53, where 44% of the young surveyed were infected and 25% of the adults.

The general feeling is that it is much more common but that people with the disease are not unwell and are not disturbed by occasional bloody urine so they do not seek medical help. Also, the laboratories at fixed facilities are not often used and when they are, positive results do not get back to the writer of the monthly reports. One wonders, though, of the significance of the sector level Laboratory Activity Report for 1974 that gave figures of 2,953 positives for the parasitological examination of urine specimens (43% of samples examined). With a significant reservoir of human cases and widely distributed snail hosts, the potential for even more serious impact of this disease takes on reality for those who plan further irrigation or water-related agriculture.

The Minister of Health himself expressed his concern by voting for bilharzia as the top priority for applied research by the Centre Muraz in last year's technical conference of the OCCGE. The actual program of research published by OCCGE in their October-November 1976 Bulletin of Information, includes a proposal for geo-epidemiologic and sociologic studies of endemic areas. This may be a first start for an organized approach to schistosomiasis in Upper Volta, but it is noted that

restrictions have been placed on field work by the Centre Muraz because of financial constraints within OCCGE.

## 12. Diarrhea

Another health problem that deserves attention is the morbidity associated with poorly managed bouts of diarrhea in infants. The fact is that the population in a village is essentially one continuous gut in that each shares the intestinal flora of the other as well as whatever new organisms appear in the environment.

Salomonellas and to a lesser extent Shigellas have been readily isolated in specific investigations around Bobo-Dioulasso. Diarrheas together with fevers place a drain on the already fragile nutritional reserves that can quickly lead to critical situations. With hospitals being few and far between, the health problem becomes one of being able to intercede early at low level health facilities with oral rehydration and proper management during times of crisis, being vigilant for specific serious causes, and helping the family raise the child in a fragile symbiotic adaptation to its environment.

### D. SUMMARY

The attempt here was to present the health problem in terms of forms and extent of response by the health services. Some major endemic diseases are being attacked by local health sector activities outside of the national health program,

although there is an important portion that falls on the national system of disease surveillance. Other diseases are being successfully pursued through mobile teams by vaccinating, active case finding, and long-term follow-up, but the efficacy and coverage of their operations needs upgrading. There is a role that fixed dispensaries can play in combining tactics of long-term prevention along with their deliverance of conventional medical care. Finally, there is the burden of illness associated with the quality of life in the community, on which the family and the community must assume some responsibility for placing their own priorities, together with the other priorities of an agricultural society.

#### IV. NON-MOH OPERATIONS IMPACTING ON COMMUNITY HEALTH ENDEAVORS

##### A. EXTERNAL DEVELOPMENTAL SUPPORT

It was recognized quite early in the study that the economy of Upper Volta receives a large amount of support from outside sources. The great dependance on direct support to the health sector through external assistance to the Ministry of Health has been well documented in the WHO Profile and has only been lightly touched upon in this report. It was impossible for this study to make any assessment of the dimensions of external support to a wide spectrum of economic development projects which significantly affect the immediate quality of life and its corollary, community health. It can be said, however, that there are major movements under way designed to more fully exploit the agricultural sector that both depend upon and affect the human resources of the rural areas under development. The lack of coordination between these efforts and the health professionals prevents the introduction of concerns for the biologic well-being of the human element at the time of program formation, when the health needs can be responded to most economically. The practice of deferring all questions of medical care to the realm of formal Ministry of Health service responsibilities only transfers the burden to a more expensive, non-productive aspect of the total health sector. Three activities external to the Ministry of Health programs were encountered frequently in our study of the health sector and are discussed more fully below.

**B. ORGANIZATION OF COORDINATION AND COOPERATION FOR THE CONTROL OF THE MAJOR ENDEMIC DISEASES**

The Organization of Coordination and Cooperation for the Control of the Major Endemic Diseases (OCCGE) is an Inter-State organization funded by eight African member states and France. The Minister of Health of Upper Volta is the permanent vice-president of the organization and its General Secretariat is located in Bobo-dioulasso. A headquarters office is also maintained in the Ministry at Ouagadougou.

The OCCGE has an operational function in the form of four regional Institutes, a major one located in Bobo-dioulasso. The primary mission of the Institutes of OCCGE is to carry out basic and applied research in the area of disease biology and control according to programs approved during the annual technical conference with the member states. The second function is to provide technical training in special subjects to various health workers from the member states. An extremely important function is to provide epidemic control teams in cases of an outbreak or to do specific field investigations at the request of a member state. In this latter instance, the OCCGE Institutes fulfill a key role in the individual national organizations for public health, particularly in the case of Upper Volta. Upper Volta provided approximately 40.5 million CFA in 1975, 42.5 million for 1976 and for 1977 as their share of the operating budget.

Of all the Institutes of OCCGE, the Centre Muraz provides most of the support services immediately relevant to the health programs of Upper Volta. The Institute Marchoux in Bamako, Mali, offers training in the surveillance and control of leprosy, and a small capability for clinical studies of trachoma and onchocerciasis is present at the Institute of Tropical Ophthalmology of West Africa. However, the Centre Muraz, located in Bobo-dioulasso is the largest and most versatile institute and its presence within the country makes it even more accessible to the national health program.

The Centre Muraz concerns itself principally with the major infectious and parasitic disease which are also of importance to Upper Volta. It provides at close hand the services of a definitive support center for virology, protozoology, parasitology, bacteriology, immunology, entomology, malacology, and zoonoses which are readily available to the government. Much of their field studies are conducted locally, helping to clarify disease situations in this country.

The professional staff is predominately French allied closely with academic institutions back in France.

Unfortunately, there seems to be a loss of vitality in their activities from times of their heyday in the fight against the "Grandes Endemies." A sensitive spot was touched with the separate creation by WHO of a project, "Applied Research on the Epidemiology and Control of Trypanosomiasis," independent of the Centre Muraz. Concern for the future of the Centre was

voiced by some member states during the annual technical conference of April 1976 and a desire to increase the technical capability of Centre Muraz was expressed. The new director of the Centre was cordial and very cooperative in explaining how his activities supported the health sector, repeating the Centre's desire to fill an essential need to complement national health programs. Together with the Principal Medical Officer of the Biology Section, they spoke very highly of the services that the USPHS, CDC, Epidemiologist, Dr. Joel Bremen, had rendered during his assignment with OCCGE. Apparently he was one point of U.S. assistance in the health field that was greatly influential in the eyes of the African member states, as well as being a rallying point for western-oriented French medical officers.

The Biology Section in particular is involved in projects that can act as a vehicle to assist the country in the health sector, demonstrating a western approach to preventive medicine and influencing the character of the country's response to its health problems.

With respect to the field programs of the MOH relative to the identification and control of the major endemic diseases, one is left with the impression that these efforts are remnants of the vertical programs initiated under OCCGE auspices as the original organized campaigns against major health problems. Even now there seems to be a dependency on some organizing and

motivating entity that has dissolved away with the retrenchment of OCCGE into its present role of research and training support, with only emergency-type involvement in individual national control efforts. As noted in the review of the national surveillance system, the country is left with an intricate operation with an elaborate accounting of activities and findings, with little review at intermediate supervisory levels. Any effort to increase the effectiveness of the surveillance and control of the human element in the major disease situations should consider the historic relations of the OCCGE.

C. REGIONAL DEVELOPMENT ORGANIZATIONS (ORD)

As an instrument to foster agricultural and community development in the rural areas, the Ministry of Rural Development has established a system of local organizations responsible for planning and implementing all agricultural operations in their region. The Regional Development Organizations are public agencies responsible to a governing council representing local administration and communities and have full-time directors and staff. Each ORD region coincides with the civil administration boundaries of a Prefecture with the exception that the Sub-prefecture of Banfora is a distinct ORD separate from the rest of Bobo-dioulasso Prefecture. While the ORD's are under the general supervision of the Ministry of Rural Development, each receives its own budget and operates with revenue generated by its own activities. A major effort of the ORD is at the village level in organizing community efforts to improve agricul-

tural practices and to sensitize villagers to accept change. A major goal of the development schemes is to make rural life more attractive to the population. Staff officers concerned with aspects such as economic planning, rural development works, and community development act as extension agents to combine the technical services at ministerial level with locally conceived plans for progress. Centers for the education of young farmers are trying to "ruralize" the old formal Rural Education Program. Community organizers include concerns for the well-being of people in their efforts to motivate villages to clean up areas, safeguard water supplies, improve maternity facilities, or establish a local supply of simple drugs. Home economy agents work with family groups in child care and mothercraft. Village extension workers encourage the nomination of a village based and supported health worker.

Specific activities or projects depends on the decision of the individual ORD. The degree to which the representative of the national health program participates in the analysis and plans for health related problems depends largely on the inclinations of the individual Medicin Chef. There seemed to be no definite instructions from the MOH nor was there evidence of significant coordination at the ministerial level. This state of affairs leaves a wide gap between the one consolidated program to improve the social and economic level of the rural population through community organization, and the stated goal of the health sector to improve the health and well-being of the same target population.

## D. VOLTA VALLEY AUTHORITY (AVV)

### 1. Purpose

Numerous areas by the valleys of the Volta rivers in the south of the country have been heavily infested with the black fly vector of onchocerciasis. People shunned these areas, living far enough away from the fly breeding areas where exposure to infection was down to a tolerable level. This left large areas of agriculturally rich land uninhabited or underdeveloped. A program to regain the economic advantage of the agricultural potential has been funded internationally to reduce disease transmission through vector control and to resettle the freed areas. A financially autonomous national agency was created in 1974 and given the authority, under the Minister of Rural Development, to take all actions necessary for the resettlement and economic development of specific zones in Upper Volta that are under the UNDP/OMS Oncho Control Project. The Authority for the Management of the Valleys of the Volta (AVV) therefore has primary responsibility for almost one fifth of the countryside, being that part where population growths are to be the most marked.

The AVV is concerned with the creation of a community self-sufficiency in village level services within the resettled areas as well as an economic output, and plans to make low level technology available for village enterprises. Consumer associations, agricultural supply stores, and marketing organizations are included in the plans for newly opened lands. However, a spontaneous movement to resettle some of the valleys is already underway even before effectiveness of vector control work had

been demonstrated and a process for resettlement had been organized.

## 2. The Onchocerciasis Control Program (OCP)

All the highly endemic areas of Upper Volta are now under an internationally organized vector control program extending across the south of the country from Mali to Niger. The expanse of land under the program is extremely large, dwarfing many times over the size of any previous oncho vector control project. Control strategy is directed at the destruction of the larval stages of the fly by the periodic dosing of flowing rivers at identified breeding sites. Larvaciding is done by helicopter in an aerial operation conducted with almost military precision. A large number of entomological surveillance stations have been set up which radio in results of adult biting catches and larva searches on a weekly basis. Together with hydrologic data of stream flow, missions are scheduled for larvaciding to hold breeding within the control area to a minimum. The OCP is programmed to continue for 15 to 20 years with the objective of preventing transmission of infection to new immigrants until the disease has disappeared from all previously infected cases.

A much smaller Epidemiological Evaluation Unit also operates under the OCP in order to confirm entomological results through surveillance of infection in humans. At present, parasitologic and ophthalmologic methods are used for the medical determination of the presence of infection in man, after which comes a process of eliminating any possible alternative to a final conclusion that a new infection has actually been transmitted.

Taking into account the long incubation of the disease and the difficulties in detecting low transmission levels, a long period of surveillance appears necessary in order to obtain a reliable evaluation of actual conditions by existing epidemiological means.

### 3. Public Health Concerns in Resettlement

One can identify three health aspects in the movement to resettle and exploit the previously deserted areas which now give economic promise under a sustained vector control program. The first is the provision of simple primary health care for the usual injuries, minor ailments, and demands for medical/maternity services that arise in any community. In this instance, the lands are newly opened for habitation and a structure of health services must be created linking new settlements back up to the national health services at Health Sector/Prefectural levels. While the AVV can plan certain community level action, the integration of the community into the national health program must be planned cooperatively with the MOH.

A second aspect now recognized as essential for a successful opening up of any new land, is the epidemiological and environmental health assessment of the impact repopulation will have on the resurgence of those diseases of natural focality. The migration of man into the areas can introduce old endemic diseases into new epidemic environmental conditions. Man's entrance onto the scene may evoke transmission of infections heretofore hidden in the unpopulated natural environment. Also environmental changes concomittant to resettlement may increase the potential

for certain diseases while it eliminates the hazard for others. Since resettlement is a dynamic process over the number of years until stabilization, a structure for vigilance over the nature of the disease problems appearing among the inhabitants is an important part of a national public health coverage.

The third aspect concerns itself specifically with the threat of onchocerciasis. The internationally organized OCP is primarily one of temporarily suppressing vector breeding by larvaciding. When the larvacide has been swept away by stream flow, breeding can recommence by the few surviving adults. In a little over a week, transmission of the parasite to a new host can occur where it then can survive up to 15 years awaiting another chance for cycling. The difference in the time factor of the parasite's life cycle subject to the OCP control, compared with its survivability in the resettled inhabitants, produces a significant vulnerability in vector control measures alone.

The possibility that transmissions may persist is recognized in the proposed criteria for allowing resettlement programs to be implemented. A tolerable level of disease is suggested where medical consequences of socio-economic importance are not detected. National interests are at stake in making those determinations that have not been specifically delegated to the international organization for vector control. In view of the long time span that the inhabitants must be kept under surveillance, supplementation of OCP epidemiological evaluations of vector control by national health services is warranted. While an arbitrary number can be assigned for an acceptable entomological

index of a tolerable annual transmission potential, resettlement should only begin after definite plans are made for the provision of a public health network to follow the level of the disease in humans, acknowledging that a risk of infection does exist. In addition, there is the value of manipulating other community factors which enter into the stability of the disease's ecological situation, vector control not withstanding. Permanent liberation of an area from risk of the disease will probably only come as the result of local preventive measures instigated by local public health services complementing the regional factor control work.

## V. CONCLUSIONS FOR HEALTH SECTOR DEVELOPMENT

### A. Introduction:

The accumulation of details of pertinent elements that make up the body of a health sector assessment should be evaluated and synthesized into a document that fulfills the objectives underlying the study. In reaching conclusions as to viable alternative approaches for bilateral assistance, some degree of subjective thought enters regardless of one's efforts to make objective use of each team member's contribution. In this instance, the team leader has been tasked with putting together, in a coherent fashion, the end product of the completed study and has attempted to reflect the composite assessment and recommendations of the team.

### B. Summary of Health Problems:

#### 1. National Health Priorities:

##### a. Endemic Disease Control:

Out of a wide variety of maladies which exist among the nation's population, the Voltaics have selected the following major endemic parasitological and other infectious diseases against which nationally organized control efforts are to be made:

1. Onchocerciasis
2. Shistosomiasis
3. Filariasis
4. Malaria
5. Trachoma
6. Leprosy, and
7. Intestinal infections.

**b. National Health Care Facility:**

The Government's second priority is to maintain one or more definitive medical and surgical treatment facilities as a National base for relatively sophisticated medical care.

**c. Rural Health Delivery Services:**

Of relatively low priority is the national Government's response to the common illnesses and injuries of the rural population by extending National (free) medical care directly out to all small villages. The Voltaic perception seems to rest on the first preliminary step of strengthening the administrative control of prefecture-based health sector public health activities. They seem to interpret the health problems in the villages as being divisible into two parts for the time being; one as the site of the human element in their fight against the selected parasitic diseases through mobile teams and secondly the general burden of ailments and injuries that villagers must cope with, making such use as they can of established dispensary outposts.

**2. Health Related Influences:**

As in other developing countries there exist in Upper Volta environmental, educational, societal and developmental forces which influence the health status of both urban and rural communities. These forces contribute to a large mass of vaguely defined illnesses and deaths which up to the present time have not been identified and quantified in the usual public health programming sense. But the fact that they accentuate the health problems facing the national health service cannot be denied, even before health statistics and demographic studies have been able to clarify them. Health hazards associated with rural development, irrigation, water exploitation, agribusiness and transhumance all merit attention. The task confronting the

Minister of Health is how to apply the skills and knowledges of the health sciences to the well-being of society indirectly through leadership and cooperation with other social entities and agencies that concern themselves with those forces.

C. Administration of Health Services:

The Ministry of Health operates currently within a system which it has inherited, i.e., the Grandes Endemias, with a few major hospitals, and a loose network of health outposts which are inadequate in number and resources to give full population coverage. Budget increases to expand the coverage by increasing the number of conventional dispensaries are unrealistic under present economic conditions. The feasibility of the present system of health data collection to provide acceptable demographic data for realistic health programming against the total burden of illnesses thwarts national policy to reform the system.

While the outward appearance of MOH activities seems directed toward continuing more of the same past efforts, the Presidential mandate of December 9, 1975 for 1977-78 planning makes it clear that innovative approaches involving popular participation must be devised to attain socio-economic development within the available resources while not prejudicing external assistance in the meantime. It calls for a realignment of existing human and material resources for their rational utilization and the progressive involvement of the social framework of rural population groups. Specifically, the instructions were to integrate the social/sanitary services delivered at the national and departmental administrative organizations with regional efforts for economic, cultural, and educational development.

It is difficult to say at this time whether there are some hidden constraints preventing the MOH from approaching the health needs of the rural population in this way or whether they are unsure of how to begin to extend themselves other than by the conventional and fiscally impossible route. It also seems that some of the external assistance contributes to, if not directly encouraging the pursuit of the existing courses of action which are demanding increasing portions of the national budget. However, the strategies developed International and African Regional organizations of which the Government of Upper Volta is a participant should mold national philosophies of rural health delivery systems into channels compatible with the recommendations contained in this report. Our recommendations for bilateral assistance are directed toward encouraging implementation of national responses to the fundamental health needs of rural populations that are receiving regional endorsement.

Hopefully, the choice of intervention at the primary operating level of the prefecture will provide a base unit where the national aspirations for a health service can be crystallized, refined and developed.

### 3. External Factors

#### (a) Voltaic-French Assistance

In the administration of its health services the Voltaics continue to maintain close association with France. Thus, a number of key positions for the execution of the public health program are filled by technical personnel furnished under the French technical assistance program. This has the effect of reducing the opportunities for the Voltaics themselves to develop their own

capabilities for coping with their health requirements. While the services gained through technical assistance is recognized as being essential, the placement of expatriates in positions of administrative responsibility rather than as advisors tends to restrict local initiatives to manage and innovate within their own cultural context.

(b) International Organizations

There has been an appreciable amount of external assistance in the form of direct delivery of health care to selected population groups which at times has not contributed to a development of an overall health sector program. This has included World Health Organization projects for strengthening health services and a gradual coordination of the health services has been fostered. Currently, the WHO country representative provides a point of coordination for health sector development projects by external donors. A country-level strategy for health sector development in Upper Volta has not yet been well defined. However, the participation of the Government of Upper Volta in WHO regional projects, particularly those developed for training and guidance in national health planning dictates maintaining a close liaison with the WHO representative.

(c) African Regional Organization

Three major regional organizations in which the Government of Upper Volta is a member appear to have a great potential for impact on the development of national health strategies; these are Club des Amis du Sahel, (OCCGE), and the WHO Regional Project, Strengthening Health Delivery Systems (SHDS) for which AID provides the secretariat and primary funding. These development efforts on a regional basis are setting certain patterns of change which adds an element of direction to the national health situation. In addition to higher level technical support services in specific areas, there are also

available to member states facilities for training, operational research, and health program development. The development of such mutual approaches by the African nations in seeking solutions to their health problems has been taken into consideration in bilateral U.S. assistance planning.

D. A Strategy for U.S. Bilateral Health Sector Assistance

1. Our conclusion is that U. S. bilateral assistance should contribute toward Voltaic development of indigenous middle-level health resources required for the execution of health delivery programs, which extend services to the mass of rural inhabitants. In viewing the fact that principal current resources secured directly from MOH within the fairly firm ceilinged budget is the health cadre in place or in training, emphasis for newer health activities should be placed on expanding the availability of technical support downward from the prefectural level rather than the provision of direct services at the village level. Recognizing that considerable donor assistance is already being given health services at the National and Regional levels, additional assistance is needed at the prefectural level where such support cannot be provided by the Ministry of Health.

The areas at prefectural level meriting added external support are:

- a. Developing technical support resources and competence at the inter-face of the national public health system with local civil administrative/village level organisms.
- b. Improving the efficiency of sector level effort in the prevention of the major endemic diseases through the location of permanent facilities within each sector.
- c. Increasing the capability of MOH to more effectively administer and manage sector resources in response to the newer roles of the prefectural health sector in supporting health care for the village.
- d. Augmenting the contributions of curative medicine to established preventive measures, and improving cost/benefit ratios at fixed facilities.

- e. Encouraging the introduction of a health sector planning process into socio-economic development schemes.

**E. Recommendations for Action**

- a. Support for the identification and design of community based health services as self-supporting components in selected health sector/prefectural-level organizations.
  - (1) Consultation and assistance at sector administrative level in interpreting MOH policies and guidelines into operational methodologies, including the management of MOH goals for Protection of Family, control of diarrhea, malaria, etc.
  - (2) Development at the community level linkages to back up sub-sector levels which are serviced by the national health services.
  - (3) An initial programmatic approach may be within an Integrated Rural Development demonstration area, along with an operational research study of the socio-economic return of health.
- b. Increased facilities for orientation and training in the implementation and management of sector-level public health programs and community involvement.
  - (1) Technical and material support to the National School of Public Health as satellite rural training centers.
  - (2) Sponsorship of a 3-5 year period of training in health administration and management perhaps in conjunction with the National School of Administration.
  - (3) Financial support for seminar/refresher training on methodologies and evaluation of case detection and control of the major endemic diseases, most logically at Centre Muraz.
- c. Expanded medical intelligence on major preventable diseases for use in Health Sector/Prefectural public health programming and operations.
  - (1) Joint project with Centre Muraz to map the geographic distribution of major endemic diseases of natural focality and to determine a reasonable array of sentinal surveillance stations.
  - (2) Field trials and evaluations of various combinations of polyvalency in specific disease case findings and surveillance teams.

- (3) Adaptations of efficient methods for maintenance, review and analysis of case files and treatment records of chronic carriers.
- d. Reduction of per patient operating costs of hospital units and fixed facilities through more efficiency, logistical and support procedures,
- (1) Installation of tableting capability in-country to utilize lower cost of bulk generic drugs for the expansion of distribution and marketing facilities at lower health echelons and "village pharmacies", (joint private industry with autonomous National Pharmacy).
  - (2) Cost/benefit analysis and identification of building layout inefficiencies at Yalgade Hospital.
  - (3) Supplement to patient care costs by the use of PL 480 feeds for nutritional maintenance of all in-patients as well as for nutritional rehabilitation.
- e. Strengthening health components of social and economic development by the addition of a Health Economist/Planner to the agricultural and rural development projects.
- (1) Introduction of a health sector planning process through liaison with ORD's and AVV activities.
  - (2) Program support to Social Affairs/Community Action programs addressed to health maintenance and nutritional education elements of the Protection of the Family Services.
  - (3) Health advisory support to Home Economics and Young Farmer projects of the Ministry of Rural Development.
  - (4) Project to add a health annex to Tambao Mineral Development Project.

A P P E N D I X I  
POPULATION DYNAMICS

Prepared by  
Dr. Ruth Comacho

A. DEMOGRAPHY

The population of Upper Volta was 4,372,000 in 1960. It is estimated that the population in 1975 is 5,572,712. The natural increase although inexact is thought to vary between 1.9% and 2.1 % per year for the whole country but 1.2% for the Mossi plateau. This latter low increase is considered to be due to large emigration from the region. Although the urban and semi-urban population accounts for only 11% of the total population, urbanization has been proceeding at a much higher rate (7%) than the growth of the general population. The reliability of most population figures is low as they are mostly based only upon sampling but if we took 2% as the rate of total population growth, Upper Volta's population in 1980 would be 6,187,000 in 1990 - 7,542,000 and in the year 2000 - 9,194,000.

The crude birth rate is currently estimated to be between 49-50 per thousand and the crude death rate as of 1970 to be 29 per thousand. Infant mortality rates, however, range from 150-200 per 1000 live births. Forty-three percent of the population is 0-14 years of age, 54% are 15-64 and 3% are 65 or over. These figures would give us an age dependence ratio of 3. From 1960 to 1970 the life expectancy

at birth increased from 32 years of age to 35 years of age.

Upper Volta's total land surface is 274,200 km<sup>2</sup> with an average density of 20 persons/km<sup>2</sup>. However, the density is extremely variable from region to region and may be as low as 16/km<sup>2</sup> to 40<sup>+</sup>/km<sup>2</sup>. The higher density and excessive population pressure is in the center of the country in the Mossi plateau. This plateau which represents only 32% of the total area, contains about 61% of the population or 3.5 million people. This uneven population distribution has created serious difficulties especially in the light of decreasing agricultural production in this highly densely populated region.

The population will continue to be increasingly younger, at present 43% of the population is between 0-14 years of age. This distribution provides us with a measure of the country's dependency load and is important in the consideration of crucial development issues: food needs, education costs, health costs, general consumption needs, manpower potential and other social requirements.

1973 official estimates indicated that there were approximately 543,000 permanent Voltaic emigrants and 194,000 temporary emigrants. A survey of the population movement of the Mossi plateau was conducted by ORSTOM (Office de la Recherche Scientifique et Technique Outre-Mer). This French demographic research organization collected vital information relating to the migration patterns of the Mossi people. The data was

collected in 1973 and published in 1975. The material covers many aspects of Mossi migration among which are:

1. Internal Migration of Mossi
  - a. Past and Present
  - b. Sociological environment of agricultural migration and migration towards "new lands"
  - c. Psycho sociological aspects of internal migration
2. Work Migration of the Mossi
  - a. Demography of migration
  - b. Economic factors influencing migration
  - c. Work migration and marriage practices
  - d. Motivation for depart and return
  - e. Geography of areas of emigration of the Mossi
3. General emigration and its relation to age of emigrant, marital status, length of stay away, return to Upper Volta in relation to time in country of emigration, type of work, study of reported saving of money, economic factors in zones of depart and zones of entry, etc.

In general emigrants are young (20-30) and are bachelors. Some emigrate in face of pressure of ancient marriage practices, most for more money and some for the adventure of a new society.

Although more bachelors generally migrate than married men, this was not true of Kandougou and Yatenga where married

men less than 30 years migrated as much as bachelors. There was a great deal of seasonal migration and usually the longer the migrant was away the less likely he was to return to Upper Volta. The first migration was usually for adventure and a new place. Migrants rarely had work to go to. Of these 80% went alone and 16% went with a companion. If they came back and migrated for a second time they usually knew where they were going to and 14% had family or friends waiting for them; 19% also had jobs. Most emigrants usually traveled to their destination by train. Data pertaining to internal migration indicated that 68% of men and 16% of women migrated for agricultural reasons while 65% of women and 4% of the men migrated because of marriage reasons.

ORSTOM is currently conducting a similar study of the Lobi people of Upper Volta. They have also completed a study of the railroad and migrants, and also a study of fertility and mortality of a Catholic parish. The rationale for selecting the Catholic parish, though atypical, was the fact that births and deaths were registered there. They plan to make a study of migration, fertility, and mortality of the Sahelian region of Upper Volta and a Catholic parish registry at Koupela in 1978.

Obviously, information concerning migration patterns of the country are crucial in planning and development of the country. If Upper Volta continues to depend upon the

Ivory Coast as a source of reducing population pressure and for providing money from the remittances of Voltaic migrants, it will be of considerable importance to know what the future Ivory Coast immigration policies will be. For the near future it does not seem likely that Ivory Coast immigration practices will change but that is unpredictable. There are other countries which might also attract these migrants with their higher wages. Gabon which has a shortage of manpower and Ghana may again encourage immigration. Nonetheless, the situation of internal and external migration whether it be seasonal or permanent is crucial to any type of planning. More information is necessary to be able to evaluate the demographic composition of different regions of the country. Another variable is the spontaneous resettlement movement of peoples into the "onchocerciasis free" areas.

Urbanization is increasing rapidly and although the urban population represents a very small portion of the population, urbanization requires more intensive study.

There are currently seven cities with populations of more than 8,500. They are:

Ouagadougou	126,000
Bobo	102,000
Koudougou	43,000
Cuahigouya	21,000
Kaya	15,500
Fada N'Gourma	10,500
Banfora	8,500

In addition to the ORSTOM studies there are two other institutions currently carrying out demographic studies. VCSR (Voltaic Center for Scientific Research) which is partly supported by IDRC, is engaged in an internal migration study and AVV, which has a demographer on its staff is conducting studies related to the demography of resettlement. Before further decisions on new demographic studies are made, it would be advisable to find out the magnitude of current research as well as plans for future research.

As the documents of the ORSTOM study (although published in 1976 and 184 copies distributed to government) were not available during this assessment, it is strongly recommended that this document be carefully reviewed so as not to redo those things already done.

There is much more that would also be helpful such as fertility trends, maternal mortality, foetal wastage, age-specific/disease - specific morbidity and mortality trends, etc. Demographic composition of selected areas during periods of seasonal morbidity and mortality rates as well as with demand for services would provide information that would assist greatly in the planning process. Some data is available but its reliability is questionable.

It has been said that AVV in its planned resettlement process has decided to settle only the young and well. If this information is accurate a careful study of the health conditions of these resettlement areas over an extended period of time could furnish useful information for use in development of health services for the populations.

## B. ETHNICITY

The ethnic composition of Upper Volta is varied but almost half of this population is Mossi. The customs, attitudes and practices of these different groups vary as well as their languages. This presents the need to be innovative and flexible in providing health services and health education to diverse groups. Their religious beliefs as well as their politics are also important factors which differ from people to people and will influence health conditions and services.

The ethnic composition is as follows:

Mossi	48.0%
Peuhl	10.4%
Lobi-Dagari	7.0%
Mande	6.9%
Bobo	6.7%
Senufo	5.5%
Gourounsi	5.3%
Bisa	4.7%
Gourmaniche	4.5%

More than 80% of the country is considered to be animist while less than 5% are Christian and the remaining group Moslem.

There are two major families of languages predominate in the country (other than the French language), but are broken down into several different languages. It is said that approximately 50% of the population understands and speaks the Mossi language. This language, however, has not been put into written form. Ethnic and language considerations are important determinants in the development of a plan of action for a low-cost health delivery system.

## C. FAMILY PLANNING

Officially, Upper Volta policy is still pronatalist. There

appears to be little inclination to include child spacing activities into official programs whether they be health or other types of programs. Sex education is taught, however, by science teachers in the secondary schools. The curriculum appears to be devoid of any instruction in the concepts of family planning.

Discussions with the Secretary of State for Social Affairs, Mme. Traore, and women from the Voltaic Women's Association indicate that there would be no objection to a private organization providing child spacing services. At the present time, there are no private or public institutions providing this type of service. Contraceptives are available in limited quantities in the country and are given to those who can afford the very expensive services of private physicians and midwives.

Medicines-Chef did not see the problem of provoked abortions as one of large dimension. Mme. Traore and the women of the Association feel that this is becoming an increasingly serious problem and especially among young girls. Abortions are not usually mechanically provoked but initiated by the ingestion of various potions given to the women by the traditional healers. Because the potions cause a variety of effects many are dying or are misdiagnosed.

Mme. Traore, as well as the women of the Association felt there was a distinct possibility that the private center could be staffed by Ministry of Health physicians and midwives but this matter could be further explored with the Minister.

The women of the Association indicated that they had refused the assistance of IPPF to open a child-spacing center on the grounds that IPPF could only offer five years of financial assistance. This they felt, was the reason for failure in Mali and they did not want the same situation to occur in Upper Volta. Their feeling is that they will not be able to be self sufficient in five years. It was pointed out to them that few organizations can offer a longer term program and that with assistance in planning and administration they might be able to achieve a certain degree of self-sufficiency. The women agreed that they required technical assistance with the detailed planning of this center. When the suggestion was made that perhaps this center also serve as a center for the training of women in non-traditional occupations this concept was readily accepted. There does seem to be an urgent need for technical assistance at this time to help conceptualize and plan a more detailed plan of action. The choice of how this assistance will be given is still a delicate question. It would seem that a bilateral type of assistance for this private group would not be the preferred route to go at this time. Which of the private agencies would be appropriate in channeling technical assistance and eventually funds is also questionable. The name IPPF evokes a definite set of objectives and if such an agency sponsored this private center it might be the cause of some difficulty with the pronatalists in the government. How the government responds to IPPF's "colloque" will give some indication of how this agency could be used for future child spacing

in Upper Volta.

There appeared to be a great deal of confusion regarding a conference that was to take place April 14-21. The Association indicated that this was to be funded by IPPF but that they had not as yet received the funds for this conference. Conference topics included discussions on contraceptive methods, women and legislation, women in development, etc. and invitations were to be sent to numerous Ministers. They were certain that the Minister of Health would attend but for the moment did not have any confirmations. Technical assistance was being provided, according to this group, by a specialist at WHO. Many of the presentations were already assigned to special speakers. But they were still not clear about the size of this meeting, its preparation and its funding. They considered this to be a meeting where members of the press, the medical community, prominent citizens, educators, as well as any mother or father could attend and participate.

Because of this confusion, IPPF staff were consulted in London. This conference is an IPPF conference in cooperation with the Women's Association. The invitations as well as the speakers and funding will be taken care of directly by IPPF representatives in Brazzaville. IPPF considers this to be one of their standard "colloque" conferences and planned on having approximately 30 participants. They see no reason why more cannot attend the meeting but feel that 30 actively participating would be the maximum that they could handle. They could not

provide any information regarding the status of invitations and which, if any, of the Ministers had accepted. But they stated that this conference was originally scheduled to take place earlier and was postponed because the Minister of Health could not be present at that time and wished the meeting held during a time when he could attend it. This meeting's reception by the press and by the government will provide more information on the path to follow for offering family spacing activities.

Demographic studies, on the other hand, do not seem to encounter governmental difficulty. AVV, ORSTOM, CVRS, all seem to operate without any governmental restraints. Migration, both internal and external are topics of great importance to the government. Demographic information regarding resettlement issues are also not politically controversial. Demographic studies which would assist in the planning and programming of health programs would not provoke governmental hostility.

D. CONCLUSION

At the present time, a private sector program, carefully planned and implemented should be the first step to be cautiously taken to provide family planning services. Combining the family planning services with a variety of educational programs would make the program more palatable. Non-tradition occupational training for women as well as non-traditional literacy programs would render such a center more acceptable to women and government.

A P P E N D I X I I

NUTRITIONAL STATUS

Prepared by  
Dr. Jeanne Blumhagen

During the seven year drought in the Sahel, many of the peoples of Upper Volta were severely affected. It is said that the under five population of Upper Volta was more seriously affected than in any other country. Very few actual figures are available to this assessment team by which comparisons can be made, but the information available is suggestive.

A. CDC SAHEL STUDY (quoted in OMS-WHO Profile 2.4.5 p.9)

Study was done in May, June and July of 1974. These months are usually the time when the people normally have the least to eat as they are planting and waiting for the harvest.

Total of 917 children 6 months to 6 years -  
9.1% below 80% of the Stuart Meredith standard  
CONCLUSION: 3% of the population is victim of  
famine

B. LEVELS OF MALNUTRITION (OMS-WHO Profile 2.4.5)

Yalgado Hospital 1969-1971

Admissions to pediatric ward: Total - 5,450

P.C.M. 448 (8.5%)

Moderate malnutrition 93 1.7% of admissions

Severe marasmus 222 4.1%

Severe Kwashiorkor 153 2.7%

BY AGE: less than 12 months	188
1 - 2 years	253
more than 3 years	27
MORTALITY	39.3%
1975 Admissions - Total 4,186	P.C.M. 344 (8.2%)
12 months	122
1 - 4 years	139
MORTALITY	22%

Hospital at Bobo Dioulasso

1975 (Feb-Aug) Admissions 2,580	
12 months	40
1 - 4 years	140
MORTALITY	23%

These figures aren't very useful as they stand. They may not become more so as years pass and trends in hospitalization can be determined.

The following table may be more significant but there is no information as to where the data come from, what actual and total numbers are or when the data was gathered.

TABLE NUMBER 22

CLASSIFICATION BY WEIGHT	OVERALL	REGION			BY LIFE STYLE		
		N. E.	N. W.	CENTRAL	PASTORAL	CULTIVATOR	SEMIURBAN
80% of Standard (not malnourished)	26.3	15.0	19.6	42.5	7.4	51.5	46.6
60-79% of Standard (mod. malnutrition)	58.9	65.7	66.6	46.4	68.5	41.0	43.0
60% marasmus or less	14.8	19.3	13.8	11.1	24.1	7.5	10.4

Edema was found in 30% so most were called marasmus-kwashiorkor

In the footnote of the chart there is no explanation of what 30% is referring to; presumably of the last category. I do not feel we are justified in calling everything 60% or below marasmus. This would not be borne out clinically.

C. INFORMATION FROM CATHWEL

This information from Cathwel indicates 4% of children in the 60% to 65% category and 4% under 60% marasmus. This would not be borne out clinically.

However, there is significant undernutrition and some severe malnutrition in children throughout the country. How much there is among older children, young adults, especially young women who will become mothers is not known.

One significant finding is that true kwashiorkor is seldom found. By far, the most common condition is marasmus except in hospitals where the severe kwashiorkor shows up in greater numbers because of its severity.

Among those who deal with children both in clinics and nutritional rehabilitation centers, the opinion is that severe malnutrition is much less than what is reported. One PMI director said she saw one marasmus in 2,000 children. Another felt that most of the children who came were well-nourished, while previously they weren't. Granted that this reflects to a certain extent the class of people who attend PMIs, it also reflects less acute need on the part of mothers.

The most important nutritional problems are two:

1. Providing enough food in terms, especially of calories, for everyone in the country to have enough but not too much to eat. This is an agricultural and cultural problem.

Table No. 23  
 OBSERVED UNDER NUTRITION  
 UPPER VOLTA, DECEMBER 1973 - OCTOBER 1974

<u>Time Period</u>	<u>Monthly Average Percent &lt;AUT<sup>a)</sup></u>	<u>Monthly Average Percent &lt;CUT<sup>b)</sup></u>
12/73 - 2/74	7.8%	24.5%
3/74 - 5/74	8.1%	22.1%
6/74 - 8/74	8.6%	20.9%
9/74 - 10/74	10.2%	19.9%

a) <AUT ("Acute Undernutrition Threshold") is defined as less than 80% of median Stuart-Meredith weight for height measurement.

b) <CUT ("Chronic Undernutrition Threshold") is defined as less than 90% of median Stuart-Meredith height for age measurement.

From: AID/CDC  
 DISEASE AND DEMOGRAPHIC SURVEY PROJECT  
 STATUS REPORT  
 JANUARY, 1975

TABLE NO. 24  
 CUMULATIVE STUNTING AND WASTING RATES  
 CHILDREN 0-6 YEARS, UPPER VOLTA  
 10,002 MEASUREMENTS  
 OCTOBER, 1974

AII-5

Percentage of Expected Weight for Height (Wasting)	Percentage of Expected Height for Age				Total
	95.0 or more (Normal)	90.0 - 94.9 (Mild)	85.0 - 85.9 (Moderate)	Under 85.0 (Severe)	
90.0 or more (Normal)	29.2	16.5	8.5	2.6	56.8
80.0 - 89.9 (Mild)	16.8	9.7	5.7	2.2	34.4
70.0 - 79.9 (Moderate)	3.1	2.0	1.3	0.9	7.4
Under 70.0	<u>0.8</u>	<u>0.3</u>	<u>0.2</u>	<u>0.2</u>	<u>1.4</u>
Total	49.9	28.5	15.7	5.9	100.0

From: AID/CDC  
 DISEASE AND DEMOGRAPHIC SURVEY PROJECT  
 STATUS REPORT  
 JANUARY, 1975

2. Teaching the use of ordinary foods used in the household for infant supplement and weaning foods and increasing the use of available foods not yet used or used in small quantities.

Information from the Consultant's Report on Chad Health Services shows a very high level of protein consumption in comparison to other Sahel countries and a low level of animal protein and milk:

T A B L E N U M B E R 2 5

Nutrition: Consultant's Report on Chad Health Services APHA

National per capita daily averages for food intake in Sahelian countries

Total energy k cal	2,064.0	2,131.0	1,993.0	2,993.0	2,993.0	2,060.0
Animal energy k cal	174.0	191.0	556.0	185.0	230.0	73.0
Total protein	64.6	53.5	73.4	65.1	64.0	70.0
animal	13.8	15.0	37.5	12.5	21.2	5.3
milk	2.9	3.8	20.5	5.2	4.0	1.4

Perhaps this correlates with the fact that there is so little Kwashiorkor in normal times. Peanuts are used widely and in fairly substantial amounts as well as other nuts and the daily "sauce" usually contains green vegetables of some kind. Millet itself is a high protein cereal.

Grain production is not rising as it should. Almost all food for cities must be imported. But more significant, there is a

large proportion of rural people who don't have enough to eat in the interim from planting to harvest, just when they need it most. Deficiency diseases are most prominent in this period.

Specific deficiencies are usually found in the context of severe malnutrition. In the 1974 Annual Report, there were 10 cases of Rickets and none of Pellagra or Scurvy. Hypovitaminosis A, as evidenced by night blindness, seems to be endemic, but showing a recrudescence in April-May. There are vegetables rich in carotene but this deficiency seems to be associated with a lack of fats in the diet. (3-Profile 2.4.5 p. 12)

T A B L E N U M B E R 26

Malnutrition Profile OMS/WHO 2.4.5

By age	6-11 mos	24.6%
	12-24 mos	40.7%
	24-29 mos	34.4%
	30-35 mos	25.6%

Women: Undernutrition = 44 kg.

10% of women - cultivators

17.8% pastoral

3.8% semi-urban Total 635

Rel. of degree of malnutrition in mother and infant by groups

Cultivators	children with severe MPC	-	14.8%
	mothers	44 kg	10%
Pastoralists	children with severe MPC		24.1%
	mothers	40 kg	19.1%

T A B L E N U M B E R 27

Protein and energy content of millet and peanuts

	Trypto phan	Tureo nine	Isoleu cine	Leu cine	Ly cine	Methio nine	Cys tine	Phenyl ala nine	Tyro sine	Va line
Millet, foxtail	0.103	0.323	0.790	1.737	0.218	0.291		0.697		0.717
little	0.047	0.262	0.517	0.841	0.133	0.178		0.370		0.471
pearl	0.248	0.456	0.635	0.746	0.393	0.270	0.152	0.506		0.682
ragimillet	0.085	0.270	0.398	0.620	0.202	0.270	0.187	0.263		0.473
Peanuts	0.340	0.828	1.266	1.872	1.099	0.271	0.463	1.557	1.104	0.473
flour	0.647	1.575	2.410	3.563	2.091	0.516	0.881	2.963	2.100	2.916
Sesame seed	0.331	0.707	0.951	1.679	0.583	0.637	0.495	1.457	0.951	0.885
egg	0.211	0.637	0.850	1.126	0.819	0.401	0.299	0.739	0.551	0.950
Common white beans	0.199	0.997	1.306	1.976	1.703	0.232	0.228	1.270	0.887	1.395

Amino Acid Content of Foods, Orr and Watt Home Ec. Res. Rep #4 U.S.  
Dept. of Ag. 1966

Nutrition: Relation between Wt. classif. Kwashiorkor and conjunctival meta-  
plasia in rel. to Hypovitaminosis A

Wt/age	No. Children (%)	Kwashiorkor		Metoplasias	
		N	With mp	N	With kw
Median	17 (2.5%)		0	0	0
Harvard std.		2/7 (27%)	2/7 (28%)	36/241 (14.9%)	2/36 (5/6%)
80-90%	241 (363)				
70-79%	199 (29.9%)	52/149 (25.6%)	18/51 (25.2%)	53/188 (267%)	18/53 (34.0%)
60-69%	121 (18.2)	65/121 (53.7)	29/65 (41.3)	50/121 (41.3)	29/50 (58)
60%	87 (13)	87/87 (100)	44/87 (50.5)	44/87 (50.5)	44/44 (100)
Total	665 (100)	210/665 (31.6)	93/210 (44.3)	183/665 (27.5)	93/183 (51)

Conclusions: all metaplasias increase with the degree of undernutrition

**AID/CDC Disease and Demographic Survey Project**

**Status Report Jan. 1975**

**Table 9. This will be briefly summarized.  
Stunting and Wasting Rates, Upper Volta  
Total Children measured, 10,002**

% mildly stunted	28.5
% mildly wasted	34.4
% moderately or severely stunted	21.6
% moderately or severely wasted	8.8

**Table 10. Cumulative Stunting and Wasting Rates  
Per cent of expected weight for height per per cent of expected  
height for age.**

95% or more (normal)	49.9
90.0 - 94.9 (mild)	28.5
85.0 - 85.9 (moderate)	15.7
under 85.0 (severe)	5.9

There is little way that these data from the different sources can be compared since for one thing they don't record the same kinds of information and for the other some don't give the dates and different standards are used. Taking just weight for age measurements indicating wasting there is considerable difference between the two.

	OMS	CDC
severe wasting	14.8%	8.8%

D. THE AFTERMATH OF THE DROUGHT

The situation in Upper Volta is related to the entire problem of the six-year drought in the Sahel. It is well to just list some of the factors contributing to that drought and then look at the outcome.

1. MAJOR CONTRIBUTING FACTORS

a. Climatologic Changes

- (1) Steady decrease of rainfall leading to failure of growth of pasturelands and poor harvests.
- (2) Growing irregularity of rainfall patterns; delayed rain in one place, deluges with rapid runoff, erosion and evaporation.

b. Disruption of Ecological Systems

- (1) Overgrazing - animal herds increased as veterinary services were provided and new wells were dug to give water to animals resulting in increased numbers of animals + decreased pasturelands.
- c. Independence with the formation of many small governments who enacted laws restricting movement of nomads. This reduced available pasture and led to overgrazing.
  - d. Slash and burn agriculture leading to uncontrollable burning of dry grasslands.
  - e. Woodcutting and deforestation leading to decline in fertility of the land and erosion.
  - f. Falling water tables due to lack of rain, increased numbers of surface wells for human and animal use

and rapid run-off of overgrazed and deforested areas.

## 2. RESULTS

Many of the results of these events are reversible only over a long period of time and at great expense

### a. Climate

There have been normal rains for three seasons, 1973-75 and normal harvests, but in 1976, the rains continued late and ruined much of the crop in the fields. The climatic change is expected to revert to its normal pattern with intermittent dry years or even droughts.<sup>1/</sup>

A drought like the one just past has occurred about once each century in the past.

But the problems created by the drought continue.

### b. Water Tables

These have not risen as rains have not been adequate and run-off is excessive.

### c. Pastures

Pastures have not reappeared

### d. Overgrazing

Overgrazing continues despite marked loss of flocks and herds because of the severe restriction of available pasturelands.

### e. Migration

Migration southward continues putting pressure on farmlands and urban areas.

f. Nomadic tribes deprived of their animals have no source of livelihood.

g. Deforestation

Deforestation from woodcutting continues because of increased populations in the more fertile areas.

In spite of these things, the OECD (Office of Economic Coordination and Development) considers the effects to be less than anticipated and feels food self-sufficiency can be attained.

In our field survey, we were struck by the many large bundles of branches all along the side of every road waiting to be picked up and delivered to the cities. Along with this were the remaining stripped, trunks of trees standing bare or fallen over, a tremendous waste of good wood apparently left because tools were not sophisticated enough to cut them up for market.

3. PROBLEMS AND LESSONS LEARNED

Thus many problems remain to be dealt with and any program must keep in mind the broad outlines of both the problems and lessons learned.

- a. Animal populations have been decimated but excess animals were a major factor in the drought. All programs emphasize animal husbandry so the danger of again having overpopulation in animals will exist until new marketing concepts are accepted.
- b. Pasture lands have been reduced substantially and only part of these will return.
- c. Water tables may or may not rise significantly. The plans for the government's Ministry of Water alone, to dig 5,000 new wells in a year, will effect this plus the

fact that every developer from ORD to the missionary groups is digging wells or planning to do so.

- d. As water tables drop, methods of raising water become more complicated and the possibility of having to use expensive imported fuel becomes an imminent danger.
- e. Many displaced persons cannot return to former occupations. This is especially true of pastoralists. There is a serious problem of an increase in crime, mainly robbery in Ouagadougou from bands of youth who come to the city to find jobs after their families had been displaced.
- f. Increasing demands for fuel for homes and offices results in a continuing deforestation. There is a law against cutting trees but it is not enforced. The poor have no other source for fuel.

#### E. FOOD PRODUCTION

There seems to be considerable belief that people could raise much more than they do and that there is an amount of grain in the storage bins of the tribes which represents the correct amount <sup>5/</sup> needed for the year and for the usual droughts that are anticipated by the farmers and that there is a tendency to resist growing more than that amount. This raises the question as to why the

excess cultural needs are not provided for or why families have almost nothing to eat in the period of planting and harvesting.

There is some belief among leaders that farmers are being sensitized to the values of the grain market, whereas previously, only set "cash crops" were considered valid for marketing. This year farmers who are not under the extended family system are saying that growing grain instead of cotton would have been a better "investment", so the idea of "investment" is gaining ground.

The seven-year drought was to a large extent not expected by farmers. They have witnessed periodic droughts and lived through them. But this one was devastating and many of the factors which caused that drought are still in operation. Constraints for development in the Sahel region are more related to problems of social change, adoption of known techniques and investment, than natural resources. It may be that the socio-cultural factors are very important barriers to increasing the output of basic foodstuffs in Upper Volta.

Farming is done at the very primitive level with the use of the simplest tools. There has been little traditional development of water systems and irrigation which is seen in many other countries. Water catchment basins built in the Gourntchi area of Fada N Gourma are not used by the people and a study is being carried out by USAID to find out why the people seemingly refuse to do so. The answer may lie in the area of people's beliefs. It is known that in the Transkei, people have a belief about what is "proper" to take from the earth, which belongs to everyone. There is a belief that if one man has a very abundant crop which goes over the amount thought "proper"

others might have the right to destroy the crop. In Upper Volta, at least among the Mossi, there are "earth priests" and "earth temples" which have been very important in supporting traditional benefits of the population.

The traditional food patterns of this country consist of a basic diet of millet and sorghum. Cereals provide 75%-80% of an individual's caloric intake. According to the region they come from, they may eat three meals a day or only two meals a day. The difference in number of meals are changes in breakfast or lunch. All groups apparently eat dinner. Breakfast, when it is eaten, consists usually of the night's leftovers. There is little variety in the rural diet. Sometimes sauces are added to the starches. These sauces are made of peanuts, oil, dried smoked fish and leafy vegetables. Among the rural population, little meat is eaten. Children are generally abruptly weaned at between 2-3 years of age and given the regular family diet. Very little milk is consumed by rural populations although there are large numbers of cows and goats. Milk in significant quantity is only consumed by Peuhls. Another factor regulating dietary patterns involves the food taboos of different ethnic groups. Some of these groups severely restrict the quality and quantity of food intake of the pregnant woman. It is thought that the less she eats, the smaller the baby and the easier the delivery. This is not unlike obstetrical practices in the USA in the recent past. However, evidence in the USA has shown serious deficiencies in the newborn caused by deficient caloric intake of the pregnant woman. Low food intake coupled with taboos regarding the intake of certain foods when pregnant (milk, eggs, meat, etc.) surely have had

serious consequences for the newborn. The amount of foetal wastage due to these practices is unknown. Patterns in the order of family food distribution are also contributors to the problem. Father eats first and best, next sons, next small children and lastly the mother.

Lack of iodized salt has probably been a leading factor in the high incidence of goiter in this country. Peculiar to this situation is the fact that it seems to be principally a disease of women which appears to have its inception during adolescence. Symptomology, based on only questions addressed to a few physicians and nurses seem to be limited to occasional tachycardia. There is a need for further study concerning this disease.

#### SAMPLE OF FOOD HABITS AND DIET CONTENT- BOBO DILOULASSO SECTOR

People eat as long as there is anything left and they feed everyone around. They always cook too much, believing that it is a shame to run out of food before people actually stop eating. All foods are seasonal.

MANGOES - During the season people eat them excessively.

The season lasts four months.

GREENS - These are gathered from the fields and used in sauces.

CABBAGE - Most frequent vegetable used in sauces but also may use tomatoes, a local type of eggplant and carrots.

TOMATOES- Never eaten raw.

CARROTS - Recently have begun to use carrots as a snack food.

EGGPLANT- They like this but don't often plant it. Some plant it as a cash crop.

LETTUCE - Has been introduced and accepted as a food.

SARA - A dark, green leafy vegetable they use in sauce.

OKRA - Plant it and use it fresh as dried in sauce.

ONIONS - Planted and used in sauce.

CORN - A field corn type roasted and eaten or made into corn flour or corn meal.

LEMONS AND LIMES - Used in large amounts during various seasons. They are planted at various times and bear successively. Usually cooked but may be sucked raw. Although citrus can be left on the tree for long periods and picked as needed, they pick all of them and use large amounts in their sauces.

YORO - A pink flower with a citrus-like flavor. It is planted and given several harvests a year. Used in sauce. It is used fresh or dried far between seasons.

TORO OR SUONBARA - Rotted bean. A tree bean. Use beans as a snack food, make flour from beans or mix with oil or peanuts and eat uncooked as a snack. Otherwise dry it in the sun and allow it to rot and then use it as a flavoring in their black balls.

SESAME SEED - Seasonal. Eat raw or in a sauce.

PEANUTS - Eat large amounts during season raw. Dry or sell. Use dried peanuts in sauce.

Prepared salted peanuts sold for 5Fr. a handful. Anyone with any money buys them. Sold at movies instead of popcorn.

BANANAS - a luxury food.

YOGO OR TOTIO - Millet mush. Thin gruel with sugar (if available) for morning meal or leftovers from night before.

Thick mush cut in chunks and dipped in sauce noon and night.

At certain seasons, especially planting to harvest, no one has three meals a day. If there are leftovers from previous night, they may take it to the fields.

OIL OR BUTTER - Usually a solid grease. Most often is made from Karite or shea nut. They dry the nut, pound it and grind it. It looks like chocolate. Then they boil it with water and on adding cold water the oil comes to the top. They churn it with their arms until solid, then wash it, make it into balls and store enough for the entire year, selling the excess.

MEAT AND FISH - When they burn off the fields, they catch rodents and small game for food. People along rivers catch and smoke fish. They may smoke other meat to preserve it. Meat may often be eaten in large quantities when an animal is killed.